SOARNEWS

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Newsletter of the Survivorship, Outcomes And Risk Program at MSK

White House Launches $1 Billion "Moonshot" for Cancer Research

Initiative Establishes Taskforce to Recommend Research and Funding Priorities

In an effort to accelerate the progress of cancer research, President Obama announced in January the creation of a cancer "Moonshot" taskforce and a commitment of $1 billion in federal funds over the next five years. The Moonshot Taskforce, led by Vice President Biden, includes the heads of at least 13 federal agencies.

The goals of the initiative are to accelerate research on the origins, development and treatment of cancer; to enhance data sharing; to facilitate collaboration among stakeholders; and to leverage public and private investments in cancer research. According to the President's memorandum, "the initiative aims to bring about a decade's worth of advances in five years, making more therapies available to more patients, while also improving our ability to prevent cancer and detect it at an early stage." Several SOAR investigators shared their thoughts about the Moonshot initiative.

Tim Ahles (Psychiatry & Behavioral Sciences)

The addition of one billion dollars of funding to accelerate cancer research is certainly a welcome infusion of resources. Will important discoveries in cancer detection and treatment be found over the five years of the initiative? I would say most certainly. Will these discoveries lead to treatments with no side effects or long-term toxicities? I suspect probably not. I worry that the 14.5 million cancer survivors in the US will feel lost (again) in the enthusiasm and excitement of new scientific discoveries and treatments. I would not advocate taking money away from the Moonshot initiative. However, I would strongly support a parallel research initiative focusing on the ever growing population of cancer survivors who are extremely grateful for the scientific discoveries that have lead them to be long-term survivors, but who live and cope with physical, emotional, social, and financial problems on a day by day basis.

Lisa Diamond (Immigrant Health and Cancer Disparities)

The Moonshot initiative promises to invest funds in research to improve and expedite solutions for cancer prevention, diagnosis, and treatment. This includes efforts to narrow health disparity gaps in cancer, an essential component of reducing cancer incidence and improving outcomes in previously underserved populations. Cancer does not affect populations equally. Cancer incidence and death rates are highest among black men and are very high among Hispanics and Asian/Pacific Islanders. Death rates are highest among black, followed by white, and Hispanic women. We currently invest very little to reduce disparities in cancer care. It is well documented that minority patients and those with limited English proficiency experience worse care after a cancer diagnosis. The Moonshot initiative provides an opportunity to fund substantial health disparities research on access to care and cancer outcomes. If even a small portion of the Moonshot budget is spent on cancer disparities research, it would be a huge improvement.

Malcom Pike (Epidemiology)

The initiative includes "concerted efforts to narrow health disparity gaps by increasing utilization of standard of care recommendations for cancer prevention, screening and treatment." A very significant part of achieving this is to improve the incomes of low-income populations. I hope that this will be clear to the Moonshot Taskforce and that they will state this forcibly. Also, efforts to reduce the prevalence of smoking should be continued, as this is still a major source of cancer mortality. Use of oral contraceptives provides major reductions (>50%) in endometrial and ovarian cancer, achieved by reducing proliferation of the cells giving rise to these cancers. There is no reason to think that this cannot be achieved for breast cancer if we invest in basic and applied research into acceptable ways to reduce breast cell proliferation. There is essentially no work being done in this area. There are already major efforts to develop vaccines and improve our understanding of immunological approaches to cancer treatment and prevention. Whether we can improve screening in a major way is unclear.

Danielle Friedman (Pediatrics)

While the prospect of finding a singular cure for such a clinically heterogeneous disease seems unlikely, it is nonetheless a lofty and worthwhile goal that should result in important treatment-related progress for adult and pediatric patients alike. Increased attention in concert with increased funding will formalize the importance of this issue and make it a national priority.

In light of the limited funding historically available for pediatric cancer research, it is particularly exciting that pediatric cancer was designated as one of eight focal areas of the Moonshot initiative. In the pediatric realm, significant strides have been made in survival rates for some cancer subtypes, while progress has been stagnant for others. The Moonshot's emphasis on data sharing and genomic-based approaches to cancer care will allow pediatric cancer researchers to share research methodologies and findings, and ultimately streamline the research process for all cancer subtypes in order to accelerate progress in the field. Whether the initiative will "bring about a decade's worth of advances in five years" is hard to predict, but the pooling of resources around a common goal should accelerate the pace of progress and bring novel therapies into the clinical realm. I am particularly hopeful that these novel therapies will maximize cure while minimizing long-term toxicities for an increasing number of survivors of childhood cancer.

Andrew Vickers (Biostatistics)

The idea of a "cancer moonshot" is older than many MSKCC faculty. In his State of the Union address all the way back in 1971, President Nixon said "the time has come in America when the same kind of concentrated effort that … took man to the moon should be turned toward [finding a cure for cancer]". With the exception of a small number of indications, a cure has remained stubbornly elusive in the intervening 45 years. Yet we have seen remarkable progress: we know more about preventing cancer, have better methods of early detection, surgery is less disfiguring and disabling, supportive care has made cancer and its treatment far more tolerable, and improvements in adjuvant therapy have decreased recurrence rates.

You do not get to the moon incrementally, you get your one shot and you hit or miss. So that is one problem with the moonshot analogy. The second problem concerns the organization of science. The moonshots were top down and centralized: NASA hired scientists and engineers and told them what to do. Cancer research is bottom up and decentralized: scientists and engineers at public and private institutions apply to the NCI for funding. Would we get further in cancer research if the NCI was more like NASA? I am not sure. The "moonshot" is actually no more than getting a diverse group of agencies together to make some recommendations. Laudable, but I find the language unhelpful. Can't we leave moonshots back in the 60s?

SOAR Grants

Peter Bach (Health Outcomes) was awarded a grant from the Laura and John Arnold Foundation for "Evidence Driven Drug Pricing Project."

Helena Furberg (Epidemiology & Biostatistics) received an award from the Chanel Endowment for "Body Composition and the Obesity Paradox in Renal Cell Carcinoma."

Allison Lipitz-Snyderman (Epidemiology & Biostatistics) received an award from the National Institute for Health Care Management Research and Educational Foundation for "Physician-Driven Overuse of Services for Patients with Advanced Cancer."

Christian Nelson (Psychiatry & Behavioral Sciences) received an R01 grant from the National Cancer Institute for "Helping Men Adhere to Sexual Rehabilitation Following Prostate Cancer Surgery."

Zsofia Stadler (Medicine) received an award from the Starr Cancer Consortium for "The Paternal Germline as a Source of *de novo* Cancer Risk in Offspring."

SOAR Seminars

Andrew Chan, Massachusetts General Hospital, presented *Aspirin for the Prevention of Colorectal Cancer* on January 13th.

Andrew Briggs, Visiting Investigator at the Center for Health Policy & Outcomes, presented *The Value of Cancer Therapies in the UK and the US: Two Countries Divided by a Separate Language?* on Feburary 9th.

Robert Thomas, Bedford and Addenbrooke's Cambridge University Hospitals, presented *Development and Evaluation of Lifestyle Strategies to Aid the Routine Management of Patients with Cancer* on Feburary 23rd.

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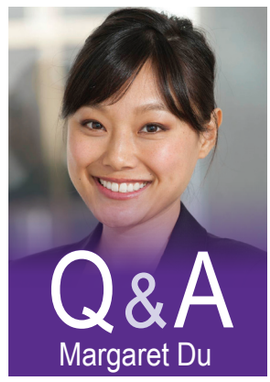

Margaret Du is an Assistant Attending Epidemiologist in the Department of Epidemiology and Biostatistics. She joined MSK in September after completing a post-doctoral fellowship at the Fred Hutchinson Cancer Research Center in Seattle.

How did you become interested in molecular epidemiology?

I studied molecular biology as an undergraduate, but in the lab, none of my experiments ever worked. A friend's mother was an epidemiologist who said if you're interested in this but not so great in the lab, maybe you should think about analyzing data. I got a job in her group looking at the molecular epidemiology of urinary tract infections. I realized that there were other options for someone interested in molecular biology besides pipetting all day, which was great.

Your research shifted from infectious diseases to cancer, and you've been studying colorectal cancer. What specifically are you interested in?

I'm very interested in gene-environment interactions, and colorectal cancer is a perfect area to study these. There are many known genetic and environmental risk factors for colorectal cancer and we don't have that for a lot of cancers.

What's on the environment side of the interaction?

The modifiable risk factors are really what we aim at when we look at gene-environment interaction. We try to figure out not only why some lifestyle factors are important in a disease, but also whether there are genetic subsets of the population who could benefit most from modifying their environment. As a post-doc at the Hutch, I got involved in the Genetics and Epidemiology of Colorectal Cancer Consortium, or GECCO. Right now we are studying whether certain genetic subsets of people have stronger associations with folate than others. Folate intake has been shown to protect against developing colorectal cancer. We're studying the role of calcium in genetic subgroups as well. More generally, we're looking at the role of modifiable risk factors in people with known genetic predispositions to colorectal cancer.

How can knowledge of gene-environment interactions improve health outcomes?

Well, people don't want to exercise, and they don't want to change their diet. But maybe if they knew that they were at a higher risk of getting colorectal cancer or some other cancer, then they may be a little more likely to do it. So if we can identify genetic subsets of the population that can benefit the most, we can do more targeted messaging towards modifying these risk factors. I'm especially interested in physical activity, since this is something that can be easily, well not always easily, modified, but make a huge impact on health, not just cancer, but cardiovascular disease, diabetes and other conditions.

You also lead the effort to harmonize data for circulating biomarkers in GECCO. What have you learned about this process in a large consortium?

It sounds so easy – just send the data then analyze. But data harmonization is hard work. I've learned a few things. Send a common data dictionary to everyone at the start so they know exactly what is needed and they can make their variables match as closely as possible. And be specific. It's important to figure out the best way to do something the first time and really put in the time and effort to do it right. Keep dialogue open with the investigators to make sure quality control is done appropriately. Propose specific plans and get feedback from the investigators. We hold gene-environment working groups and as a part of these working groups, we discuss harmonization of variables. For folate and calcium, I presented at least 2-3 times discussing our proposal for harmonizing the variables. At the end of the day, we wanted feedback, input and agreement.

What new areas have you been working in at MSK?

One of my other areas of interest is telomere length. Telomeres are basically the ends of chromosomes that act like protective caps, like the ends of shoelaces, that keep the DNA from fraying. So if telomeres get too short, things can go awry. We know they are linked to cancer, cognitive impairments and other negative outcomes. I'm developing a proposal to investigate cancer therapy and telomere length in breast cancer survivors in the Women's Environmental Cancer and Radiation Epidemiology (WECARE) study, in collaboration with Jonine Bernstein. It would be a great use of an existing cohort with rich treatment information and biospecimens. We know that radiation and chemotherapy have a whole slew of side effects in breast cancer survivors, such as cardiovascular disease, cognitive impairment and second malignancies And no one knows exactly why. One possible mechanism is telomere length, because chemotherapy and radiation both increase oxidative stress and inflammation, which shortens telomeres.

You're on the Epidemiology and Biostatistics Cycle for Survival team. Do you do a lot of cycling?

It will actually be my first time spinning! But I'm really excited about it, and I think it will be a lot of fun.

Mark your calendar

March 30 - April 12	**Society of Behavioral Medicine Annual Meeting** Washington, DC
April 12 **4:00PM** **M-107**	**SOAR Seminar** Ethan Basch, MD, MSc UNC Lineberger Comprehensive Cancer Center