Patients in Context

Psychosocial variables for dynamically tailored interventions

Michael Fergusson Ayogo Health Inc 2018-09-15



BC Health Information Management Professionals Society

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Who am I and why am I here? One size cannot fit all; why tailoring matters Social science meets design thinking Initial implementations



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michael fergusson, CEO of Ayogo.



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who's that guy? why is he here?



Michael Fergusson CEO & Founder Ayogo Health Inc. Michael has been an entrepreneur for over 20 years and is a pioneering technologist with patents and publications in the area of Human-Computer Interaction. Since he founded Ayogo in 2011, the company has won many awards, including being named one of the 100 most innovative digital health companies in the world by the Journal of mHealth. He's also a Board Member for Innovate BC.

His personal awards include the PharmaVoice 100 Most Inspiring People in Life Sciences, Ernst and Young Pacific's Social Entrepreneur of the Year, and World Healthcare Congress' Top 10 mHealth Entrepreneurs, and grand champion at the Western Canadian Martial Arts Championships.

He lives in East Vancouver, with his beautiful wife and four amazing children.















Your 200,000 Year Old Brain



Behavioral Economics provided insights and useful design patterns (like hide and seek) and generated good results, but by our analysis failed to sufficiently account for individual variability.

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Our experience changed our thinking

These projects, and the insights they provided, illustrate our growing understanding of how to use Perceived Self-Efficacy and other psychosocial data as tailoring variables in our interventions:

- Increasing confidence through social engagement **Type 2 Travellers** (Merck)
- Identity and decision-making Picturelt! (Kaiser Permanente)
- Goal-setting and reducing goal conflict **Fit2Me** (AstraZeneca)
- Just-in-time education AllyQuest (UNC-Chapel HIII)
- Supporting a coaching relationship **GoalMama** (*Nurse-Family Partnership & HopeLab*)













one size cannot fit all. tailoring matters



We each have a unique decision-making context

approach: social science meets design thinking



Perceived Self-Efficacy

An important element of **Bandura's Social Cognitive Theory (SCT)**, which essentially focuses on the patient's **personal confidence beliefs** about his or her capacity to undertake specific health behaviors that may lead to desired outcomes.

Why Perceived Self-Efficacy?

..."self-management programs that incorporate self-confidence or control-enhancing strategies can produce more favorable outcomes for people with chronic disease than standard intervention programs"

Barlow, J. H., Williams, B., & Wright, C. C. (1999). Instilling the strength to fight the pain and get on with life': learning to become an arthritis self-manager through an adult education programme. Health Education Research, 14(4), 533-544.

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Can be measured using simple, empirically validated instruments

Example scales

- New General Self-efficacy Scale (Chen, 2001)
- Perceived Diabetes Self-Efficacy Scale (Wallston et al., 2007)
- Perceived Kidney/Dialysis Self-Management Scale (Wild et al., 2017)
- Diabetes Management Self-Efficacy Scale (Bijl IV, 1999)
- HIV Treatment Self-Efficacy Scale (Johnson et al., 2007)



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PSE has predictive power

A large body of evidence has demonstrated that self-efficacy perceptions significantly predict quality of life and successful disease-management among patients with chronic illness.





PSE is not destiny; it can be influenced



in practice: initial implementations



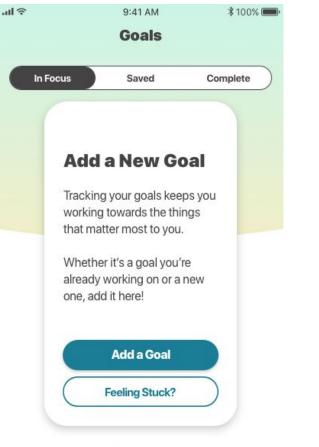
supporting clinicians



mapping. confidence over time

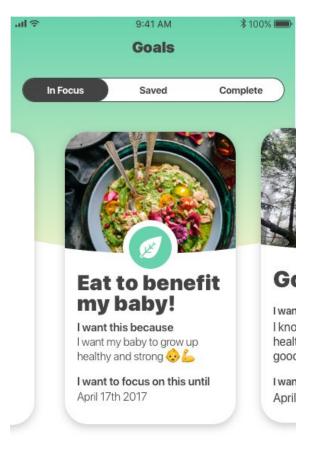
You can't change what you don't measure

For a medicaid-funded maternal care program, we provide valuable insight to the nurse-coaches about how their client's perception of themself changes over time and situationally. This allows them to be maximally impactful in the short time they have with each mom in their care.



You can have 3 In Focus goals at a time





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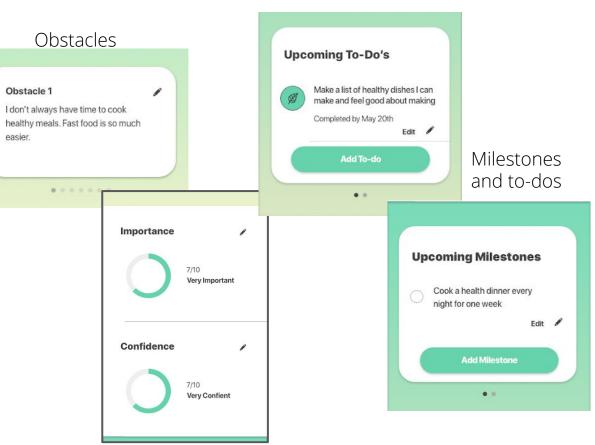
Eat to Benefit my Baby!

I want this because ...

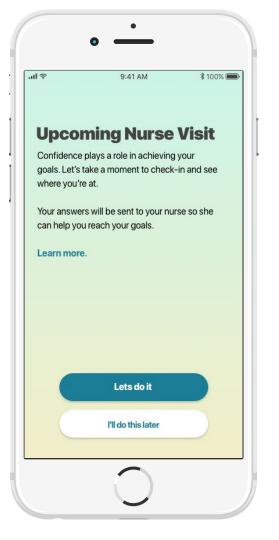
I know it's important to eat healthy and I want to set a good example for my child.

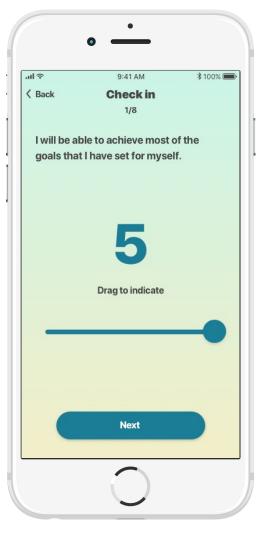
I want to focus on this until... April 14th 2016

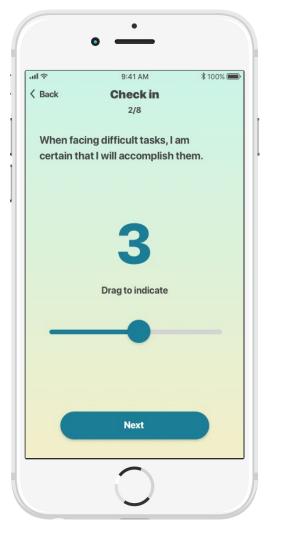
Keep on adding to your goal!

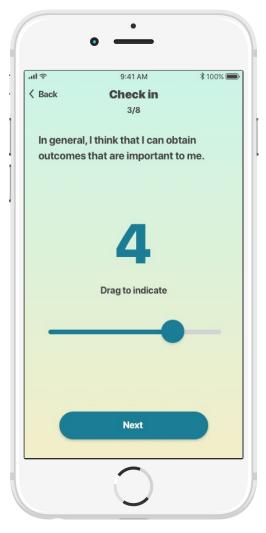


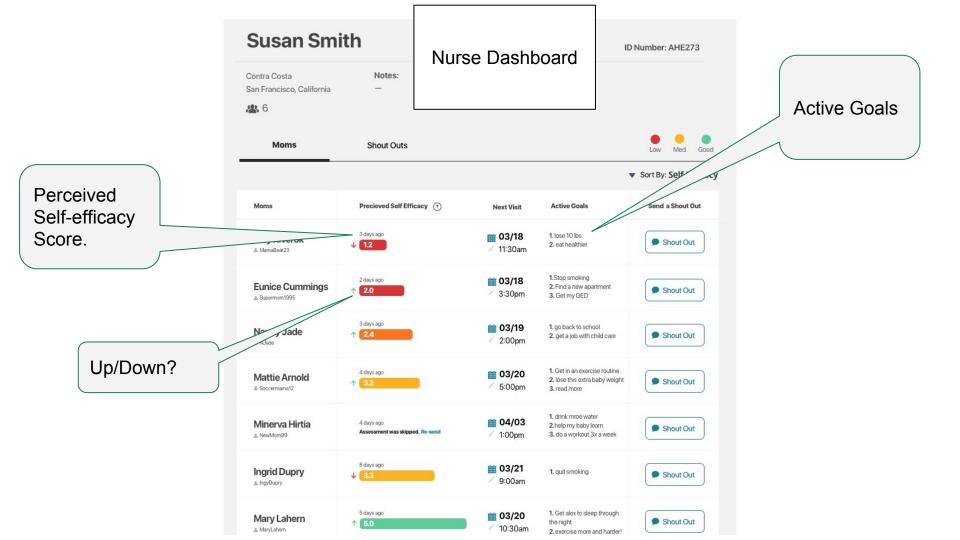
Importance











tailored interventions based on individual self-efficacy

adherence. building confidence with small victories

There are a range of reasons for poor adherence

our research indicated that one reason is fear of side effects, and a lack of confidence in the ability to manage them. For the At-Risk Youth clinic operated at UNC Chapel Hill, we added a number of small innovations to the PrEP adherence program that have had a significant impact.





Update your diabetes confidence score



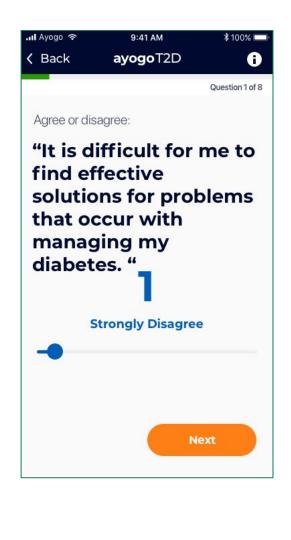
This 8-question quiz is easy to take, but make no mistake—it's a **sophisticated psychological assessment ①**.

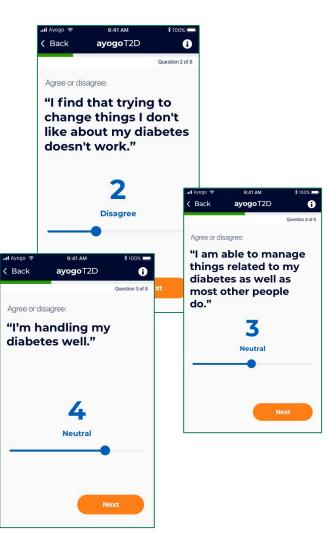
Taking it at regular intervals can tell you some interesting things about yourself, and will helps DEB and your care team better tailor your care.

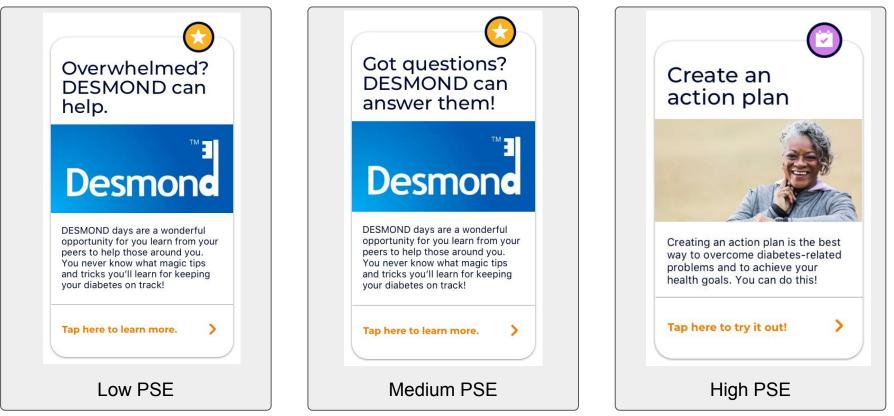
During this quiz you will be asked to agree or disagree with statements about your diabetes. Some may seem oddly phrased. Don't worry, there is a method to all of this!

Please respont to each statement by choosing a number from 1 to 5.

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree









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Here's something you might find interesting:

2 min

3:59

In focus: Stages of diabetic retinopathy



The more knowlege you have about complications arising from uncontrolled diabetes, the more you'll be able to take control of your health. Let's take an in-depth look at the stages of diabetic retinopathy.

Tap to read article ____



4:00

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Here's something you might find interesting:

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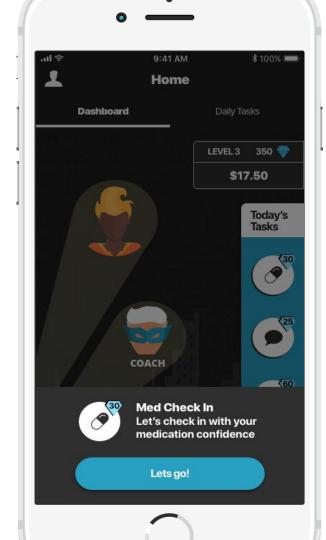
2 min

To save your eyesight; know your numbers.

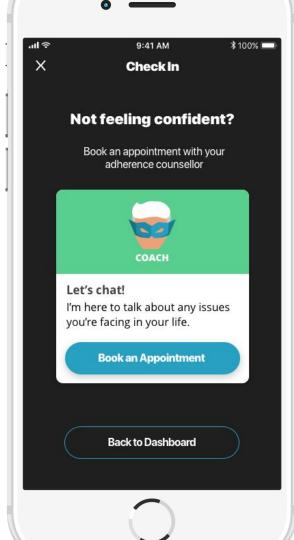


When it comes to these three important measurements, do you know what your numbers are ?

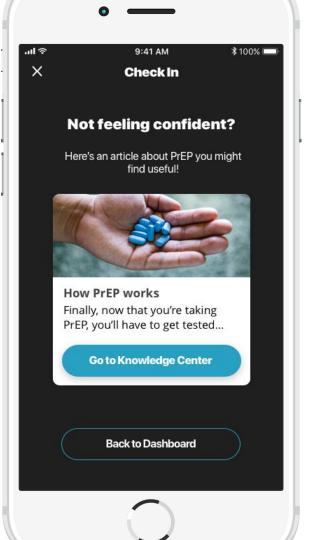
Tap to read article



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K Back	Check In		
		1	
Confidence Check In			
How confident are you in managing PrEP side-effects?			
	2		
	l'm not at all confident		
	Next		
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A result that indicates further intervention produces a response which that is tailored, based on the results of previous PSE scores.



virtual coach conversational interventions



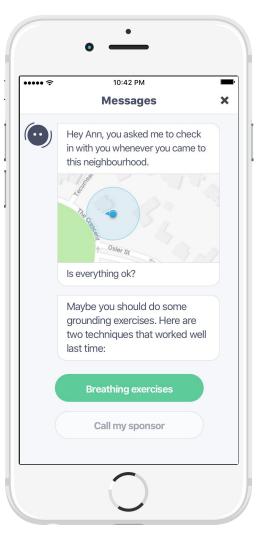
support. patients with A.I.-driven tools

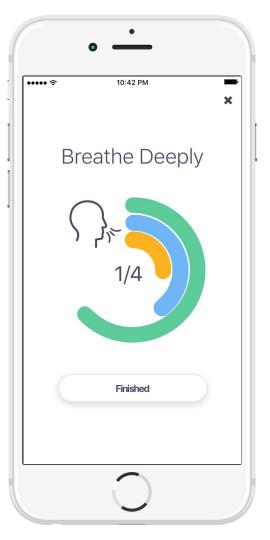
A chatbot that knows when you're struggling.

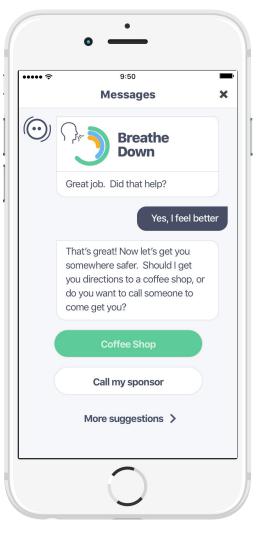
for a substance abuse disorder program Ayogo designed a system that allows for geo-fencing of particular neighborhoods and other locations that are particularly triggering. we can then check in and offer suggestions and strategies.













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thank you!

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