How policy is shaping the macro healthcare delivery supply chain: The emergence of a new tier of retail medical clinics

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Healthcare policy; Healthcare regulation; Retail medical clinics; Supply chain management; Walmart Health

\textbf{Abstract}   The healthcare industry continues to face substantial pressure to simultaneously improve costs and patient centricity. Much of the focus to date has concerned policy interventions capable of improving these performance measures for traditional healthcare providers, such as hospitals. But recently, nontraditional healthcare providers like Walmart Health and Amazon have made forays into the industry by establishing retail medical clinics (RMCs). These efforts constitute a redistribution of how services are organized across the macro healthcare delivery supply chain. While RMCs stand to bring innovative models of service delivery to patients, the policy environment can both enable and inhibit their involvement in the industry. We develop a framework that explains how structural and conduct regulations have historically influenced demand for and supply of healthcare services. We then describe how these regulatory factors can support nontraditional healthcare providers as they launch innovative service delivery models aimed at efficiency and customer centricity.

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1. Healthcare as a supply chain

Given the ongoing COVID-19 pandemic, more people than ever are becoming familiar with supply chain management (SCM). In practice, supply chains deliver the products and services that we need as consumers, ranging from toilet paper to personal protective equipment and from package delivery to doctor’s visits. But there is much more to SCM. As a field of study, the discipline of SCM can provide high-level insights and guidance about strategic issues like how an industry can be best organized to improve value for everyone in the system. So what is SCM, and how can it help us improve healthcare delivery at a macro level?

Traditionally, SCM dealt with the linear flows of goods and materials rooted in the internal focus of Porter’s (1980) value chain theory (Vargo & Lusch, 2004). Then technology advancements, globalization, and a focus on linking core competencies among companies in the supply chain heightened the need for coordination (Hamel & Prahalad, 1994; King, 1994; Quinn & Hilmer, 1994). This directed attention toward improving methods to manage information flows (including product and process design decisions), transportation of materials and finished product, and financial transactions among firms (Carter et al., 2015). The SCM field has contributed much toward linking issues of strategy to these essential supply chain processes, thereby enhancing system-wide performance (Ellram & Cooper, 2014).

While the SCM field has created important insights to advance theory and practice, a traditional, linear, static view does not fit all supply chain networks (Vargo & Lusch, 2004). For example, service supply chains introduce role ambiguity that disrupts bidirectional supply chain relationships, wherein customers may also be suppliers, information purveyors, and members of the product design team (Sampson & Spring, 2012). This has stimulated fresh, broader thinking about supply chains as networks of nodes that are linked through flows of information, material, finished products, services, and financial exchanges in a complex, self-organizing, and dynamic network (Choi et al., 2001). Issues of governance and organization have therefore become key concerns in SCM (Gereffi & Lee, 2012). This broader conceptualization is applicable in nontraditional supply chains, such as healthcare delivery networks, where governance among agents is essential to achieving the best outcomes for patients (Dobrzykowski & McFadden, 2020; King & Green, 2012).

Healthcare networks around the globe face intense pressure to innovate, to create new models, and to reorganize how healthcare is delivered in order to improve traditional supply chain performance measures—namely cost, quality, and customer satisfaction (Atilla et al., 2018; Chakraborty & Dobrzykowski, 2014). As such, there is a strong appetite among healthcare leaders to understand and apply supply chain knowledge to improve performance. Unfortunately, applying this knowledge to healthcare can be thorny (Smeltzer & Ramanathan, 2002), considering the hefty regulatory environment and unique nuances of this service context (Dobrzykowski & Tarafdar, 2017; Sampson & Spring, 2012). In healthcare, the government—local, state, and federal—is not only the primary enforcer of regulations (i.e., via fines and penalties; e.g., Ni & Huang, 2017) but is also the industry’s largest customer, financing over 45% of the services provided in the U.S. (California Health Care Foundation, 2018). As such, public policy and government regulation have unusually large influences on how healthcare services are organized and executed. The purpose of this article is to address how regulation has shaped the healthcare industry that exists today and to suggest how regulation can be revisited to help drive innovative models of healthcare delivery that improve efficiency and quality while engaging customers in new ways.

2. Healthcare regulation: What is the intent?

Healthcare is one of the largest and most regulated industries in the world. New regulations and updates to existing regulations are introduced at a rapid pace and can be challenging for providers to keep up with (American Hospital Association, 2017). Healthcare regulation has two main aims: controlling the cost of healthcare delivery and improving quality of care (Lee et al., 2020). Regulations include programs to improve technology and integration, align financial relationships and reduce kickbacks, tie reimbursements to quality, manage competition, and increase access (Dobrzykowski, 2019). Typically, regulations are implemented to correct market failures and to promote social welfare (Posner, 1974). Market failures happen when there are not enough competitors in a market or when customers cannot make decisions because market information is hard to get. They can also happen when the market functions efficiently but people are still worse off (Akerlof, 1970; den Hertog, 2010; Okun, 1975;
For example, in healthcare new technologies are created to treat life-threatening conditions. In most markets, the price of a new technology or medication is high, and consumers pay premium prices to be among the first to access it. But when lives are at stake, charging exorbitant prices for new life-saving technologies may unfairly disadvantage those who cannot afford to pay. Additionally, regulations are sometimes implemented in response to lobbyists and special interest groups, and such regulations may not center on social welfare (Laffont & Tirole, 1991). In these situations, regulations can benefit large incumbent firms while having the potential to harm consumers. In both cases, regulation can be effective because the government can coerce compliance with rules that market participants cannot (Stigler, 1971).

Healthcare regulations in the U.S. are administered primarily by four federal agencies, but each state may also have numerous regulatory bodies. These regulations can be grouped into two categories: structural regulations and conduct regulations (Joskow & Rose, 1989; Kay & Vickers, 1990). Structural regulations control who may participate in a market by restricting entry into or exit from that market. Conduct regulations control behaviors of firms within the market, and can govern pricing, quality standards, and consumer protections. The healthcare industry is governed by both types of regulation.

Certificate of need (CON) is a prevalent example of a structural regulation in healthcare that limits entry into the market. It is intended to restrict the building of new healthcare capacity or services by requiring approval from a state agency using a need-based evaluation process (Grabowski & Angelelli, 2004). It was repealed at the Federal level in 1987 owing to a lack of evidence that the program delivers its intended benefit, yet 35 states have retained some form of the CON program (National Conference of State Legislatures, 2019). The idea behind CON is that by constraining the creation or growth of healthcare capacity, existing capacity will be more fully utilized. Advocates of CON programs reason that as utilization increases, efficiency should increase as well. This logic has some support from operations and SCM researchers. Requiring that steps be taken to justify tasks and decisions before they are performed ensures they are undertaken more judiciously (Berry Jaeker & Tucker, 2020). Increased patient volume also increases efficiency (Ding, 2014) because healthcare organizations learn how to create better processes and use fewer resources (Andritsos & Tang, 2014).

Another example of a structural regulation that affects healthcare is antitrust law. Antitrust law limits consolidation of firms that may lead to increased prices in markets with few competitors; that is, an oligopoly (Posner, 1969). It has been applied repeatedly to break up healthcare systems that have grown through mergers, though there is little evidence that hospitals raise prices in less competitive markets, especially nonprofit hospitals (Hammer & Vickers, 2003), which make up nearly 60% of hospitals in the U.S. (Murphy, 2017). Antitrust law can pose a major hurdle to healthcare systems that are consolidating to gain efficiency and control costs. For example, in 2010, ProMedica Health System, a nonprofit hospital system, merged with St. Luke’s Hospital, a nonprofit hospital that had suffered multiple years of operating losses. The merger was meant to help keep St. Luke’s operational, but regulators felt the merger would give ProMedica unfair control over the acute care and obstetrical services markets. The Federal Trade Commission (FTC) challenged the merger because it felt it would give ProMedica an unfair advantage in negotiating healthcare plan reimbursements, which would result in higher costs for patients. After appeals, the ruling against ProMedica led to the merger’s unwinding in 2016 (FTC, 2012, 2016).

Payment systems to healthcare providers represent a form of conduct regulation. Historically, most payments made to healthcare providers have followed a fee-for-service (FFS) or diagnostic related group (DRG) system, with roots in what was known as the “cost-plus” model developed by the Center for Medicare and Medicaid Services (CMS) following World War II (Vonderembse & Dobrzykowski, 2016). As the titles imply, these payment systems reimburse hospitals and healthcare providers for services rendered, with a focus on covering their costs and margin. Today, the federal government has implemented value-based purchasing (VBP), which is a conduct regulation or payment system that incentivizes healthcare providers to deliver better care to patients by allocating a portion of reimbursements on the basis of patient safety, clinical care, efficiency, and patient experience (CMS, 2016; Dobrzykowski, 2019). VBP also aligns incentives among hospitals and physicians (New Jersey Commission on Rationalizing Healthcare, 2008) and is intended to engage hospitals and physicians individually to improve supply chain performance in terms of efficiency, quality, and patient experience. This reasoning is also supported by research. When hospitals and physicians are aligned, process improvement is enhanced and
hospital responsiveness and patient satisfaction are improved (Dobrzykowski et al., 2015; Dobrzykowski & McFadden, 2020). VBP penalties have been linked to subsequent improvements in efficiency, patient experience, and clinical quality (Lee et al., 2020).

But the jury is still out on the effectiveness of healthcare regulations such as CON and VBP. Structural regulations that restrict competition, like CON, can create bed constraints that can limit patient access (Grabowski & Angelelli, 2004). Limiting market entrants can also reduce competition, which reduces innovation (Andritsos & Aflaki, 2015; Caldwell, 2014). In our previous research, we found that states that had CON programs in place did not differ from non-CON states in terms of demand, capacity, throughput, or costs. But hospitals in CON states were larger, had higher throughput, and earned more revenue. Most importantly, residents in CON states experienced similar costs and utilization to residents in non-CON states, but less access to care (Dobrzykowski, 2012). Conduct regulations like VBP can also cause unintended consequences or create incomplete solutions. While VBP may align hospitals and physicians, it does not link patients with their healthcare purchases (Chung, 2017; Dobrzykowski, 2019).

3. Macro healthcare supply chain

We can think of the prevailing healthcare delivery model as consisting of two key tiers. Healthcare providers occupy a supply-side designation and deliver a variety of services to patients who occupy the demand side of the network. Figure 1 illustrates how the current healthcare industry is structured (in the circles) and driven by the regulatory environment (indicated as more or less influential by the font size). The current supply side has been organized by hospitals and large health systems, and includes services like primary care, laboratory, diagnostic imaging, specialty care, behavioral health, emergency care, interventional services, telehealth, and independent physician providers. As discussed previously, the supply side has been influenced by structural and conduct regulations, with CON and payment systems as prevalent examples. That is, healthcare services have been influenced primarily by regulations to control costs and to improve quality centered largely on providers, creating a supply-side-oriented industry.

CON as a structural regulation fundamentally creates barriers to entry, favoring industry incumbents. This is largely because of the requirements placed on new entrants by legislators to justify the development of new service offerings. For example, when opening a magnetic resonance imaging center in a state with CON that regulates diagnostic imaging capital equipment, an entrepreneur must collect data to demonstrate that the addition of new market capacity is warranted and will be utilized. This requirement inherently favors incumbents, who actively collect data in the course of normal business operations. Furthermore, these certificates (CONs) are granted by state legislators who may be influenced by hospital (incumbent) industry lobbyists and inherently biased toward supporting existing (often in-state) incumbents over new (often out-of-state) entrepreneurs. The result has been that healthcare service bundles have been dominated by traditional healthcare providers like hospitals and health systems (Sinha & Kohnke, 2009).

Today, traditional healthcare providers offer a wide variety of services that are delivered in highly specialized and expensive facilities. This configuration of services means that patients needing treatment with differing levels of severity often visit the same locations and pay prices to cover skills and equipment they may not need. This is a sort of fixed cost problem facing hospital-based providers. The service bundles have been developed largely by traditional healthcare providers and payers in response to regulation and financial considerations. More specifically, hospitals and health systems are plagued by high fixed costs (i.e., such as large facilities, high-tech equipment, inefficient legacy layouts, etc.), which inherently motivates providers to direct as much care as possible to these systems in an effort to capture revenue. The model has been further motivated by traditional FFS payment systems, a form of conduct regulation. These payment systems are designed to reimburse providers for services they perform, developing a bit of a “build it and they will come” mentality in the industry whereby the emphasis until recently has been on intrapreneurship: internal health system entrepreneurship.

The industry certainly is not without demand-side regulation and incentives. Considering the demand side, state health insurance mandates can be thought of as a structural regulation. These mandates prescribe the required benefit features that an insurance policy must include, such as primary care service, mental health, or contraception. States have substantial latitude in selecting these health plan features (benefits) that insurance plans must provide, which ultimately structures the way in which patients engage the
healthcare system. For example, if mental health benefits are limited to 10 visits per year, patients are likely to avoid exceeding that limit. These health plans are primarily paid for by employers, who purchase private insurance (i.e., from companies like UnitedHealthcare, Cigna, Aetna, Blue Cross Blue Shield, etc.) and the federal government through Medicare and Medicaid plans (Dobrzykowski, 2019). Employees make premium contributions on a pretax basis toward the price of these plans, while employers pay the majority of premiums. Then when patients access services, the features (plan design) of the insurance product purchased by the employer are activated, resulting typically in patients paying copays and deductibles up to specified limits. As such, the patient or consumer is fairly insulated from purchasing decisions (of the health plan by their employer) and from the actual costs when services are rendered.

While healthcare regulations have aimed to improve the healthcare system, they have offered little in the way of enabling consumers to make better choices or take ownership of their own health. The demand side of healthcare—that is, the patient’s responsibility and engagement in the healthcare supply chain—is that of a receiver of care. Many patients do not actively manage their own healthcare purchasing because they feel they do not have enough information available to do so (Robert Wood Johnson Foundation, 2012). Because most healthcare services are paid for by insurance (ultimately by employers) or government payers, the patient does not typically know the costs of the services they receive. Some tools exist, such as the CMS Hospital Compare, to help patients with purchasing decisions, but market information is not readily available. Often bills are provided to patients after care is received and costs have been filtered through payers. Unless the astute consumer requests an itemized bill, they may have no understanding of what actually went into their care or whether they were billed correctly. As a result, patients do not shop around for the best cost or quality of care. This lack of shopping in the market reduces the responsiveness of the market to its consumers and reduces innovations aimed at consumers. But even if this information were widely available to healthcare consumers, there are few incentives to entice them to actively manage their healthcare costs (Vonderembse & Dobrzykowski, 2016).

4. Emerging retail healthcare supply chains

Supply chain thinking and healthcare intersect when considering customer-centric, efficient service designs in terms of affordability, access, and awareness of healthcare needs and services (Sinha & Kohnke, 2009). Affordability benefits patients
and service providers, increasing the likelihood that patients will seek appropriate care when needed. Access entails a healthcare supply chain design that provides capacity for treatment when patients need it. Awareness can be used to motivate healthcare consumers to take control of their health while encouraging healthcare providers to take a more holistic approach in providing services. By helping patients understand how to prevent and detect conditions, patients can better manage or reduce the severity of their conditions. And helping patients better understand treatment options and follow-up care needs can enable them to make better healthcare purchasing decisions (Sinha & Kohnke, 2009). Affordability, access, and awareness are key foci of retail supply chains, foci that are emerging in new retail healthcare models.

An emerging trend in healthcare is the proliferation of retail medical clinics (RMCs). RMCs are located inside retail stores and provide an array of healthcare services at lower costs than what would be available at an emergency room, an urgent care facility, or a doctor’s office. These facilities leverage central, high-traffic locations to provide healthcare services to patients who would not otherwise be able to afford or access them. While the costs are lower, the quality of care is on par with traditional healthcare providers (Godman, 2016). RMCs such as Walmart Health, Kroger’s The Little Clinic, and Amazon are ushering in a new approach to connecting healthcare demand with supply (Boyle, 2020). Walmart Health, for example, provides primary care, immunization, optometry, dental, counseling, audiology, X-ray, and lab services in some of its stores. While insurance is accepted, these services are offered at low, transparent prices and are accessible to patients in their daily routines. Kroger’s The Little Clinic operates in over 200 of its stores and provides primary care and dietetic services for its customers and employees.²

For several reasons, RMCs have remarkable potential to revolutionize the healthcare supply chain. First, these stores bundle a wide variety of healthcare services in one location. A patient needing access to primary care, labs, vision care, hearing care, mental health counseling, and prescriptions would typically have to visit many locations. By colocating these services in a single location, RMCs have the potential to afford better healthcare accessibility than was previously possible. Second, combining the data from all these services with grocery shopping data can provide a comprehensive view of patient health. The outcomes that might be achieved by consolidating this information cannot be overstated. A comprehensive set of patient health information can substantially improve patients’ awareness and quality of care while reducing costs. This is the impetus for the Agency for Healthcare Research and Quality’s Health Information Technology Integration program (AHRQ, 2019). Finally, RMCs can serve as the “channel captain” in the healthcare supply chain. A channel captain is the most powerful actor in a supply chain and serves as a connecting point between customers and suppliers (Stern et al., 1996). The retailer is usually the channel captain in a retail supply chain because it provides access to suppliers’ products and mediates the relationship between its customer and its suppliers. Similarly, a retail healthcare provider can mediate the relationship between patients and acute care providers by providing consolidated data on patients and referrals to specialists and hospitals for interventional services.

RMCs address many healthcare supply and demand issues by locating primary healthcare services in convenient retail locations and by bundling healthcare services. They enable acute care providers to reduce their scope by providing a menu of services that patients can easily access (Vonderembse & Dobrzykowski, 2016). This allows the traditional healthcare system to focus more on acute care, which is far more complex and costly. Patients can choose to access care within their regular routine and travel patterns rather than visiting an inconvenient clinic or a crowded after-hours emergency room (Herzlinger, 2010).

RMCs can also increase healthcare affordability, access, and awareness in new ways. In terms of affordability, RMC prices are not only lower than traditional primary healthcare costs but more transparent. Being transparent with up-front pricing can help patients clearly understand their costs when pursuing healthcare prior to its provision. Up-front, transparent pricing can also increase access and awareness by reducing the fear of surprise expenses and providing better visibility for the services that patients usually need. In terms of access, RMCs obviously consolidate the trips needed to secure primary healthcare and other services. Bundling services that reduce trips can help patients save on transportation. They also may be more likely to seek care that they know is available to them.

¹ https://walmarthealth.com/
² https://www.thelittleclinic.com/
5. A case example: Walmart launches Walmart Health centers

We examined a primary case study of the development and launch of an RMC model, Walmart Health. Interviews were conducted with several executives and data gathered from secondary publicly available sources to describe the regulatory considerations that Walmart Health faced in assessing and launching this new business unit. First-person writing style is used to reflect the data collected from Walmart Health.

With customer centricity in mind, Walmart Health recognized that the healthcare environment is muddled, and too often the voice of the customer is not heard or considered. As humans, we are all customers of the healthcare system, and we all deserve to be heard.

This is not a foreign concept to Walmart. Walmart systemically explores the impact the proposed product or solution would have on the customer, the business, and the entire supply chain. This is personified in the words of Doug McMillon, CEO (Walmart, 2019, p. 5):

"We’ve been around a while, and with longevity comes a perspective and vision beyond next week. We’re in it for the long haul. And we understand that for a business to last, it must have a fundamental reason for being, which is found in the value it creates for all—customers, associates, communities, shareholders, suppliers, future generations ... and the planet."

Consider what had to be investigated, learned, and managed when Walmart set the goal of becoming America’s neighborhood health destination and introduced the concept of the Walmart health center. Our interviews revealed that the company faced several supply-side structural and conduct regulations in preparing to launch Walmart Health. It carefully researched and studied the regulations, such as the federal physician self-referral statute or Stark law (conduct), the federal antikickback statute (conduct), and the corporate practice of medicine doctrine (structural) to ensure full compliance.

Teams within Walmart focused on legal and regulatory affairs, government affairs, and customer relations were as integral in the building of Walmart Health as medical professionals, business administrators, operators, and product developers. Painstaking efforts were put into place to ensure that practitioners could work to the full extent of their licenses and provide the right care at the right time. The laws are put in place to protect the patient and the practitioner alike, and Walmart drew on hundreds of hours of research from both internal and external sources to ensure those protections. With a full understanding of what it would take to comply with all regulations, the next step was to understand what problem Walmart was solving for its customers’ healthcare needs.

Long before any floor plan was designed or brick was laid, customer insight and research efforts sought to ask the customer what they really wanted from their healthcare experience. With approximately 90% of Americans living within 10 miles of a Walmart and approximately 150 million people walking through the doors of Walmart on a weekly basis, there was a plethora of information at the ready. Walmart set out to ask the customers what they liked and did not like about the current healthcare system. The answers from the customers were well aligned with the published research. There were a few main areas that the customers had concerns about:

- **Cost**: Costs are high and continuing to rise. Out-of-pocket costs have risen 54% over the last decade (Kaiser Family Foundation, 2018). These costs are rising two times faster than wages, leading about half of self-pay patients to delay or even forego their care (Business Wire, 2018).

- **Access and convenience**: Most working individuals and families find that access and convenience are lacking. New patients wait an average of 22 days for an initial primary care appointment, and 30 million people are uninsured with no usual source of care. Many patients in rural areas must travel up to 100 miles for basic services.

- **Service**: Only 40% of consumers think their provider delivers good service, and 81% of consumers are unsatisfied with their healthcare experience.

The company continued to research whether consumers would accept Walmart in this space. If Walmart were to enter into healthcare, what types of services would the consumer be willing to obtain at Walmart, and how would they need to be configured? What quality cues would customers need to experience in order to establish trust? This information was used to determine Walmart Health locations, the services offered within them, the price points of the services, and an inventory of potential services that would need to be tested to see whether they would be offered more
broadly in the future. Walmart Health set out to address these issues with a simple mission:

- Provide consumers access to a simple and convenient healthcare experience.
- Bring as many services as possible together to create an integrated experience for the consumer.
- Make care affordable for the consumer by lowering the price of healthcare services.
- Guide consumers through their health and wellness journey in a holistic way.
- Help consumers better manage their health and guide them to high-value providers.

Walmart Health opened its first location on September 13, 2019. As stated by the unit’s president, Sean Slovenski (2019):

We have been prioritizing how Walmart can be a leader in promoting better health outcomes for people in their communities, on their schedule and within their budgets ... working with partners to provide key services such as primary care, labs, X-ray and EKG, counseling, dental, optical, hearing and community health education, all at low, transparent pricing, regardless of customers’ insurance status.

The goal was to have retail-driven distribution remove friction and offer convenience and confidence to customers in need of various healthcare services. Out of the gate, Walmart Health provided primary and urgent care, labs, X-ray and diagnostics, counseling, dental, optical, and hearing services all in one facility. In addition, Walmart Health offers fully transparent affordable pricing that a customer can explore before any service is rendered. To make this possible, Walmart Health streamlined the paperwork involved in scheduling, checking in, paying, and getting estimates on the costs of services. And because Walmart is often the community center for so many geographies, Walmart Health includes specialized community health resources, online education, and in-center workshops to educate about preventive health and wellness. To date, the response has been very positive, with thousands of appointments in the first few months and a customer satisfaction level near 90%. Prices to consumers have also compared favorably with traditional healthcare providers (see Table 1).

### Table 1. Price comparison of Walmart Health and hospital providers

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Walmart Health</th>
<th>Hospital provider</th>
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</thead>
<tbody>
<tr>
<td>Primary care office visit</td>
<td>$50</td>
<td>$103&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Chest X-ray, 2 views</td>
<td>$30</td>
<td>$378&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Lipid panel</td>
<td>$29</td>
<td>$74&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>EKG</td>
<td>$28</td>
<td>$312&lt;sup&gt;b&lt;/sup&gt;</td>
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Notes:
- <sup>b</sup> Pricing information for a large hospital system operating in the same geographic market as Walmart Health.

6. How might policy shape the redistribution of healthcare services?

In the traditional healthcare supply chain, the patient is left on their own to deal with the broader factors that determine their quality of health. This is concerning given that patients are less likely to take control of their own health when they do not feel they are able to do so effectively (Robert Wood Johnson Foundation, 2012). Social determinants such as income, access to healthy food, work environment, and living status are important factors in the quality of patient health, but the healthcare system has little incentive to provide services to patients in these areas (Artiga & Hinton, 2018). Further, because the cost of healthcare can be high, patients may delay seeking care, which can worsen conditions and increase the cost of treatment over the long run (Vonderembse & Dobrzykowski, 2016).

In this traditional design, it is understandable why regulations to control costs and improve quality are focused on the supply side. As Benjamin Franklin wrote, “An ounce of prevention is worth a pound of cure.” But addressing the demand side of the healthcare supply chain is very complex because the management of health requires a more holistic approach to patient healthcare, which begins long before a condition or disease presents itself. Every facet of a patient’s life is a contributing factor to their health and well-being, and managing patients’ whole lives through regulation is a messy proposition. Focusing on the structure and conduct of organizations presents a simpler, albeit still challenging, pathway to healthcare improvement. Here we use this framework to explain how regulation might...
create a more balanced focus on supply and demand and enable innovation that produces new, more efficient customer-centric models of service delivery.

Figure 2 illustrates how the emerging or future healthcare industry is structured (in the circles) and driven by the regulatory environment (indicated as more or less influential by the font size). A key change from Figure 1 to Figure 2 is the addition of the retail tier and the redistribution of services across the macro healthcare delivery supply chain. Additionally, we reflect a regulatory environment that is more balanced in its emphasis on both the supply and demand sides of the supply chain.

A fundamental consideration when reorganizing service bundles in healthcare begins with the expansion or shift from the strong supply-side orientation to a more inclusive demand-side regulatory approach. Structural and conduct regulation will likely increase in prominence on the demand side of the supply chain. Here we discuss our recommendations for how supply- and demand-side structural and conduct regulations can be changed to facilitate healthcare delivery innovation and increase patient involvement in their healthcare decisions and purchases. These recommendations are also summarized in Figure 3.

Demand-side structural regulation (i.e., health plan mandates and the structure of insurance) probably requires the least modification. Such regulation ought to expand network access to nontraditional providers so that patients can more easily access care from retail models offered by organizations like Walmart Health and Amazon. Nontraditional healthcare organizations (e.g., Walmart Health) have recently been successful in engaging payor contracts with Medicare and Medicaid (i.e., CMS) as well as with private insurers (e.g., Cigna, UnitedHealthcare), but this is a relatively new phenomenon. This development is a gateway to providing patients with access to services like primary care, laboratory, diagnostic imaging, and behavioral health, in addition to these organizations’ more traditional roles in pharmacy and optometry. As evidence mounts that retail models of primary care services produce lower costs and more convenience for patients, it is likely that employers will expand carve-outs that steer employees/patients to RMCs for primary care services and other services offered in these settings. A carve-out refers to employers’ ability to opt out of certain benefit features of a health plan and to contract for those services directly with a provider. In this case, we anticipate that employers may begin to carve services provided in retail settings out of their health plan benefits for employees and contract directly with retailers. This represents a disintermediation of the supply chain (disintermediating the insurance company) that may further reduce costs by eliminating trade margins.

The redistribution of services can also be supported by demand-side conduct regulation that returns to the emphasis on consumerism or consumer-driven healthcare introduced under the George W. Bush administration. These programs remain available today but have received considerably less attention, development, and promotion since 2009. A reemphasis on high-deductible

Figure 2. Future healthcare supply chains service bundles (driven by regulation)
health plans (HDHPs) and health savings accounts (HSAs) would allow consumers to reduce their premium contributions and save for the future using tax-deferred accounts. HDHPs typically cover preventive care services at 100% while placing increased financial exposure on patients accessing nonpreventive care. These HDHPs reduce benefits to employees/patients, which is intended to increase their level of engagement in healthcare purchasing decisions. For example, an HDHP offers lower premiums to employees that produce cost savings that can be placed into a tax-deferred HSA account. The reduced cost of the plan is made possible by higher deductibles (more financial liability) when accessing care. The underlying logic is that patients enrolled in HDHPs have increased financial incentive to exercise rational market-based decision making when selecting when and where to access care (e.g., choosing between a lower cost physician office versus higher cost hospital emergency room; Herzlinger, 2010). Consumers enrolled in these HDHPs may find the lower cost retail model attractive for nonpreventive primary care services such as cold or flu infections.

Unfortunately, challenges related to a lack of price transparency and asymmetrical information exchange between providers and patients have often placed consumers with HDHPs at a disadvantage in making rational, informed decisions about their healthcare purchases. RMCs have provided increased price transparency, which they consider a core value in developing their service delivery model. Retailers also face a substantial opportunity to integrate data not only from the healthcare services accessed by patients at their facilities but also from patients’ lifestyle choices, including food purchases and other social determinants of health. This type of information sharing is accompanied by privacy and other patient concerns but represents a significant opportunity to improve health and well-being. This opportunity may lead to policy developments whereby HDHPs provide additional incentives (in the form of discounts on premiums) for consumers to engage in data-driven, personalized, integrative approaches to their healthcare.

On the supply side, if evidence mounts that new models of healthcare delivery do indeed result in lower cost, more customer-centric outcomes for patients, it is likely that structural regulations that currently restrict new market entrants, like CON, may be modified or eliminated. This would challenge industry incumbents, who have enjoyed an advantage in collecting data, to demonstrate market need, and it would ultimately drive innovative service delivery models. Similar possibilities may exist for structural regulations such as the antitrust regulation administered by the FTC. RMCs are based in stores of giant retailers that are profit-seeking and have nearly ubiquitous presence and enormous bargaining power. On the face, these characteristics may give pause to regulators, but the everyday-low-price model has been effective for these retailers, and there is little reason to think this would not extend to their RMC strategies. This may be cause for the FTC to

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<th>Regulation type</th>
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<th>Demand side</th>
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<tr>
<td>Structural</td>
<td>- Modify or eliminate barriers to market entry (like CON programs)</td>
<td>- Expand network access to nontraditional providers</td>
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<td></td>
<td>- Revisit antitrust regulations</td>
<td>- Expand carve-outs to steer patients to retail facilities for primary care</td>
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<tr>
<td>Conduct</td>
<td>- Expand VBP and other quality-indexed payment systems</td>
<td>- Expand use of HDHPs and HSAs to rationalize patient healthcare decision making</td>
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<td></td>
<td>- Revise payment systems to consider price and quality transparency</td>
<td>- Encourage price transparency and data integration by providers</td>
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<td></td>
<td>- Expand reimbursement for new types of consultation services</td>
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Figure 3. The effects of structural and conduct regulations on the healthcare supply chain
reevaluate how they determine antitrust risk and to encourage the RMC model, which has the potential to increase affordability, access, and awareness.

Also on the supply side, conduct regulation like value-based purchasing (VBP) has shifted payments to providers from a largely FFS basis to a quality-indexed payment methodology. Researchers have shown VBP improves outcomes for patients through influencing the conduct of healthcare providers (Lee et al., 2020). Specifically, outcomes are improved for experiential aspects of service delivery, such as nurse-patient communication, physician-patient communication, pain control, and the cleanliness of the facility, along with conformance to technical service quality best practices. For example, heart-attack patients receiving aspirin upon arrival to the emergency room have shown improved outcomes under VBP. VBP and similar payments systems are expanding to include efficiency, which is a positive trend. But at the time of writing, VBP and other quality-indexed payment systems represent a small minority of provider payments, with the vast majority still consisting of FFS and DRG payments.

As retail service delivery models move beyond proof of concept, it is likely that traditional retail performance priorities like “clean, fast, and friendly” will gain adoption in the healthcare delivery. Given their experience in pursuing these customer-centric measures, it is possible that retailers may possess an advantage in developing and executing innovative models of service delivery. Considering both the retail model’s emphasis on price and quality transparency and consumers’ need for these resources in decision making, it is possible that value-based payment systems may also expand to include these aspects of service delivery. Retailers’ access to and proficiency in analyzing consumer data regarding healthcare services, as well as data on purchasing behaviors that reveal social determinants of health, represent a major opportunity to improve well-being and cost. But these activities generate additional costs beyond those services currently reimbursable by insurers. As such, changes to payment systems that would allow for reimbursement to providers for such consultation services may be implemented. Providers (including nontraditional providers) could be compensated for data aggregation, analysis, and consultation services to patients. For example, providers might be compensated for analyzing a patient’s hemoglobin A1C test, used in diagnosing diabetes, in the context of the patient’s grocery purchases.

Finally, this redistribution of services across the supply chain is likely to create new opportunities for previously unconventional partnerships. Unconventional partnerships have become increasingly prevalent in healthcare in recent years, with ProMedica Health System’s acquisition of HCR ManorCare providing an example in which an integrated delivery system of acute and primary care services acquired the nation’s largest nursing home operator. Regarding the emerging retail healthcare delivery model, a new decoupling point appears (Dobrzykowski, 2019) whereby the retailer may be a referral source for specialists and hospital-based interventional services. For example, it is conceivable that bloodwork drawn and tested for a patient at a retail healthcare provider could reveal a more serious condition warranting follow-up specialty care or even hospital surgery. This represents the potential for a new decentralized supply chain relationship, as a key aim of health systems is the capture of downstream revenue. In other words, health systems today may break even or even lose money on primary care services, but they rely on patient referrals from those service providers to their specialists and hospitals to capture higher margin service encounters. As such, the federal government (especially the FTC) closely monitors issues of market share and inappropriate kickbacks, which will likely become key issues for both structural and conduct regulations to address in this new environment.

7. Final thoughts

Structural and conduct regulations have centered largely on the supply side of the healthcare delivery supply chain. Structural regulations like CON have contributed to an industry that emphasizes providers and service consumption to offset high-fixed-cost models of care. Conduct regulations like FFS payment systems have perpetuated the model by incentivizing industry incumbents to build new capacity while limiting new entrants. Demand-side regulation has done less to influence the structure of and conduct within the industry. But structural regulations of health plans have enabled end consumers (patients) to consume the new capacity created by industry incumbents, while conduct regulations of payment methods have largely insulated the end consumers from the costs of services. Taken together, these factors have discouraged or even precluded innovation in the industry. Consider the use of electronic health records and personal health records. These are not
too different from enterprise resource planning systems, the technology for which has existed for about 20 years, but conduct regulations offer no incentive for any key actor involved in healthcare delivery to purchase and implement these systems.

To date, nontraditional healthcare organizations, including retailers with expertise in developing and executing customer-centric, efficient service models, have found it difficult to enter the industry. This has likely stifled innovation regarding rethinking or imagining new, more customer-centered and efficient service bundle designs that are increasingly needed to address the challenges facing the healthcare industry today. We have highlighted how structural changes on the supply side of the healthcare supply chain, such as modifying or eliminating barriers to market entry (such as CON programs), revisiting antitrust regulations, as well as demand-side changes like expanding network access to nontraditional providers and expanding carve-outs to steer patients to retail facilities for primary care, can support and potentially accelerate the development of innovative models like RMCs. Similarly, conduct changes on the supply side of the healthcare supply chain, such as expanding VBP and other quality-indexed payment systems, revising payment systems to consider price and quality transparency, and expanding reimbursement for new types of consultation services, along with demand-side conduct advancements like the expanded use of HDHPs and HSAs to rationalize patient healthcare decision-making and the encouragement of price transparency and data integration by providers, can further innovative models of healthcare delivery. Together, structural and conduct regulations can play a key role in driving innovative models of healthcare delivery that improve efficiency and customer-centricity, thereby fundamentally reshaping the healthcare industry.

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