

Should next US President abandon the Biden-Obama ‘moonshot’ cancer initiative?

A blue ribbon panel of top cancer researchers delivered their [recommendations](#) to the Obama Administration in early September on how to proceed with the president’s cancer initiative—a billion dollar plan, led by Vice-President Joe Biden, that set a goal of curing cancer within the next decade. The recommendations, which include increasing efforts to develop immunotherapy drugs and creating a national network that would allow cancer patients across the country to have their tumors genetically profiled, are the first tangible outline of how the project should proceed.

Yet, with the Obama administration winding down, implementing and executing almost all of this landmark public health initiative would fall on the next president—which begs the question: *will and/or should she or he continue it?*

Predictably, there is general excitement among both science and lay people over a plan to cure cancer. However, there is a growing number of outspoken experts who have taken to criticizing what amounts to a ‘moonshot’—or maybe it’s more akin to landing a human on Mars. Eric Lander, president and founding director of the Broad Institute of MIT and Harvard, likes the White House’s optimism but also has [cautioned](#), “We aren’t going to be curing cancer in 10 years.”

Ezekiel Emanuel, chair of the department of medical ethics and health policy at the University of Pennsylvania, was more [critical](#), “Let’s be honest. There’s not that much money in the moonshot. I just don’t think it is going to have that big an impact.”

The most succinct and disparaging analysis came from James Watson, who co-discovered the structure of DNA and headed up the US Government’s Human Genome Project. He called the plan “[crap](#).”

Hilary Clinton has already said she will continue the plan and has called on Congress to make the money available. Gary Johnson has not addressed the issue and Donald Trump did not [respond](#) to recent requests made by Bloomberg for his position. Yet, there are a number of reasons why the candidates should listen to Watson and the others and focus their science policy elsewhere and ground the moonshot.

Getting to 1,000 moons

The National Immunotherapy Coalition (NIC) is a coalition of pharmaceutical and biotech companies as well as major academic centers. It is an unprecedented collaboration of cancer fighting institutes, which would allow for the sharing of a wealth of information and approved cancer fighting agents. It is one of the main research arms [established](#) by the initiative. The NIC says it will “[initiate] randomized Phase II trials in patients at all stages of disease in 20 tumor types in 20,000 patients within the next 36 months.” The 20 tumor types are key because they highlight what many experts cite as to why ‘curing cancer’ is impossible: cancer is not just one disease.

“The failure to cure cancer is often explained by the complexity of the problem: There are so many different types of cancer, so many different genes and biochemical mechanisms, and every patient is different,” Jarle Breivik, a professor of medicine at the Institute of Basic Medical Sciences at the University

of Oslo, [explained](#) in a *New York Times* opinion piece, “We Won’t Cure Cancer.” In effect, each cancer constitutes a different disease.

One [estimate](#) puts the growing number of types of cancers at more than 100. But that estimate is mostly useless, as even among the same subtype and stage, no two people’s cancers are exactly the same. In fact, even within the same patient’s tumor, there can be [sub-populations](#) of cells with dramatically different mutated genes that respond differently to the same drug. This means curing cancer is not a singular goal like going to the moon or even sequencing the human genome; it’s probably more like getting to over hundreds of moons, which each have their own “sub-moons.” No matter how successful the project is in the future, we will never see the day when a cancer diagnosis is followed by a doctor writing out a prescription for a universal cancer cure drug.

Current policies may block advances

It may seem obvious to point out, but to study cancer and cures, scientists need physical samples of tumors to study. For decades, they’ve gotten these samples from patients without their consent or knowledge. The most prominent example is the case of Henrietta Lacks. In 1951, cervical cancer cells were taken from her as part of a routine biopsy and were given to researchers; neither, she nor her family were aware of this. Almost 70 years later, researchers are still studying the behavior of cancer on these HeLa (**H**enrietta **L**acks) cells.

Today, no law requires scientists to obtain patient consent for these samples; and all that is required to use the samples for research is for a hospital to remove any record that ties the sample to a patient. But the initiative may change this and require all researchers to get patient permission to use samples first, something many in the scientific community have cautioned could dramatically hinder progress and “good science.”

If there are hundreds of cancer types, to find treatments—or even cures and vaccines—researchers need a large variety of tissue types to study and learn from. Setting up new obstacles to acquiring these samples will only impede the process of the moonshot’s goal of studying the disease. Mark Fleury of the American Association for Cancer Research explained to STAT, “If you’re sitting in the researcher’s seat, you may be concerned because of the extra burden.” Jon Retzlaff, also of American Association for Cancer Research also told STAT of the proposed new rules on sample [collection](#):

With the excitement we have going on with sharing information, to have this be, in effect, a setback to all that — to make it more difficult to do that — it’s strange timing...If it goes into effect, it’s really going to be problematic for a lot of people... I think it is going to be a big, big issue.

If the next president does plan to go ahead with Obama’s plan, she or he should at least revisit this policy.

Getting to moon without Obama and Biden

So what should our next President do? One idea is to instead double down on encouraging Americans to do the things we already know help prevent cancer. Dr. Emanuel, who criticized the moonshot for *not being large enough*

, says there are a number of things we can do to significantly reduce cancer rates on our own—without a billion dollar government spending spree. Number one is to get more people to quit smoking cigarettes. He believes raising taxes on cigarettes would, “...do more to bring down cancer than any moonshot.” He added that healthier eating and exercising would go a long way too.

Breivik said something similar in his Times [piece](#): “...many more lives can be saved by doing the boring stuff, like getting people to stop smoking, eat healthfully, exercise and put on sunscreen.” Also important is the [HPV vaccine](#), which protects against almost all cervical cancers as well as many types of vaginal, vulvar, penile, anal and throat cancers.

Ok so eat right and exercise, don't smoke, wear sunscreen, get vaccinated. That might seem a lot less exciting than a moonshot initiative but the advice is more than just a lecture cribbed from a middle school health class. An analysis [published](#) in *Nature* in December 2015 found that these extrinsic cancer-causing lifestyle factors are the source of as much as 90 percent of gene mutations that turn cells into cancerous tumors—the other ten percent being bad luck and/or inheritance.

So while 90 percent may not be far enough to land us on the moon, it will certainly put us close enough to the stars to do some real good—and probably cost a lot less.

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