Biopharma in the coming era of 'connected health'

Disruptive technologies are already reshaping the industry. Here's how executives can meet the resulting challenges.

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Big data, social media, and mobility are shaking up the business models of many industries. In consumer marketing, for example, the traditional consumer-purchasing funnel is giving way to the consumer decision journey. In this new, interactive arena, purchasing choices are mediated by social networks, mobile devices, and peer influence, offering marketers ever more effective ways of managing their brands at a time of stressed budgets. Similar disruptions are rolling through sectors from media to financial services.

The health-care industry has not been at the leading edge of such technology adoption. A number of factors, however, are pushing the sector toward greater "connectedness." This trend has implications for biopharma, where opportunities to follow the technology path of other industries are increasing rapidly. This article offers our perspective on the emerging era of connected health and on how biopharma can respond.

The status quo is unsustainable

The model for health care around the globe is "high touch," where medical experts are the key actors, delivering services within silos of care. This approach results in high costs and variable quality. Exacerbating cost problems is a payment model, largely dependent upon fees for products and services, that leaves little financial incentive to improve performance. At the same time, information about the sector's products and services, such as the quality of physicians or hospitals, remains very limited. Often data are monopolized by the suppliers themselves, as is the case with controlled clinical trials conducted by biopharma companies and device manufacturers. An increasing and unsustainable imbalance between supply and demand is the result, as the needs of aging populations in developed nations soar and a new middle class in developing countries emerges.

Takeaways

The current 'high touch' model for health care cannot be sustained; change is likely given high costs and other concerns, which have prompted reforms and experimentation.

As the industry evolves, 'connected health' will become a reality through data-based transparency, personalized care, and consumer-directed care.

The new model will disrupt the biopharma sector, but strategies such as predictive medicine and personalized care could allow players to create value nonetheless.

Change is commencing, but will it gain momentum? We think the answer is yes. The growing costs of health care, coupled with rising debt concerns in the United States and Europe, are prompting private- and public-sector reforms and experimentation. Some examples include a wave of health-care IT investments prompted by government incentives (for instance, those in the United States for electronic medical records) and the innovation pilot programs driven by the Centers for Medicare and Medicaid Services as part of US health reform.

A multiyear path to 'connected health'

As these trends play out between now and 2020, technology's growing importance will shape the industry's evolution (Exhibit 1). A new "connected health" environment will feature the following characteristics:

Data-based transparency. Funders and consumers of health care are demanding more information and transparency of outcomes as the foundation of a value-based payment model; both parties are seeking to pay for what works, and not pay for ineffective interventions. Moreover, new data sources from health-care IT investments are coming online across the globe and are providing the "big data" that can satisfy this demand for transparency.

Personalized care. Economic realities and underlying biology are forcing the issue of personalized care—that is, the right treatment for the right patient at the right time. This kind of focused treatment can improve outcomes and dramatically reduce waste. Advances in diagnostic technology and big-data mining of patient information are making personalized care at scale possible. New devices not only make monitoring a patient's condition economical but also provide continuous feedback about the cost-effectiveness of that patient's treatment.

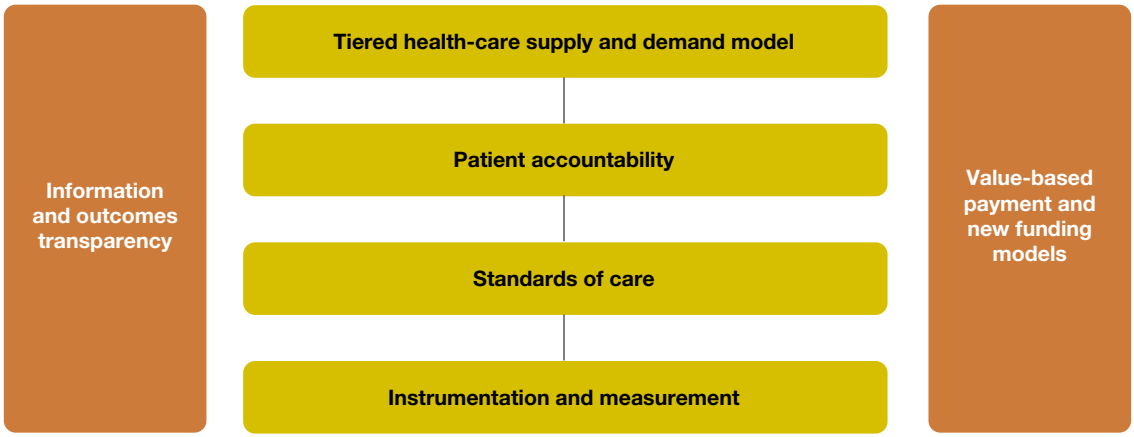
Consumer-directed care. Consumers will become more accountable for their own care, in part because payors will demand they do so but also because information will be more transparent and they will have more tools, such as social media, at their disposal. Consumer accountability will force a tiered supply model, where patients perform their own frontline triage to determine the correct level of their health care. Their options will include home monitors and telemedicine kiosks, health-care professionals at retail clinics for low-end care, and specialists for high-end critical care.

How connected health will disrupt biopharma

Biopharma's legacy commercial model has already started to evolve, with less emphasis on large sales forces "selling" to physicians; further changes are on the way. Information transparency will allow customers, regulators, and competitors to understand the performance of biopharma products as well as, or even better than, the manufacturer does, as powerful new data sources reveal the efficacy of medicines in real-world settings (Exhibit 2).

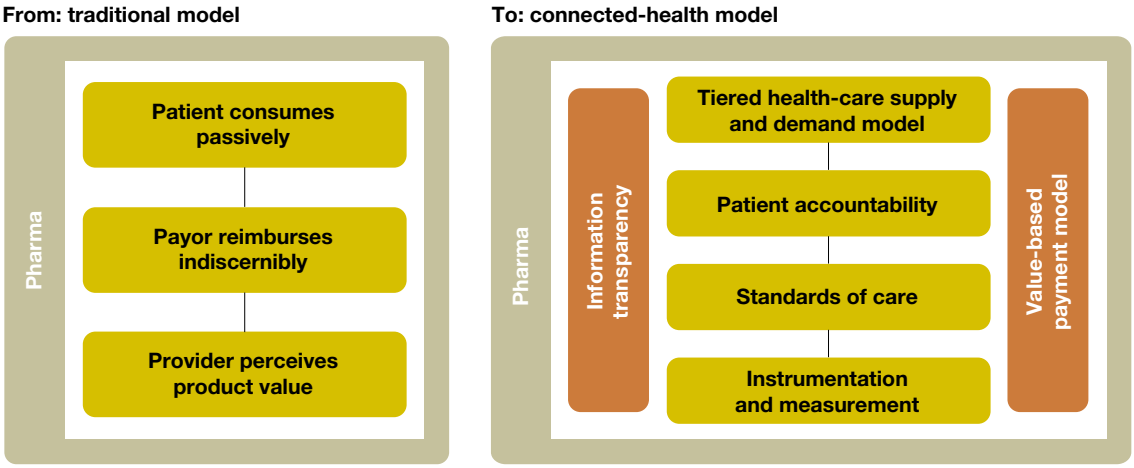
This transparency will probably drive down the margins of biopharma's innovative products by restricting access, challenging reimbursement rates, and highlighting safety issues. In other words, some value currently captured by biopharma players may evaporate. Moreover, as rich data on product outcomes increasingly drive payments, some value could shift away

Exhibit 1
Connected-health ecosystem drives value-based payment and new funding models.



- Instrumentation, information exchange, and analysis of real-world clinical information creates information and outcomes transparency
- Outcomes transparency drives value-based payment and forces reconfiguration of health-care supply
- Health-care supply moves to tiered model (including tech-enabled low-cost, low-touch care) to provide cost-effectiveness

Exhibit 2
Connected health further disrupts biopharma's traditional commercial model.



- Unrestricted access
- "Simple" provider influence model
- High profit margins

- Access based on evidence of safety and effectiveness
- Provider has little influence
- Value shift lowers margins

Traditional strategic paths for biopharma will still have their place, but players may need to explore new areas, such as personalized care and end-to-end solutions, to realize value

from the medicine itself. Biopharma could then develop two important new competencies: first, the ability to match the right product to the right patient *before* the medicine is prescribed; and second, the diagnostics, monitoring, or other patient services that deliver the best outcome *after* the medicine is used.

Connected health will produce other disruptions across the biopharma value chain. Internet communications give rise to open platforms that will create new models for R&D and manufacturing. These virtual workplaces will invite open collaboration among biopharma companies, academics, clinical-research organizations, and even contract manufacturers. Incumbents may perceive the new models as threats that challenge the status quo and allow competition from new entrants with more capital-efficient business models. But these new models can also create opportunities for innovative incumbents to bring products to market faster, and to manufacture, market, and distribute products at lower levels of investment.

New strategies

In our view, three traditional strategic paths for biopharma—innovative prescription medicines, branded or generic drugs, and consumer health services—will continue to have their place in a connected-health world (Exhibit 3). However, players may need to adopt three emerging strategies to ensure that they can continue to capture value from new, innovative medicines while they position themselves to create value as the industry shifts away from a focus on medicines alone:

1. Predictive medicine, which comes before the medicine: devices, software applications, information, and instrumentation that identify and target the right protocols for care of an individual patient or patient subpopulation

2. Personalized care, which comes after the medicine: devices and services to monitor and deliver more cost-effective patient care

3. End-to-end solutions for biopharma customers, which are services that help deliver desired outcomes to payors, employers, and patients

The computer industry's evolution over the past 20 years offers a clue to the challenges biopharma is facing. Value shifted away from the computer industry's physical product—hardware—to the software and services surrounding it. IBM is the model for this transition. In 1993, after seven years of declining stock prices, the company embraced industry change and emerged as a leader in IT services by shifting its corporate focus from manufacturing products to solving customer problems. Competitors that pursued conventional

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strategies, such as consolidation and cost efficiencies, continued to underperform and have since been forced to expand into services and solutions.

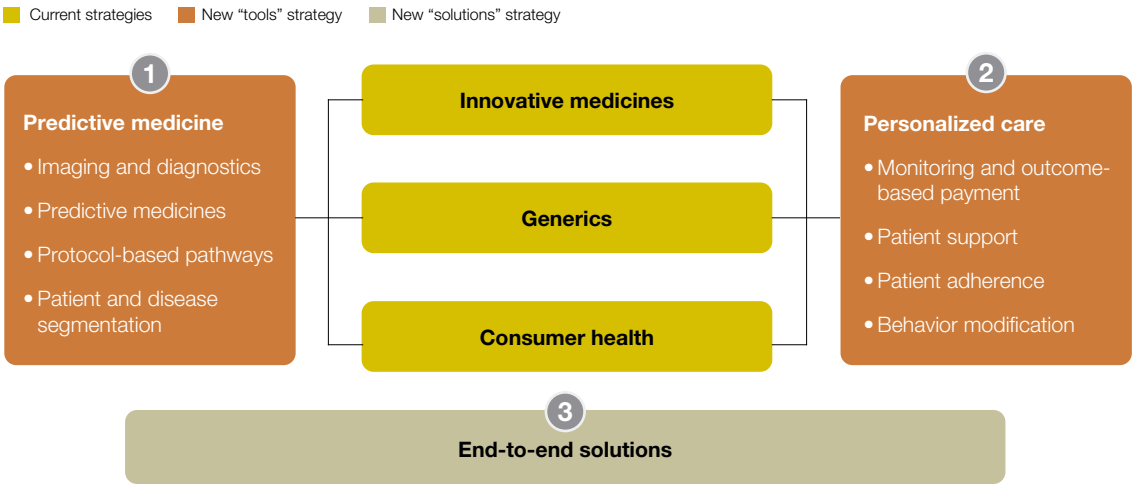
Where biopharma can start

These are still early days in the industry's evolution, so more questions than answers arise. Will cost reductions and product innovation, for example, be able to sustain acceptable returns over the long term? Should a biopharma player break from the pack, as IBM did in its industry, to become an early leader? What would a biopharma transformation strategy look like? What are the new capabilities required? What is the right focus, structure, incentives, and organizational approach?

The direction of a connected-health future is reasonably clear, but the pace of change and the magnitude and timing of the impact on biopharma are not. We believe, however, that starting now with targeted efforts to build internal capabilities will allow companies to meet their emerging business needs and set the stage for more significant value creation regardless of the pace of industry change. Innovative paths forward, of course, will vary depending on the profile of a company's business and pipeline. In our view, two capabilities are key:

- Big data and real-world data analytics can inform product development and meet the growing market demand for evidence of product safety and effectiveness. This capability requires using claims and clinical data in an uncontrolled, nonclinical-trial setting.

Exhibit 3
Biopharma is embracing new strategies—both before and after medicine distribution.



- New collaboration models and partnerships can be used to share risk, improve capital efficiency, and speed up business-process evolution and innovation across the value chain. Innovation in social media, mobile health, and big data demands a mix of capabilities no single player could have, so leaders will learn to partner in new ways to ensure their future relevance.

A few biopharma companies have moved forward to build strong internal research capabilities grounded in real-world data. Some have announced partnerships with payors and providers to expand access to new data sources and analytics. Other companies have made significant investments in social media to connect with their consumers and better understand their needs. Still others are pursuing partnerships for predictive medicine by using biomarkers and defining clinical protocols with information service providers. A few have explored or piloted end-to-end solutions with mobile-device makers that integrate the use of biopharma products with home and mobile monitoring services. Again, these activities are in the early stages. While some initiatives, of course, may prove unfruitful, others will provide data and valuable experience to guide future strategies.

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