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Paging Dr. Nick

Technology rarely advances in leaps and bounds — rather, it slowly improves, each new invention incorporating the lessons learned from previous generations. It's a process more akin to evolution than revolution, or so argues Dr. Nick van Terheyden, a healthcare innovation expert and former chief medical officer for Dell. Van Terheyden, who has nicknamed himself "The Incrementalist," now has a company called Incremental Healthcare that offers strategy advice for healthcare providers.



Nick van Terheyden

In his long healthcare career, van Terheyden has extensive experience developing wearable technologies. In addition to this venture, van Terheyden is a strategist for Proximie, a British company that is making an augmented reality robotic surgery platform, and Universal Health Coin, a healthcare-based cryptocurrency. He is also chief medical officer of BaseHealth, a healthcare IT company, and is on the board of several other companies.

Van Terheyden is also the keynote speaker for the annual Trenton Computer Festival, where the theme this year is Wearable Technologies. The festival will take place Saturday, March 17, from 9 a.m. to 5 p.m. at the College of New Jersey in Ewing. Tickets are \$12 to \$40. The event will include talks, presentations, a flea market, vendors, and demos of the latest in computer technology. For more information, visit tcf.pages.tcnj.edu.

Van Terheyden blogs at incrementalhealthcare.com, and this year he put forward his "big ideas" for the healthcare industry:

What are my BigIdeas2018 for the healthcare industry? They revolve around three topics:

Technology continues to move at an exponential pace, leaving virtually no industry untouched. Healthcare is no exception — the technological progress in this space is offering incredible opportunities to improve the health of our population, reduce costs and extend the capabilities of our limited skilled clinical resources.

So, what's next? There are three specific areas I predict will have a significant impact on the healthcare world in 2018: security, data and virtual care.

The imperative of security: While the healthcare industry has made tremendous leaps and bounds over the past year, it remained a laggard in securing and protecting information. All the while, the industry is a major target for hackers desperate for the data and its rich value.

In 2018, new models of security and protection will emerge designed to help mitigate the exploding edge of healthcare devices and data stored. Tied to this will be the expansion of decentralized and distributed secured ledger systems based on blockchain technology that will offer secure, granular control over data and payment mechanisms.

This development will be increasingly important in the new year as we continue to add huge amounts of data to the clinical record from both industrial medical grade devices (such as the innovative cuff-less continuous blood pressure monitor from Sensogram) and consumer wearable devices.

Expansion of genomics data acquisition: We will also see the continued expansion of genomics data acquisition, which will grow beyond the "simple" genome and lead to a deeper understanding of the microbiome and its impact on our health in unimagined ways.

How? Machine learning algorithms that use artificial (or more appropriately, augmented) intelligence will allow us to make sense of all this data. Clinicians seeking insights and understanding of the workings of the human body and related disease agents will be able to leverage these data troves in a more impactful way. The early stages of predictive analytics are already showing incredible promise to shift the focus of healthcare from a reactive system of treating the disease as it occurs to one of predictive, precision-based medicine that identifies risk and offers mitigation and prevention before conditions present themselves clinically.

For instance, at BaseHealth, we're already putting this approach into action. Leveraging AI, we have reviewed over 150 million published, peer-reviewed research studies containing data on 70 million lives to map the cause and effect pathways for over 40 complex diseases. We can identify patients with underlying risk for these diseases, before the diseases present clinically, which enables healthcare professionals to improve care and reduce cost by identifying the unknown rising risk within a patient population (the "Invisible Patients").

Addition of virtual care: Finally, I predict that the addition of virtual care (in all its forms) will not only add to the data streams we process and learn from, but will also offer the Silver Surfers

(aka Baby Boomers) the potential to age comfortably, safely, and healthily in a home-based environment. Access to clinical resources via telemedicine solutions will offer newfound efficiencies in the system for patients, medical professionals, and the extended medical family care team.

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