Could Biobanks Be the New Frontier for Digital Health Research?

By Praduman Jain

Vibrent Health argues that ongoing interactions between biobanks, researchers, and biospecimen donors can build trust and reinforce precision medicine

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One of the truly rewarding parts of my job is interacting with a broad ecosystem involved in health research, which has allowed me to gain invaluable insights through close collaborations with research, academic, government, and industry partners. One important topic that comes up often is the current and future role of biobanks. Through our role as the technology provider for studies involving biobanks, we're in the unique position to observe how biobanks can maintain and increase their relevance, continually adding value to health research organizations while redefining their role in helping people achieve better health.

Besides having mastered the process of collecting biosamples, such as human blood and tissue for research and clinical applications, biobanks have proven their vital role in developing deeper knowledge about diseases and helping find new approaches to prevention and cures.

The biobank market is showing no signs of slowing, with both academic and industry-focused analysts estimating seemingly limitless growth potential. According to Grand View Research, the global market size for biobanks was estimated at $52.31 billion in 2017 and is projected to reach $74 billion by 2025.

For all the progress biobanks have made, the typical biobank interaction is still a "one-time occurrence" in which biosamples are collected from a specific cohort and then stored. Of course, the importance of these interactions should not be understated. Physical samples are incredibly valuable (and viable) long-term research assets.

But there are opportunities for biobanks to do even more. As we shift toward precision medicine—treatment and research methodologies based on individuals' genetic, environmental, lifestyle, and behavioral influences—these opportunities can expand exponentially.

Taking a comprehensive view

One of the more significant contributions of digital health research over the past few decades is in the field of genomics. We're all born with a unique gene expression that shapes us as human beings. We have no control over this predetermined physical "signature." However, there are ways to control its effects on long-term health and well-being, for example, by adapting and modifying our environments, lifestyles, and behaviors.

When information about these factors is added to clinical data, a more holistic picture of a person takes form. Through their stored samples, biobanks can help us gain an even greater understanding of the relationships among ancestries, personality traits, and risk factors. This can lead to biobanks ensuring their status as a major player in health research.

But first, we must shift our mindset and think of biobanks beyond collections and storage, adopting an approach based on a longitudinal lifecycle of research.

Building relationships

Health research is a continuous process, with clinical trials occurring more frequently each year. According to ResearchandMarkets, the number of clinical studies registered with the National Institutes of Health increased from 181,305 in 2014 to 262,445 in 2017, with large ongoing cohort studies related to precision medicine cited as a key factor driving the trend

of biobanks becoming both population based and disease oriented.

The *Journal of Translational Medicine* notes that this integration of biological and geographical data enables research groups to collect information that could be used to identify possible therapeutic strategies for the long-term well-being of a specific group.

Identifying and recruiting the right pool of clinical labor is time consuming and potentially expensive. Think of the potential for longitudinal research if biobanks were to continually engage over time with the people who are already enrolled in a cohort and have donated samples.

This practice would also facilitate the biobanks' retention of participants. Retaining a cohort makes it easier for the biobank to come back to people over a longer period to conduct additional research. By simply staying in touch with participants through a postcard or email or bringing them to an event once or twice a year, both biobanks and participants build a mutually beneficial relationship based on value.

Biobanks are also regional, and as a result, many biobanks already enjoy a high level of trust within their communities. This allows biobanks to expand their reach by building better prospect lists of recruits for future health research efforts. If biobanks continually broaden their prospective field of cohort participants—and even combine data sets from different cohorts—they will demonstrate a higher level of health research innovation (a key factor in grant applications) for biobanks and their clients.

Digital health platforms help grow and diversify biobanks' cohort registries, helping biobanks become more relevant and competitive.

This lifecycle approach is no different from traditional product marketing, where terms like outreach, awareness, retention, and prospecting are common. In this instance, the return on the marketing investment for biobanks would be more funding opportunities.

Making a difference

Biobanks are not limited to academic research. They are also making a real difference in people's lives. Consider the example that is being set by the DSA Biobank, which was launched in 2015 by DownSyndrome Achieves in partnership with Nationwide Children's Hospital. The DSA Biobank is dedicated to facilitating the discovery of new therapeutics and diagnostics that will ultimately improve the health and well-being of people with Down syndrome.

As the DownSyndrome Achieves organization demonstrates, biobank collaborations have the potential to innovate health research—and to do good for society. Encouragingly, this potential can be achieved more readily with the technology that is now at our disposal.

Electronic consent forms are helping us eliminate mountains of paper and create more efficient and transparent records systems. App-based research and virtual clinical studies, which leverage our use of smartphones, tablets, laptops, and other mobile devices, are making personal health information easier to collect and share.

Digital health platforms provide the technological foundation for helping researchers fully utilize biobanks. At the same time, these platforms help grow and diversify biobanks' cohort registries, helping biobanks increase their relevance and sharpen their competitive advantage. The benefits of this technology range even further, from real-time analytics and customizable reporting to data-driven, personalized digital marketing and communications strategies to help organizations find and retain participants.

Our industry is based on the principles of service, care, and healing, and equally important is the principle of strategic collaboration. Working together, we can all open the door to new opportunities. GEN

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