Stanford eCorner

Innovation in Academics

Susan Desmond-Hellmann, *UCSF*

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Renowned oncologist and UCSF Chancellor Susan Desmond-Hellmann articulates an example of innovation within academia, with a focus on rapid iteration. According to Desmond-Hellmann, UCSF is working across teams and departments to collaborate with many private sector firms, in an effort to develop a number of innovative products in the fight against breast cancer.

Transcript

I wanted to tell you a story about innovation in breast cancer that's going on at UCSF to just describe what I think is possible in academia, that's tremendously exciting to me. And as Chancellor, I want to create the kind of environment that allows for that kind of innovation. So there's a trial that's going on at UCSF called the I-SPY2 trial. The name's not as important as what the trial's trying to do. Today, if you tried to make a new Herceptin, on average, it will take you 12 years and a billion dollars. I don't like that. Those numbers are lousy. So that if five people in this room got ideas about new breast cancer drugs, we need to raise a capital for those five ideas and take that kind of time? And at some level, I think I want things to improve in our lifetimes, for our generation as baby boomers, the generation after us, our parents. So what can I do? What can we do in academia to enhance our ability to innovate more quickly, to improve cycle time? Well, what I-SPY2 does is it's a trial of multiple therapies rapidly tested in sequence. And those therapies are tested at a particular moment in time before a woman with breast cancer has her primary surgery.

So the really brilliant thing about this trial is that you can use a pick-the-winner strategy. You can cycle through multiple therapies and you pick the winner on two basis. One is, when you do the surgery, is any of the breast cancer left? So you get a rapid readout. You could actually check the surgical specimen and see if any of the breast cancer's left. And secondly, toxicity, so you can throw out a product if it's ineffective or unsafe. And, the trial combines imaging and biomarkers so that we can iterate and learn one product after another. We can also put combinations of therapies into this fast readout method of testing breast cancer drugs. That wouldn't be possible at one company. Unless you have a huge stable of breast cancer drugs which is not, today, the case at any company. We're working with more than five companies to bring many products into this system and iterate and test them rapidly.

And having that kind of environment, where our contracts and grants office, our intellectual property, can allow for us to collaborate effectively and innovate on the technical aspects of breast cancer studies. So that as new discoveries are made, we can make things go faster and more efficient. Because asking and answering questions efficiently in life sciences is something we don't do yet, and I think we need to do. So the I-SPY2 trial for me is a wonderful way in academia for us to have a system in collaboration with innovators in the private industry or in government that can allow for things to go to product development quickly.