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Workforce Woes: Tackling Labor and Productivity Challenges in Healthcare

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Abstract

What is the message? Traditional staffing models in healthcare delivery result in labor shortages, financial strains, and vulnerabilities to fluctuating demand for services. The productivity imperative, however, is not a problem for healthcare only. We investigated strategies for workforce transformation in other industries and identified three key lessons for how healthcare can optimize team sizes, better allocate skill sets, and create flexible labor models to meet episodic demand.

What is the evidence? For cross-industry learnings, we used case studies from manufacturing, banking, and customer service organizations. For healthcare management, we drew from the literature on time-driven activity-based costing studies and published outcomes from initiatives pursued at individual healthcare institutions.

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Healthcare is fundamentally a “people” business, where delivery of high-standard care is built on a labor-intensive foundation. However, the pandemic has called into question the sustainability of this workforce model, with COVID-19 inducing substantial financial and workforce pressures[1]. Since the start of the pandemic, nearly 100,000 hospital staff have left their jobs. As hospitals struggle to retain and backfill staff, the cost of clinical labor per patient-day has increased by 8% since 2020, creating further strain on the system[2]. The mismatch between workforce supply and demand is especially severe for nursing, with hospitals increasingly relying on travel nursing firms whose pandemic-era rate hikes have elicited concern from both health system leaders and members of Congress[3–5].

While COVID-19 presents an extreme shock to the system, the structural failings of the medical labor model were well-documented prior to the pandemic, with the healthcare industry’s turnover rates exceeding those of other industries[6]. Indeed, substantial research has highlighted how excessive administrative burdens, underutilized clinical capacity, and the inefficient use of information technology all contribute to inefficiencies in care delivery[7–9]. These inefficiencies increase the cost of healthcare by sub-optimally assigning labor resources[10]. Researchers have used time-driven activity-based costing (TDABC) – an accounting methodology that quantifies the cost of business per unit of time – to expose how the conventional healthcare labor model used in specialties ranging from hospital medicine to ophthalmology results in significant opportunities to improve efficiency and reduce labor costs[11–15]. Beyond increasing health care costs, productivity inefficiencies also add to providers’ workloads and compromise clinicians’ time with patients, creating the conditions for burnout[16].

Of course, the productivity imperative is not unique to healthcare. Leading companies in many other industries have sought to redesign their workforce in response to increasing competition for talent, heightened consumer expectations for efficiency and quality, and evolving customer experiences in the digital era. For example, hospital managers could learn from the experience of the LEGO Company, which successfully reduced heterogeneity and bloat in its production lines to save itself from bankruptcy. Likewise, clinicians could apply lessons from the banking industry – which has sought to digitize front-end services and reskill customer service representatives – to close the skills gap between a provider’s training and the health services

that they render[17]. Furthermore, emergency departments could look to the evolution of call centers, which have designed flexible shift work models to address fluctuating demand, to optimize staffing for variable demand for health services[18,19].

While "healthcare is different" is a common refrain in response to cross-industry management learnings, the reality remains that hospitals and health systems are unprepared for the looming post-pandemic reckoning for productivity and labor. In this article, we use the literature on TDABC and productivity research in other industries to identify lessons for rethinking healthcare's labor model, with a focus on optimizing the "size" of care, digitizing and deskilling front-end delivery, and managing episodic demand.

Right-Sizing the Healthcare Workforce

TDABC research highlights a key issue: there is too much variability in *how* care is delivered. Given the high-cost nature of clinical labor, inefficient deployment of clinical capacity results in excess labor costs for health systems. For example, a case study at a large academic medical center found that treating low-severity, acute-onset conditions like UTIs demanded different amounts of provider time in different settings (e.g., 17 minutes of an MD or physician assistant's time at the telehealth primary care clinic vs. 32 minutes with a resident and an attending physician in the emergency room), leading to different costs ($63.48 at the telehealth clinic vs. $210.86 in the emergency room)[11]. Furthermore, studies have also shown that team sizes vary even when performing the same task under similar conditions, such as a total knee arthroplasty, with personnel costs varying up to 1.9-fold even after controlling for salary rates[13]. These studies highlight the need to optimize and standardize teams for delivering care for common conditions with well-established treatment protocols. Such changes could not only improve patient care – as consistency is the cornerstone of quality – but also potentially reduce healthcare spending.

The LEGO Company also encountered the costs of variability. During the 1990s, the company responded to stagnating sales by launching new products, doubling the number of unique parts between 1997 and 2004[20–22]. This added complexity ended up disrupting their supply chain and inventory. As retailers and end-consumers grew frustrated, the company lumbered close to bankruptcy. Eventually, a new CEO helped turn the company around by focusing their business

on a smaller number of core products and alleviating the supply chain issues wrought by the increased complexity.

Like the LEGO Company, healthcare delivery has too many building blocks, each with different shapes and sizes. Given both service complexity and labor costs, healthcare teams should be designed for specific purposes and consist of only those providers needed for those purposes.

To operationalize the lesson from the LEGO Company, health systems could adopt a "care pathways" approach[23], which maps out the ideal intervention and clinical team at each stage of treatment for a given condition. For instance, the Cleveland Clinic Neurological Institute has developed disease-specific Care Paths in which providers use digital tools and evidence-based algorithms that are integrated into the electronic medical record to send patients to different teams of providers managing different conditions, such as concussion, ischemic stroke, and low back pain[24]. By making sure the patients are seen by the right team and the providers are applying their expertise most efficiently, this design reduces heterogeneity in care and optimizes workflows[25].

Surgical procedures are particularly amenable to this kind of labor optimization. Consider the example of cataract surgery, a procedure performed by a multidisciplinary team at high volumes each year in the United States. TDABC studies have shown that the costs of cataract surgery vary widely between sites in the US and between the US and other countries, with a substantial portion of the spending differential attributed to excess labor costs[26]. While the percentage of clinical time for attending physicians was consistent across all sites, US teams used excess nursing staff to perform various pre- and post-operative activities that in other countries are delegated to mid-level providers. Using TDABC to carefully understand the care processes can thus lead to the de-skilling of the care team with a more defined skills mix that could help optimize skills matching and reduce costs for cataract surgery.

Optimizing Skills Allocation in Healthcare

In addition to right-sizing care teams, an important part of improving productivity is optimizing skills allocation. TDABC studies have shown that there is variation across sites not only in the size of teams, but the kinds of providers hired to perform similar tasks. For example, a recent

study illustrated how variation in the costs of managing low-acuity conditions such as migraines or ankle sprains was attributed not to the services rendered, but rather to where care was delivered (e.g., virtual clinic versus emergency department) and who provided the services (e.g., medical assistant versus nurse versus physician)[11]. This mismatch between the skills of providers and the clinical tasks they actually perform contributes to inefficiency and higher costs of care. The nursing staffing crisis during COVID-19 — and the resulting strain on hospital finances — is a salient contemporary example of the skills misalignment in care delivery, and it illustrates the need for managers to reevaluate staffing models across all stages of the patient care journey.

To improve "skills-matching"[27] or "talent-matching"[28] in care delivery, healthcare leaders may benefit from learning from the workforce innovations deployed in banking. Consumer banking, like healthcare, has traditionally been a brick-and-mortar service experience. Clients typically use the local branch of a bank that is the most conveniently located to them in their community, have a mix of annual (e.g., deposits, taxes) and time-sensitive (e.g., loans) interactions, and may interact with a range of personnel from receptionists to branch managers. However, banks today face a significant challenge: the number of bank-tellers is declining, the reliance on local branches is decreasing as populations become more mobile, and consumers expect an increasingly digital experience with on-demand access. Consequently, banks needed to pivot to optimize productivity. To this end, banks focused on digitizing and de-skilling traditional front-end banking functions while boosting the customer service workforce[17]. For example, many banks now allow for all interactions to be conducted online or via a mobile application. With digitization rendering the position of "bank-teller" obsolete, banks focused on retraining these personnel to deliver a wider array of financial advisory functions.

These two strategies offer valuable lessons for healthcare. On the digital front, with patients exhibiting increased comfort with virtual platforms following the COVID-19 pandemic, providers and plans could consider adopting digital tools as a first-line approach to triaging low-acuity concerns. The advent of so-called "virtual-first" primary care plans and the implementation of processes such as electronic consults (eConsults) can streamline patient access, optimize the use of clinician time, and balance caseloads between different primary care sites, especially for same-day care[29,30]. With regards to skills-matching, health systems could consider how the use

of non-physician providers can optimize labor allocations. For instance, the Cleveland Clinic implemented a program to delegate documentation tasks at a family medicine practice to non-physician staff to reserve the time of high-cost physicians for evaluating more patients[31]. Increased efficiency at primary care clinics through greater integration of medical assistants and nurse practitioners has also been reported in the literature[32–36].

Creating Flexible Labor Models to Meet Episodic Demand

A common challenge in many industries is creating teams and supply chains that are elastic enough to adapt in response to episodic surges in demand. For example, many industries have seasonal components (e.g., holiday shopping) that require rapid upscaling of capacity to meet temporarily heightened demand. Episodic demand also exists in healthcare, from the one-off experience of surges and nadirs in cases during COVID-19, to the more common experience of variation in service utilization according to time of day (e.g., evenings and emergency departments) or year (e.g., flu season). However, as the experience of healthcare systems during COVID-19 illustrates, care teams are not built to have excess capacity, and the cost of acquiring clinical back-up (e.g., travel nurses) on a regular basis is very high.

Consequently, there is an imperative to build flexibility into care models[19]. Other industries have employed a range of strategies to address this challenge (e.g., short-term hiring of seasonal workers). Consider, for example, call centers. Call centers, like emergency departments, have a basal level of volume throughout the day; however, there are peak hours when demand spikes. To optimize capacity, call centers start with the numbers, using historical data and conventional and machine learning tools to forecast the times when demand is most likely to spike. Based on these trends, managers can use workforce management tools (e.g., flexible shifts) to adjust staffing schedules and build in flexibility for potential demand spikes.

In healthcare, managers in the status quo recognize that staffing has to be adjusted in response to demand; this is why many hospitals increase hiring of temporary workers during flu season.[37] However, as COVID-19 has shown, demand matching remains an imperfect science for health systems, leaving hospitals susceptible to price gouging.[38] This is due to two issues. First, health systems lack tools for forecasting demand and identifying excess staffing supply. Second, even

when health systems increase staffing, demand for services can still be limited by the availability of fixed assets like bed space.

The call center analogy is applicable for both of these challenges. Just as call centers have begun using forecasting models, health systems may benefit from investing in in-house analytics or partnering with third-party vendors. Likewise, just as call centers have transitioned from a static staffing model (which leaves 40% of agent time unoccupied)[18] to a dynamic approach (with flexible shifts), health systems may benefit from recalibrating staffing levels to a lower base patient census. New start-up companies have also emerged to facilitate provider-to-health system matching to reduce the friction associated with workforce matching.

Call centers are also useful references for thinking through the physical capacity constraints that also restrict swells in staffing. The value of the call center has always been its decentralized nature; when demand spikes, the only limiting factor is the number of agents, not the number of offices. In medicine, however, even if health systems can procure additional *locum tenens*, they cannot magically conjure up additional beds. Consequently, to achieve staffing flexibility, hospital managers must also consider how they can create added capacity in a decentralized fashion. One example of a decentralized approach is the “Availabist” model which New York Presbyterian (NYP) has for emergency care[39,40]. At NYP, patients that arrive in the emergency department are managed using a hybrid approach, with a “virtual ED” activated to triage low-acuity concerns to enable prioritization of more time-sensitive clinical cases. In this way, the system has built-in clinical flexibility that enables NYP to tune staffing levels to demand without being capped by physical capacity constraints.

Looking Forward

The COVID-19 pandemic has exacerbated long-standing challenges with labor shortage and costs in healthcare. In response to workforce attrition and added financial and logistical pressures, health systems need to develop strategies for optimizing and standardizing the labor inputs to care delivery to build a more robust system. Data from previous studies and lessons learned from other industries suggest that optimizing team sizes, skills allocation, and responses to episodic demand, as appropriate, are effective interventions. The key challenge is implementing these changes.

From a clinical perspective, professional societies could develop recommendations for best practices on team size and team member function. From a financial perspective, value-based payment models can refocus physician time around optimizing care for the patient as opposed to increasing service volume. Regulatory changes could also help facilitate some of these models for capacity building, such as more expansive medical licensure provisions similar to the flexibilities introduced during the height of the COVID-19 pandemic[41]. But individual institutions can move the needle, too, by carefully defining care teams, matching workflows to the right personnel, and investing in alternative modes of care delivery.

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