THE CANCER LETTER

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The Raghavan Experiment

Blazing the Pathways: Informatics Platform Provides Foundation for "Center Without Walls"

This is the second article in a two-part series exploring an attempt by one regional heath care organization to devise a better system for delivery of cancer care. The first article appeared in the Jan. 4 issue of The Cancer Letter. An audio recording of a conversation with Raghavan is available on The Cancer Letter website.

By Paul Goldberg

CHARLOTTE, N.C.—The Carolinas Health System was looking for the next big therapeutic area to develop.

"We started as every other health system in the country started—and that was by embracing cardiovascular services," said Paul Franz, an executive of the massive organization. "It's common knowledge that cardiovascular services are the best market share opportunity, and also happens to be the most profitable service line."

Oncology made sense.

In 2007, when the system first focused on cancer, its hospitals were treating about 10,000 new patients a year, a considerable number. (Now, it's treating about 14,000.)

The competition was weak. There were excellent cancer centers along the system's boundaries, but not in its core area around Charlotte. "There was no one who was performing at anywhere close to a national prominence level," said Franz, executive vice president of the Physician Services Group.

Patients usually saw general oncologists at local practices. If those patients had more complicated diseases and the money to travel, they left to get care elsewhere. The opportunity to fill the vacuum was even more obvious because changes in reimbursement were weakening physician-owned, office-based practices—potentially making doctors more willing to join hospitals. Hospitals, on the other hand, remained robust, in part because they can charge higher rates.

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In Brief

Goodfellow Moves to Ohio State University

PAUL GOODFELLOW will lead a new research team devoted to gynecologic oncology research at **The Ohio State University** Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute.

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Levine Cancer Institute Pathways To Be Implemented in May 2013

(Continued from page 1)

In 2009, a consultant confirmed to the Carolinas Health System executives that their patient volume was enormous and that their timing was good. Estimates of the investment needed for building a regional cancer center in the Charlotte area came up to about $250 million over a decade. To get a sense of the needs of the entire system—the 30-plus hospitals in the Carolinas—the executives doubled that number.

Their next step was to find a nationally prominent oncologist to build a regional cancer center on a budget of $500 million. The health system had a gross revenue of $4.6 billion last year.

The search, which began in the fall of 2010, identified eight candidates, all prominent oncology program administrators. Among them was Derek Raghavan, then-director of the Cleveland Clinic Taussig Cancer Center.

In a more perfect world, Raghavan might have gone through life without giving a rip about healthcare delivery. He is a developmental therapeutics expert who sub-specializes in genitourinary oncology.

Yet, in Cleveland, Raghavan started thinking more globally about ways to get patients into clinical trials, removing barriers to access to care, eliminating perverse incentives that influence treatments that doctors recommend.

Would Raghavan be interested in building a regional cancer center in the Carolinas?

"I am not really interested in the job you have defined, because I am not really interested in building a regional cancer center," Raghavan said to Franz in the interview in October 2010. "I am running one of the top-ranked centers in America. But I tell you what I would be interested in.

"If you want me to ramp it up to let me build you a nationally prominent cancer center that is leading the way in certain areas, I would be interested in doing that."

Some opportunities were immediately obvious to Raghavan. He would be able to draw on vast capital without having to justify his every move. There would be no academic potentates, no deans, and no competing priorities of other therapeutic areas. Better yet, the near-absence of an oncology treatment infrastructure meant that he would be building a rational cancer care system on an empty lot.

The system he immediately envisioned would be based on bioinformatics tying together hospitals and outpatient clinics.

Until that conversation, Franz thought his health system was thinking big. Now, he was being urged to dream bigger dreams.

"Derek's eyes lit up with the opportunity, and, as you know, he can process things at 300 miles per hour," Franz recalls. "Immediately, our vision, which we thought was dramatic, Derek made it ten times in terms of immediately spitting out, 'Here is what you can do with this…here is what you can develop here… here is an opportunity there.'"

After the interview, Raghavan continued to think through the implications of the Carolinas challenge. "Some of these implications I grasped immediately, others I grasped over the ensuing weeks, during shower time," he said recently.

The health system wanted Raghavan to guide this high-adrenaline adventure. "Once we set our sights on here is what we want to do, we pretty much do it," Franz said. "We don't have the traditional constraints, anchors of being a university-based system where you have to go through a maze of hierarchies in order to arrive at decisions.

"We don't have that baggage to deal with."

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All the Changes at Once

Raghavan didn't take any time to look around after starting the job as president of the Levine Cancer Institute in Charlotte in April 2011. (The center was named after Leon Levine, founder of Family Dollar, a chain of stores that sell food, household goods and clothes.)

The problems he needed to address were anything but mysterious. Indeed, it's no mystery why so few U.S. cancer patients go into clinical trials: the trials aren't available, or are available and not offered. Community sites usually have no expertise, capacity or incentives to offer trials. Large cancer centers, which draw patients from all over the world, are usually unable to treat patients where they live.

Now, Raghavan had access to patients, and money, and facilities. "Instead of a patient who has had nine different types of chemo and is still in reasonable shape for a phase I study having to travel to Charlotte, or Raleigh Durham, or the Cleveland Clinic, they can do it in their own home area," Raghavan said. "Nobody should travel more than 100 miles to get care."

His description of Levine as "the cancer center without walls" quickly became a catch phrase.

Raghavan attacked all the problems at the same time: speed up the IRB review of oncology protocols, recruit academic oncologists, construct the phase I program, escalate construction in Charlotte and other hospitals, and try to convince local doctors to become a part of the faculty.

He identified the 12 hospitals that managed about 90 percent of the system's oncology patients and focused on streamlining the process of clinical trial recruitment, documentation and the processes that the institutional review boards used to sign off on cancer clinical trials.

Revamping the IRBs can be a walk through a political minefield.

The boards apply local sensibilities as they review the research risks to which patients are subjected. This process takes time, especially when 12 hospitals and 12 boards are involved.

To accelerate review, Raghavan launched a due diligence process to separate out oncology protocols and ultimately handed them out to a commercial board, Chesapeake IRB. The company promises to complete review within five days of receipt of a completed submission.

"As we open our portfolio of trials, rather than having the sort of problem I had elsewhere, where it might take six to 12 months to get the collaborators to sign off, here, we have one cancer IRB," Raghavan said.

"All hospital presidents have signed a contract that for cancer trials they will allow Chesapeake to make the IRB decisions. Their own IRBs are absolutely welcome to review the decisions post hoc."

Also, the LCI administrative team set up a centralized protocol review and monitoring system that "allows us to prioritize academically the importance of the studies, to make sure we are expending our resources in a practical way," Raghavan said.

Raghavan's plan also includes taking phase I studies into the community setting.

There is money to be made in phase I studies. This area of research has attracted for-profit companies and physician practices. This is a matter of considerable controversy. NCI is restructuring its early-phase drug development program to make better use of assays, imaging and genomic information (The Cancer Letter, April 6, 2012). Meanwhile, big pharma companies are increasingly turning to for-profit organizations to conduct their phase I research, which these groups are often able to do faster than NCI and its grantees (The Cancer Letter, March 26, 2010, April 2, 2010).

Raghavan said money isn't his reason for getting into phase I.

"This is not a commercial venture," he said. "The reason for doing phase I is that it really wasn't available in this area. We built a very elegant phase I unit that will allow us to do it in a very slick fashion."

Two more units are being constructed in other parts of the health system.

"The mission that I have been given is not just to make more money for the place," Raghavan said. "It's to create a showcase that will allow Carolinas Healthcare System to take itself up to the next level as a system."

Raghavan's employers had high expectations, but miracles weren't expected. "When we brought Derek on board, I told him there was no way he would be able to help reorganize our existing medical oncologists in the Charlotte metro area into a single unified group, but, my god, he did it," Franz said.

After all, for doctors, oncology has been a valuable franchise. With referral patterns at stake, local practices have sunk many an academic venture throughout the U.S.

"He was able to articulate it: 'Guys, we are going to this and we'd prefer to do it with you, and you have an opportunity that's going to really enhance your practice. And at the end of the day, it's enhancing the opportunities for these patients. And it's about the patient first.'"

Grits & Shtick

It takes a big conference room, a massive table and a wall full of screens to control a cancer center without walls.

Raghavan hates the word "control."

"I think the only thing I want to control is quality," he said in a recent conversation. "I am not a control freak at all. One of the things that's tough for big academic centers is to give away anything. I've taken a view that this is a partnership; it's not top-down. We have a big building, but the big building is to facilitate cross-system interaction."

The conference table can be big enough to host a meeting of the FDA Oncologic Drugs Advisory Committee.

The screens and cameras create a set for a certain kind of comedy, which means that the bladder cancer conferences, which Raghavan sometimes chairs, have a tendency to become The Derek Raghavan Show.

"I can see them, they can see me, and I have a second screen, where I can project material," Raghavan said. "I tend to use my style. So I will be watching, and the camera is on, and Joe Schmo at Kokomo is talking, and I say, 'Hey, Joe, I can see Fred Worsham looks like he is looking at his Blackberry; What's up, Fred? What are you looking at?' That's my irreverent rude style, but it keeps everybody very focused, and it's kind of fun.

"They will do the same. 'Hey Derek, did you see the bottom button on your shirt has popped out? You've been eating a couple extra sets of grits since you moved to the Carolinas."

While Joe Schmo, the speaker at the hypothetical meeting is fictional, Frederick Worsham is an extant (and prominent) pathologist in Charleston, S.C.

Raghavan likes the fact that his lieutenants, Edward Copelan and Edward Kim, have very similar styles of running system-wide meetings. "We work hard to engage the clinicians throughout the system, and as a result I think they have a stake in what we are trying to do," Raghavan said.

The business being transacted over the screens is serious.

The objective is to eliminate the reasons American patients get irrational care.

One of the chief reasons patients don't choose clinical trials is that no one gives them that option. And—systemically—patients have been steered toward treatments that maximize financial benefits to physicians who treat them.

"I don't want doctors in this system to think of their own or their institution's financial benefit when they discuss therapy with a patient," Raghavan said.

"For example, the doctors at Roper St. Francis [in Charleston, S.C.], felt that they didn't have enough current expertise in the operation radical cystectomy for bladder cancer, and so they have sent patients that need a radical cystectomy to our two urological surgeons who do those regularly. One of them came from MD Anderson and the other from Eastern Virginia Medical School. Those urologists in Charleston leave their egos behind in order to improve patient care and outcomes—that's very cool indeed.

"So what happens is, somebody at Roper will see a patient with invasive bladder cancer, will discuss it at a tumor board, and then refer the patient up here. If it's a patient who doesn't have any type of insurance, we link our patient navigators from Roper St. Francis and the people up here to figure out mechanisms to pay for it.

"We set that up for the patient, and then the patient has all his tests done down there, the operation is done here, and then he is sent back home for ongoing care. If we have a situation where the patient has unexpected lymph node involvement, and there is the thought of engaging him in a clinical trial, that would be discussed at a post-surgical tumor board, with participants from all the different centers, and then the doctors in Charleston will give the chemotherapy."

Recently, the Levine Cancer Institute received a "certificate of need" clearance to create a 16-bed inpatient stem cell transplantation unit. The renovation and staffing will cost about $8 million, and the unit will open in 2014.

Initially, the transplants will be performed without compensation, Raghavan said.

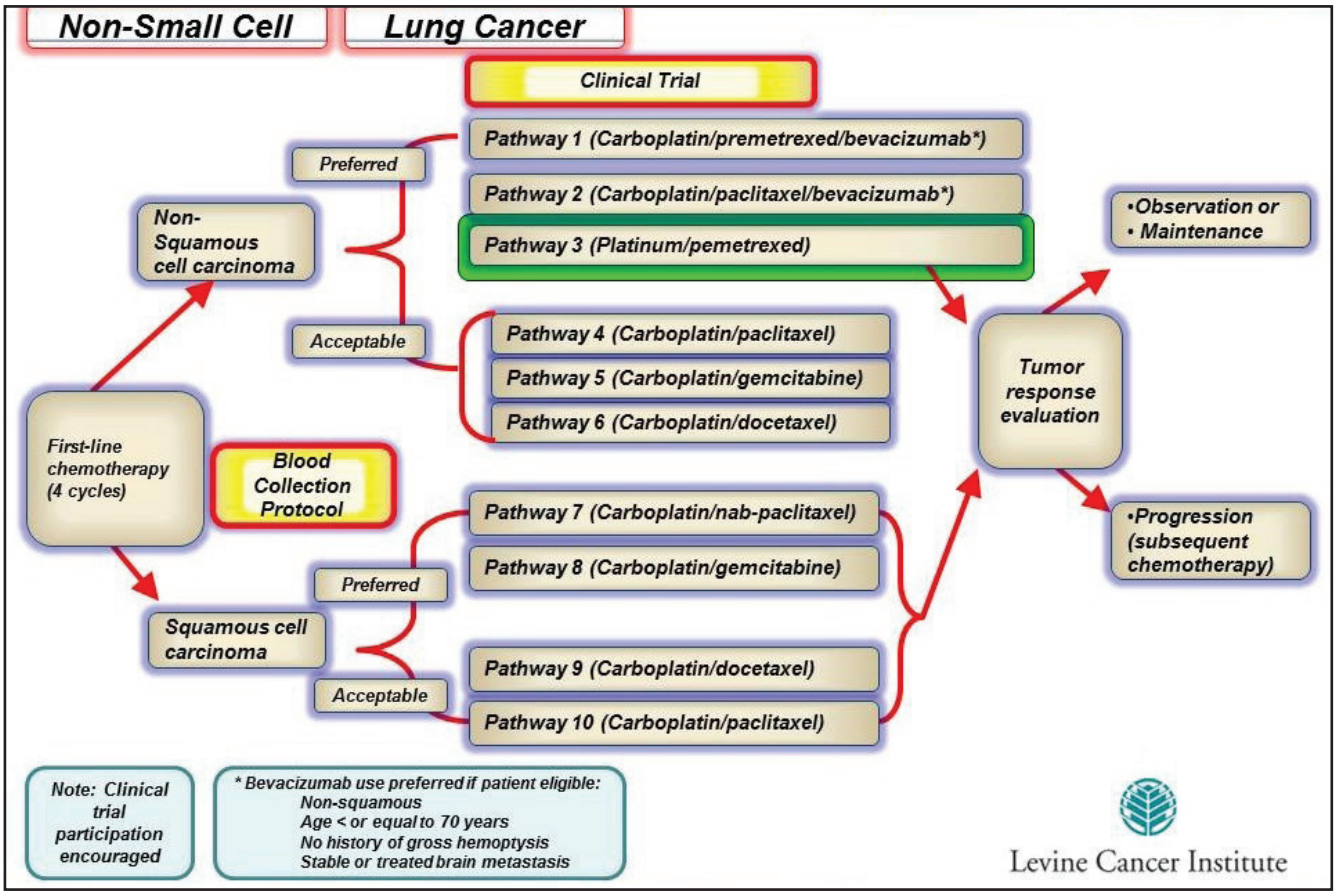
"We will then seek to get contracts with the government and payers to do them with compensation," he said. "The area is heavily regulated, so no guarantee, but we think it is important to offer the service for our local population."

After three or four years, the unit would be ramped up to perform 150 to 200 transplants a year.

Patients will be referred to the transplant unit by doctors throughout the system.

"It's a totally new model," said Belinda Avalos, former associate professor of hematology/oncology at Ohio State Comprehensive Cancer Center, who is now the deputy chair of hematologic oncology and blood disorders at Levine.

"I've worked with community doctors all my life," Avalos said. "What I haven't done is been involved in the early steps of patients—before they get transplanted."



The Goal: Make clinical trials as routine as standard care. A mockup of a pathway for the treatment of Stage IV non-small cell lung cancer channels all the information a clinician needs to enroll a patient in a clinical trial or start a standard regimen.

The Pathways

Edward Kim wasn't looking for a job, certainly not a job at a health system with no academic standing.

Kim was an associate professor and chief of the Section of Head and Neck Clinical Oncology at MD Anderson Cancer Center. He was also the principal investigator on the BATTLE trial of Personalizing Therapy for Lung Cancer, a 250-patient, four-arm phase II study that stressed rigorous sample collection and biomarker data.

BATTLE is widely recognized as one of the smaller, smarter trials that ask deeper questions.

Kim was happy at MD Anderson. "I don't think many places around the country would have been able to do a trial like BATTLE, but we were able to do that, and it really reset the bar as far as what types of trials we can do in cancer," Kim said.

The headhunter's call from Carolinas Healthcare didn't seem to differ from the half-dozen other calls Kim received every month.

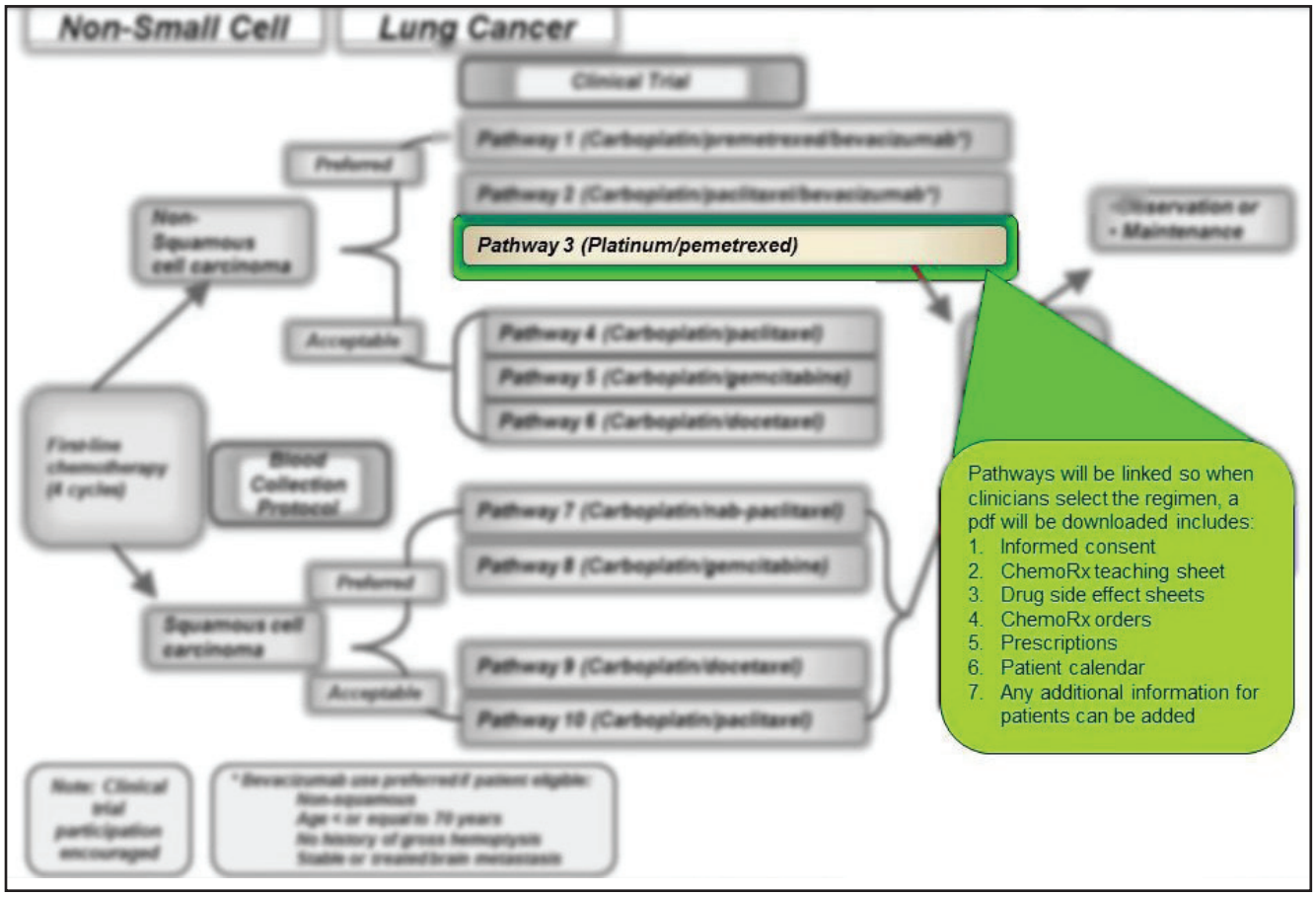
He knew nothing about the health system, had no ties to the Carolinas. He had heard of Raghavan through the American Society of Clinical Oncology and had vague memories of some of Raghavan's aggressive, truth-telling remarks at the FDA Oncologic Drugs Advisory Committee.

"I had never had a conversation with Derek Raghavan prior to my first visit," Kim said.

Kim would have declined the offer from the Carolinas. He agreed only because he was in the area, trying to get a compound for an NCI-sponsored lung cancer prevention study. (The compound was an iloprost analog, an anti-inflammatory agent produced by United Therapeutics, located in the Research Triangle Park.)

The interview, in November 2011, didn't go particularly well. "I wasn't interested during the day or even at dinner," Kim said. However, on the car ride from dinner to the airport, Kim and Raghavan got into a more detailed conversation.

Sure, Kim was intrigued by Raghavan's plans. However, it's unlikely that Raghavan is the first physician executive to spell out grandiose plans over



A click on standard care pathway produces all the information needed to begin treatment.

the symphony of a Porsche 911 engine.

Kim needed to see whether any of these dreams would come true.

"I didn't see the opportunity in the drive," Kim said recently. "I thought Derek was a really interesting and smart person, and we agreed that night to just continue dialogue. There was no second visit planned.

"The real key was, would the physician groups join? When you look at some other examples, especially Nevada, where this failed, it was an alienation of the private groups. Here, he was trying to create faculty."

Then, over the ensuing few weeks, many of the events Raghavan described started coming together. The private physician groups had come on board. "I could see progress in a very short period of time," Kim said. "His vision, in just over six weeks, was coming together. That impressed me."

By mid-December, Kim started to see real promise. In late December, he and his wife Florence, a Houston psychiatrist, visited Charlotte."

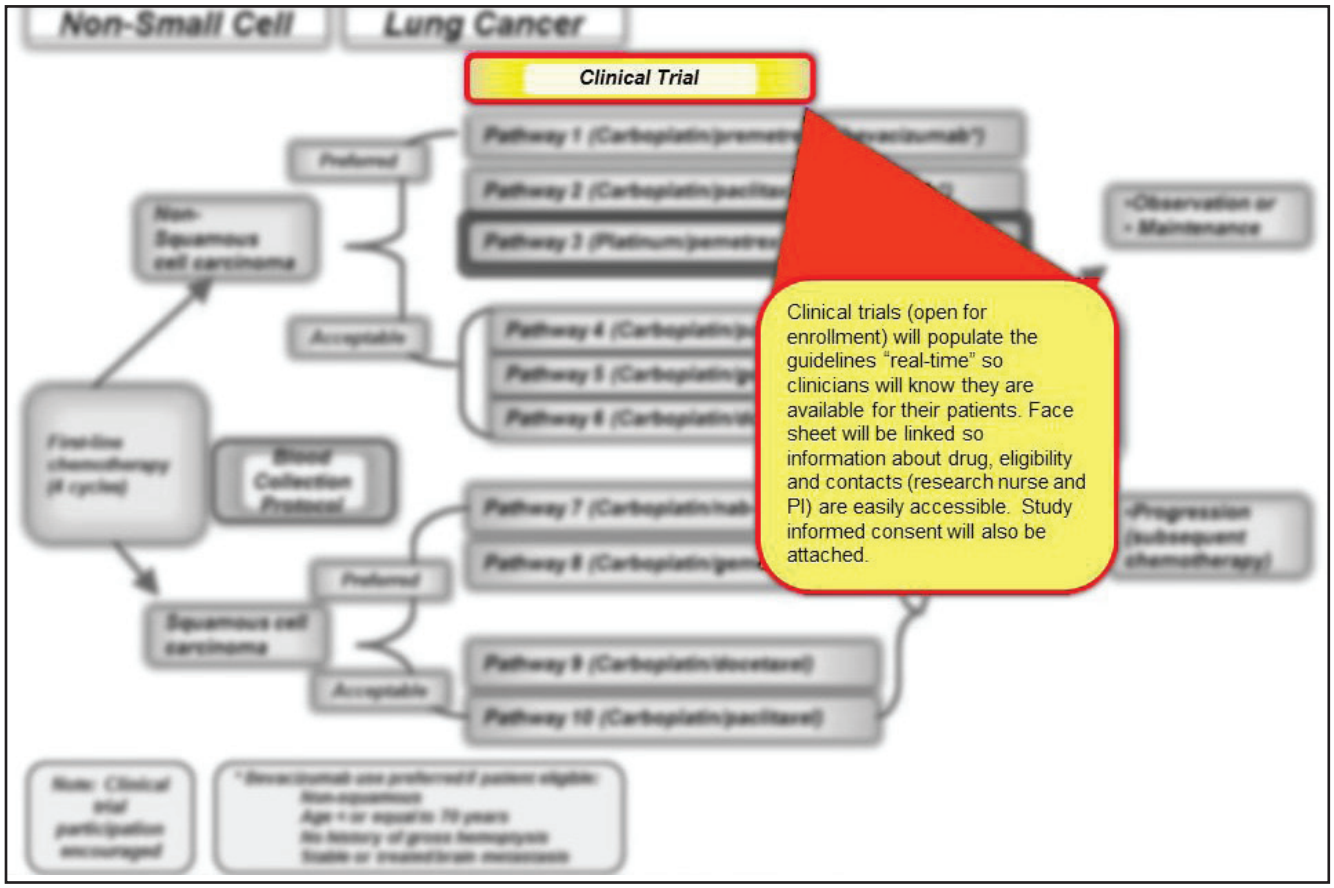
Kim was able to focus on the mechanics of the system Raghavan was constructing.

"What you learn about working at the No. 1-ranked cancer hospital in the country is that anyone will come visit you, and they have to come and hear the opinion from some disease site expert," Kim said. "But the opportunity for them to actually participate in treatment or in a clinical trial is very limited because of that distance.

"Many comprehensive cancer centers are trying to set up satellites that are regional to try and deliver that type of care, so patients don't have to travel, and I haven't seen the system in which it has been that successful. The problem is that you have this mother ship, and people drive the extra hours and go to the big house.

"This system is starting from scratch. There is no big house."

For a pharma company, collaboration with the Levine Cancer Institute could be unusually advantageous, Kim said. "We could enroll faster,



The pathway provides a menu of active and available clinical trials. The menu is updated in real time. Options change as trials come on-line or close.

because of access to patients, both the large number we have in our system and the proximity of which enrollment could occur with our different sites," he said.

The system could churn out phase I and phase II studies without needing to seek collaborators, using the same set of standard operating procedures and the same data quality standards.

"If we are delivering quality and meticulous research information and data, then they know that's going to be consistent within one system," Kim said. "When a company can focus on one institution, as opposed to three or four, their costs go down. If we increase the speed and decrease the cost, then everybody wins."

LCI doesn't need to grow.

"With 14,000 new cases a year, you don't have to grow your system, you have to organize what you have," Kim said. "We are not talking about expansion. We just need to be efficient and streamlined."

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Writing the Pathways

More than anything, Kim saw the job as an opportunity to learn something.

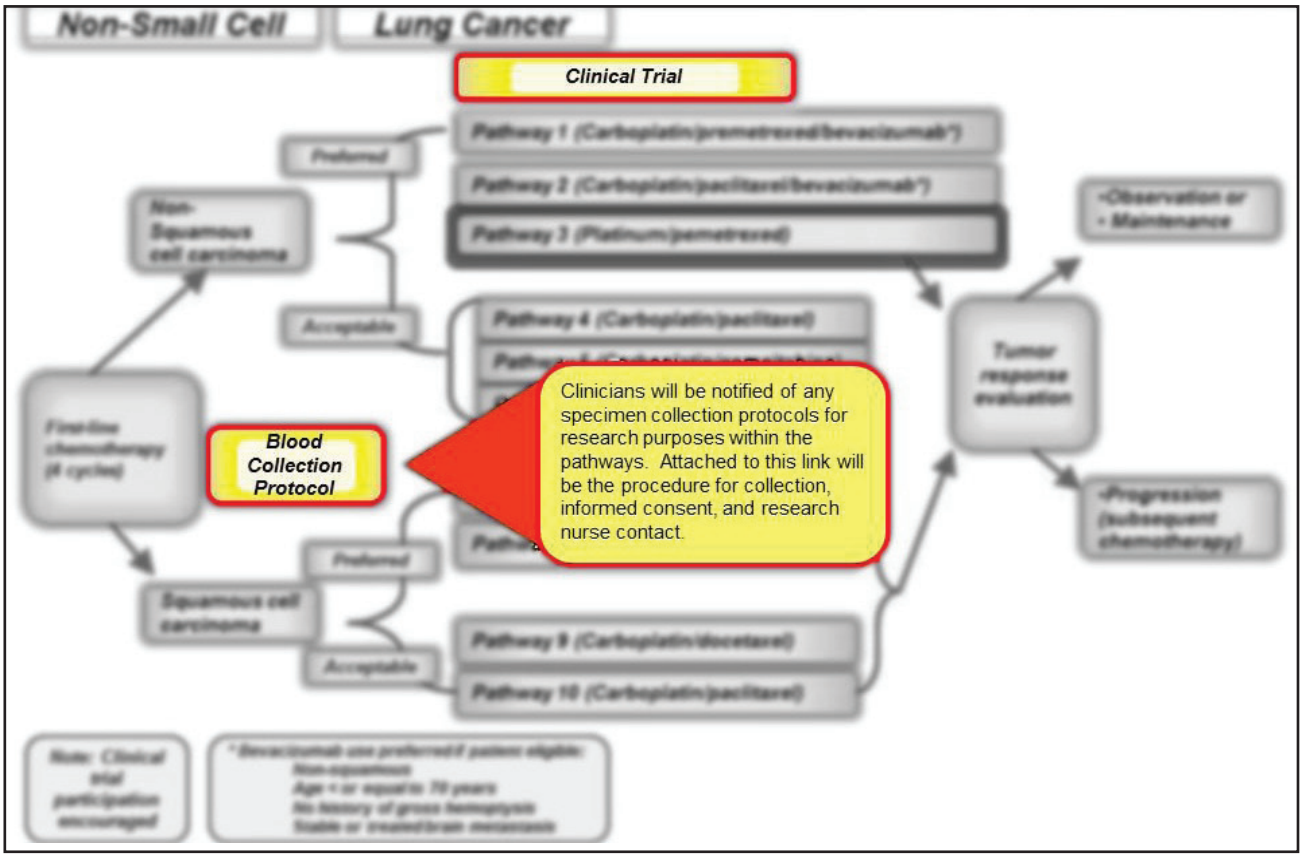
"This is not a skill that I learned at MD Anderson," he said. "They don't teach you how to implement clinical trials in a private system and deal with general medical oncologists who are located throughout a region. I knew how to write clinical trials, I knew how to conduct clinical trials, I knew how to practice medicine at MD Anderson, but there is a whole other world out there, in community and system-based oncology.

"I wanted to learn what the systems are like out there."

In July 2012, Kim became the chair of solid tumor oncology.

The words "guidelines" and "pathways" were never uttered prior to Kim taking the job. He started thinking about pathways in June 2012, during the move, while driving from Houston to Charlotte. "I kept thinking, what is the best way to engage a system, not a center?" he said.

Other health systems use algorithms, which are



The pathway provides specifications for collection of research specimens required by protocol.

designed to ensure consistency of care, and in some cases, revenues.

"The difference is that we are trying to link a system that is an enclosed system and get the doctors—general oncologists—on the same page, so they are treating the various cancers consistently," Kim said.

"When you click on a pathway, you will get an entire packet of information, a PDF, which includes chemotherapy orders, teaching sheets, drug toxicity sheets, a calendar, the scripts—anything you need to help get that patient started on therapy," Kim said.

Kim and colleagues have put together pathways for treatment of 15 cancers, including those of the bladder, breast, Colorectal, esophageal, gastric, kidney, prostate, rectal, testis and the pancreas, as well as melanoma, neuroendocrine tumors, small-cell and non-small-cell lung cancers, and hepatocellular carcinoma.

These pathways will be ready for beta testing in April.

Next, the system will develop pathways for head-and-neck cancer, sarcoma, phase I studies and palliative care.

On the hematology side, the system is developing pathways for acute myeloid leukemia and chronic myeloid leukemia.

On a typical pathway, clinical trials appear alongside standard care.

"We are trying to hand-deliver the trials right for the doctors, so they know that when a trial is open, it's on the pathways," Kim said. "When it is closed, it disappears.

Typically, to find out about clinical trials available to a particular patient, a doctor has to go to databases or use folded cardboard brochures that list all the trials available at the institution.

Kim has a stack of these cards—standard folded sheets of cardboard—in his office.

"I hate those things," he says, handing one of the brochures to a recent visitor. "No. 1, they are killing trees. No. 2, they become dated very quickly. You would never know when a trial closes on one of those cards, between the month-to-month when it's printed. If a group decides to put a study on hold, unless you mark it on the same card you are carrying in your coat, you would never know."

In May, LCI will require that doctors use the pathways, and at a later date, the institute will require 70-percent compliance with utilizing pathways or

enrolling patients in clinical trials. Within a year, the system will be using the pathways tool and will be ramping up clinical trials. There will be comprehensive blood and tissue collection.

In hematologic malignancies, an early evaluation for a transplant could make a difference between death and the cure.

"I've had physicians refer patients early and say, 'What do you think I should treat this patient with?' or 'What should our approach be?' or 'What is your opinion about a potential transplant?'" Avalos said.

"But here we are, on the ground, creating our clinical pathways, and establishing—with our expertise—when a transplant is appropriate as part of these clinical pathways."

Too often, patients get to transplantation in advanced stages of disease, when transplantation becomes a last-ditch salvage effort. This happens either because local doctors aren't sufficiently specialized to recognize the need for a transplant or because they want to hang on to billable services.

"That has been a problem in the past," Avalos said. "I think physicians are becoming more aware of transplant timing, but that's a critical factor in a patient's outcome."

On NCI Designation and Strategic Plans

Raghavan is proud of being tight-fisted.

He talks of saying No Thanks to academic stars who have "inflated assessment of their worth on the market," and he has said no to physician practices.

After coming to Charlotte, Raghavan formed a committee, including Robert Fraser, the chair of radiation oncology at Levine, to explore getting a proton beam radiation unit and to decide whether the technology was worth the investment.

"The system was ready to go forward, and we pulled the plug on it," Raghavan said. "I am not ready to make a commitment to proton beam therapy, because I am not sure yet that it's a breakthrough, and I don't want to invest $100 million and waste it. We will revisit it in another couple of years, when we see how the technology evolves and what the early trials show."

Does Raghavan plan to seek the NCI comprehensive cancer center designation?

"I don't think we need another comprehensive cancer center in North Carolina," he said. "My ego is structured such that I don't have to be a comprehensive cancer center director to feel I am doing a good job."

Having the designation, especially for a new center, no longer means a massive influx of federal dollars. However, it helps centers raise money locally. Also, once the designation is achieved, a center has to meet the criteria for keeping the designation.

"One down side of the NCI comprehensive cancer center mechanism—and it's not meant to be a criticism—is there is such an intense reporting structure that you get diverted from mission by trying to demonstrate to the review process that you are good enough to retain that designation," Raghavan said.

More likely, the cancer institute would seek to forge a partnership with an existing NCI-designated center.

"What we will be looking for in due course will be what's the best fit and that will depend on what their ethos is at the time we are looking for a partner—if we look at a partner," Raghavan said. "We may well just stay independent and do a great job. The reason for linking is only if you can provide a benefit to someone else or if they can provide benefit to you, or mutual benefit.

"I think what I want to do for the next two or three years is establish our own identity, get us to be as efficient and as effective as we can be, and get a really well-honed research tool, and then I will make a decision about whether to join the NCI comprehensive cancer system, if they want us."

Does Raghavan have a formal strategic plan, or does he plan to proceed Bayesian-style?

There is a brief, two-page document that defines a set of objectives and a timeline, and the executives at the health system have a copy, Raghavan said.

"I don't have any formalized documents," he said. "I wanted to have flexibility—and plus I am not that organized that I would actually go through the pain of a strategic planning document.

"The nice thing here is I hold the cards, and I can deal them out, whereas once you go through the strategic planning exercise, you are caught in a trap."

Early Detection

ACS Publishes Low-Dose CT Lung Cancer Screening Guidelines

By Conor Hale

The American Cancer Society released new guidelines recommending low-dose computed tomography screening for patients at a high risk for lung cancer—saying that now there is "rigorous evidence" to support the value of screening for lung cancer with low-dose CT.

The society's new recommendations are for patients between the ages of 55 and 74 with a smoking history of at least 30 pack-years. This includes patients who currently smoke or have quit within the past 15 years.

The society also recommends that patients undergo a thorough discussion of the benefits, risks and limitations of screening, and that they be screened in a setting with experience in lung cancer screening.

The recommendations emphasize that smoking cessation counseling remains a high priority for clinical attention in discussions with current smokers, and that screening should not be viewed as an alternative to smoking cessation.

Following the announcement of results from the National Lung Cancer Screening Trial in late 2010, the American Cancer Society joined with the American College of Chest Physicians, the American Society of Clinical Oncology, and the National Comprehensive Cancer Network to produce a systematic review of the evidence related to lung cancer screening with low-dose CT.

The results were published in the Journal of the American Medical Association in June 2012, and were used as the basis for these new recommendations, which are being published early online in CA: A Cancer Journal for Clinicians. The report will appear in print in the March/April 2012 issue of the journal.

"Many questions remain to be answered, and an experience base and infrastructure to support population-based lung cancer screening is not yet in place and needs to be built," said the authors of the recommendation. "Additional scientific reports from the NLST and the European trials and evidence from observational studies will contribute to filling in the existing knowledge gaps related to broadening eligibility for lung cancer screening and further define early lung cancer detection protocols.

"As with other guidelines for cancer screening, we can expect that this initial guideline will be revised as new data become available. Whether community-based screening for lung cancer with LDCT will exceed or fail to achieve the benefit observed in the NLST could be influenced by many factors, and the answer awaits the results of further observation and research."

In a statement, the American College of Radiology stressed that appropriate guidelines and practice standards are needed to ensure that patients nationwide have access to uniform, quality care and can expect a similar benefit from these exams as demonstrated in clinical trials.

The ACR is compiling and reviewing evidence in creation of separate guidelines for CT lung cancer screening to ensure that these exams are performed using proper personnel, equipment, protocols and follow-up.

The guidelines can be found at: http://bit.ly/yVwIPk.

Report to the Nation

Annual Report Shows Decline In Overall Cancer Death Rates

By Conor Hale

Overall cancer death rates have continued to decline in the U.S. among both men and women, among all major racial and ethnic groups, and for most common cancers, in sites including lung, kidney, colon and rectum, breast, and prostate, as well as in leukemia, non-Hodgkin lymphoma, and myeloma, according to the annual Report to the Nation on the Status of Cancer, 1975-2009.

Death rates continued to increase during the latest time period—2000 through 2009—for melanoma of the skin among men, and for cancers of the liver, pancreas and uterus.

The report, produced since 1998, is co-authored by researchers from NCI, the American Cancer Society, the Centers for Disease Control and Prevention, and the North American Association of Central Cancer Registries. It will be published in JNCI.

The decline in overall cancer death rates continues a trend that began in the early 1990s. From 2000 through 2009, cancer death rates decreased by 1.8 percent per year among men and by 1.4 percent per year among women. Death rates among children up to 14 years of age also continued to decrease by 1.8 percent per year.

During the same 10-year period, death rates among women decreased for 15 of the 18 most common cancers (lung, breast, colon and rectum,

ovary, leukemia, non-Hodgkin lymphoma, brain and other nervous system, myeloma, kidney, stomach, cervix, bladder, esophagus, oral cavity and pharynx, and gallbladder) and increased for cancers of the pancreas, liver, and uterus.

"The challenge we now face is how to continue those gains in the face of new obstacles, like obesity and HPV infections," said John Seffrin, CEO of the American Cancer Society. "We must face these hurdles head on, without distraction, and without delay, by expanding access to proven strategies to prevent and control cancer."

The report contains a special section on human papillomavirus-associated cancers, showing that incidence rates are increasing for HPV-associated oropharyngeal and anal cancers and that vaccination coverage levels in the U.S. during 2008 and 2010 remained low among adolescent girls.

Between 2000 and 2009, overall cancer incidence rates decreased by 0.6 percent per year among men, were stable among women, and increased by 0.6 percent per year among children up to age 14.

Incidence rates among men decreased for five of the 17 most common cancers (prostate, lung, colon and rectum, stomach, and larynx) and increased for six others (kidney, pancreas, liver, thyroid, melanoma of the skin, and myeloma).

Among women, incidence rates decreased for seven of the 18 most common cancers (lung, colon and rectum, bladder, cervix, oral cavity and pharynx, ovary, and stomach), and increased for seven others (thyroid, melanoma of the skin, kidney, pancreas, leukemia, liver, and uterus).

Incidence rates were stable for the other top 17 cancers, including breast cancer in women and non-Hodgkin lymphoma in men and women.

The HPV section shows that from 2000 through 2009, incidence rates for HPV-associated oropharyngeal cancer increased among white men and women, as did rates for anal cancer among white and black men and women.

Incidence rates for cancer of the vulva increased among white and black women. Rates of cervical cancer declined among all women except American Indian/Alaska Natives. In addition, cervical cancer incidence rates were higher among women living in low versus high socioeconomic areas. Among men, rates for penile cancer were stable.

"The influence that certain viral infections can have on cancer rates is significant and continued attention to the effect of HPV infection, in particular, on cervical cancer rates is critical," said NCI Director Harold Varmus. "It is important, however, to note that the investments we have made in HPV research can only have the tremendous payoff of which they are capable if vaccination rates show an increase in future reports."

The report also showed that in 2010, 48.7 percent of girls between the ages of 13 and 17 had received at least one dose of the HPV vaccine—and only 32 percent had received all three recommended doses.

Vaccination series completion rates were generally lower among certain sub-populations, including girls living in the South, those living below the poverty level, and among Hispanics.

The authors note that low overall vaccine uptake in the U.S. is likely due to inadequate provider recommendations, provider reimbursement concerns, infrequent use of reminder/recall systems that would foster completion of the three-dose series, and other factors.

A Q&A regarding the report can be found at: http://1.usa.gov/119hITU.

In Brief

Goodfellow To Lead Team At Ohio State University

(Continued from page 1)

Goodfellow comes to Ohio State from Washington University School of Medicine, where he was a professor of surgery, genetics, and obstetrics and gynecology. He has a joint appointment within the division of gynecologic oncology of the university's cancer center and in the department of obstetrics and gynecology at Wexner Medical Center.

While at the Siteman Cancer Center at Washington University, Goodfellow developed an endometrial research group that focused on the causes and consequences of defective DNA mismatch repair in endometrial cancer.

MOFFITT CANCER CENTER and **Florida Blue**, Florida's Blue Cross and Blue Shield company, announced a new agreement creating an accountable care program specific to the treatment of cancer.

The multi-year program utilizes a value-based compensation structure.

Florida Blue and the Moffitt Medical Group have agreed to focus on common cancers and will collaboratively identify and select quality metrics for the program.

"Both organizations realize the importance of moving away from the fee-for-service model to one that focuses on quality outcomes, and this arrangement marks a step in a new direction for relationships between providers and insurers," said Jonathan Gavras, senior vice president and chief medical officer for Florida Blue.

FOX CHASE CANCER CENTER is offering patients with advanced cancer a unique **blueprint of their cancer genes**.

The new clinical test, CancerCode-45, evaluates an individual's tumor for genetic alterations in a select group of 45 genes and allows physicians to look at the alterations while choosing a course of treatment.

"Not every patient will benefit from this test, but for some it could very well change their entire course of treatment and significantly prolong their life," said Jeff Boyd, executive director of the Cancer Genome Institute at Fox Chase. "At the very least, the results may help physicians decide how to treat their patients with advanced cancer—whether by suggesting they use a particular type of drug or not use a particular type of drug or by allowing them to take part in clinical trials of new medications guided by their tumor's genetic profile."

AMGEN will pay approximately $762 million in settlement agreements, fines and penalties related to investigations surrounding **its misbranding of its anemia drug Aranesp.**

The company also pled guilty to a single misdemeanor count of misbranding Aranesp by promoting it in a way that was different from the dosages in the label.

Amgen will pay approximately $612 million to resolve its civil liability related to promotional practices regarding Aranesp (darbepoetin alfa), Epogen (epoetin alfa), Neupogen (Filgrastim), Neulasta (pegfilgrastim), Enbrel (etanercept) and Sensipar (cinacalcet).

The company will also pay $150 million to resolve its criminal liability relating to the marketing of Aranesp. Amgen entered into a Corporate Integrity Agreement with the Office of Inspector General of the U.S. Department of Health and Human Services. The plea was entered and accepted in the U.S. District Court for the Eastern District of New York.

"The government raised important concerns in the criminal prosecution. Amgen acknowledges that mistakes were made, and we did not live up to our standards," said Cynthia Patton, senior vice president and chief compliance officer at Amgen.