Clinicians 'need to stop thinking in traditional terms and acting with yesterday's logic' - Nick van Terheyden, MD, Incremental Healthcare

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In this hard-hitting interview, Nick van Terheyden, MD (aka Dr Nick), Founder & CEO Incremental Healthcare, discusses the latest innovations in clinical data collection and handling and what is holding them back. It is part of our series on clinical data collection and management.

With new technologies constantly appearing, there are numerous innovative ways to collect clinical data, which do you think currently are and will be the most effective?

NvT: 'We suffer from a tyranny of opportunity making it challenging to move forward. With so many options available I advocate an incremental approach to revolution. We want and need this exponential change but the difference between incremental and exponential is simply a function of time. We achieve exponential innovation with the application of incremental steps rapidly.

Capturing clinically valid and reproducible data from the broadest cross section of humanity as frequently as possible will continue to expand

understanding and could allow for a new methodology in clinical trials that relegates the concepts of Randomize Controlled Studies (RCTs) to the curiosa pile of history. With all data collection we will continue to draw ever more fascinating conclusions from what we might currently consider mundane data. Separating correlations from causality will continue to be required and a major focus as we develop new techniques to understand relationships and, more importantly, visualize and present the data to the right people at the appropriate time in a form they can comprehend and take action based on the data.

Ultimately it is not about the new techniques and channels for collecting data, but rather will be about capturing all the data and normalizing and tagging it to make it accurately machine readable that will have the biggest impact on clinical trials. Some of the most innovative methods of data capture are unimagined right now but will seem so obvious to us as we look back at the historical methods that will in hindsight seem so primitive.'

What advantages do these new techniques offer for both those running the trial and the patient?

NvT: 'We remain stuck in something of a time warp when it comes to treatment protocols in use in healthcare. Studies show that despite landmark trial discoveries, it could take up to 32 years for clinically valid treatments to reach even a 50% level of use in regular clinical practice.

Aside from the challenge associated with the time it takes to determine the effectiveness or otherwise of a new treatment option, we are moving away from the traditional RCTs to the use of all the data all the time. This will benefit everyone as we transition from guesswork implied in traditional data collection methods that sampled infrequently and inconsistently, to continuous data collection across a wide range of clinical variables.

We must speed up the process of discovery and scientific validation of insights as we enter a new age of understanding of the workings of our world and biology. Importantly no data should be relegated to the rust heap of irrelevance, but there should rather be complete publishing and democratization of access since we do not know where or by whom the insights will be developed.

New insights, theories and models will be developed at an exponential pace, sometimes even disproving established widely held scientific understanding and requiring rapid changes in treatment practices and protocols. Rapid incremental improvements applied quickly and with rigorous scientific validation will be applied for the benefit of the patient who seeks the best and most effective possible care. And also for the scientists, clinical trial team and clinicians who are all seeking the fastest and most economical path to the truth and understanding of disease as they race towards their desire to deliver the best care to patients.'

What challenges still need to be overcome?

NvT: 'We live in interesting and exciting times, but there are still many obstacles and challenges to overcome that arise from the capture of so much data from so many different sources. Integrating this data will require significant effort and focus on the normalization of the data to allow for the accurate and reliable comparison of data derived from so many different sources, systems and devices.

As we integrate more data, the presentation and visualization of this information will challenge our brain processing power and new techniques and tools will be essential to accelerate our understanding. Expect to see new tools that may automate the scientific process of teasing out the insights. At a minimum, new tools will be required to present and manipulate information

to present it in forms that allow our brains to see the causal connections.

Failure of inclusivity – much of the capture and cross section of data captured is linked to wealthier and hence healthier groups and excludes the poorest communities. These individuals are typically in greater need and suffer from more chronic conditions, often attributable to the social determinants of health (SDOH). These factors and this data remains elusive in data sets currently being analyzed.

Technology does not come with ethics, but society depends on them, so as we accelerate the use and understanding of this data we will need to build in controls that, in their simplest form, prevent the data from being used against the very individuals who are providing the data.

For clinicians they will need to stop thinking in traditional terms and acting with yesterday's logic and rather adapt and expect things to change, and quickly. This requires a change in the medical education system still anchored in old principles of didactic methods of teaching and testing that relied on the individual to be the expert in the knowledge, care and decision making of medicine.

As Peter Drucker said: "In times of change the greatest danger is to act with yesterday's logic."

For the clinical community there can be no pause or "wait and see" for they risk being relegated to observers of the new age of medicine rather than key contributors and navigators of the exciting rapidly changing and hopeful new age of what is possible in medicine.'

Follow Nick van Terheyden on Twitter at @drnic1.

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