Thomas Goetz on Iodine, Start and CareKit

A Conversation with David Harlow at HealthBlawg

March 2016

David Harlow: This is David Harlow at HealthBlawg, and today I have a pleasure to speak with Thomas Goetz, co-founder of Iodine. Thank you for joining us, Thomas.

Thomas Goetz: Yes, of course David.

David Harlow: Iodine was in the news earlier this week as part of the Apple CareKit announcement. And Start application of Iodine's, is the pilot mental health, application included in the CareKit ecosystem. So for starters, Thomas I would appreciate if you could introduce to us Iodine, and more specifically Start.

Thomas Goetz: Of course, so Iodine is really an effort to build a better resource for people to find what works for their health. So really built around, optimizing the idea of treatments and medication choice. There is obviously a huge personal human consumer experience to medications but there really hasn't been a very good resource that guides us through what is often kind of an inherent process of trial and error and side-effects and some drugs work better for others and for certain people. And it really instead of, look to genetics or some kind of you know ideal platonic version of medicines, we thought, well let's wrestle with the reality that people go through and try to map that. So we can map people's experience and turn that into a useful data set that maybe we can generate something that's really powerful for people.

So that's what Iodine is and Start is our app and really kind of a whole program that really tries to optimize the experience for people who are starting a new antidepressant. So with depression and depression treatments there is a very profound process of trial and error and the drugs are kind of hit or miss, there is a kind of a one in three chance out of the gate that any drug is going to work for any given person. And so there is a lot of, you know what we call it as messiness; it's just a messy process. And so we are trying to bring some efficiency and clarity to it by giving people a feedback loop. So we ask them to share their experience, we benchmark it on some clinical measures, there is a self reported survey called the PHQ-9 which gives people a depression score and that's being clinically validated.

So that's kind of the benchmark, the clinical benchmark, but then along the way people map their progress towards their goals, they log whatever issues they are having and in return they get these feedback loops, they get these progress reports, they get these every week or two, they get a kind of nice visualization and distillation of what they have been, how they have been doing so far. And the idea is that, we really look at the clinical guidelines for how antidepressants take effect. And the bottom line is that, in six weeks you should be seeing an effect if the drug is going to work for you, and if it's not you should go back to your doctor.

And so that's really what the Start program is and in CareKit Apple has created some of the framework for the context, a way to actually make those connections, really, to the care -- what they call the Care Team. It's a clinical environment, but also it puts your experience with any one condition -- in our case, depressions -- in the broader context of what you might otherwise be doing. So CareKit has a nice way of framing the other things you might be doing like exercise or therapy or diet, all those things, CareKit makes it easier for us to measure those for people as well. So we think it's a really helpful way to really boost the feedback loops that we are creating inside the app and will create an even more successful product.

David Harlow: So you have launched Start before CareKit, and my understanding is that CareKit would be similar to ResearchKit in that it is an open source framework for developers to build on top of. So I am interested in what particularly you see as some of the benefits -- and you have mentioned a couple of them -- to using CareKit as a framework or as a platform for Start?

Thomas Goetz: So obviously I can't speak for Apple so I can't speak to what they are doing and in many ways I am just going over the presentation that Jack Williams gave at the announcement, but it seems to me that ResearchKit -- and this is just my own observation -- but it seems that HealthKit is a very useful way to capture some kinds of experiences that largely -- not entirely but largely – are in the fitness and wellness realm. And ResearchKit is a way to capture people's experience in a mobile environment for, obviously, for clinical research, but there is this middle ground where there is kind of an opportunity using our mobile phones and our mobile devices actually for clinical care and for optimizing the things that we do for our heath as part of our care plans or our trying to improve our health on a day-to-day basis, with our doctor, within a clinical framework.

And I really think that's what CareKit is aiming at and it's certainly what we responded to when we were talking to Apple and they gave us an opportunity to join the lead group. So there are several modules in CareKit and as I said one of them that we like is the Connect module and it connects to the care team and acts like a kind of a link where the progress report can get sent to the clinicians and you can share your reports with friends and family if you so choose. So it's a kind of UX framework. And then on the other end, it's a nice module for logging specific activity. Obviously there is a lot of logging to what we do inside of Start already, but there was an additional, one level up, context of not just logging your experience around depression but logging the other parts of your life that are potentially directly relevant to your condition and in our case to depression. So that's what we were specifically or in particular really interested in developing with CareKit.

David Harlow: So you now have the ability to draw information in, it sounds like using CareKit as well as share information out, subject to the choices of the individuals using the app?

Thomas Goetz: Exactly, it's like I need to be clear, it doesn't take care of the plumbing problems of integration into electronic health records and stuff, that's stuff we need to build, that's obviously a different order of technological integration which we are doing anyway or kind of in concert, because what we really see the advantage of and the opportunity that we are creating with the Start programs, is not just to have a useful app for any individual person which we think adds great value, but also is really connecting it to your clinical team, to your provider so it is integrated into our actual clinical records even more deeply and you know that's where ensures want to use it, payers want to use it, health systems want to use it. We think there is a lot of value to understanding what happens to you know the whole population of people with depression because, frankly these are people who often are in many ways lost in the system, they kind of get that, what happens is they get that first prescription, they may or may not find some benefits but they you know given the odds, it's a high-hazard failure, people just kind drift away, we have busy lives and we kind of go about those lives and it's difficult to remember that, oh yeah we should really go back to the doctor and talk about something like depression which oftentimes, just given the nature of the condition is not the most front of mind thing it's not like a kind of an acute condition that we need to get treated. So what happens is that people end up not going back for follow up and that's where so much of the experience is frustrating for the patient but also quite expensive for the system.

David Harlow: Sure, this is an issue that of course runs across many other kinds of conditions. What I hear you saying is that this is more likely to go unaddressed when it comes to depression versus a purely physical ailment where a patient is more likely to go back to the physician and say this pill you gave me didn't work, didn't do anything.

Thomas Goetz: Right and I think that, frankly as you note, it happens all over the place, so we think what we are doing in depression is a strategy, frankly, and an approach, that will work in other conditions, and the other one that we have our eyes set on is chronic pain which is actually very symptomatic -- like depression it has a lot of trial and error, the medications and the treatments are oftentimes hit or miss. So we think there are a lot of other conditions and experiences that would benefit from this approach both for patients and then for the people who are trying to care for them.

David Harlow: So, correct me if I am wrong, Thomas, but this seems to me to be a bit of pivot for you. My understanding of Iodine from the beginning was that the goal was to capture information about individuals' reactions, experiences with different medications and present them back to individuals, is that a fair statement?

Thomas Goetz: That certainly is, I don't think it's a pivot in a sense of a turn away from one approach and taking another approach, I really think it's following the lead of what our users were telling us in a desktop or web environment. So we have www.iodine.com, a broad resource of personal experience around medications and other -- frankly a lot of other information about medications. And that, it turns out, that is a really -- a lot of people are responding and that is a growing resource, but there was one question that kept on coming up from our users, which was, How do I know when this medication is going

to be working for me and how can I tell this medicine works for me? And so really that was a very strong signal that we were getting from our users that they wanted to see answers to that.

And so that's where we thought about it a lot, okay, this is something that frankly we can't really answer in a transactional desktop or web environment, this is what mobile is kind of perfectly suited for. And so we really wanted to design something around answering that question, but it's the same, it's absolutely the same philosophy, which is to think about what we can do with personal experience around medicine and medications and use that in informing and driving data sets for better matching of medications for people. It's just that now we are doing it in a much more focused condition-by-condition basis.

I think if you look at the website we have a lot of the data that we are gathering from our community of Start users, a lot of that data from the website is going back into the Start app and so it's really a benevolent cycle that I think we were really trying to create -- a broad pool of resources that, as I say, help people find what works, wherever they might be along the care continuum.

David Harlow: Great, I mean this is obviously a significant problem that we have, medications that are not actually helping people get prescribed in significant volume. And it's a cost to the system, it's a cost to the individuals and this is certainly an important step forward in trying to deal with that --

Thomas Goetz: Yeah, exactly that, I mean that's our business model, right? So we wanted to see, okay, Where is the very real problem for people/consumers in their ordinary lives? And then where is that problem manifest in great cost and inefficiency in the system? And I think that we ended up learning on something very big in both directions.

David Harlow: If I may ask, I am interested both in your business model and in sort of where you might be setting your sights next --

Thomas Goetz: We are deploying Start with the CareKit integration with clinical partners now. So we have a Start For Clinics product that we have started to integrate first into a network of psychiatric clinics here in the Bay Area. And we are also partnering with some insurance companies to actually bring it to their populations and to identify -- one of the things that we are able to do is to identify these populations that might be responding, that are having the hardest time in finding something that works for depression. And so the Start program is something that we are partnering with the insurance companies. And so we are starting to enter into those contracts right now and the CareKit integration is a nice complement to that approach.

David Harlow: A related question is where do you go from here? Are you looking for integrations with other platforms? Are you looking at other kinds of -- You have said

that Start could be used for other kinds of conditions, other kinds of medications, but are there other different or broader applications for the use of your platform more generally?

Thomas Goetz: Yes, so we look at this segment of the healthcare world, where people are diagnosed and have been prescribed a treatment, largely in chronic care settings or with chronic conditions. And they start a course of treatment, and that is very poorly managed and a highly inefficient process right now. So we see that as a whole kind of phase of healthcare that is ripe for optimization and so that's really what we are building largely digital products to address. So depression is kind of the first swath, obviously the website is a big effort to address that, but Start for Depression is doing that right now as a product and I think the next thing, as I mentioned was chronic pain, which will be potentially even greater need and social costs with chronic pain and managing those treatments effectively.

And then there are many other areas where we see this approach is effective, and frankly current approaches are not really working. So auto-immune conditions are obviously compelling to us because there is so much expense in the treatments and so much waste in the cost of treatment. So there is a list you can go down when you are looking at chronic conditions that are a lot of trial and error and are largely symptomatic, that's a lot of our healthcare spend as a nation and as a civilization really and that's really what we are trying to optimize.

David Harlow: Your comments bring to mind two questions, one is that the conditions that you are tackling are often seen as particularly idiosyncratic, or rather the responses to medications and treatments may be seen as particularly idiosyncratic. And I guess, maybe to answer my own question, this is sort of the promise of "Big Data" to be able to tease out patterns from a mass of idiosyncratic individual data points. Do you see this as sort of difficult to capture or do you see sufficient numbers of individuals involved that you start to see trends and patterns?

Thomas Goetz: Yeah, I think you are exactly right, I think there is a lot of effort to optimize areas where we have blood test or lab test, where there is some kind of quantitative benchmark for the condition. There has been less progress, because it's a harder problem frankly, to address those areas where which are more symptomatic, where the treatments are more idiosyncratic, as you said, which is a great word. But I think it's an opportune time to start thinking about these things and start bringing software to bear because frankly this is where a lot of the waste and frustration in medicine is, in addressing these conditions and they tend to be in many ways linchpin or signal conditions for the most frustrating and difficult cases to treat.

So when you have co-morbid depression, the cost for diabetes and hypertension and whatnot gets much higher on a per-patient basis. And I think additionally you see the opportunity to learn some subjective experience at scale, in a way that you can't solely on an anecdotal basis. So we already have the data from thousands of people who have told us what drug they are taking and what their depression score is. And in many ways we are are mapping the disease on the scale that has not been able to be attempted before.

And so when you start building these massive experiential data sets around depression and pain and auto-immune conditions, you start to actually come up with signals out of the noise, at scale. And we are really only on the precipice of that, we have only just started seeing the first hints, but they are quite compelling and they offer, I think, the opportunity to actually bring some improvements and optimizations then for interventions on a population basis that wasn't possible to do before.

David Harlow: So top of mind for me and maybe some others, particularly in the last week or so, are the questions of privacy and security, in particular in terms of dealing with Apple and the Apple ecosystem. And I'm wondering if you could explain where data resides, if somebody is inputting information through the Start app, where does that data reside, is it on the phone is it in an Apple cloud, is it in an Iodine cloud?

Thomas Goetz: It's all in Iodine storage, we are building a HIPAA compliant ecosystem. So it's very important, privacy and security are paramount. Obviously this information especially around something like depression which oftentimes carries a high stigma, is especially delicate and we need to be sensitive about that. So we've been very careful and thankfully our technical team is quite astute. As you may know, part of our path has been working with the FDA so we are already skilled at working with very highly secure environment so that is definitely what we are constructing with Iodine and Start.

David Harlow: So are you moving towards an FDA application for some of your products?

Thomas Goetz: So you know, down the road that may be a course we take, I was just saying that right now we are working with the FDA, we are the contractors on the Open FDA project. So that's a kind of complementary effort that we have been working on that obviously has high security paramount, high security requirements. So that's what I was referring to -- we are already familiar and working in that level of security.

David Harlow: Got it. So one last question that I had is, perhaps a common question to folks using or developing online and smartphone application tools for populations who may be both sick and in many cases elderly, the question really is about the usability of these tools. Have you explored this issue, have you run into issues with any focus groups you may have had or feedback from users addressing usability issues?

Thomas Goetz: Yeah, that's a great point. We actually think it's very important that what we build be useful not just for people in the Bay Area but for a broad population. Part of my background is in public health so I have a great dedication towards serving a broad population. And the people most in need are oftentimes those in underserved or less technically skilled communities or populations. So that's part of what we are building towards and want to make sure that is successful there, so we have done user testing for those populations, we believe that frankly, it would be an unwise business decision to be trying to build this just for twentysomethings who live in San Francisco.

David Harlow: Great. Well, thank you. Thomas I appreciate you taking the time today. This is David Harlow on HealthBlawg and I have been speaking with Thomas Goetz, co-founder of Iodine. Thank you very much.

Thomas Goetz: My pleasure.