The mortality rate for African-Americans with head and neck cancers is twice as high as for other groups. Studies investigating the impact of socio-economic factors on outcomes indicate that head and neck cancer patients on Medicaid and Medicare experience mortality rates three times higher than privately insured patients. Additionally, at Tulane, African-American patients with head and neck cancers have been presenting with more advanced disease, according to Paul Friedlander, M.D., chairman, Department of Otolaryngology.

“What these data tell us is that we have an at-risk population in New Orleans when it comes to head and neck cancers,” said Friedlander.

In an effort to begin to address these issues, Dr. Friedlander teamed up with Vanessa Landry, a physician assistant in the Department of Surgery and a pastor in the African-American religious community. “Vanessa and I shared a frustration in that the tumors we deal with are typically very visible, and yet we have African-American patients presenting with advanced disease,” said Friedlander. “We thought there must be something we could do to encourage people to see their doctors sooner.”

That’s when Landry reached out to her colleagues in the religious community as well as other local African-American leaders to see if they might be interested in a partnership to begin to answer questions and address these issues.

“Partnership—that’s really the key word here,” said Friedlander. “We weren't interested in creating an outreach program, because that assumes we have a system in place that we can then bring to the community, and that’s not what we had.” What he wanted instead was an opportunity for meaningful dialogue with the leaders of the African-American community to find out what we could do better to begin to address the issues experienced by our head and neck cancer patients.

The feedback from the religious leadership was very positive, and the group has met three times so far, generating a series of action items. “One of these was to try to address the difficulty with access to dental services among this population of patients,” said Friedlander. This is important not only be-
The Tulane Cancer Center recently equipped and opened a new Next Generation Sequence Analysis Core facility for its researchers. The Core is jointly supported by Prescott Deininger’s NIH COBRE grant (Mentoring a Program in Cancer Genetics), an NIH grant awarded to Erik Flemington, and donations from Cancer Crusaders, a local volunteer organization that has fundraised for Tulane Cancer Center and Louisiana State University’s Stanley S. Scott Cancer Center since the mid-1970s.

The funds were used to purchase three high-end computers that will allow Tulane’s cancer researchers to analyze the voluminous amounts of data resulting from a research procedure called next generation sequencing. Next generation sequencing is a process by which the sequence of nucleotides along a strand of DNA is determined. Scientists cut the DNA into small strands, sequence the strands in a massively parallel fashion and then reassemble the sequences using computers to match the fragments to each other or to a reference genome.

Although it was originally very difficult and expensive to carry out high volume sequencing, next generation sequencing can now be done routinely and far less expensively. In fact, within the next few years, it will be financially reasonable for the average person to have his or her DNA sequenced in a relatively short amount of time. That information might then be used for the diagnosis or prognosis of diseases such as cancer, an area known as individualized medicine.

However, next generation sequencing provides the researcher with such a massive amount of data that they often need the services of bioinformatics professionals who are specially skilled in the interpretation and manipulation of next generation sequencing data to decipher it.

“The informatics can be a bit of a hurdle from most people,” said Erik Flemington, Ph.D., Core director. “Although we still have a lot to learn about the informatics arm of this technology, this new equipment positions us comparably to many larger institutions and lowers the informatics hurdle for Tulane researchers who are implementing next generation sequencing into their research program.”

Senior Research Scientist Melody Baddoo is currently training on the use and capabilities of the computers and will be a valuable resource to Tulane’s cancer researchers as her training continues. At the same time, with the help of collaborators from the University of New Orleans, she is working on the implementation of new “in house” and open source algorithms that will broaden the scope of what Tulane researchers can get from next generation sequencing data.

“Right now we can use these new Core resources to perform a number of routine procedures,” said Flemington. “However, we are also delving deeper into the potential of the information provided by next generation sequencing to allow Tulane researchers to do all sorts of under the hood procedures that will give them an even greater advantage.”

Community Partnerships Address Head and Neck Cancer Disparities

Cont’d from p. 1

cause dental hygienists are often the best persons to screen for head and neck cancers, but also because many patients have poor dental health and need extractions before their cancer treatments can begin.

“The religious leadership agreed to speak with members of their congregations to try to identify those with resources who would be willing to help address the issue,” said Friedlander, “and we spoke with our partners at the LSU Dental School, who were immediately engaged and committed to helping us solve this problem.”

Other action items include the creation of educational materials for prevention and risk identification, physician presentations in the community, and screening events. In fact, Dr. Friedlander is planning to offer free oral, head and neck cancer screenings on January 17, 2011, Martin Luther King, Jr., Day. “We will offer free screenings via the Tulane Mobile Unit, which will be in the vicinity of the Martin Luther King, Jr., statue on the corner of Claiborne Avenue and MLK Blvd., from 10:00 a.m.—noon that day,” said Friedlander.

Now that a mechanism is in place to allow for rapid communication with the African-American community, Friedlander envisions an expansion of this project, as colleagues in departments across the School of Medicine and the University utilize it to address disparities for other diseases.

“Our long-term goal is to hopefully work with our colleagues in public health to develop a formal study addressing barriers to accessing health care that utilizes the potential and the power of this group of pastors,” he said.

For more information on this project or the free head and neck cancer screenings, please contact Courtney Dini, RN, head and neck coordinator and nurse navigator, at 504-988-5451 or courtney.dini@hcahealthcare.com.

CONTACT US: PHONE 504-988-6060, E-MAIL TULANECANCERCENTER@TULANE.EDU, VISIT WWW.CANCERISCURABLE.COM
The 2010 Saks Fifth Avenue Key to the Cure fundraiser broke all previous records and raised approximately $203,000 for the cancer research programs of the Louisiana Cancer Research Consortium (LCRC).

“On behalf of all of us at the LCRC, I want to thank the team at Saks, our 2010 co-chairs—Bryan Batt, Margo DuBos, Dana Hansel & Juli Miller Hart—as well as our committee members, sponsors, restaurant and catering participants, and our in-kind donors for raising not only important funds but also community awareness of our cancer research programs,” said Prescott Deininger, Ph.D., director of the Tulane Cancer Center and co-director of the LCRC.

Key to the Cure is a four-day charity shopping weekend during which 2% of sales at select Saks Fifth Avenue locations across the nation are donated to local cancer charities. The New Orleans event has raised $1,269,000 since 2001.

In addition to total dollars raised, the 2010 event set several other records, including

- The number of corporate, foundation & individual sponsors—245
- The number of committee member sponsors—116

- Total sponsor dollars raised—$230,844
- The number of restaurant/catering participants—36

Co-chairs from all previous Key to the Cure events were honored at the 2010 Kickoff Gala Patron Party in recognition of the event reaching the $1 million milestone in 2009. “We could never have come this far without their contributions to the event’s success,” said Deininger.

“There is a series of genes responsible for regulating the 24-hour rhythm in certain biological processes,” said Aaron Hoffman, Ph.D., assistant professor of epidemiology and recent cancer center recruit. “These genes regulate when we’re sleepy and when we’re hungry, as well as other biological processes, such as metabolism, immune response, and DNA damage repair.”

Specifically, there are several core clock genes involved in regulating our circadian rhythms, and Dr. Hoffman is investigating how they differ among people and how those differences might be associated with increased cancer risk.

In a related line of research, there is an epidemiologic observation that night shift workers have an increased risk for some cancers, particularly hormone-responsive cancers such as breast cancer. Drs. Steven Hill and David Blask in the Department of Structural & Cellular Biology are exploring this observation, as well as the anti-tumor effects of melatonin, a hormone produced by the pineal gland during sleep.

“But why do some shift workers get cancer and some do not,” asked Hoffman. “Is it because some have more robust circadian systems than others, or do some experience more deleterious consequences as a re-
In an effort to answer these questions, Hoffman began looking at mutations in the circadian genes themselves. Specifically, he looked at the clock genes in lymphocytes from blood samples of women who have had breast cancer as well as matched healthy controls. The samples were provided through a previous investigation of the impact of polychlorinated biphenyls (PCBs) on breast cancer at Yale University.

“We found a number of mutations associated with increased breast cancer risk,” said Hoffman. For example, his team found that mutations in the circadian gene “CLOCK” were associated with a 20-30% increase in breast cancer risk. Hoffman is quick to point out that it is unlikely that a single mutation is solely responsible for increased cancer risk. “It’s likely to be a combination of them,” he says, “and that’s why more research is needed.”

One important next step will be to examine these mutations in shift workers to determine if there is a synergistic increase in risk. “Now that we have some suggestion that circadian genetics are involved in cancer-related processes, we need to figure out how they are influenced by shift work,” said Hoffman. “How does the mutation influence your response to environmental exposures, like shift work, jet lag, or exposure to light at night in general? How do they fit together?”

The answers to these questions may have practical implications for cancer prevention. For instance, if synergistic relationships do exist between the circadian gene mutations identified by Hoffman and exposure to light at night, women carrying these mutations could be warned to avoid occupations involving night shift work.

There are also therapeutic implications to Hoffman’s research. “If we can understand exactly why the circadian system is important in defense against cancer, then we might be able to leverage that knowledge towards new treatment strategies,” he said. He references chronotherapy in particular, the theory that medications, particularly chemotherapy, may best be administered at particular times of day when the body’s natural DNA damage response is at its highest so that normal cells are well defended.

What is his advice to those who have irregular schedules or those who work at night? “Try to maintain as best as possible a constant schedule of sleep and exposure to darkness,” said Hoffman. “Even if you work at night, try to maintain a period of 7-9 hours of darkness every day, at the same time of day, even on your days off.”

Dr. Hoffman earned his doctorate from Yale University in 2009, followed by a year of postdoctoral training.

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### Calendar of Events

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Cervical Cancer Awareness Month</td>
<td>Jan 1</td>
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<tr>
<td>Eli Lilly Oncology on Canvas Exhibition at Tulane Cancer Center Comprehensive Clinic</td>
<td>Jan 6</td>
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<tr>
<td>Cancer Crusaders Annual Golf Tournament</td>
<td>Mar 28</td>
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<tr>
<td>LCRC Scientific Retreat at Xavier University</td>
<td>Apr 9</td>
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### Patient Appointments

To make an appointment to see a Tulane Cancer Center physician, please call the Tulane Cancer Center Comprehensive Clinic at 504-988-6300

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### How to Help

To learn more about how to make a donation to the Tulane Cancer Center please visit www.canceriscurable.com and click on “Giving”