

Behavioral Health Provider Efficiency thru Machine Learning

David Young

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Host

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Brief Description

David Young, Chairman of Raiven Health, envisions a world where machine learning and automated patient self-reporting lead to better outcomes. In his work, he has articulated a seamless and automated patient experience from reporting history and concerns through diagnosis, treatment, and recovery. He believes the challenges of provider shortages, access, and clinical workflow can be overcome with these innovations.

Raiven Health uses the behavioral health diagnostic and treatment archives of a large behavioral health provider, Centerstone of America, to develop machine learning capabilities.

Young recognizes the need to address patient privacy risks, to establish ethical policies for reporting back to the patient, and the need to reward providers for value rather than volume in order for his vision to be realized.

Watch: Highlights (4:03) Full Interview (19:16)

This BOH interview was underwritten by VPAC. VPAC uses patient-generated data to help providers more accurately & efficiently identify & treat behavioral health conditions.

Highlights

- Machine Learning, a form of Artificial Intelligence, can organize and make meaning from scattered patient clinical data
- Centerstone Research Institute, part of not-for-profit behavioral health provider Centerstone of America, created Raiven Health to apply machine learning to its large troves of patient data
- Automated patient-reported data collection + applied machine learning make scarce behavioral providers much more efficient
- Tragedies such as the Newtown and Las Vegas mass shootings may have been influenced by untreated mental health issues
- Automating data collection and diagnosis poses privacy concerns; programs deployed by payers or employers must be non-punitive as well as trusted & valued by consumers
- Alternative payment models needed to reward behavioral health providers; fee-for-service does not compensate if capital-intensive technology is needed to automate care

Guest & Host Background

<p>David Young, MBA Executive Chairman Raiven Healthcare</p> <ul style="list-style-type: none">• Currently leads Raiven Healthcare, an AI behavioral health company born out of Centerstone of America• 15 years leading Autism and child and adolescent behavioral health telemedicine initiatives• President & COO of Mindcare Solutions providing telemedicine for veterans• President of Telepsychiatry services for large managed care company• Executive Director for Texas behavioral health authority as well as in corrections, Autism, and multi-state providers• Bachelors degree from Samford University• MBA from University of Dallas• Assistant Professor for Health Services Administration at the University of Texas Southwestern Medical Center in Dallas	<p>Matthew Hanis Host & Executive Producer Business of Healthcare</p> <ul style="list-style-type: none">• 25-year healthcare industry veteran• Held leadership roles in health systems, payers, and commercial enterprise• Day job leading Hanisworks LLC, virtual health business consultancy <p>Business of Healthcare</p> <ul style="list-style-type: none">• Serves healthcare executives across all major industry segments• Audience of over 10,000 stakeholders including 4,700 decision makers• Editorially independent focused on meeting Mission and Margin goals
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Transcript

Speaker	Transcript
Young	I have seen examples of wearables and iPhones and and handheld devices and all that help collect that data right and such a way that it could go in to a database in which would help a clinician predict and then prescribe what it is that they need to do for that particular patient
Young	you certainly want to find an efficient way to use that that rare clinical resource efficiently and I think the technology that we're seeing today I think it's leading us in that down that path fairly quickly.
Young	Centerstone Research Institute which is one of the largest data collectors of behavioral health activities in the country as well and from that there was a lot of interest in what did all this data say and the researchers there began studying it looking at it reorganizing it and realizing that the best way to manage this data is through machine learning which is part of artificial intelligence
	we can make very good predictions about what will happen to an individual if we have rich data big data is important but rich data is really critical
Young	part of the V.A.'s app utilization for Post-Traumatic Stress was that very thing immediate feedback to the warrior and he could respond and it would lower the temperature and he wouldn't have a bad reaction
Young	if a treating clinician of any kind could see that information coming to in almost real time and then with it the support of algorithms that would help predict what might be happening with this patient to a high degree somewhat high degree of accuracy then you could intervene at the right time you could do the right thing and you could apply the resources that are necessary to fix that current problem without over spending a resource to fix that problem
Young	This recent shootings that have occurred and these acts of violence have really, really concerned me because in both cases that I looked at recently Newtown and Las Vegas it appears there was undiagnosed mental health issues there and if we could have gotten to them could we have prevented that I don't know it
Young	Well I certainly have worked a lot of psychiatrists and the top of the mind issues for them is just there's just not enough of me and that the work I do is very very hard very mental process work very very hard and I'm not sure the reimbursement system is really recognizing what I do. You'll find that in primary care as well in internal medicine that mental process work is very difficult and and yet the sense is that you're not really being paid for that
	[End of Highlight Section]

Hanis	tell me a little bit about your background
Young	Currently I am the board chair for Raiven healthcare. Raiven healthcare is an artificial intelligence company and we specialize in behavioral health predictive and prescriptive analytics.
Young	Raven got started and with a group called Centerstone of America one of the largest community mental health centers in America and best write Nashville Tennessee Within Centerstone there is Centerstone Research Institute which is one of the largest data collectors of behavioral health activities in the country as well and from that there was a lot of interest in what did all this data say and the researchers there began studying it looking at it reorganizing it and realizing that the best way to manage this data is through machine learning which is part of artificial intelligence and from that they began to realize we can predict make predictions about what will happen to people not just in the and standard. Categorization like we do in population health management but right down to the granular level. we can make very good predictions about what will happen to an individual if we have rich data big data is important but rich data is really critical the more I know about you individually the better off I am not trying to predict what will happen to you and what would be the best treatment plan for you and so out of out of Centerstone came that and Raven was spun off its own independent company now and doing fairly well at that
Hanis	So Centerstone operates behavioral care delivery in the communities
Young	in five. States they have over two hundred thirty locations that they deliver care in and they're not for profit they are huge and they are a significant portion of mental health delivery in those five states
Hanis	so Centerstone has this massive data set made up of claims data and clinical data out of electronic medical record Tell me about the implication of machine learning.
Young	that's a very broad category within artificial intelligence there are subcategories and one is machine learning and that is the machine can learn from the data that it's getting and it can relearn and relearn as new data comes in and that's primarily what we do. And so as a result it's not totally dependent on huge data sources from wherever it also needs a lot of data about the individuals in the cohort that we're treating classic example is if we use an evidence based protocol it was done a study eleven years ago with students at Berkeley it's not too relevant to people in Johnson City Tennessee today and so the but the data about them and their cohort and what treatments are being applied to that community that's very relevant data and machine this machine has a learning algorithm we don't program it learns and one of the most important things you can do with seen learning is ask the proper question.

Hanis	So the asking of the question and the feedback loop of getting the question to the patient so that you can gather that information in as new inputs, how do you automate that how do you make that more efficient or is that a barrier challenge
Young	it is kind of a barrier in a way and there's a lot of speculation about what we should do yeah we can get all that information we can come up with predictions we get it to the clinician The question is should we be getting it to the patient what we what if we see that you're really having a bad day and you're on the verge of road rage as a result should we tell you to tell you pull over and take a break? a lot of questions about how much of that information we should do now this goes back to a day in which we used to not tell patients very much about what was in their medical record but now we do and I think that we all get to the point where we'll get a lot of that feedback directly to the patient themselves and trust that though they'll make pretty good decisions with it
Hanis	so the machine learning is an integral part of driving efficiency it's the idea that if we could be more effective in asking patients those questions that are insightful to the machine learning and get that data into the machine learning process that now enables a clinician to be more efficient in detection and treatment and presumably could even get to the point where the machine learning directly triggers the patient and tells them about themselves
Young	exactly and I think part of the V.A.'s app utilization for Post-Traumatic Stress was that very thing immediate feedback to the warrior and he could respond and it would lower the temperature and he wouldn't have a bad reaction
Hanis	so half or more individuals with behavioral health conditions remain undiagnosed and untreated.
Young	well. From both my early days in criminal justice and my long tenure in health care much of it in behavioral health it is something that worries me considerably. This recent shootings that have occurred and these acts of violence have really, really concerned me because in both cases that I looked at recently Newtown and Las Vegas it appears there was undiagnosed mental health issues there and if we could have gotten to them could we have prevented that I don't know it
Hanis	what do you do to make detection more efficient
Young	one of the areas that we're working on and that is getting a lot of attention is artificial intelligence how is it that we can use all this data that we collect and we collect tremendous amounts of data in the world how can we use the data to help us find the predictors that might tell us about a potential shooter in Vegas or an emotional breakdown at work something that we can use. We have a tremendous amount of data it's awful lot of conversation about big data in America a lot of conversation about big data but data is a little bit disorganized in this country and artificial intelligence

	is helping us bring that data into an organized format and from it find out what the predictors the indicators are for that detection that also leads to an efficient treatment system.
Hanis	Another phase is then gathering the clinical history, background and other collateral is there an opportunity to make that gathering more efficient
Young	Oh I think there's absolutely an opportunity but but we have a lot of problems in American doing that and I personally examples in which I go to two different physicians and and if I don't communicate what one is saying to the neither one will know what they're doing so we really we have all the structural barricades and we we haven't perfected our electronic health records system there's so many things it's it's very difficult to organize all this data and bring it together and that's one of the big efforts that a lot of companies especially the bigger insurance companies and Medicare have been doing is trying to organize this data so we can extract valuable information from it
Hanis	once you've got the clinical history and diagnostic information and organizing that in a way for a clinician to quickly be able to assess it and in a much more efficient way make a diagnosis and treat is that
Young	that is correct that that would be just the ideal world if a if a treating clinician of any kind could see that information coming to in almost real time and then with it the support algorithms that would help predict what might be happening with this patient to a high degree somewhat high degree of accuracy then you could intervene at the right time you could do the right thing and you could apply the resources that are necessary to fix that current problem without over spending a resource to fix that problem
Hanis	is there an opportunity to also gather that information more efficiently before a patient comes to see their behavioral health clinician
Young	Oh I think there's many opportunities there's just many many opportunities of that one of the dangers we have to work for though it is not to be intrusive However I have seen examples of wearables and iPhones and and handheld devices and all that help collect that data right and such a way that it could go in to a database in which would help a clinician predict and then prescribe what it is that they need to do for that particular patient but I do worry about the privacy issue I think it's a genuine issue and I think it's one of the legitimate concern amongst all of us as an example I have a wearable right now and in forty-five minutes it will tell me to get up and stretch right now it's my own personal nagging trainer how much of that information is coming off my wearable or your wearable do we want to put into the system out there especially in light of some of the recent data leaks that we've seen
Hanis	I could imagine one risk is it. Especially if an employer recognizing that the detection diagnosis and treatment Behavioral Health has such a large return on investment for them might be aggressive in

	trying to engage a patient population and now you you actually trigger an anxiety amongst the patient population of why is my employer trying to find out about my mental health
Young	right and we have a lot of privacy laws that go around mental health and drug abuse and that are that are even more strict than HIPAA laws and we don't want to do that we don't we don't want to create a system that's so oppressive that people revolt against it and won't participate in it we've got to create a system that we're all partners and we're going to be able collect information in such a way that they use is a clear benefit to you as a potential patient and and there is no punitive aspects to surrendering or sharing that information with your employer and your health care provider or your insurer
Hanis	It is so going back to the list of barriers part of part of the barriers are you know insurance and payment in how we will fund increased detection in diagnosis and treatment part of it is clinician availability but I guess another part of it is a system of trust confidence in the patient the person the individual willing to share the information that helps in those activities
Young	Yeah and I would say that because of the way we are here in this country that that's an absolute right you know the information you have is an absolute right unless of course if you come to some point where you're a danger to yourself or others and then maybe some of those rights are watered down but we have to I think it's a very very important part of what we do I think that one of the most important ways that we could gather this information is through the primary care provider that we all have to go to our primary care provider one time or another and working with a primary care provider I think is a way in which we could through trust get more information and be more. Responsive to behavioral health needs that we see coming up through the system.
Hanis	what other automation or other technology changes could address this problem
Young	well better ways to manage and consolidate our data so that we can get the information out of it. I am still a big fan of telemedicine and telehealth delivery systems they have to become more handheld in nature easier to use.
Hanis	
Young	Everything that we do in health care has to focus on the convenience of the patient and I think that builds a little bit of a trust and so I think that's part of the technology and I'm assuming automation I mean I'm not sure that you would want to be driving around in your car and have your psychiatrist pop on and say I think your having a bad day.
Hanis	
Young	I mean it's a little too automated right

Hanis	Right
Young	we do see the possibility of avatars and other text based chat bot type devices coming out that is a little more automated and can work with it we know that the V.A. has worked with post-traumatic stress in this area so I think some of that automation will be coming out. Again and to be part of that partnership between the delivery system providers clinicians and the patient themselves
Hanis	so there's a there's a fundamental efficiency story that I think I'm hearing here and that efficiency story is if I can use technology to automate much of the data collection and much of the analysis for detection and I can hand off to the provider the things that are important that the provider needs to know now I can decrease the minutes necessary for these scarce and expensive provider resources
Young	Absolutely you don't want to decrease quality in any circumstance, but you certainly want to find an efficient way to use that that rare clinical resource efficiently and I think the technology that we're seeing today I think it's leading us in that down that path fairly quickly.
Hanis	what happens to the provider in a world where much of these activities become automated Let's say that the capabilities that we've discussed are available like water what's the implication to a primary care physician
Young	Well of course it depends on the provider doesn't it providers that will embrace technology and support systems in order and allow them to do a better job with their patients I think will move quite quickly. I think I think there's a natural tendency to think from a clinician standpoint that I can't let go care of my patient this is my responsibilities when I was trained and I really have to go so I think are somewhat of that but I think I was as we evolve and I think as is this newest generation of the millennium has come along I think they're going to demand more and more of that and so we're going to have to meet that demand
Hanis	and then what about the behavioral health profession professional What about the psychiatrist who is used to being in a situation where they have to have forty-five minutes of contact time with that new patient in order to bill for a diagnosis what happens if you automate much of the things that go on in that forty five minutes
Young	thank you for inviting me it was just wonderful talking to you today.