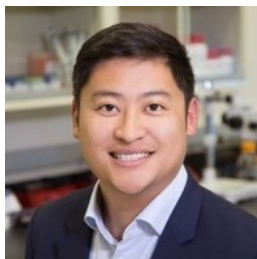# ximedica®

Data-Driven Healthcare Outcomes

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If you orbit within earshot of the healthcare ecosystem in the U.S., it is only a matter of time before someone mutters a phrase along the lines of: "Healthcare is 20 years behind the technology curve." As we reflect in 2021, a number of mega trends continue to accelerate the adoption of technology with an eye towards data and machine learning to drive value in healthcare. In this and subsequent articles, we consider the role of data in delivering value to healthcare, barriers to adoption, and lessons learned from notable failed ventures.

In this part 1 of a series, we look at emerging trends in data around value-based outcomes, robotic-assisted surgery, and telemedicine. In subsequent discussion, we will dive deeper into data analytics within medical imaging, wearables, and diagnostics. At the end of the series, we summarize key insights for each application of AI in healthcare that was discussed and identify potential future challenges and opportunities for emerging areas.

Value-Based Care

Over the past 20 years, the maturation of advanced biological tools from academia to the mainstream has fundamentally transformed our understanding of disease and our ability to develop novel pharmaceutical treatments. This has led to a rise in development and use of biologics over more traditional small-molecule therapies. Due to the complex and often personalized nature of these therapies, the market has seen a marked increase in the price of these advanced therapies.

In order to manage therapies that command price tags of $2 million dollars, the pharmaceutical companies often develop companion diagnostics that identify patient populations that are most likely to respond to the treatment and payers have begun to shift to "value-based contracts" where payments are tied to patient outcome.

This trend has dramatic consequences and has begun to trickle down into the medical technologies space. In addition, the ideas behind value-based contracts drive the broader move towards value-based care, where healthcare providers are paid based on cost per disease, inside of a "fee for service model". This is a fundamental shift in the U.S. healthcare system that has led to the interest in data analytics within healthcare that we see today.

Robotic-Assisted Surgery

The adoption of robotic-assisted surgery remains controversial among different groups, but a decade of increasing penetration and market acceptance has cemented the dominant player's position in both soft-tissue and hard-tissue surgery, and medtech business leaders are looking to understand their role in this emerging ecosystem.

In 2020 a number of new robotic platforms were introduced, and while the technical details and go-to-market strategies are not important here, it is becoming clear that the robot is the centerpiece of a larger market strategy that shifts the competitive landscape beyond randomized trial clinical data to an ecosystem data set that is hugely more complex.

This ecosystem view of performance and outcome data will enable patient stratification to improve outcome, improve hospital and OR efficiency, and improve post-treatment monitoring and early detection of recurrence or negative outcomes—all with a goal to drive improved outcomes at a lower cost.

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Telemedicine & Wearable

The incredible adoption of telemedicine platforms in 2020 as a result of the COVID-19 pandemic was perhaps the greatest shift in the delivery of healthcare in this country since the arrival of penicillin. From our view in February 2021, it is impossible to predict the state of the industry post-pandemic. However, from a market perspective, the rise and merger of Teledoc and Livongo has created a billion-dollar digital-first healthcare company with a fundamentally different business model than the rest of the industry. Post-merger, the new Teledoc has the reach, the infrastructure, and the scalability to leave a lasting impact on how chronic diseases are managed and, given sufficient time, will have wide-reaching consequences for patient monitoring and quantifying long-term value of care.

What's Next?

The good news is that we are very much still in the early innings of an opportunity to transition to a new healthcare ecosystem. The bad news is that the challenge is complex and nuanced and progress will be checkered and incremental. From our point of view, the risk for today's incumbents (and the associated opportunities) is that most medtech companies see data and value as an ad-hoc, bolt-on feature, rather than an intrinsic, embedded part of the business. Business leaders see data as a market differentiator, engineers build tools for engineers, and physicians' field of view are often too narrow for meaningful insights.

Put another way, monetizing data analytics to drive the product roadmap is not a core strength of traditional medtech companies. As successes emerge from failed ventures, it is becoming clear that technical challenges of analytics and learning models are no longer the only barriers to a data first healthcare ecosystem.

At Ximedica, we have a unique view of medtech across patients, surgeons, pre- and post-op monitoring, and data analytics that falls under our greater mandate of user-centered design. We believe the trends outlined above will drive fundamental changes as to how we develop medtech innovations and the business models that fuel the ecosystem.

Join us in our series as we explore the current state of healthcare data, data analytics, the applications and challenges of applying machine learning to healthcare data and patients, and how companies can derive real value and competitive advantages in the marketplace for the next decade. We will conclude with a look at how major medtech companies are positioning their businesses and at examples of data building differentiated businesses in healthcare and improving value.