Interview with David Van Sickle

JULY 27, 2017

This interview is a companion piece to one of a four-part series of deep dives into the impact that human-machine partnerships will have in four industries over the next 15 years: health care, financial services, manufacturing, and entertainment and media. For a more detailed explanation on human-machine partnerships, please download the full report, *The Next Era of Human-Machine Partnerships*, here.

Propeller is a leading digital platform that offer sensors, mobile apps, analytics and services to support respiratory health management. David Van Sickle, PhD, is the co-founder and CEO of Propeller Health.

Q: How plausible do you find the scenario, Digitally Conducted Care?

A: Very plausible. In many cases, it's here already. It might not be as well-connected or developed as it is described in the scenario, but the technology already exists in many cases—albeit at an early stage.

Q: What difficulties need to be overcome to develop the technology further?

A: We need simpler ways to tie data flows together and connect them to individuals and populations. Until now, the sector has strived to make sense of batches of data. Today, we're trying to understand streams of information as they come in, and to make timely connections between data. Clinical medicine and public health are starting to train people to do this, but there is not much of a history in the disciplines yet.

Q: What is one of more surprising findings you've uncovered at Propeller Health by tracking and collecting data from disparate sources?

A: Newly juxtaposed datasets make us question long-standing assumptions we had about asthma. For example, the data tell us asthma symptoms happen as frequently in the community—at school, at work, at other places—as at home. Yet, the majority of established approaches have focused on mitigating exposures in the domestic environment. We're learning that much of what we have assumed about respiratory disease may not really stand up to the light of data from daily life.

Q: What do organizations need to do to prepare for digital health?

A: The least valuable thing technology can offer these days is a digital version of the pen and papers approaches of the past. I mean that more metaphorically than literally. There are just so many new ways to envision and create the experience of a disease and healthcare. I don't think organizations are doing enough to imagine what might now be possible as the burden and management of these diseases are digitized. The productive question is: How can we change the experience of a chronic disease using the tools and information we have?

INSTITUTE FOR THE FUTURE   **DELL**Technologies

Interview with David Van Sickle

Q: Some are concerned that the data being generated from digital tools will only contribute to the information overload already being felt by individuals and organizations. How would you respond to that concern?

A: We believe that Propeller, and digital health technology in general, will fail to the extent it only makes more information visible to individuals and organizations. Our job is to interpret the data we are collecting and use that to make meaningful and practical recommendations about how an individual and their physician can sharpen and strengthen their approach to disease.

Successful care and treatment of respiratory disease requires continually negotiating a complex stack of puzzles. For any given patient, a physician has to determine the right medicines and delivery devices from among hundreds of combinations, understand the severity of disease and current level of control, assess the changing effect of the environment, and so on. It's too much complexity for any individual, but exactly the kind of problem that a machine can productively take on. I suspect a lot of the complexity in these technologies will disappear at the same time their contribution becomes more apparent.

Q: Propeller Health is a great example of a new human-machine partnership. Do you see other examples of human-machine partnerships in healthcare?

A: There has been a growing number of promising examples, whether about automated, intelligent adjustment of oxygen therapy in hospital, or automated or semi-automated insulin dosing at-home. More clinical evidence is still to come, of course, followed by regulatory review and support, and then, finally, clinician adoption.

These are human-machine partnerships. The computers are running and making decisions, within pre-established guidelines or under supervision, to reach or achieve a target outcome. But there are always physicians there. They are just now able to shift their time and attention to important work that the machines cannot do. For example, connecting with and supporting their patient, or helping them understand their disease, how their medications work and how to take them. There is so much more that a clinician can do to help, other than spend all their time trying to solve a giant matrix to figure out exactly what adjustments should be made to this or that medicine

Q: What about the role of individuals in digital health?

A: There has to be a broader conversation about the purpose of digital health. Is this all about individual patient engagement and personal responsibility, or can this be part of a bigger campaign about how digital health can inform and improve population health. We can embrace the technology and what it can accomplish for individuals, and not let digital health be woven into a campaign to sublimate everything about health to individuals. In the case of asthma, for example, it has to also be about pursuing a bigger social commitment to seeing that people don't need to have fancy technologies to be able to breath without [negative] health effects.

IF INSTITUTE FOR THE FUTURE

201 Hamilton Avenue
Palo Alto, CA 94301
www.iftf.org