

Disruptive Strategies: Transformation of Pharmacy Practice From a Dispensing Model to a Patient Care Model

Conference Summary

In January 2012, delegates representing the executive staff and elected leaders of 12 national pharmacy associations—encompassing professional and trade associations—gathered for the 99th Annual Meeting of the National Conference of Pharmaceutical Organizations (NCPO). The main focus of the meeting was two interactive sessions with Clayton M. Christensen, PhD, the Kim B. Clark Professor of Business Administration at the Harvard Business School.

Christensen originated the theory of disruptive innovation: the process by which a product or service takes root initially in simple applications at the bottom of a market and then moves relentlessly “up market,” eventually displacing established competitors. He first outlined the concept in the seminal 1997 book *The Innovator's Dilemma*. In the 2009 book *The Innovator's Prescription*, Christensen and his coauthors (Jerome Grossman and Jason Hwang) applied the principles of disruptive innovation to the problems facing the U.S. health care system. *The Innovator's Prescription* provides a comprehensive analysis of strategies that would improve health care and make it affordable.

Pharmacy is not mentioned in *The Innovator's Prescription* for the simple reason that in the hundreds of interviews Christensen conducted for the book, no one talked about pharmacy or its past or future role in health care. Intrigued by how the framework of disruptive innovation might apply to evolving new practice roles for pharmacists, the American Pharmacists Association (APhA) invited Christensen to present the keynote address at the 2011 APhA Annual Meeting and Exposition in Seattle, Washington. The interactive sessions with the NCPO delegates grew from that relationship; APhA Executive Vice President and Chief Executive Officer Thomas E. Menighan served as chairperson of the 2012 NCPO meeting.

This article provides a brief introduction to the theory of disruptive innovation and summarizes NCPO delegates' collective thinking about ways in which pharmacists might leverage the concepts of disruptive innovation to facilitate transformation of the pharmacy profession from a dispensing model to a patient care model.

Overview of Disruptive Innovation

In almost every industry, the products or services that are offered initially are so complicated and expensive that only people with a great deal of money or skill can afford or use them. Then at some point, the industry is transformed; the products or services become simpler, easier to use, and much more convenient and affordable. The agent of this transformation is disruptive innovation. Disruptive innovations create new markets for products or services, or they reshape existing markets. The

end result is that an entirely new population of consumers gains access to the products or services.

Established companies with successful products or services typically remain competitive by investing their resources in *sustaining innovations*: incremental refinements or radical changes that improve product performance and quality in ways that are valued by the best customers. An example is the ongoing improvements in microprocessors that enable successive generations of personal computers to operate faster and faster. Almost inevitably, however, the pace of sustaining innovations outstrips changes in customer needs. Ultimately, companies “overshoot” the market: they improve a product or service to the point that it is too good, too expensive, or too inconvenient for many customers. This opens the door to disruptive innovations.

By traditional performance measures, products or services that qualify as disruptive innovations typically are *not as good* as the existing products or services offered by market leaders—they actually offer worse product performance, fewer features, etc. Regardless, they are embraced by customers who do not possess the skill or money to use the existing products or services.

Disruptive innovations have three key components:

- **Technological enabler.** This is a simplifying technology that transforms a fundamental problem from something complicated that requires deep training and expertise to resolve, into something simple that can be addressed by people with less training or skill in a predictable, rules-based way.
- **Business model innovation.** The simplifying technology has to be embedded in a business model that can deliver the resulting lower-cost solution to customers profitably, in ways that make the solution affordable and conveniently accessible.
- **Value network.** The business model in turn has to become part of a network or system whose constituents (e.g., suppliers, distributors) can respond together profitably to the common needs of a class of customers.

Transistors vs Vacuum Tubes: An Example of New Market Disruption

The emergence of pocket radios in the 1950s is one example of disruptive innovation at work. Transistors were the technological enabler.

Before the pocket radio, almost all consumer electronics were bulky, expensive devices (e.g., tabletop radios, floor-standing televisions) that housed large, expensive vacuum tubes. When the transistor was invented, it was not powerful enough

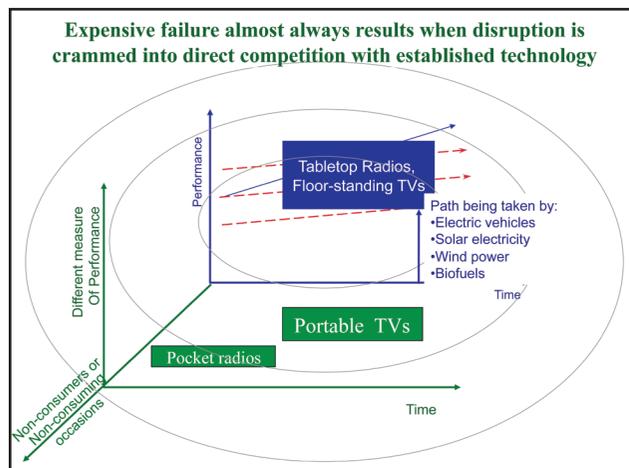
to be incorporated into these existing products. Nonetheless, the leading companies in the vacuum tube market licensed the technology and collectively spent nearly \$3 billion trying to make transistors that were good enough to be used in their most popular products. Sony also licensed the technology, but with the intention of building inexpensive pocket radios—a non-existent market at the time.

The early portable transistor radios were inferior devices with much poorer sound quality and far more static than vacuum tube-based tabletop radios. Sony marketed these simple, inexpensive devices to a large, untapped market: teenagers who valued the pocket radios as infinitely better than the alternative, which was no radio at all (or worse, listening to their parents' radio). At first, the leading companies did not lose market share to Sony; Sony targeted the new market of nonconsumers instead of competing against the industry leaders. The leading companies continued to invest their resources in sustaining innovations that yielded new and improved vacuum tube devices.

At the time when the pocket radio was introduced, most consumer electronics were sold through appliance stores, which also profited from replacing burned-out vacuum tubes. Sony wanted to distribute pocket radios through appliance stores, but that network wasn't interested in the low-cost, low-profit product. Fortunately for Sony, a new value network was emerging: discount retailers such as Kmart that sought to sell large quantities of low-cost items to large numbers of consumers. The pocket radio was a perfect fit for this new distribution outlet.

For a while, the vacuum tube and transistor markets existed in parallel, and both thrived. Sony invested in improving its transistors and subsequently introduced the first portable television based on transistor technology. As the new technology improved and transistors were incorporated into larger and better products, consumers gravitated from the vacuum tube market (the blue performance/time axes near the center of FIGURE 1) to the new transistor market (the green different measure of performance/time axes in the lower left area of FIGURE 1). None of the leading manufacturers of vacuum tube-based devices became major players in the transistor market, despite having invested considerably more money initially than Sony did trying to create transistors that were "good enough" for their products.

Figure 1. Transistors vs Vacuum Tubes: New Market Disruption



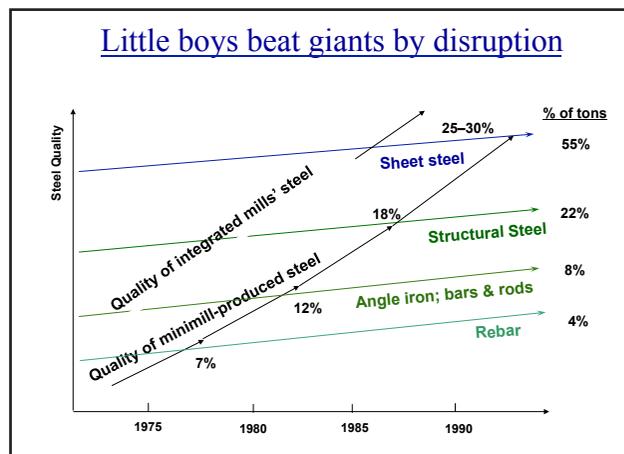
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Integrated Steel Mills vs Minimills: An Example of Low-End Market Disruption

A different type of disruptive innovation occurs when new companies enter an established market by targeting the least desirable customers of market leaders. This type of low-end disruption occurred in the North American steel market with the emergence of minimill steelmaking.

Historically, established steelmakers all were integrated mills that produced molten steel from iron ore in blast furnaces. Minimills produce molten steel from scrap at approximately 20% lower cost than the integrated mills. However, the steel produced by minimills initially was of inferior quality and consistency. The only market for minimill steel was rebar (small bars used to reinforce concrete), which represented the very bottom of the tiered steel market in terms of quality, cost, and profit margins (gross margins of 7%, as shown in FIGURE 2). The established integrated mills relinquished the rebar market willingly to the minimills, choosing to concentrate instead on the upper market tiers (angle iron, bars, and rods; structural steel; and sheet steel) that offered successively larger markets and higher profit margins.

Figure 2. Integrated Steel Mills vs Minimills: Low-End Market Disruption



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When the last of the integrated mills exited the rebar market, the minimills were left to compete against each other, primarily on cost. The price of steel decreased by 20%, and profit margins decreased dramatically. The most aggressive minimills looked "up market," recognizing an opportunity to capture some of the market for angle iron, bars, and rods if they could improve the quality and consistency of their steel. This next market tier offered gross profit margins of 12%—nearly double those in the rebar market. It also held the potential for increased sales in a market that was twice as large as the rebar market. As the minimills took their low business cost model into this new market tier, the integrated mills once again ceded the market, because angle iron, bars, and rods represented the bottom of their market and the lowest profit margins.

This cycle repeated itself as the minimills moved progressively "up market" into structural steel and finally sheet steel. When the minimills were able to compete against integrated mills in the largest and most profitable tier of the market, the price of sheet steel decreased; saddled with an uncompetitive

cost structure, the integrated mills began going out of business. Only one integrated mill steelmaker remains today.

Disruptive Innovation in Health Care

In the view of Christensen and his coauthors, if health care in the United States is to become accessible and affordable, the industry as it exists must be disrupted. We *cannot* expect the highest-cost venues and practitioners (hospitals, medical specialists) to become less expensive. Simpler health care problems must be decentralized—pushed successively “down market” to lower-cost venues and practitioners. Decentralization must be facilitated by technological developments that enable lower-cost venues and practitioners to offer increasingly sophisticated services, allowing the care of more and more conditions to be driven down the continuum.

The technological enablers of disruption in health care make it possible to diagnose a patient’s condition precisely by its cause rather than by physical symptoms. When precise diagnosis is not possible, highly trained and expensive physicians must use an intuitive, trial-and-error approach to diagnosis and treatment, because many conditions share similar symptoms. When the exact cause of a disease can be pinpointed, care moves into the realm of precision medicine. In this realm, therapy that is predictably effective for each patient can be developed, standardized, and administered by lower-cost practitioners. Thus, technological enablers such as molecular diagnostics, diagnostic imaging technology, and telecommunication technologies essentially transform health care from an art to a science.

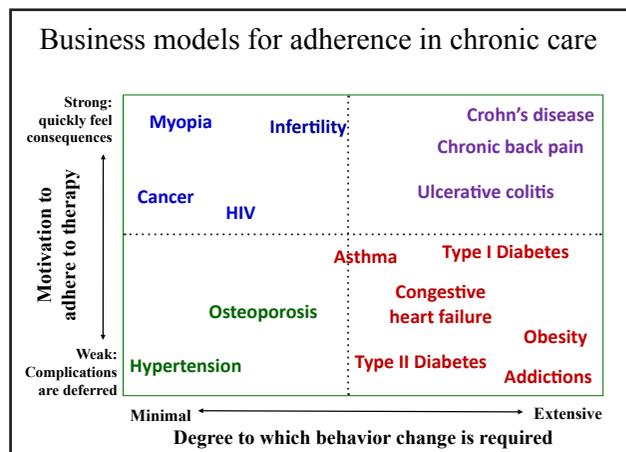
The growing number of conditions in the realm of precision medicine has facilitated the emergence of retail health clinics such as MinuteClinic and Take Care Clinic. Retail health clinics represent a disruptive innovation relative to traditional physician office–based care. These clinics typically are staffed by a lower-cost nurse practitioner or physician assistant. They established a foothold in the health care market by diagnosing and treating a limited menu of straightforward, generally acute conditions (e.g., strep throat) for set, low prices. Like Sony, retail health clinics competed initially against nonconsumption; by one estimate, more than 60% of patients who seek care at retail health clinics do not have a primary care physician. According to the principles of disruptive innovation, it is inevitable that retail health clinics will look “up market” and seek to provide care for more complicated conditions, drawing more and more patients away from physicians’ practices.

Managing Chronic Conditions

The major business models in health care—the general hospital and the physician’s office—were designed more than 100 years ago, when almost all care required an intuitive approach and was focused on acute conditions. These business models are not optimized to promote adherence to prescribed medications and needed behavioral changes. Yet this is the approach needed for the chronic disorders that account for 75% of direct medical costs in the United States.

As shown in FIGURE 3, when chronic disorders are plotted along axes that represent the extent to which patients are motivated to adhere to therapy (a continuum from weak to strong) and the degree to which behavior change is required

Figure 3. Categories of Chronic Diseases



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(a continuum from minimal to extensive), they fall roughly into four quadrants. It makes sense for patients with conditions in the upper left quadrant to receive ongoing care in physicians’ offices; these conditions (e.g., cancer, infertility) have immediate consequences and minimal need for behavior change. For the remaining conditions, the physician’s office model has little to offer patients after a diagnosis is made. Disruptive innovation in chronic care would move the ongoing management of these conditions to alternative care settings or approaches that would be more efficient and effective.

The Challenge of Regulatory Reform

Many enthusiastic discussions of possible changes in the health care system (including possible new roles for pharmacists) are brought to an abrupt halt by the reality of practice scope and licensing: “We’re not allowed to do that.” The regulatory environment is seen as an insurmountable obstacle to change, singular to health care. This is not the case; nearly all industries are regulated in ways that stifle innovation.

The history of disruptive innovation shows that it is difficult, if not impossible, to win a head-on battle to deregulate what is currently regulated. The entities that favor the status quo and resist reform almost always have greater resources than the reformers. Thus, regulations rarely change to enable disruptive services. Instead, successful innovation almost inevitably takes root in markets that are beyond the reach of regulators—in the “Sony space” of nonconsumption outside the mainstream market. The regulations then change in reaction to the innovations.

Southwest Airlines used this strategy to circumvent prevailing regulations that dictated routes and prices for interstate travel. Southwest established itself as a discount carrier in the late 1970s by limiting its operations initially to the state of Texas (not subject to interstate regulations) and directing its marketing efforts at consumers who typically could not afford to fly (i.e., nonconsumption). When it became obvious that Southwest was offering a safe transportation alternative at substantially better prices, the Civil Aeronautics Board deregulated the airline industry. The regulations changed in response to a disruptive innovation, not in response to a direct appeal to regulators.

Lessons and Implications for Pharmacy

After viewing the changing pharmacy profession through the lens of disruptive innovation, Christensen offered a number of insights that are summarized in this section. The text that appears in italics reflects NCPO delegates' ideas about how to make the best use of the disruptive innovation framework to facilitate transformation of the profession.

Don't Educate—Disrupt

Pharmacists should not try to effect change by educating people outside the pharmacy profession (e.g., patients, other health care professionals) about the value of pharmacist services. Instead, pharmacists should learn about and employ the principles of disruptive innovation. These principles provide the knowledge needed to disrupt the system from the inside out.

Similarly, pharmacists should not spend much time trying to convince lawmakers to make specific regulatory changes. Invariably, the regulators already know that changes are needed, and they may even *want* to make the changes. They simply do not know how to make those changes—how to think about the problem and come up with viable solutions. If pharmacists succeed in disrupting the system from the inside out, the regulations will change in response to the disruptive innovation.

*How do pharmacists avoid going head-to-head with other health care practitioners for the same business? By focusing on what pharmacists know and do best: **drug therapy**. Pharmacists offer a solution to medication therapy problems that no other practitioner can provide.*

Pharmacists should be willing to assume some risk by beginning with smaller solutions that may not bring in much money at first. Later, pharmacists can expand their offerings and negotiate better payment structures as the value becomes apparent.

Target Areas of Nonconsumption

The pharmacy profession should not make the mistake of approaching physicians and essentially asking permission to participate in physicians' activities. Initiatives that are seen as competing with physicians for the patients or roles that physicians want (particularly the most profitable services) are doomed to failure.

Pharmacists should follow Sony's lead and start by targeting nonconsumption—services that are not offered routinely now by any other health care provider. Then as Sony did, pharmacists can draw patients into the new market one by one. In particular, pharmacists should identify activities that physicians (or other "up market" providers such as nurse practitioners and physician assistants) either do not want to do or cannot do, and pick up those activities.

A shift in mindset may be needed, because many pharmacists do not want to be considered ancillary personnel or physician extenders—they want to be considered at the same "level" as physicians. Pharmacists need to define a separate performance measure that reflects their value to the customer (patients). Consider that Harvard University likely views itself as superior to the "second-class citizen" online universities, and this undoubtedly is true if the performance measure is research (which informs national rankings). However, online universities are being shown to offer superior teaching. Which is of greater importance to the customer (students)?

Adherence counseling may be the perfect "Sony space" of nonconsumption for pharmacists. The job is important, and no other health care providers are stepping forward to embrace it. Emerging data reveal that a majority of consumers (~75%) want someone to talk with them about their medication, yet relatively few report ever having had a conversation with a pharmacist about their medication. The opportunity to capitalize on this—to focus on moving pharmacists toward face-to-face discussions with patients, adding the element of adherence—seems ripe.

Other possible nonconsumption markets include (1) adults with aging parents, (2) patients who do not have health insurance, (3) elementary school children participating in sports leagues, (4) patients with multiple chronic conditions and medications from multiple prescribers, and (5) hospitals discharging patients to home settings. Any of these markets might be willing to pay on a cash basis for medication use consultations, with the length and price of the consultation based on the complexity of the problem. For example, adults with aging parents might be willing to pay a higher fee for the peace of mind associated with knowing that someone is helping their parents avoid problems; hospitals might be willing to pay a higher fee to avoid medication-related readmissions.

Help Potential Customers Understand What Pharmacists Are Selling

When pharmacists focus on activities that physicians do not want to do or cannot do, it becomes easier to market pharmacist services to physicians or other potential customers. For example, pharmacists increasingly are being integrated into primary care practices to initiate and manage drug therapy after a diagnosis is made. For this model to become widespread, physicians must be able to understand what they are "buying"—the value that they will realize—when they incorporate a pharmacist into their practice.

It is important for the pharmacy profession to develop services (e.g., medication therapy management services) that are specifiable, measurable, and predictable. Broader patient care roles for pharmacists will not be possible if potential customers say, "Yes, we understand that we need medication therapy management services, but we don't know how to define those services, we don't know what we're buying, and we don't know whether all of the possible providers will deliver the same thing."

Pharmacists need to partner with physicians at all levels. Physicians do not have time to do everything they need or want to do; pharmacists can help physicians focus on what they do best if physicians delegate some duties to pharmacists. This is already occurring in specialty practice areas where pharmacist specialists (e.g., pediatric pharmacists) work as part of a team with medical specialists.

The requirement for specifiability, measurability, and predictability of pharmacist-delivered patient care services provides a strong argument for standards and accreditation. For example, the Center for Pharmacy Practice Accreditation (CPPA)—a partnership between APhA and the National Association of Boards of Pharmacy—is developing principles, policies, and standards that will offer the general public and users of pharmacy services a means of identifying pharmacies that satisfy the accreditation criteria and are focused on advancing patient care, safety, and quality.

Stake a Role in Chronic Care

Pharmacies are especially well positioned to assume the ongoing care of patients with chronic conditions that fall in the lower left quadrant of FIGURE 3—conditions that require minimal behavior change by patients who typically are not motivated to adhere to therapy. This quadrant is poised for explosive growth as developments in both economics and science (e.g., diagnostic tests, targeted therapies) pull more and more diseases out of the other quadrants (especially the lower right quadrant) and into this one.

The pharmacy profession must take responsibility for adherence. It is the most basic medication therapy management service; pharmacists serve as a mechanism for monitoring what patients are doing and holding them accountable for adhering to prescribed therapies and behavior changes.

Pharmacists need a business model to facilitate adherence counseling and interventions. It may be valuable for pharmacy associations to form a coalition with PhRMA and others to seek provider status for pharmacists. The hope is that provider status would lead to increased adherence because pharmacists could get paid for providing those services.

Figure Out Who Has a Job to Be Done

To identify populations of consumers who would welcome pharmacy-based disruptive innovations, pharmacists should take a “jobs to be done” approach. Christensen believes that consumers don’t really buy products or services; they “hire” them to do certain jobs that need to be done in their lives. Understanding the job that customers are trying to do is critical to successful innovation. Consumers seek the product or service that will help them do the job most effectively, conveniently, and affordably. Conversely, consumers rarely hire a product or service to do a job that they are not trying to do. As an example, very few digital camera users have learned to use photo editing software, and almost no one keeps an online photo album. The reason is that in the years before digital photography, very few people ever got around to mounting photo prints in an album, no matter how much they said they wanted to. Creating an organized photo album has never been a high priority for most people, and having a digital way to accomplish the job hasn’t made it a higher priority.

A minority of Americans—about 15%—place a high priority on the job of maintaining health. The remaining 85% do not want to think about their health until they become sick. “I want

to become and remain healthy” is not a job that most people are trying to do. In fact, most patients with chronic conditions such as type 2 diabetes and obesity (lower right quadrant in FIGURE 3) prefer not to think about their conditions at all. For patients to want to own the job of becoming and remaining healthy—and have the motivation to adhere to medication therapy and make needed behavior changes—they must be made to feel sick (e.g., by providing them with laboratory data or health risk assessments).

Who is interested in the “I want to become and remain healthy” job? Employers, for one. Employers want and need their employees to be as productive as possible. The patient’s family members (e.g., adult children) also are interested in this job, because they are the presumptive caregivers when the patient fails to maintain health and becomes debilitated. These groups are the true customers—not the patient.

Pharmacists need to consider all of the jobs that all of the parties involved are trying to do, then show why pharmacists should be hired to do those jobs. For example, self-insured employers were crucial to the success of programs such as the Asheville Project and the Diabetes Ten City Challenge. Pharmacists might approach hospital CEOs and say, “You are struggling with the challenge of improving your performance on quality measures that are advertised to the public. Pharmacists can help you by...” The pharmaceutical industry and patients’ families both have a strong incentive to improve medication adherence.

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