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Business Forum is dedicated to improving the effectiveness of business in contemporary society. We provide a forum for fresh ideas, impactful research, and possible solutions to business challenges. We strive to close the gap between research and practice and enable evidence-based business management.

Our peer-reviewed articles address specialized and interdisciplinary issues of interest to business practitioners. We accept manuscripts from all domains of business, usually themed by a particular journal issue. We also publish reviews of books and digital materials of interest to our audiences as well as important insights shared by business and civic leaders.

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EDITORIAL

HEALTHCARE CURRENTS: A SPECIAL ISSUE FORUM



It is an exciting time at the *Business Forum*, a peer-reviewed, scholar-practitioner journal published by the College of Business and Economics at Cal State LA. The journal provided scholarly advice and application to business practice since the mid-1970s and is now renewed in a modern print-online format. Our articles have always aimed to advance business practice through application of research or theoretical synthesis of information relevant to business. This Healthcare Currents issue is not an exception, as we highlight an array of interesting topics from reviewing healthcare technology advancements that contribute to reductions in costs of care to helping managers understand wellbeing and mindful practices at work.

We open with two vignettes setting a practical context for the articles. The President of AltaMed Health Services Corporation shares how his company handles healthcare industry changes and leads the way into technological and service innovation in the underinsured Southern California communities and beyond. The "Mind Matters" initiative in the second vignette showcases one of the wellbeing programs that engender positive change in how work-and-study community members empower themselves with knowledge about compassionate engagement and managing stress. Echoing previous research on compassion and change (e.g., Avramchuk, Manning, & Carpino, 2013; Worline & Dutton, 2017), both vignettes illustrate the need for leaders to take their organizations further on a path toward social responsibility and human thriving.

The main Articles section begins with a review of technologies for monitoring and supporting patient care remotely. David Weinstein, Lonnie Barish, and Micah Frankel lead us on a fascinating journey into innovative market solutions targeting improvements in preventive care and therefore increasing its quality while reducing overall care costs. The quality-versus-costs dilemma (Bradley & Taylor, 2015) is central in the healthcare management field, and most articles chosen for this special issue try to tackle it in some practical way.

Addressing healthcare costs from a workplace angle, for example, Portia A. Jackson Preston synthesizes the literature on workplace stressors and shares evidence-based recommendations for dealing with employee burnout. Tom Larson and Deborah Compel Larson then take us outside of the workplace and into a South Los Angeles community to demonstrate through their research how the food deserts in urbanized environments coexist with the obesity epidemic and other healthcare cost drivers among our local population, including its working-age segment.

Among the key currents in our healthcare field is the set of monumental changes due to the enactment and ongoing implementation challenges of the Patient Protection and Affordable Care Act of 2010 (ACA). Zhen Cui and Devika Hazra have examined the associated positive and

negative impacts on healthcare cost coverage and provide interesting, original statistics on who the ACA helped and who it failed in this regard. Their research gives insight into the issue of health insurance for the self-employed and suggests policymaking implications for healthcare coverage of part-time employees in the United States.

Mwadi Kakoma Chakulya, Francis Wambalaba, and Barbara W. Son bring into the spotlight an increasingly important, global view on employee healthcare financing through a unique case of Zambian copper miners. The authors' survey research illuminates the nuances in employee attitudes toward paying for healthcare costs, producing potentially useful lessons for the unionized miner workforces in particular and labor-management partnerships in general.

We then close with the article by Carol Blaszczynski that harnesses and showcases the power of workplace mindfulness through a synthesis of literature and current organizational practices. The author presents a compelling business case for mindfulness programs in different work settings and across employee and management job levels. The article furthers the encouragement from several authors of this special issue to build organizational communities for a sustainable workplace and a healthy society.

Finally, H. Rika Houston reviews *The Gene: An Intimate History*, a book by Siddhartha Mukherjee, that helps us to "challenge and reimagine preconceived notions of health and wellness" (Houston, 2018, p. 54). As we struggle to reconcile business imperatives with societal priorities (Rosenthal, 2018), there are paradigm shifts emerging to affect the core of what we know about our struggles, passions, and nature. The *Business Forum* journal aspires to bring our audiences fresh perspectives on how to work effectively and organize efficiently yet continue to live with wonder about a better world filled with creativity, innovation, and purpose. The Healthcare Currents issue attempts to deliver on this hefty promise.

Andre S. Avramchuk
Issue Editor

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Adapting to an Evolving Healthcare Environment

By Cástulo de la Rocha

Cástulo de la Rocha is President and Chief Executive Officer of AltaMed Health Services Corporation, the largest nonprofit Federally Qualified Health Center in California in the nation. A social architect, Mr. de la Rocha has changed the faces of the communities AltaMed serves by expanding a sustainable and innovative model of health care delivery to provide access to quality care for millions of underserved patients. Accredited by the Joint Commission as a Patient Centered Medical Home, AltaMed is home to nearly 2,700 employees, provides care to approximately 300,000 patients, and delivers more than one million patient visits annually across nearly 50 medical, dental, HIV and PACE sites in Los Angeles and Orange counties.



If you've been paying attention to what's happening in Washington, D.C., you know that change is, ironically, a constant in health care. This includes new policies from our nation's capital as well as the medical needs of our communities. Over the last several years, AltaMed Health Services has adapted to these changes and has forged itself as a leader in ensuring access to health care and preventive services. Whatever happens in Washington, we are dedicated to continuing our nonprofit mission of providing quality health care without exception to each and every person we serve.

In more than four decades of operation, our key to success remains our focus on serving our local communities, particularly the underinsured. This has helped AltaMed grow from one storefront neighborhood clinic, staffed by volunteer physicians who treated 11,000 patients a year on a five-figure budget, into a $600 million health care provider with nearly 2,700 employees, delivering more than one million patient visits annually.

One of the hurdles we faced in achieving this growth was adapting to a state health care market that moved from a fee-for-service model to a managed care system. To remain competitive, we had to shift from operating as a grant-driven organization to a market-driven one with the ability to provide contracted Medi-Cal, Medicare and commercial health care services to every HMO in the region.

The Affordable Care Act (ACA) proved to be both a challenge and a growth opportunity. When the ACA was enacted, it was a victory for health care advocates across the nation. It also became a game changer for community clinics. It enabled us to receive reimbursement for much more of the care we provided, because more patients now had private insurance or began to qualify for Medicaid because of its expansion. Community clinics like ours were able to use federal grants to expand facilities and add services, such as dentistry, urgent care or mental health care. Many clinics that once spent years in the red, barely able to keep their doors open, are now finally breaking even because of the ACA.

Patients who became insured as a result of the new legislation were now able to visit the doctor without the fear of unexpected medical costs. They have the security of a known co-pay and deductible, and can plan accordingly. In the case of Medicaid patients, they have the security of knowing that lack of income will not get in the way of their need for medical care.

At AltaMed, we have traditionally treated and prepared ourselves to act as safety net to a largely low-income demographic that would otherwise have very limited options for receiving medical care. Close to 185,000 of our patients – approximately 70 percent – currently rely on Medicaid for coverage across Los Angeles and Orange counties. Our ratio of Medicaid patients is significantly higher than the Medicaid coverage rate across California, as approximately one-third of California residents under 65 are on Medi-Cal.

We also have more than 50,000 patients who do not qualify for traditional coverage. These are patients who rely on our sliding fee scale and the fee-for-service model.

The implementation of the ACA forced us to increase the number of facilities we offer, to expand our capacity to serve more patients, improve and manage our operational costs, and ensure that we consistently deliver the best possible outcomes for our patients. Adjusting to the law was a difficult, two-year effort, but it helped move

AltaMed from the bottom quartile in performance to being ranked among Kaiser Permanente, CareMore and others as a top health care provider.

If Congress repeals the ACA, California could lose $20 billion annually in federal funding for Medicaid expansion and insurance subsidies, leaving 7.5 million Californians without access to affordable insurance coverage. It will be a dark, dark day in this country's history if we suddenly terminate coverage for the 22 million Americans who now receive some kind of benefit through the ACA.

Although plans for a replacement continue to be discussed in Congress, they just aren't good enough. Many of the previously proposed plans have included potential cuts to Medicaid, which would largely affect the working poor and elderly. Getting rid of the individual mandate that all legal residents must be insured would likely mean that young, healthy people would stop buying plans, and insurers would once again be footing the greater part of the bill to cover people with higher medical expenses. That would lead to increased premiums and out-of-pocket costs for those who do continue to purchase insurance. By one estimate, 10 percent of those living in Los Angeles, Fresno, Kern, San Bernardino, San Joaquin and Tulare counties have received benefits under ACA. Some of these regions are represented by Republicans and have large numbers of Republican voters who've taken advantage of the ACA's benefits. This is also true of many of the key states Republicans carried in the November election.

In 2015, U.S. health care costs reached an all-time high of $3.2 trillion, partly due to millions of Americans gaining coverage through the ACA. Employers, small businesses and chambers of commerce have to take a more active role in the debate over affordable health care. In particular, we have a significant stake in serving the Latino market where there are significant numbers of unemployed and working poor. Washington has floated many proposals, including health care spending accounts and tax credits. We have to become actively engaged to ensure that whatever policy Republicans and Democrats pass will continue to provide access to affordable health care for the maximum possible number of people. The consequences of not instituting a policy solution that keeps health care affordable would create an undue burden for working-class Americans.

And though we have seen ideas floated around, like expansion of tax-free health savings accounts or selling insurance plans across state lines, the best way to increase access to health care is yet to be determined. That said, AltaMed will continue working closely with Covered California to identify the greatest need for coverage that remains in our state, and we will continue to offer one-on-one assistance at our health centers to ensure that no one who qualifies in our community is left without coverage. We will continue to operate until changes are solidified, and we will do our best to continue advocating for those who are still seeking coverage assistance.

The effect that the ACA has had on operating budgets, revenue and margins has forced some providers, like Aetna and United Healthcare, to leave the program. On a local level, we've seen Anthem Blue Cross exit the Covered California market. However, since the ACA became law, health care cost increases have been in the single-digit range, compared to previous increases of 12 to 20 percent. To contain future health care costs, doctors, hospitals, clinics and pharmacies will need to move away from a fee-based system, reliant on volume, to a value-based system with a capped monthly rate for services.

Across the spectrum, we all share responsibility for managing health care costs. As employers, we need to monitor and continually evaluate the care our employees receive and work with insurers to better manage those costs through wellness and other programs. Both employers and individuals have a role to play in choosing providers that deliver the best performance. Lastly, employees need to become more informed consumers and demand the information that will help them make decisions about their health care.

Health care will soon resemble the consumer market in that breakthrough innovations are being driven by data and technology. Providers that leverage data and technology to engage their patients will be the winners. For AltaMed, it means we have to use more strategic technology to deliver cost-effective, high-quality medical care. We're already using electronic medical records in our back offices, and electronic prescription management and telemedicine in the clinical setting. Where technology will be especially helpful is connecting bilingual psychologists, cardiologists, dermatologists and other specialists with our patients. That's a major challenge for providers, but advances like smartphone apps and remote medicine will help us meet patients' needs anywhere and anytime. In order to stay relevant, we have to keep up with the times and continue to listen and meet the ever-changing needs of the communities we serve.

AltaMed

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Cal State LA's Mind Matters Initiative: Making a Difference

By **Jillian Beck** | Cal State LA News Service

The goal of the Mind Matters initiative at California State University, Los Angeles is to integrate inner well-being into the framework of University life as a means of supporting student success.

Cal State LA President **William A. Covino** and First Lady Dr**. Debbie Covino** created the Mind Matters initiative in 2013 to provide resources and programs to help students navigate the demands of academic excellence, family responsibilities and jobs. The President and First Lady realize that without inner well-being, there is no academic success.

The Mind Matters initiative comes at a time when college students nationwide are experiencing high levels of stress, including problems caused by sleep deprivation and anxiety about adjusting to university life.

"Now, perhaps more than ever, we need to ensure that our students understand the importance of caring for their inner selves," President Covino said. "And we are providing them with ways to do so."

To help ensure student success, additional counselors have been hired for the Student Health Center, doubling the number available to assist students. Space was renovated in the center to accommodate the additional counseling and workshops and activities were added to promote physical and mental well-being.

The number of peer health educators on the Student Health Advisory Committee (SHAC) has also expanded to more than 50 students. These volunteers help educate students about health and wellness issues.

Mind Matters programs include Well-Being Wednesdays, which promote inner well-being by encouraging a campus culture based on compassionate



engagement and mutual support. Mind Matters and SHAC volunteers, Well-Being Ambassadors and the new Mind Matters eagle mascot, Welly, promote inner well-being on the Main Walkway on Wednesdays with materials that reinforce the values of care and compassion.

More than 440 faculty, students and staff, including the President's Leadership Team, have been trained in Mental Health First Aid, an eight-hour course that teaches participants how to identify, understand and respond to signs of mental illnesses and substance use disorders. The training provides skills needed to reach out and provide initial help and support to someone who may be developing a mental health or substance use problem or experiencing a crisis. On Well-Being Wednesdays, those trained in Mental Health First Aid wear green "We Care, I Care" buttons.

The Mind Matters initiative also features a speaker series, providing students, faculty and staff with insights on compassion, inner well-being and time management.

The engaging speakers have included Los Angeles Times columnist **Steve Lopez** and Rev. **Gregory J. Boyle**, S.J., founder of Homeboy Industries.

The Mind Matters Town Halls have been of great value to the campus community, complementing the civic-learning research Cal State LA students carry out in their classes. During the gatherings, students have created action plans for the health and well-being of the University community. Town halls are a proven practice that can contribute to student success and degree completion. More than 2,000 students have participated in Mind Matters Town Halls, and another 2,500 are expected to participate in the 2017-18 academic year.



PIXELS AND PATIENTS: USING TECHNOLOGICAL INNOVATIONS TO REDUCE HEALTHCARE COSTS AND IMPROVE HEALTH OUTCOMES

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SUMMARY: Advancements in remote monitoring technologies provide new opportunities to mitigate the growth of healthcare costs while improving patient health outcomes. These technologies have the promise to positively impact a patient's health by producing and contributing additional, valuable and timely "health information pixels" to the picture of a patient's clinical profile. In this article, we review how the use of remote monitoring and support technologies to gather data, digitally connect patient data to healthcare teams, and generate actionable messages may further contribute to addressing the key dilemma of improving healthcare quality while reducing healthcare costs.

Introduction

The United States continues to grapple with significant challenges posed by the magnitude of healthcare costs and their year-over-year rate of growth. For example, family deductibles under the Affordable Care Act averaged over $12,000 for 2017 bronze plans, while average premiums rose over 20% from the prior year (Mangan, 2016). Average healthcare spending in 2016 was over $10,000 per capita in the United States. These numbers are projected to rise by another 50% between now and 2025, so even just a 1% reduction in actual healthcare spending growth rates will have a significant impact on absolute costs (Kamal & Sawyer, 2017). Advancements in remote monitoring technologies provide new opportunities to mitigate the growth in healthcare costs while improving patient health outcomes. These technologies have the promise to positively impact a patient's health by producing and contributing additional, valuable and timely "health information pixels" to the picture of a patient's clinical profile. In this article, we review how the use of remote monitoring and support technologies to gather data, digitally connect patient data to healthcare

teams, and generate actionable messages may further contribute to addressing the key dilemma of improving healthcare quality while reducing healthcare costs.

Medication Adherence

One area targeted by these new technologies is poor medication adherence. The World Health Organization defines medication adherence as "the degree to which the person's behavior corresponds with the agreed recommendations from a healthcare provider" (Jose & Beena, 2011, p. 155). Poor medication adherence is a growing concern for clinicians, healthcare systems, and other stakeholders (e.g., payers) because of mounting evidence that it is prevalent and associated with adverse outcomes and higher costs of care (Ho, 2009).

The statistics are staggering. Poor medication adherence costs the healthcare system nearly $300 billion per year in additional doctor visits, emergency department visits, and hospitalizations (Bresnick, 2015). Chronic diseases such as diabetes, hypertension, and hyperlipidemia (i.e., high cholesterol) affect one out of every 10 American adults (Chronic Disease Overview, 2017) and account for 86% of healthcare costs (At A Glance 2015, 2015). Poor medication adherence may affect 50% of all patients and increases the likelihood of a hospitalization by up to 134% for chronic diseases such as high blood pressure, diabetes, and high cholesterol (Chronic Disease Overview, 2017). In 2003, the World Health Organization identified medication non-adherence as a leading cause of preventable morbidity, mortality, and healthcare costs (World Health Organization, 2003).

Data Pixelation

Past efforts at improving medication adherence have suffered from "data pixelation," the concept from computer graphics used to describe blurry digital images caused by a dearth of pixels—the information elements of these images. Data on daily medication dosing is rare. Physicians typically rely upon monthly prescription insurance claims created when patients pick up their medications at the pharmacy (Lam, 2015). Monthly data provide a fairly coarse view of the patient's adherence behavior and are usually actionable only weeks or months after the fact. The metaphor of a low-resolution digital photo is striking; with their relatively few data points, monthly prescription insurance-claims data present a pixelated, under-informed view of the patient's true medication adherence.

Consequently, physicians often make assumptions about medication dosing behavior which may not comport with the facts (Goldberga, Cohena, & Rubinb, 1998; Hulka et al., 1976; Rand & Wise, 1994). Generally, physicians tend to overestimate the level of their patients' adherence to therapy (Philips, 1996). "Non-adherence to medications reduces treatment benefits and can confound the clinician's assessment of therapeutic effectiveness, and is thought to account for 30% to 50% of cases where drugs fall short of their therapeutic goals" (Wroth & Pathman, 2006, p. 478).

Let us consider a hypertensive patient who forgets to take prescribed blood pressure medication every other day. This poor adherence behavior produces two health risks. First, by not taking medication as prescribed, the patient's blood pressure may remain above the clinical goal, impacting long-term health through increased risk of cardiovascular events (Green, Kwok, & Durrington, 2002). Second, in response to the patient's continued high blood pressure, the physician may raise the daily dose of blood pressure medication. Consequently, if the patient

adheres more to the medication regimen in the future, the increased dose may create a risk of an undesired decrease in blood pressure resulting in lightheadedness or fainting (Victor, 2016).

Smart Medication Vial Caps

Among the patient-level factors underlying poor medication adherence, the leading cause is forgetfulness (Bosworth, 2012). One recent technological development aimed at improving medication adherence caused by forgetfulness as well as providing physicians with less pixelated views of the patient's medication adherence is the smart medication vial cap or "smartcap."

Smartcaps have been introduced to the market by several companies in recent years and may be purchased for under $50, making them accessible to many consumer budgets (Ulanoff, 2017). To use a smartcap to help support adherence, patients download an application (app) onto their smartphones, set a medication dosing schedule (e.g., "every day at 7:00 p.m."), and sync the app with the smartcap. Smartcaps may be configured to fit on standard prescription medication vials and may be reused on prescription refills. In an encouraging sign for the smartcap industry, the Center for Connected Health, a division of Partners Health Care, reported a 27% increase in medication adherence under a randomized controlled study it performed with hypertensive patients using smartcaps (Brian, 2010).

How Smartcaps Work

Smartcaps employ a multi-modal approach to supporting good medication adherence. The smartcap illuminates or glows when a medication dose is due, and the smartcap app produces a dose alert on the patient's phone. Dose reminders can also be configured to be sent to a patient by SMS, email, or phone call. When a patient opens the smartcap to take a medication dose, the smartcap sends data to the app recording the event. If a patient is late in taking a dose, the cap will glow again, and the smartphone app will remind the patient accordingly by SMS, email, or phone call. If the patient takes the medication dose at any time during this process, the reminders for that dose will stop. Non-responsiveness is recorded as a missed dose (i.e., non-adherence). If the patient is away from the medication vial, a taken dose can be logged directly via the smartphone app.

Through this process, reports on daily dosing are created on the smartphone and can be shared with the patient's physician at the next office visit. These data add greater "pixels" to the picture of the patient's medication adherence. By recording dose-level data, the "resolution" of the patient's adherence picture is increased from a single data point per month—the data produced by prescription insurance claims—to 30 or more data points per month.

Sentinel Support

The smartcap also empowers a patient's friends or relatives as a powerful medication adherence support system. Not unlike a feature found in both Facebook and LinkedIn, a smartcap user can send another individual a "med friend" invitation. The med friend receives alerts when the patient's medication doses are missed; patients can configure when those alerts are triggered (e.g., one hour after a missed dose) and how those alerts are delivered to the med friend (e.g., SMS, email, phone call). While the mechanics of a med-friend functionality seem simple, the impact of having someone whom a patient trusts to support their appropriate medication dosing is powerful. Economics dictate that physicians cannot be expected to fill the sentinel role for medication

adherence. Now, through the use of technology, free support from friends and relatives can be integrated into the patient's care system.

In addition to the sentinel support provided by med friends, the power of smartcap is enhanced by the Hawthorne Effect, a well-documented phenomenon from social sciences whereby an individual's awareness of monitored behavior biases that behavior toward the desires of the monitoring agent (The Hawthorne Effect, 2008). In this example, knowing that a med friend will receive an alert if a dose is missed may contribute to reducing the likelihood of missing a dose in the first place.

Additional Health Information Pixels

The challenges posed by data pixelation in health care are not limited to medication adherence management. Let us continue considering a hypertensive patient, assuming medication adherence can be under control with smartcap support. The patient visits a physician for a regular monthly check-up where the blood pressure is measured as part of the encounter. The blood pressure reading, however, is only a single data point and may not be representative of typical blood pressure levels during the preceding 30 or more days. Wearable smart blood pressure cuffs ("smartcuffs") may provide a solution to this challenge by both reading daily blood pressure levels as well as uploading the data to the patient's smartphone to produce time-series reports for physician review. Between the data provided by smartcap (medication adherence) and the smartcuff (blood pressure time series), the physician would have a clearer, less pixelated picture of the patient's blood pressure and medication adherence.

Multiple Sclerosis Example

The challenges posed by data pixelation are not limited to behavioral or vital sign interpretations. Data pixelation also impacts physicians' abilities to manage diseases of motion such as Multiple Sclerosis (MS), where patient progress is often measured subjectively. There are over 20 different MS medications on the market (Medications for Multiple Sclerosis, 2017). Today, medication selection and evaluation for MS patients involve considerable trial and error (New Survey Finds Multiple Sclerosis Patients Struggle with Misdiagnosis and Invisible Symptoms, 2017). It is not uncommon for the cost of MS medication therapy to exceed $5,000 per month, so determining the proper medication and dose as soon as possible can significantly reduce unnecessary costs (Hartung, 2015).

As part of the evaluation process of current medication therapy, a physician would typically ask the MS patients to describe how they are feeling during face-to-face office visits. Perhaps a particular patient just walked a long distance from the car to the office, generating a response of "not too well." Even if such a patient's response was appropriately qualified, the physician is still faced with assessing the patient's condition based upon largely subjective data. An objective, time-series report of how an MS patient's physical pathway has presented over the past month or two would be extremely informative to the physician. Because it is a disease manifesting in motion, another technological innovation, the accelerometer, makes it possible to provide objective, time-series data to physicians. An accelerometer is an electromechanical device that measures and records acceleration-of-motion forces. Accelerometers are found in smartphones, smartwatches, and automobiles. They can also be incorporated into bracelets or similar wearable devices that patients can have on their bodies. Accelerometers are inexpensive; in 2013, the average price of an accelerometer was less than a dollar (Carbone, 2013). A recent study showed that

accelerometers can be used to objectively quantify physical activity levels in individuals with MS with different disability levels (Fjeldstad, 2015). By pairing two or more accelerometers worn by an MS patient, perhaps one on the wrist and one on the ankle, a physician can gather time-series information read by these devices—"painting" additional pixels into a more holistic picture of the patient's progress. Consequently, accelerometers have the promise to help reduce the time to reach effective medication therapy in MS patients, improving outcomes and reducing healthcare costs.

Incentive Alignment

Ultimately, for this paradigm of remote monitoring, positive behavior reinforcement, and more informative data production to become widely adopted, patients will need to find satisfaction, ease of use, and value in using these supporting devices; and payers will need to find value in sponsoring the costs of purchasing the devices and compensating physicians to monitor them. The good news is that incentive alignment among these stakeholders has already begun.

Patients

Patient satisfaction is critical to facilitate widespread adoption of remote monitoring. One study of asthma patients using a remote inhaler sensor found that over 90% of respondents reported satisfaction using the device, and over 50% felt that their asthma was better controlled as a result of using the device (Merchant, 2016). Similarly, a study at the Joslin Diabetes Center examined patients via a survey tool about certain aspects of their diabetic care. The patients in the treatment group used a remote glucose-monitoring device and shared data collected by the devices with care management teams. The study found that these patients "reported a significantly higher perception of adherence to diabetes self-care recommendations, lower diabetes-related emotional distress and an enhanced experience of health care delivery" (Bose, 2016, p. 1).

Government Payers

In recent years, changes in payment structures have developed to motivate physicians to embrace innovative solutions that reduce the growth in healthcare spending while improving health outcomes. The Patient Protection and Affordable Care Act of 2010 (ACA) contains elements that link compensation of healthcare providers to the quality of care they deliver. For example, the ACA provides for the formation of Accountable Care Organizations (ACOs), loosely defined affiliations that may include physicians, hospitals, and other healthcare providers to deliver care to Medicare patients (Gold, 2015). An ACO may participate in a Shared Savings Program (SSP) in which it can receive bonuses from the Centers for Medicare and Medicaid Services (CMS) based upon cost savings if it also meets quality thresholds defined by CMS (Lazerow, 2014). With SSPs, physicians in ACOs have a financial incentive to deliver cost-effective quality care.

In 2015, CMS initiated an incentive for physicians in the form of a reimbursement schedule for Chronic Care Management Services (CCM) (CMS.gov, 2017). Using a new billing code for CCM, CPT 99490, physicians now have an avenue for additional recurring revenue of between $43 and $94 per month to remotely monitor patients with chronic diseases (Centers for Medicare & Medicaid Services, 2016). This revenue is accretive to that received by physicians participating in Shared Savings Programs or other quality driven incentives. By providing a cost effective type of "physician extender," remote monitoring technologies can play a meaningful role in helping physicians realize these additional financial rewards.

Commercial Payers

There are also signs that commercial payers are beginning to embrace payment for remote monitoring and data collection. For example, a remote monitoring patch that can detect and diagnose irregular heart rhythms is covered by Medicare and several commercial plans (irhythm, 2017). In 2016, Humana joined a program called Air Louisville—albeit as an employer—in which asthma patients were given a commercially available sensor to use with their inhalers in order to help drive better asthma-patient outcomes (Propeller Health, 2016). While the program is funded by a third party (Robert Wood Foundation), positive results among Humana employees should serve to encourage the insurer to cover the device in the future.

Positive Financial Returns

Widespread payer support of these technologies will require demonstrations that they can produce financial returns. Since 2012, CMS has imposed severe penalties on hospitals for high readmission rates (McKinney, 2012). Accordingly, reducing hospital readmissions is a common metric of pilot programs that strive to prove the value of a new service or technology. In a study with members of Capital Blue Cross diagnosed with heart failure, a remote monitoring system found a 45% reduction in hospital readmission rates among the treatment group, translating into an annual savings of over $8,000 per year in monitored heart-failure patients (Geneia LLC, 2016). In a similar study focusing on hospital readmissions using a remote monitoring system that tracked the blood pressure, heart rate, and weight of 31 recently discharged heart-failure patients, none of the patients were readmitted within the first 30 days—while the expected number of readmissions was eight. This reduction in readmissions translated into a $216,000 savings (iGetBetter, Inc., 2015).

Conclusion

As healthcare spending, deductibles, and premiums grow at unsustainable rates, technological innovations present pragmatic, cost-effective opportunities to drive down these growth rates without undermining quality. Remote monitoring innovations such as smartcaps, smartcuffs, and accelerometers can provide quantifiable, objective data to health providers, payers, and patients. The examples reviewed in this article illustrate how such innovations allow patients as well as their caregivers, including friends, relatives, and clinicians, to obtain a more informed, less pixelated picture of patients' health over time. The incentives of key stakeholders—patients, healthcare providers, and payers—appear to be aligning. As technologies become more effective, easier to use and implement, and less costly, a future of widespread adoption appears achievable, one that can contribute to a healthier society while mitigating the growth rate of healthcare costs.

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ADDRESSING EMPLOYEE BURNOUT THROUGH MITIGATION OF WORKPLACE STRESSORS

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SUMMARY: Workplace stressors are an increasing driver of healthcare costs in the United States. Insufficient compensation, the way in which work is managed, as well as one's sense of job control may compromise employee health and productivity, and ultimately lead to increased job turnover. The reduction of burnout within organizations is best maintained through a combination of interventions at the individual and organizational levels. Future research should examine how work and non-work stressors can influence job-related stress.

Introduction

The World Health Organization's global strategy on occupational health emphasizes that the way in which work is managed and one's sense of job control can affect employee stress and health, which in turn, impacts worker engagement and productivity (WHO, 1994). Kronos Incorporated and Future Workplace (2017) surveyed human resource professionals in leadership positions and found that nearly half cited burnout as the driving factor in 20-50% of employee turnover. Contributing factors were cited as insufficient compensation, excessive responsibilities, and substantial work outside of business hours.

Investment banking, for instance, is notorious for long work hours in exchange for a rewarding salary and the prospect of future success. A nine-year ethnography of two investment banks revealed that because work-life balance was hailed as an institutional value, individuals believed that they were in control of their choice to work up to 120 hours per week (Michel, 2011). While overwork led to increased performance in the short term, employee health and productivity declined in the end.

According to Maslach, Shaufeli, and Leiter (2001), prolonged exposure to emotional and interpersonal stress at work can produce job-related burnout, characterized by emotional exhaustion, depersonalization or cynicism, and a lack of personal sense of accomplishment. Physicians are more likely than other workers in the U.S. to report burnout and dissatisfaction with work-life balance (Shanafelt et al., 2016), and suicide attempts among healthcare practitioners are of increasing concern (Braquehais et al., 2016). The impact that burnout can have on productivity, for example, an increase in medical errors, has significant implications for patient safety (Hall, Johnson, Watt, Tsipa, & O'Connor, 2016).

A desire to remain competitive has led to an increase in job stress across various sectors, as employees work longer hours and take on additional responsibilities. In the gaming industry, developers work in excess of 20 hours per day for weeks or months on end, called "crunch," to finish developing a game (Schreier, 2017). These long stints can have disastrous consequences for employee health and organizational productivity.

This paper reviews the relationship between work-related stressors and employee burnout. Interventions at the organization and individual level designed to help promote sustainable performance are also explored. While external stressors and individual characteristics undoubtedly influence burnout, and there is a wide range of consequences of burnout to the employee and organization, such a discussion is beyond the scope of this paper.

What are workplace stressors?

It is estimated that 5-8% of total health care costs in the United States, estimated at $125-190 billion, are attributable to workplace stress (Goh, Pfeffer, & Zenios 2016). One of the greatest drivers of these health care costs is work demands that exceed one's capacity and resources. The National Institution of Occupational Safety and Health (NIOSH) (1999) describes job stress as the "harmful physical and emotional responses" that occur when the requirements of the job are not aligned with the worker's capabilities, resources, or needs. A survey of 2,200 chief financial officers and 1,000 US-based office workers conducted by Accountemps (2017) cited top contributors to job stress as overwhelming responsibilities, deadlines, trying to strike a balance between personal and professional lives, and fulfilling the expectations of those in supervisory roles. A meta-analysis of cohort studies conducted with employees in the US, Asia, and Europe found that the risk of cardiovascular disease among workers who experienced job stress was 50% greater than those who did not experience job stress (Kivimaki, Virtanen, Elovainio, & Kouvonen, 2006).

What makes job stress so harmful to one's health? McEwen (1998) describes the health impact of chronic stress over time by differentiating between the human body's response to acute versus chronic stress. If one is startled by a loud, unexpected noise, a "fight or flight" may be triggered in response to this one-time stressor. Afterwards, hormones are released that ultimately help the body return to homeostasis (or balance) through a process called allostasis. However, chronic stressors that are experienced repeatedly can have a lasting effect on the body as a result of constantly activating the stress response system. Over time, this system may cease to work properly, producing a strain on the body. This "wear and tear", also known as allostatic load, results in behavioral and physiological changes, increasing the risk of disease.

In management practice, there is a prevailing belief that a moderate amount of stress can help motivate employees to achieve peak levels of engagement and performance (Gino, 2016; Benson, & Allen, 1980). This is an application of the Yerkes-Dodson law, which states that exposure to external stimuli can improve task performance to an extent, but exposure beyond a certain point can negatively impact performance (Yerkes & Dodson, 1908). It is believed that an optimal amount of stress should be encouraged in the work environment to stimulate peak performance, while excessive stress should be avoided. Person-environment theory, developed by Edwards, Caplan, and Van Harrison (1998), argues that stress results from a lack of fit between the individual and their environment, or in this context, the employee and their work. This theory relies on the assumption that all stress is negative. However, LeFevre, Matheny, and Kolt (2003) contend that whether stress is experienced as positive or negative—with the latter leading to strain—is ultimately determined by the individual, and whether they have the capacity to meet the demands placed upon them (LeFevre, 2003). Because the experience of stress is subjective, it is not possible to gauge (or manage) optimal levels of stress for all employees across an organization.

What is burnout?

As mentioned in the introduction, ongoing exposure to job-related stress can result in burnout. Freudenberger (1974) coined the term of burnout based on his work with volunteers at a free clinic who exhibited signs of emotional exhaustion over time. As a result, burnout initially referred to those in the helping professions, with high levels of client interaction, who were increasingly unable to cope with pervasive stress and excessive job demands. Thus, a large volume of studies on burnout focuses on doctors, nurses, and educators. However, over time, burnout has increasingly been applied across professions.

While there are a multitude of scales that assess burnout, this paper focuses on the Maslach Burnout Inventory (MBI), which measures burnout by assessing three dimensions: emotional exhaustion, depersonalization, and a lack of personal accomplishment (Maslach & Jackson, 1981). Emotional exhaustion occurs at the individual level when work demands exceed one's physical or emotional capacity to fulfill them. A systematic review of studies examining burnout symptoms and factors in the workplace environment found substantial evidence to support the association between sense of control over one's job and emotional exhaustion, as well as the link between support in the workplace and emotional exhaustion (Aronnson et al., 2017). Depersonalization operates at the interpersonal level, in which there is a sense of cynicism, negativity or disdain towards components of one's work, including the clients they serve. Lastly, personal accomplishment entails how an individual assesses his or her own work. It captures feelings of incompetence or a lack of fulfillment from one's role.

Burnout is a cyclical process in which efforts to cope with negative stress lead to emotional exhaustion. This, in turn, activates depersonalization and a subsequent decrease in one's sense of personal accomplishment, which leads to further emotional exhaustion (Maslach, Schaufeli, & Leiter, 2001). The Maslach Burnout Inventory General Survey (MBI-General Survey) is a validated measure of burnout in professions with less focus on personal interaction, and measures the three main dimensions as "exhaustion, cynicism (a distant attitude towards the job), and reduced professional efficacy" (Maslach, Schaufeli, & Leiter, 2001). When employees experience burnout, it takes a toll on their physical and emotional health. For example, burnout has been identified as a risk factor for coronary heart disease (Toker, Melamed, Berliner, Zeltser, & Shapira, 2015) and depression (Aronnson, 2017). Having established the negative impact of burnout, the next section will discuss how organizations can address or prevent it.

How interventions can promote sustainable performance

Interventions to address burnout typically occur at the organization level—addressing policy and the way in which work is organized or delivered—or the individual level—focusing on stress management and communication. Organization level interventions might focus on modifications to job roles, performance assessment, and timing of shifts, while individual level interventions might include cognitive behavior based therapy or counseling, enhancing social support, and addressing skills that enhance one's ability to adapt and communicate (Awa, Plaumman, & Walter, 2010).

Several meta-analyses of burnout interventions have found that a combination of organization and individual-level interventions are most effective in sustaining reductions in burnout scores over the long term (Ahola, Toppinen-Tanner, & Seppanen, 2017; Awa, Plaumman, & Walter, 2010). It is not possible to eliminate all workplace stressors, thus underscoring the

importance of combining both levels. Refresher sessions are recommended in order to maintain intervention effects. Le Fevre, Kolt, and Matheny (2006) recommend the introduction of individual-level interventions prior to employing organization-level interventions, to provide a strong foundation and supportive resources for individuals in preparation for organizational change.

Practical Tips for Managers

Managers who are interested in addressing burnout in their organizations should consider the following in developing their approach:

1. *Identify workplace stressors and implement strategies to reduce them*

According to Sauter, Muphy, and Hurrell (1990), there are a wide range of strategies that can be employed at the organization level to address workplace stress:

- Assess job demands to determine whether they are aligned with employee capabilities, and ensure employees have adequate resources to fulfill their responsibilities
- Define roles clearly and in a way that engages employees, imbuing them with a sense of meaning and the opportunity to use their skills
- Assess the extent to which employees have a sense of control over their jobs. Ensure that they are consulted on decisions that impact them directly
- Engage in clear conversation with employees about their career development and future options for advancement
- Provide opportunities for social interaction at work, as interpersonal relationships can help to build collegiality and provide social support
- Consider responsibilities employees have outside of the work environment when developing work schedules, to minimize work-family conflict

2. *Promote opportunities for employees to engage in positive stress coping behaviors*

Evidence-based wellness programs that promote healthy stress coping behaviors such as physical activity, getting adequate rest, proper nutrition, and relaxation practices should also be considered for adoption. In the Accountemps survey (2017), individuals reported dealing with stress positively through engagement in physical activity or hobbies, taking vacation, and spending time with others outside of work. Protecting time during the work day to take a break for exercise or rest can help individuals recharge and manage work-related stress. The Health and Retirement study found that those who reported high stress in their job were more likely to smoke (Ayyagari & Sindelar, 2010). Addressing job stress through workplace policies and interventions may ultimately reduce engagement in unhealthy coping behaviors.

3. *Make sustained performance a priority for your organization*

Set the pace for your organization by clearly communicating expectations from the top. Some gaming developers are addressing crunch by signing a pledge to decrease unnecessary overtime (Schreier, 2017). Investment banks are communicating to analysts that they should take one weekend day off, while others are setting a maximum number of average work hours per week (Surowiecki, 2014).

Managers should be careful in leveraging tools such as email to enhance productivity without producing overwhelm. As technology continues to develop, the potential for overload will only increase (McMurtry, 2014). For example, the ability to check work email from one's watch

or other wearable device may lead to checking email more frequently. In the end, it is not what an organization says regarding work-life balance, but rather what managers do that communicates expectations to employees. If managers regularly send email outside of work hours or do not take vacations, employees may believe that such behavior is required for success.

4. *Make these changes a part of your organizational culture.*

Building approaches to promote well-being into the organizational policy, such mandatory vacation, flexible work hours, remote working opportunities, or expectations regarding communication is essential to sustainable performance over the long-term. This may require frequent reminders of benefits to the organization. A study of middle-age men at high risk for coronary heart disease found that those who reported a higher frequency of annual vacations had a lower risk for mortality due to coronary heart disease than those who did not (Gump & Matthews, 2000). Meanwhile, two-thirds of employees surveyed by MetLife (2016) stated that flexibility in work site (remote work) would increase their loyalty to an organization, while 74% of employees believed flexibility in work hours would do so.

Conclusion and Future Directions

In summary, workplace stressors, such as job demands that exceed one's capacity or resources, management style, and job control, can lead to burnout in employees. This should be of concern to managers because burnout is increasingly cited as a driving factor in employee turnover. It is also a risk factor for coronary heart disease and other conditions. Interventions to address burnout should focus on a combination of organization level interventions that address workplace stressors, as well as individual interventions that focus on stress management. Managers looking to address burnout in their organizations should take a top-down approach and ensure that efforts to reduce workplace stressors, promote positive coping behavior, and prioritize sustained performance are embedded within the organizational culture.

Future research should examine the influence of personal stressors and characteristics on how employees experience stress in the workplace. Hakanen and Bakker (2016) encourage the examination of demands and resources outside of the workplace, as well as major life events (e.g., marriage, birth of a child, divorce) that undoubtedly impact individuals. There also is a need to explore how felt strain from workplace stress drives engagement in negative coping behaviors, such as substance abuse, overwork, and sedentary behavior. An understanding of this relationship can lead to more effective interventions to prevent burnout.

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FAST FOOD, SUPERMARKETS, AND OBESITY IN THE INNER CITY: A STUDY OF FOOD ACCESS AND HEALTH IN SOUTH LOS ANGELES

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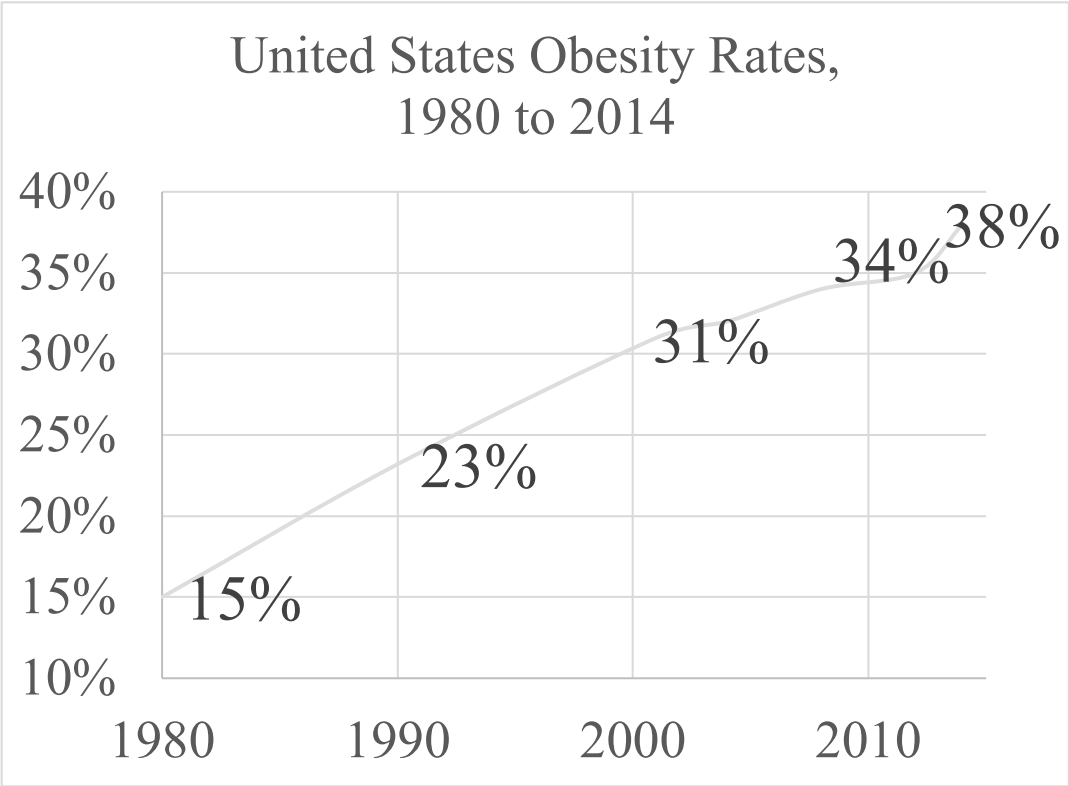
SUMMARY: The U.S. is experiencing an obesity epidemic. Obesity rates are especially high in low-income, inner-city areas. Many inner-city neighborhoods have been labeled "food deserts," where affordable, nutritious food is scarce. South Los Angeles has been labeled a food desert as it is reported to lack full-service supermarkets but has a growing number of fast-food restaurants. This paper examines some of the claims about food access and health, provides new data on the availability of supermarkets and fast-food restaurants in South Los Angeles, and reviews solutions for improving the health of South Los Angeles residents through changes in food access.

Introduction

Obesity rates in the United States have increased for several decades, with a dramatic rise after 1980. Obesity is defined as a Body Mass Index (BMI) of 30 or more. Adult obesity rates rose from 15% in 1980 to 31.3% in 2001 and to 38.1% in 2014 (Fryar, Carroll, & Ogden, 2016; see Figure 1 below). The U.S. is among the most obese nations on earth and is the most obese developed nation (OECD, 2017). In California, obesity rates are lower than in most states, but have also grown, for example, for adults, from 19.3% in 2001 to 24.8% in 2012 (Wolstein, 2015). This is leading to new challenges for grocers and restaurants, as government interventions are pursued in order to combat obesity.

Obesity rates in Los Angeles County have also increased for adults from 13.6% in 1997 to 22.2% in 2008. Obesity rates are much higher in low-income neighborhoods. South Los Angeles City Council Districts 8 and 9 have adult obesity rates of 35.1% and 36.7%, respectively. Child obesity rates are also linked to geographic locations, with a low rate of 3.4% in the affluent community of Manhattan Beach to a high rate of 38.7% in low-income Walnut Park (County of Los Angeles Public Health, 2011).

Obesity is considered a disease by the World Health Organization (Wang & Beydoun, 2007). It is also linked to two of the highest causes of death in the United States: heart disease (#1) and diabetes (#7) (Centers for Disease Control, 2016). Obesity is reported in medical journal articles as a public health epidemic (Wang & Beydoun, 2007). The health costs associated with current levels of obesity may be larger than those associated with smoking tobacco or excessive drinking (Strum, 2002). Health experts at the global and national level are advocating government interventions (Kleinert, 2015; OECD, 2017; World Health Organization, 2016).



Source: *https://www.cdc.gov/nchs/data/hestat/obesity_adult_13_14/obesity_adult_13_14.pdf*

Figure 1. United States obesity rates

The rise in obesity is linked to changes in both diet and exercise. Here, the impact of changes in the food environment is examined. A major problem in South Los Angeles is seen as a shortage of affordable nutritious food. This is a common problem in low-income, inner-city neighborhoods across the nation. South Los Angeles has had high poverty rates for more than 25 years. Across South LA, the poverty rate was 34 % in 2013 (Pastor et al., 2016). Many low-income neighborhoods have been labeled "food deserts" because of a lack of affordable nutritious food. Part of the problem has been a shortage of full-service supermarkets. Below, it is shown that a shortage of supermarkets in South Los Angeles has persisted over the last 25 years. What has changed is the availability of chain fast-food restaurants.

Across the United States, full-service supermarkets that are part of major chain stores have been leaving low-income, inner-city neighborhoods. Full-service supermarkets are larger stores that have a wide variety of foods—from canned foods to dairy to fresh meat to fresh fruits and vegetables. They are likely to have healthy choices as well as high-fat-high-calorie foods. The chain stores have been moving to the suburbs, and the suburbs have expanded. This trend has been going on for decades and has been called "supermarket redlining" by Eisenhauer (2001). This exodus does not reflect a lack of demand for food in our inner cities. In South Los Angeles, residents often must leave their neighborhood to shop at a supermarket. This inner-city shortage reflects the attraction to major chain supermarkets of higher mark-ups that more prosperous neighborhoods will tolerate (Larson, 2003).

A consequence of this supermarket shortage is the reduced availability of fruits, vegetables, and quality meat in low-income neighborhoods. This shortage of nutritious food is seen as an important contribution to the rise in obesity in inner-city neighborhoods (Chen et al., 2010).

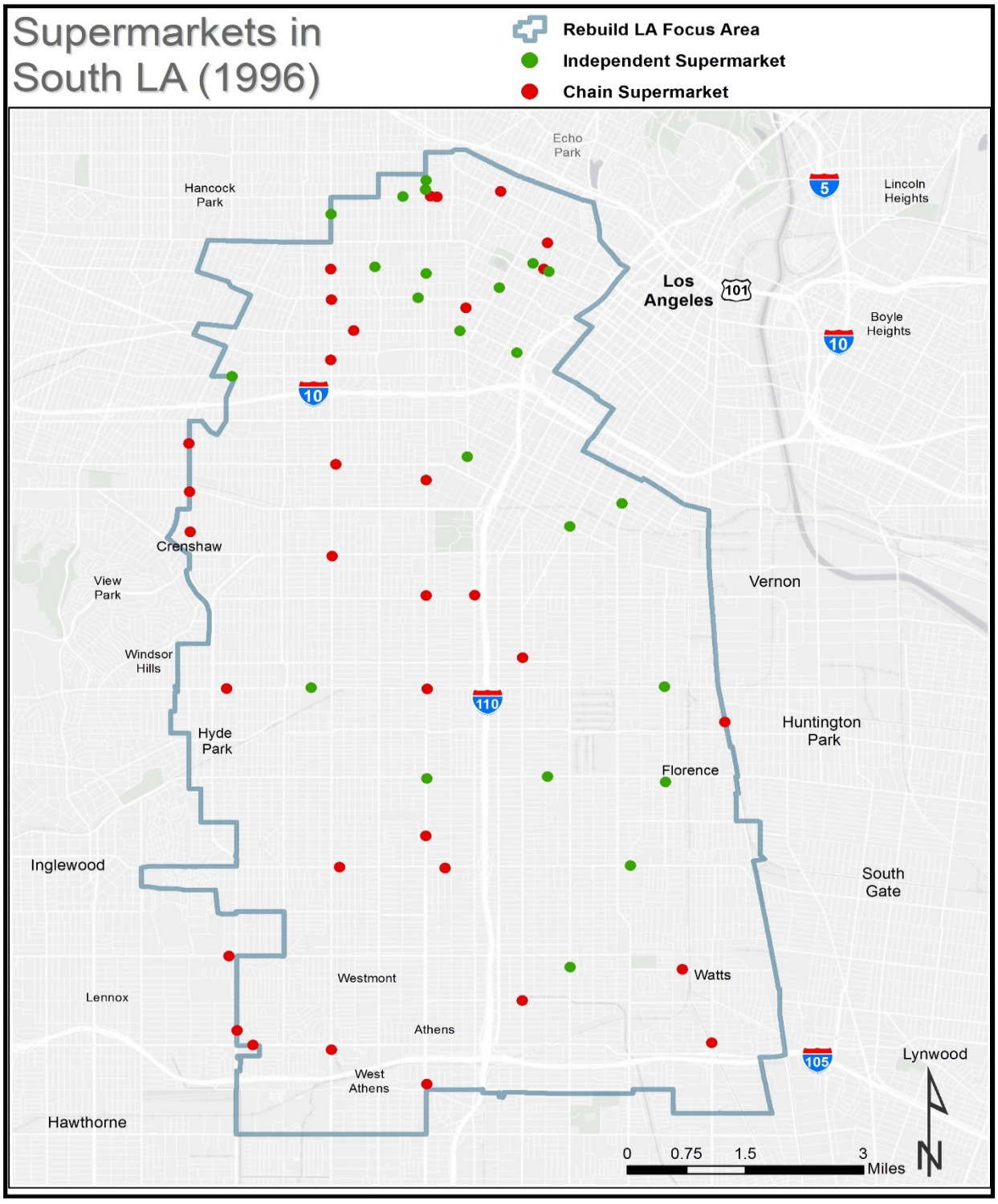
Chain Supermarkets in South Los Angeles

This study identifies the supermarkets today and in 1995 in an area that was studied by Rebuild LA (RLA) after the 1992 Los Angeles riots. The area examined is shown on the maps in Figures 2 and 3. This is the RLA Retail Focus Area and represents the neighborhoods that had the greatest property damage due to the 1992 riots. RLA reported in 1996 that there were 32 major chain supermarkets in the RLA Retail Focus Area (RLA, 1996). This area included South Central LA plus neighborhoods north of the I-10 freeway—largely Koreatown and Pico-Union. This area was later examined by Amanda Shaffer (2002), who found only 30 major chain supermarkets. Today, there are 24 major chain stores. There were 23 independent supermarkets reported in 1996, with a total of 55 full-service supermarkets in 1996 (shown in Map1), serving a population of over 700,000 (U.S. Census, American Community Survey). The total number of supermarkets is 56 today (shown in Map 2), but is 60 if we add in stores near the RLA Focus Area that are in Inglewood. The majority of supermarkets today are independent.

Los Angeles had a long history of development of local chains and independent stores, which was followed by a wave of mergers in the 1980s and 1990s that greatly concentrated ownership of supermarkets. In 1992, there were mostly independent and small chain, full-service supermarkets in South Central. The merger waves created the major chains we see today in Los Angeles. The dominant grocery chain today is owned by Kroger Corporation, which operates as Ralphs and Food 4 Less. The other major chain stores, Vons and Albertsons, are owned by a private investment company Cerberus Capital (Peltz, 2015). The wave of mergers brought major chains into South Central as they bought out local chains with some stores in South Central (Larson, 2003). After taking over stores located in South Central, Ralphs divested of some of the stores and stayed with mostly warehouse stores under the Food 4 Less brand. Independents have taken over some of the Ralphs stores and have added some new supermarkets.

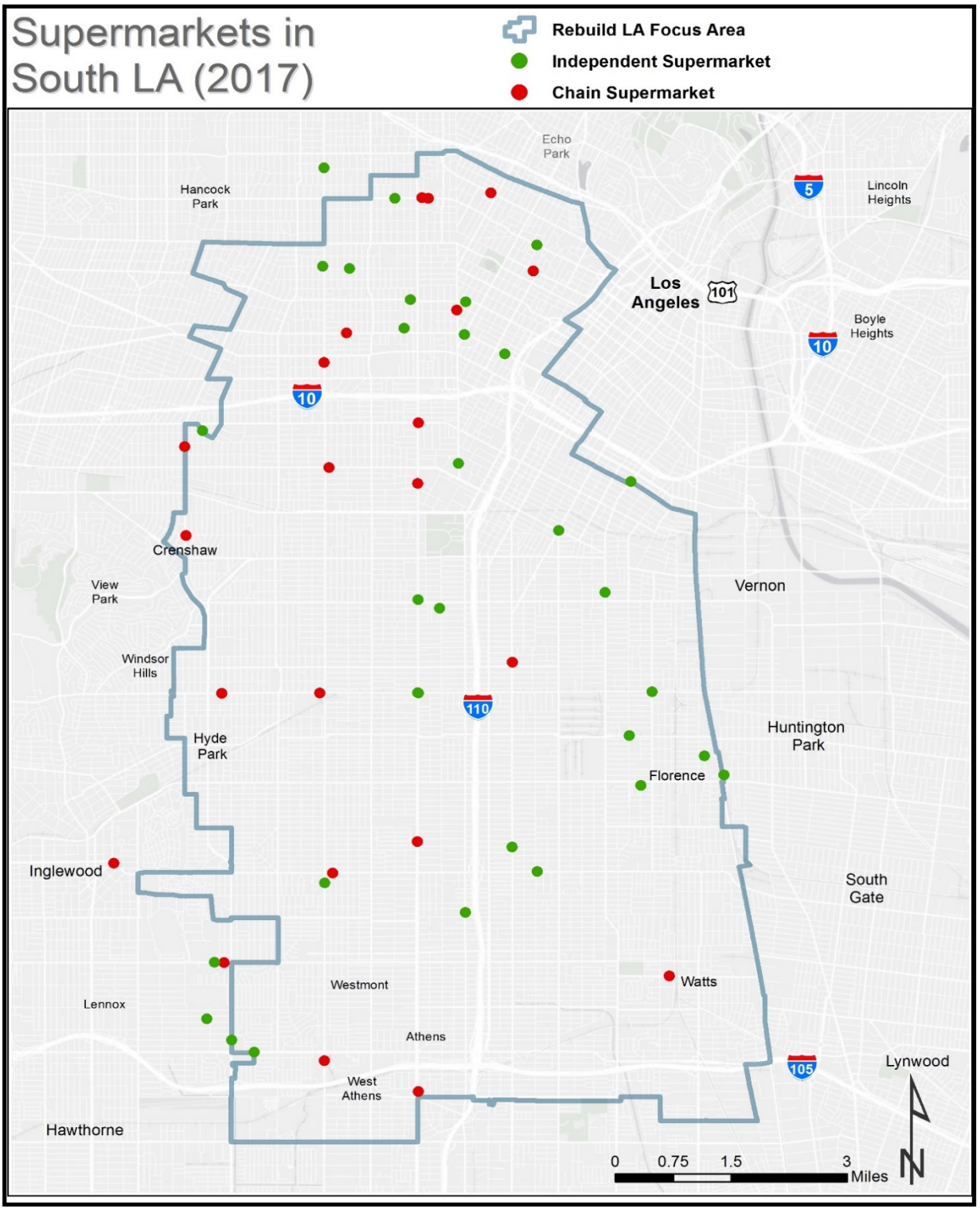
The stores that serve South Central have been viewed collectively as inadequate for the needs of the population. An RLA survey done in 1995 of the retail needs of residents of the RLA Focus Area revealed that a lack of supermarkets was the number one problem facing residents. Residents were traveling up to five miles to get to a full-service supermarket. Of the residents surveyed, 25% had to use public transportation to get to a supermarket (RLA, 1996). Much grocery shopping occurred outside South Central due to the shortage of supermarkets. The RLA study of the demand and supply conditions for food in South Central estimated that 40% of the food purchased by residents had to be bought outside South Central. RLA estimated that South Central needed thirty more full-service supermarkets to satisfy resident demand in 1995. A more recent study by Community Health Councils compared travel access to grocers in South LA and West LA and found access was much easier in West LA (Bassford et al., 2010).

For access to nutritional food, that food has to be affordable. It is often assumed that major chain supermarkets offer food at prices lower than at independent supermarkets. The chains do have a history of offering lower prices than small grocery stores and mom-and-pop stores. The major chains often have an advantage in paying lower prices for their inputs. For years, it has been argued that the poor pay more when living in ghettoes and barrios. This may be true for many purchases, but may not be true for food in independent supermarkets.



Sources: GIS map by Mario Garcia, UCLA Center for Neighborhood Knowledge. Data are from RLA (1996).

Figure 2. Map 1: Supermarkets in South Los Angeles, RLA (1996)



Sources: GIS map by Mario Garcia, UCLA Center for Neighborhood Knowledge. Data are available from authors.

Figure 3. Map 2: Supermarkets in South Los Angeles in 2017

Survey results from different cities have different conclusions. Chung and Meyers (1999) found higher food prices in inner-city grocery stores in Minneapolis and St. Paul. Ambrose (1979) found no difference between inner-city stores and suburban stores in Omaha. Hayes (2000) found that prices in inner-city neighborhoods in New York City were not higher. In studies where the poor have been found paying higher prices, small grocery stores in inner cities are often being compared to larger suburban, full-service supermarkets. Larson (2003) compared full-service supermarkets that were independent to similar-size, major chain supermarkets and found that the independent markets had much lower prices on fresh fruits, vegetables, bread, and eggs and similar prices on milk and sodas. This price study was repeated by the author in the Fall of 2016 with similar results. The independent supermarkets in South Los Angeles do have a reputation for low prices compared to the major chain stores.

The Rise of Fast-Food Chain Restaurants in South Los Angeles

Supermarkets compete with restaurants as well as with small markets, farmer's markets, street vendors, and even with liquor stores, in providing food. Since 1995, as some chain supermarkets left South Central, fast-food restaurants were coming in. While supermarkets remain the major source of food, chain restaurants are getting a growing share of food sales**.**

Before 1992, national chain fast-food restaurants were very rare in South Central. Around 1994, McDonald's opened its first restaurant in South Central. Since 1992, a number of other national and regional fast-food chains have built stores in South Los Angeles. This has increased the variety of foods available and has aided full-time workers in saving time from household food preparation. This has also benefited those without access to a kitchen. EBT cards can be used in many fast food restaurants in low-income neighborhoods. These cards are used for food stamps and cash welfare benefits. People with no kitchen can spend food-stamp money at participating McDonalds. There are also more jobs for low-skilled workers.

In 2008, the City of Los Angeles enacted a partial and temporary ban on new stand-alone, chain fast-food restaurants in South Los Angeles. The ban reflected the view that chain fast-food restaurants were themselves "serious public health problems" (Office of the City Clerk, 2008). The ban also reflected a concern that the presence of fast-food restaurants was denser than in more affluent neighborhoods. The ban was made permanent in 2010. The ban was limited to stand-alone restaurants. Restaurants connected to other buildings (as in malls) were still allowed. Sturm and Hattori (2015) report that 17 more fast-food restaurants were built in South Los Angeles after the ban. The ban may provide the community with a signal that fast food represents a health hazard, but seems ineffective in halting the growth of fast-food outlets. Community Health Councils has recommended further restrictions on chain fast-food restaurants (Bassford et al., 2011).

We used Los Angeles County Public Health data to identify and count the number of chain fast-food restaurants in South Los Angeles and in Los Angeles County overall (Los Angeles County, 2017). The number of chain fast-food restaurants in South Central today is higher per capita than across Los Angeles County. **T**here are almost 19 fast-food restaurants per 100,000 residents in Los Angeles County. For South Los Angeles, there are almost 27 fast-food restaurants per 100,000 residents.

Discussion

This study has shown that just as there was a shortage of full-service supermarkets in South Central (the RLA Focus Area) in 1996, there is still a shortage. Meanwhile, South Central and South Los Angeles have gone from hardly any chain fast-food restaurants to having a higher per capita number of chain restaurants than Los Angeles County overall. The shortage of supermarkets and the abundance of fast-food restaurants are both identified as contributing to an obesity epidemic.

The shortage of supermarkets may not represent a lack of opportunity for profit. In South Los Angeles, there is a major chain, Ralphs, that has stayed with most of the supermarkets acquired through mergers and has even built new discount supermarkets (Food for Less). There are also small independent chains that have expanded their supermarkets in South Los Angeles while offering competitive prices. The shortage of supermarkets may reflect a mis-assessment of profit opportunities by other major chains and a difficulty with financing for the small independent supermarkets. There are also other barriers that have been identified and solutions proposed in a report to the City of Los Angeles (Jordan, 2009). Urban planners need to think of supermarkets as important neighborhood institutions and look for ways to help bring more supermarkets into inner-city neighborhoods like South LA. A principle problem is simply finding sites large enough to be developed for a standard size supermarket. This can be done. The Juanita Tate Marketplace is an example of successful development in one of the poorest parts of South LA. The Marketplace has an independent grocer, Northgate, plus the kind of stores that are found in more affluent neighborhoods: CVS Pharmacy, Starbucks, Panda Express, Fatburger, and others. But, it took seventeen years to create the Marketplace.

South LA has long lacked investment by major chain stores of all types. Community organizations have expressed frustration over the inability to get major corporations to invest in low-income neighborhoods. McDonalds, Burger King, and other fast-food chains are bringing new businesses. This may not be good for diets, but does bring some pride to neighborhoods that lack brand name retailers and shows that there are opportunities for investment in South LA.

Sturm and Hattori (2015) found no impact of the City of Los Angeles ban on new chain fast-food restaurants. Plus, small mom-and-pop restaurants (mostly serving fast food) that number in the hundreds in South Los Angeles are not subject to the ban. There are alternatives to the ban on chain restaurants that could be more effective. Sturm and Cohen (2009) state that a primary cause of empty calories is drinking sugar-sweetened beverages (SSBs). The World Health Organization (WHO) advocates taxing SSBs globally. The WHO also recommends a number of other government interventions aimed at combatting obesity epidemics in many nations (World Health Organization, 2015). A different approach than a ban was taken by the City of Berkeley when it placed a tax on SSBs in 2015. The SSB tax targeted beverages that are linked to obesity. Falbe (2016) states that SSB "consumption has become a public health priority." In a study of Berkeley after the SSB tax was imposed, Falbe found that SSB consumption has been reduced significantly in low-income neighborhoods while water consumption increased. The tax is one cent per ounce and is associated with reduced SSB consumption of 21% and with increased water consumption of 63% in Berkeley.

The obesity epidemic has costs to society that exceed private costs (known in economics as negative externalities). When individuals make choices that are harmful not just to themselves, but to others as well, economists accept that government action may be justified on the grounds of improvements in efficiency. Taxes on cigarettes and alcohol are seen as beneficial to society by

curbing harmful behavior that is costly to society and not just to individuals. It is not clear what intervention would be efficient in combating obesity. The Berkeley experiment shows that a SBB tax can be effective and may represent an alternative to trying to limit the number of fast-food restaurants. Another alternative may be an increase in education regarding the links between diet and health. States, such as California, with successful anti-smoking campaigns have used bans, health education, and taxes to discourage smoking (Pierce, White, & Emory, 2011). The obesity epidemic is forcing businesses and government to work on solutions. Here, a tax may be better than a ban, but other interventions have to be expected.

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WHO DID THE AFFORDABLE CARE ACT HELP AND WHO DID IT FAIL?

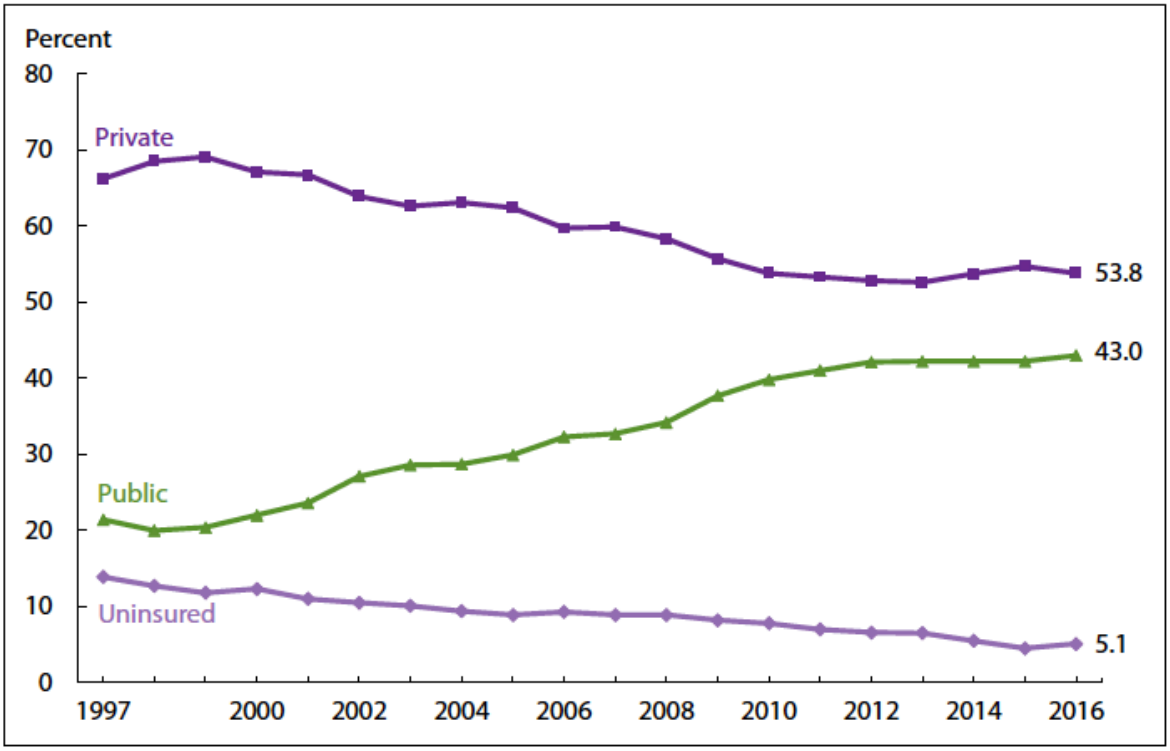
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SUMMARY: This study uses the 2007 and 2013 Annual Social and Economic Supplement of the Current Population Survey to examine the effect of the Affordable Care Act (ACA) on health insurance coverage among adults in the U.S. It finds that the ACA has improved coverage for men, youth, minorities, and low-income and less-educated individuals. However, those who are self-employed or do not work full-time have been negatively impacted. We analyze these results and discuss business and policy implications.

Introduction

The Patient Protection and Affordable Care Act of 2010 (ACA) has been a contention for policymakers since its inception. While evidence on actual health outcomes is still sparse, a few studies have shown a decrease in the number of the uninsured. A study done by Sommers, Buchmueller, Decker, Carey, and Kronick (2013) found sizable coverage gains for adults aged 19–25. The gains continued to grow throughout 2011, with the largest gains seen in unmarried adults, non-students, and men. According to Sommers, Gunja, and Finegold (2015), low-income adults within the states that expanded Medicaid reported significant gains in insurance coverage and access compared with adults within the states that did not expand Medicaid. Moreover, Sommers, Maylone, Blendon, Orav, and Epstein (2017) assessed changes in health care use and self-reported health after three years of the ACA's coverage expansion, using survey data collected from low-income adults through the end of 2016 in two states (Arkansas and Kentucky) that expanded coverage, and Texas that did not expand coverage. By the end of 2016, the uninsurance rate in the two expansion states had dropped by more than 20 percentage points relative to the non-expansion state. Finally, Figure 1 shows the percentage of adults aged 18–64 who were uninsured or had private or public coverage at the time of interview in the U.S. between 1997–2016.

After the main ACA provisions went into effect in 2014, racial disparities in coverage declined slightly as the percentage of adults who were uninsured decreased by 7.1 percentage points for Hispanics, 5.1 percentage points for Blacks, and 3 percentage points for Whites (Buchmueller et al., 2016). McMorrow, Long, Kenny, and Anderson (2015) found significant improvements in insurance coverage for all racial and ethnic groups between the second and third quarters of 2013 as well as 2014, which translated into reductions in absolute disparities in the uninsurance rates for Blacks and Hispanics in both expansion and non-expansion states. Furthermore, Chen, Vargas-Bustamante, Mortensen, and Ortega (2016) demonstrated that racial and ethnic disparities in access had been reduced significantly during the initial years of the ACA implementation.



NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.
SOURCE: NCHS, National Health Interview Survey, 1997–2016, Family Core component.

Figure 1. Percentages of adults aged 18–64 who were uninsured or had private or public coverage at the time of interview: United States, 1997–2016

Despite coverage improvement for men, single adults, and minorities, the ACA had a negative effect on other subpopulations. For example, Blumberg, Corlette, and Lucia (2014) roughly estimated that the number of uninsured self-employed individuals and entrepreneurs would relatively increase by more than 11% following the ACA.

Against the above background, the present study applies a probit regression separately to the 2007 and 2013 Annual Social and Economic Supplement of the Current Population Survey (ASEC CPS). It then compares the effects of main demographic traits and socioeconomic factors on health insurance coverage in the U.S. for adults across all ages before and after the signing of the ACA. We find that the coverage has improved for men, youth, minorities, and low-income and less-educated individuals, while adversely impacting those who are self-employed or do not work full-time. These findings are largely consistent with the existing studies. Thus, this study makes two major contributions to the literature. First, it adds more empirical evidence regarding the impact of the ACA on health insurance coverage for the adult population in the U.S. Second, it provides practical policy and business insights by identifying specific groups which policymakers and practicing managers should focus on extending the insurance coverage to in the post-ACA era.

The rest of the paper proceeds as follows. We describe the data and the econometric model, explain the regression results, and then present the concluding remarks as well as policy and business recommendations.

Empirical Strategy

The ASEC CPS is a rich dataset that has detailed information on employment, demographics, and health insurance. The data used in this study are extracted from its 2007 and 2013 series, marking the three years before and after the signing of the ACA. After removing missing values and restricting respondents to civilians aged 18–79, the number of individual observations in our final sample is 247,943 (125,851 for 2007 and 122,092 for 2013).

The dataset has a constructed variable that indicates whether a respondent had any health insurance coverage (private or public) in the previous year. This study considers a respondent covered by health insurance if the answer is yes, and not covered by health insurance if the answer is no. Per this definition, about 82% of our sample had health insurance (83% for 2007 and 82% for 2013). Clearly, not everyone was covered even three years after the ACA was signed into law. This highlights the relevance and importance of studying the determinants of health insurance coverage in the post-ACA era. All statistics reported in this study are appropriately weighted.

Existing studies on the determinants of health insurance coverage typically employ a binary response model (i.e., logit or probit regression). For example, Gius (2010) used the 2008 National Health Interview Survey and adopted a logit regression to examine the determinants of health insurance coverage for young adults. Cantiello, Fottler, Oetjen, and Zhang (2015) used the 2005 and 2008 Medical Expenditure Panel Survey to investigate the factors that influence young adults' decisions to have private health insurance. They incorporated structural equation modeling into a standard logit regression.

Following those studies, we apply the probit regression below to the 2007 and 2013 data separately. A comparison of results from these two years would enable us to examine the effect of the ACA on adult health insurance coverage in the U.S.

$$covered_i = \alpha + \beta_1\, age_i + \beta_2\, male_i + \beta_3\, log_income_i + \beta_4\, fulltime_i + \beta_5\, self_emp_i + \beta_6\, highschool_i + \beta_7\, college_i + \beta_8\, graduate_i + \beta_9\, white_i + u_i,$$

where $covered_i$ is a dummy variable that takes 1 if individual i has health insurance coverage and 0 otherwise, age_i denotes the individual's age, $male_i$ is a dummy variable that takes 1 if the individual is male and 0 otherwise, log_income_i denotes the individual's logged annual pre-tax wage and salary income,[1] $fulltime_i$ is a dummy variable that takes 1 if the individual has a full-time job and 0 otherwise, $self_emp_i$ is a dummy variable that takes 1 if the individual is self-employed and 0 otherwise, $highschool_i$ is a dummy variable that takes 1 if the individual has completed 12 years of schooling or received a high school diploma and 0 otherwise, $college_i$ is a dummy variable that takes 1 if the individual has some college education or received an Associate's or a Bachelor's degree and 0 otherwise, $graduate_i$ is a dummy variable that takes 1 if the individual has a Master's degree or above and 0 otherwise, $white_i$ is a dummy variable that takes 1 if the individual is White and 0 otherwise, and u_i denotes the standard classical error term. Therefore, our analysis takes into account both basic demographic traits (i.e., age, gender, and race) and various socioeconomic factors (i.e., income, employment, and educational attainment). Table 1 describes the summary statistics of all the variables.

[1] The income amounts have been adjusted for inflation using the Consumer Price Index (1999 = 100). Also, striving for the maximum number of observations, we use log (inflation-adjusted income + 0.1) to account for income value of zero.

Table 1
Summary Statistics

	2007				2013			
VARIABLE	MEAN	SD	MIN	MAX	MEAN	SD	MIN	MAX
covered	0.83	0.38	0	1	0.82	0.39	0	1
age	44.14	16.03	18	79	45.05	16.40	18	79
male	0.49	0.50	0	1	0.49	0.50	0	1
log_income	5.99	5.80	-2.30	13.16	5.55	5.91	-2.30	13.80
fulltime	0.57	0.50	0	1	0.51	0.50	0	1
self_emp	0.08	0.26	0	1	0.07	0.25	0	1
highschool	0.33	0.47	0	1	0.31	0.46	0	1
college	0.46	0.50	0	1	0.49	0.50	0	1
graduate	0.09	0.29	0	1	0.10	0.31	0	1
white	0.81	0.39	0	1	0.79	0.41	0	1

Notes. SD = standard deviation.

Results

Table 2 shows the average marginal effects estimated using the probit regression model for the 2007 and 2013 data, respectively. The estimates suggest that all marginal effects are highly statistically significant. The age and gender gap in health insurance coverage has shrunk. A one year decrease in age reduced the average probability of having health insurance by 0.54 percentage point in 2007, but by 0.50 percentage point in 2013. The probability of adult males having health insurance was 3.32 percentage points lower than that of adult females in 2007; this number dropped to 2.99 in 2013.

Table 2
Average Marginal Effects of Probit Model, 2007 vs. 2013

	2007 (N = 125,851)		2013 (N = 122,092)	
VARIABLE	MARGINAL EFFECTS	STANDARD ERRORS	MARGINAL EFFECTS	STANDARD ERRORS
age	0.0054***	7.30e-05	0.0050***	7.28e-05
male	-0.0332***	0.0025	-0.0299***	0.0025
log_income	0.0031***	0.0003	0.0007**	0.0003
fulltime	0.0040	0.0034	0.0330***	0.0034
self_emp	-0.0859***	0.0044	-0.1130***	0.0047
highschool	0.0884***	0.0033	0.0801***	0.0037
college	0.1850***	0.0033	0.1780***	0.0036
graduate	0.2890***	0.0069	0.2740***	0.0064
white	0.0391***	0.0029	0.0368***	0.0029

Notes. * p < 0.1. ** p < 0.05. *** p < 0.01.

The race and income gap in health insurance coverage has also shrunk. For example, Whites were 3.91 percentage points more likely to have health insurance than non-Whites in 2007, but were 3.68 percentage points more likely in 2013. A 10% decrease in income reduced the

average probability of having health insurance by 0.031 percentage point in 2007, but by 0.007 percentage point in 2013.

In addition, the education gap in health insurance coverage has shrunk. High school graduates were 8.84 percentage points more likely to have health insurance than those with below high school education in 2007; this number fell to 8.01 in 2013. For college-educated individuals, the probability of having health insurance was 18.5 percentage points higher than those who did not go to college in 2007, but were 17.8 percentage points higher in 2013. Individuals with graduate degrees or higher were 28.9 percentage points more likely to have health insurance than those who did not have graduate degrees in 2007; this number fell by 1.5 in 2013.

Unfortunately, health insurance coverage has deteriorated for individuals who are self-employed or do not have full-time jobs. The self-employed were 8.59 percentage points less likely to have health insurance than their non-self-employed counterparts in 2007, but were 11.3 percentage points less likely in 2013. For people without full-time jobs, they were 0.4 percentage point less likely to have health insurance than full-time job holders in 2007, but were 3.3 percentage points less likely in 2013. These two marginal effect changes are the biggest among all the factors examined.

Lastly, despite the changes observed between 2007 and 2013, the magnitudes of most changes are fairly small. Also, men, minorities, and young people are still less likely to have health insurance, so are low-income and less-educated individuals as well as those who are self-employed or do not have full-time jobs.

Discussion of Implications

This study examines the determinants of adult health insurance coverage in the U.S. between 2007 (pre-ACA) and 2013 (post-ACA). We find that after the signing of the ACA, health insurance coverage has improved among males, youth, minorities, and low-income and less-educated individuals, but deteriorated for people who are self-employed or do not work full-time.

While the first set of findings is encouraging, the observed changes are still rather small. Moreover, the ACA did not expand health insurance coverage as fast and drastically as expected. Perhaps more public outreach and education are needed to magnify the positive impact. Also, future research should re-examine this topic when more recent data become available.

The second set of findings is troubling. In light of these findings, we make the following recommendations to policymakers and practicing managers. For policymakers, we suggest that future policies offer companies more incentives to provide their part-time employees with health insurance. Also, policymakers should pay more attention to people who are self-employed by encouraging them to obtain coverage and making health insurance more affordable to them. This group of people will grow rapidly in size in the near future as technology advancement makes freelancing and entrepreneurship more accessible to the general public.

For practicing managers, as internet-based technology progresses further, freelancing will become the future of work either by workers' choice or due to business contingency. Currently, freelancers are considered as self-employed and are responsible for their medical and dental insurance entirely on their own. While this group of people is largely neglected by policymakers, one wonders if there is a solution in the private sector. For example, businesses could offer to partially contribute to a freelancer's health insurance, if the freelancer agrees to pay into the company's account reserved for covering the benefits of their regular employees. Given our

findings, this approach would not only demonstrate a company's commitment to social responsibility, but would potentially make itself more attractive to certain freelancers.

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LESSONS FROM THE HEALTHCARE FUNDING CHALLENGES AT KONKOLA COPPER MINES IN ZAMBIA

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SUMMARY: The global challenge of healthcare financing due to rising healthcare costs requires innovative solutions. This challenge is present not only at the U.S. national level and employer-based financing, but also internationally in organizations such as Konkola Copper Mines (KCM) in Zambia. This study sought to determine effective healthcare funding options for KCM's employee medical services to be more self-sustaining and reduce its reliance on a single source of funding. We surveyed 285 KCM employees and nine management staff from June to July 2016. The employees showed a willingness to contribute towards prepayment medical schemes and earmarked employee contributions to support funding for specific areas of medical services. However, they did not favor employee contributions directly towards general medical services. This research offers suggestions for addressing inefficiencies with the current resources and implementing prepayment employee medical schemes as a funding option.

Introduction

Located in the middle of Southern Africa, Zambia was one of the world's fastest growing economies with a real GDP growth averaging roughly 6.7% per year during 2004-2014. The country's dependency on copper as its sole major export made it vulnerable to global price fluctuations (World Factbook, 2017). According to the Center for Disease Control (CDC, 2015), Zambia's population was about 15 million, per capita income was $3,860, life expectancy at birth was 56 for women and 51 for men, and the top three diseases were HIV/AIDS, tuberculosis, and diarrheal and cardiovascular diseases. Therefore, timely access to healthcare services and their availability and affordability that are dependent on well-functioning healthcare models are critical for Zambia's development. According to the WHO Regional Office for Africa (2013), some of Zambia's healthcare-funding models include sources such as donor countries that fund specific healthcare programs. Another model involves private organizations and facilities that also provide healthcare in Zambia. For example, the mining industry historically had developed a network of health facilities, particularly across the Copperbelt Province of Zambia, to provide healthcare to miners.

Unlike in the United States, where the health insurance system has been well established, the insurance system in Zambia has not been well developed. However, in both Zambia and the

U.S., labor unions have been very instrumental in pushing the miners' health agenda. For example, even after threats of coal-mining companies' bankruptcies, the United Mine Workers Association (UMWA) has been instrumental in working with U.S. legislators to continue providing financial support, as evidenced in the 2017 Miners Protection Act (Volcovici, 2017). Mwale (2014) posits that, in terms of representation, the Mine Workers' Union of Zambia (MUZ) was one of the most vital bargaining agents for most major mining companies in Zambia. Among the key goals of MUZ was providing members relief in sickness, accidents, disability, distress, unemployment, victimization trade disputes, and funeral expenses for deceased members.

This study examines the health challenges for Zambian miners with implications for the mining industry in the US and elsewhere. Although the benefits of promoting employee health are extensively covered in the healthcare management literature, there is a lack of in-depth research that considers employee health promotion from the employee perspective in the Zambian mining industry. Furthermore, limited information is available to address the Zambian mining industry and how organizations such as Konkola Copper Mines (KCM) can develop strategies for funding employee medical services. Due to lack of resources and conflicting priorities between copper production and funding employee health services, KCM's medical services were faced with the inability to become more financially self sufficient. Accordingly, this study examines how employees could have a role in helping the medical services department become financially sustainable. To address this issue, this study analyzes hypotheses regarding KCM employees' potential contributions towards medical services with respect to union membership, gender, marital status, and location based on a 2016 survey. The study also discusses implications of the empirical results on employer-based healthcare financing in the Zambian mining industry in general. Furthermore, this study sheds light on the growing challenges in the US mining industry and on the union problems regarding health coverage and financing. These issues are further examined in the discussion.

Background

KCM, one of Africa's largest integrated copper producers, is situated in the Copperbelt Province of Zambia. The organization is a subsidiary of Vedanta Resources, which was founded in India in 1976 (Vedanta, 2017). KCM was previously under a mining conglomerate called Zambia Consolidated Copper Mines (ZCCM). ZCCM had established water and electricity utility facilities, recreational facilities, educational facilities, and health services. The privatization process in the late 1990s and early 2000s required the mining companies to take up most of the social services. Therefore, at the time of privatization, KCM inherited two mine hospitals, eight community clinics, and six plant site clinics (Kumar, 2016).

The company has been offering free medical services to employees and their dependents for the past fifteen years since privatization. Despite opening up services to the public and contractors, the income generated by the services is only 11% of the total annual operating costs. Income earned from services rendered to fee-paying contractor companies began to dwindle as the decline of contractor jobs around the mine resulted in a reduced number of contractor clients accessing the services (Carrin, Doetinchem, Kirigia, Mathauer, & Musango, 2008). The organization therefore needed to seek other options in order for medical services to become self-sustaining. The increasing operational costs of running medical services with the ever-increasing costs of running the mining operations created internal competitive financial pressure on how the organization prioritizes and utilizes its resources. The low copper prices on the international

markets also meant that the organization could not make significant revenues and profits needed to cover costs for the medical department (Chuma, Mulupi, & McIntyre, 2013). This is unlike the US coal mining industry, in which some mines had been abandoned and, hence, their retired workers had faced health benefit cuts (Samuels, 2017). Therefore, the purpose of this study was to examine the potential of employee contributions for enhancing sustainability of employee medical services.

Given the potential for decreased availability of company-sponsored health services for employees, it was anticipated that employee contributions would reduce the risk of losing such services. Hovlid, Bukve, Haug, Aslak, and Von Plessen (2012) used the learning theory to assess the sustainability of healthcare improvements. They argued that theoretical frameworks can guide further research on the sustainability of quality improvements and that theories of organizational learning have contributed to a better understanding of organizational change in other contexts. Similarly, the moral hazard theory has been referenced in this context, arguing that when people pay a higher share of total health spending, they become more careful consumers of healthcare and forgo unneeded care (Gould, 2013). For example, in their study of the UMWA Health Plan in the US, Roddy, Wallen, and Meyers (1986) noted that in 1977, UMWA members were given a 40% coinsurance requirement with $250 deductible for hospital care. However, Nyman (2007) refuted the application of the moral hazard theory in this context, arguing that most of the theory represented healthcare that patients would not access without insurance.

Considering ecological models, health promotion can be most effective when all the interwoven social, institutional, and environmental factors are targeted together (Golden & Earp, 2012). Employers, too, have realized that by not investing in employee healthcare, they will incur high indirect health costs such as absenteeism, sick leaves, and loss of highly qualified labor (Porter, Teisberg, & Wallace, 2008). Employer-sponsored healthcare also ensures that employee welfare in the workplace is maintained by ensuring that employees are safeguarded from poor and unsafe working conditions through adherence to occupational health regulations, particularly in large industries such as mining, oil, and steel. This research assessed KCM employee preferences for healthcare cost share based on union membership, gender, marital status, and site location.

Methodology

This study used a descriptive research design that measures behavior, prevalence, or outcomes of a population under certain conditions (Bless, Smith, & Kagee, 2006). Employee healthcare benefits studies have previously utilized this form of study design to describe the various factors or phenomena associated with employer-sponsored healthcare (HRET, 2015). In this study, the population constituted 7,000 KCM employees, and the sampling frame was the list of all KCM employees in the human resources database in the information management system (SAP). Clustered and stratified random sampling techniques were used to obtain a representative sample of KCM employees. The clustering units were based on integrated business units (IBUs) or work locations, and each IBU was partitioned into several subpopulations, called strata, according to the KCM grade system. Samples were drawn independently across each stratum (Ahmed, 2009). Employees were then further randomly sampled according to their KCM grade, salary scale, or department. Hence, two hundred and eighty-five KCM employees and nine management staffs constituted the sample and were surveyed during the period from June to July 2016. The nine management staffs were identified as key informants with a good understanding of the medical services program.

Two pre-tested structured questionnaires were employed to obtain data from KCM employees and management staff, respectively. A proposal was presented to the senior KCM Human Capital Management and KCM Medical Ethics Committee for approval to conduct the study among KCM employees. Meetings were also held with union officials in the presence of human resource officials to explain the study and to address any concerns. Research assistants were recruited and trained to ensure data accuracy. Employees could consent to participate in the study, were assured of confidentiality, and were allowed to opt out if they were not willing to participate. Data were coded, entered, and analyzed to compute descriptive statistics using the SPSS, STATA, and Minitab.

Data Analysis

Overall, the study found that most employees were not in favor of healthcare cost sharing. Agree and strongly agree had the highest combined rating, as shown in Table 1, with almost 89% of employee respondents preferring that KCM continued funding and providing free employee medical services. They were not keen on a monthly employee contribution for medical services or for the medical services to be handed over to the government.

Table 1

Healthcare Funding Options for KCM Medical Services – Employee Responses

	RESPONSE (%)				
	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
KCM should continue funding and providing free employee medical services	67.1	21.8	3.2	5.7	2.1
Employee willingness to make monthly contributions towards KCM medical services	4.3	20.1	9.3	30.1	35.8
Handing over KCM medical services to the government	4.3	11.1	9.3	27.6	47.7
Partnerships with other private organizations to run the medical services as a commercial unit	13.2	28.3	14.3	21.9	22.2

To further examine the negligible willingness by employees to contribute financially toward medical services, the study compared the proportions of union and non-union employees by testing the hypotheses: null hypothesis is *Ho: p1 - p2 = 0* and alternative hypothesis is *Ha: p1*

- $p2 \neq 0$, where groups 1 and 2 are union and non-union, respectively. Table 2 shows the output from the hypothesis testing using Minitab software. The z-value in the output is 4.14, and the p-value is 0.000, which is less than the significance level of α value = 0.05. Thus, the p-value is highly significant and the null hypothesis is rejected in favor of the alternative. From the sample proportions, 75.2% of union employees opposed financial contribution to medical services versus 50.5% of non-union employees who opposed. The difference was statistically significant.

Table 2

Employee Willingness to Contribute to Medical Services

SUBSAMPLE	N	OPPOSE	% OPPOSE
Union	169	127	0.751
Non-Union	101	51	0.505
Female	74	47	0.635
Male	204	137	0.672
Single	52	33	0.635
Married	212	142	0.670
Nchanga	113	67	0.593
Konkola	109	80	0.734

Regarding gender influence on employee contributions towards medical services, the study compared the sample proportions for males and females where the null hypothesis was *Ho: p1 - p2 = 0* and the alternative hypothesis was *Ha: p1 - p2 ≠ 0*, where groups 1 and 2 were females and males, respectively. The z-value in the output was -0.57, while the p-value was not significant, hence the null hypothesis was not rejected. Therefore, the gender influence on employee contributions to medical services was not statistically significant, although from the sample proportions, males were more opposed to cost-share than were females (67.2% for males versus 63.5% for females).

With respect to marital status, the study assessed the statistical significance of the difference in marital status on the willingness to contribute toward medical services and compared the proportion of single and married employees by testing the hypotheses: null hypothesis is *Ho: p1 - p2 = 0* and alternative hypothesis is *Ha: p1 - p2 ≠ 0*, where groups 1 and 2 were single and married employees, respectively. Since the p-value was greater than the significance level of α value = 0.05, the null hypothesis was not rejected in favor of the alternative. Hence, the study concluded that the effect of marital status on the willingness to financially contribute toward medical services was not statistically significant, even though the sample proportions showed married employees were more opposed to the cost-share compared to single employees (67% for married employees versus 63.5% for single employees).

Finally, to examine site location's influence on employee contributions to medical services, the study compared the sample proportions for employees at the Nchanga and Konkola sites. The null hypothesis was *Ho: p1 - p2 = 0* and alternative hypothesis was *Ha: p1 - p2 ≠ 0*, where groups 1 and 2 were employees in Nchanga and Konkola, respectively. The z-value in the output was -

2.22, and the p-value =0.026 was less than the significance level of α value = 0.05. Thus, the p-value was highly significant and the null hypothesis was rejected in favor of the alternative. From the sample proportions, 73.4% of employees in Konkola opposed financial contribution to medical services versus 59.3% of employees in Nchanga who opposed contributions. The difference was statistically significant.

Discussion

This study tested hypotheses regarding the willingness to contribute to medical services with respect to union membership, gender, marital status, and work sites of employees. As revealed in the analysis, the results demonstrated significant differences between union and non-union employees. Union employees strongly opposed more employee contributions to medical services, compared to non-union employees. It appears that union employees were more inclined to actively seek employee benefits including healthcare benefits than were low-paid non-union employees who were on short-term contracts. KCM had almost 50% contract employees (6,000) compared to 6,500 direct employees (Koyi, 2017). Most mining firms in Zambia increasingly preferred independent contractors for cost saving. Contractors typically earn 50-80% of what permanent employees earn (Danish Trade Union Council, 2014).

For the gender hypothesis, the results showed that gender has insignificant influence on employee contributions to medical services, although males seemed to oppose more financial cost-share contributions towards medical services than did females. Male miners in Zambia have been vulnerable to labor abuses and have been exposed to unsafe working conditions for a longer period. Consequently, they have been continuously facing injuries and poor health, as the Zambian Ministry of Mines, Energy, and Water Development has been loosely enforcing the national labor law and safety regulations (Zambia: Safety Gaps, 2013).

The study further revealed that marital status exerts weak impacts on employee contributions to medical services. Nonetheless, the sample proportions showed that married employees were more likely than single employees to oppose employee contributions to medical services. This could be explained by the fact that married employees have responsibilities toward their dependent children. They are estimated to have at least 10 dependents and must pay for school, food, and medical expenses (KCM workers, 2014).

Finally, work locations seemed to have a significant impact on the willingness to financially contribute toward medical services as demonstrated. Employees in Konkola strongly opposed more employee contributions to medical services as compared to employees in Nchanga. In addition, permanent employees in Konkola seemed to be more determined to maintain current healthcare benefits in contrast with contract employees in Nchanga. KCM laid off 2,500 contract employees at its loss-making Nchanga site in 2015 (Hill, 2015). Furthermore, in 2016, the company notified MUZ about their continuous outsourcing plan to lure enormous investments. Consequently, over 4,000 workers were handed over to private contractors despite the opposition of Zambian government and mining unions (KCM handover, 2017). This could explain their willingness to contribute to avoid further layoffs.

According to management respondents, the major challenge in financing KCM medical services was the dependence on copper revenues as the only source of financing. Additionally, allocation of healthcare funding is competing with priorities associated with copper production and the current liquidity challenges on the global market. Despite these challenges, management faces employees who prefer that KCM continue to provide free medical services to employees and

who are not keen on making financial contributions towards their medical services or benefits. In contrast, management respondents were more inclined towards employee contributions and fostering strategic partnerships with other organizations.

Like the Zambian mining industry, rising healthcare costs are unsustainable in the US mining industry. To cope with the upward-spiraling healthcare costs, some US coal companies are seeking telemedicine and wellness programs, while reducing employer contributions to health savings accounts (Giardina, 2014). Meanwhile, mining unions are lobbying the government to protect their members' benefits (Thornton, 2017). UMWA has been actively lobbying for the Black Lung Benefits Improvement Act, but it has been facing strong opposition from mining employers and their political allies (UMWA, 2017). Furthermore, oversight lapses in safety laws whether in Zambia or in the U.S put miners at higher health risks. Non-union miners in Zambia and the US are especially vulnerable to unsafe work conditions. Rising outsourcing and non-union jobs are fueled by foreign investors in the Zambian mining industry, while UMWA faces tough huddles due to the shrinking mining industry and falling memberships (Peterson & Jones, 2015).

Conclusions and Recommendations

Like the Zambian mining industry, the US mining industry has faced labor unions that have sought to protect miners' health. In both cases, the industry has not only been financially hit by falling prices but has also been facing rising healthcare costs (Thornton, 2017). Despite these rising challenges, miners continue to demand permanent health benefits and safe work protections. Major challenges in the Zambian copper mining industry have been the reliance on limited sources of funding, particularly copper revenues. Other major challenges have been inefficiencies in areas such as procurement processes and underutilization of information technology. In the US, mining companies' bankruptcies have been a major challenge. Nonetheless, funding of employee medical services is important for several reasons as ascertained by this study. Providing financial protection, improving employee satisfaction and morale, and ensuring dependents remain healthy are important factors at the employee level. It was evident that KCM would not perform better financially or operationally without serious consideration of employee medical services. While legislative intervention has been one of the approaches in the US, cost-share in company-operated medical facilities has been an option in Zambia.

Given there were some employees in the Zambian case who saw the need for cost-share, there is a need for strategic deliberations between management and workers towards buy-in for a dedicated fund that could be jointly managed. KCM should promote wellness programs and partner with other healthcare providers who are able to provide better services that KCM is not able to undertake alone. Enhancing services through partnership and providing better services could also lead to more clients who would be able to pay and thereby increase the critical mass and the base of income for the fund. It is noteworthy that 50% of employees were influenced by the presence of employee health services and benefits when selecting KCM as an employer. Employee health can be closely tied to organizational effectiveness. Accordingly, cost-benefits of worksite interventions should consider these interrelated criteria (Stokols, Pelletier, & Fielding, 1996).

This study's findings will also allow the medical management team in KCM and other similar organizations in Zambia or the US and elsewhere to evaluate which multi-level strategies can be considered for miners' health promotion. Apart from providing employee health services, mining industry employers all over need to ensure that value is obtained from health services.

Management needs to consider alternative approaches for better healthcare and quality service provision to strike a balance between employee satisfaction with healthcare benefits and sufficient value for money invested in healthcare that can support future healthcare investment (Fronstin, 2012).

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BEING INTENTIONAL ABOUT WORKPLACE MINDFULNESS PROGRAMS

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SUMMARY: In the past decade mindfulness practices, one component of employee and organizational wellbeing, have become more prevalent in workplaces. How can organizations design and implement workplace mindfulness programs? To answer that question, a short history of mindfulness programs is presented. Further, types of workplace mindfulness programs and their corresponding emphases and benefits are discussed. The pros and cons of mindfulness practices are identified as well as cautions when designing workplace mindfulness programs. The business case for supporting mindfulness as a dimension of employee wellness and healthcare is presented.

Introduction

As a dimension of employee wellbeing and healthcare, mindfulness has become a buzzword in healthcare during the past few years. Simply put, mindfulness has been defined by Kabat-Zinn, the creator of Mindfulness Based Stress Reduction (MBSR) programs, as "awareness, cultivated by paying attention in a sustained and particular way: on purpose, in the present moment and non-judgmentally" (2012/2016, p. 1). In essence, "mindfulness describes a comprehensive, integrated approach toward improving health and productivity in work environments" (Solon & Kratz, 2016, p. 31).

Organizations such as Apple and Google have embraced mindfulness and have implemented programs to foster employee wellness, resulting in "better performance, heightened creativity, deeper self-awareness, and increased charisma—not to mention greater peace of mind" (Harvard Business Review Press, 2017, p. back cover), all of which contribute to an enhanced business bottom line. In addition to Apple and Google, other notable organizations that provide mindfulness programs for their employees include Accenture, American Express, General Electric, Ikea, KLM, Microsoft, Nike, Ogilvy, Roche, Royal Bank of Canada, and Sony (Hougaard, Carter, & Coutts, 2015). Smolkin (2016) reported that 22% of organizations currently have mindfulness programs.

This article presents information about the history of mindfulness, the types of workplace mindfulness programs, the pros and cons of organizational mindfulness programs, and the business case for supporting mindfulness as a dimension of employee wellness and healthcare.

Short History of Mindfulness

Mindfulness practices have a long history stemming from Eastern traditions such as Buddhism and Taoism (Brendel, 2017). In 1979 mindfulness-based stress reduction programs were launched at the University of Massachusetts by Kabat-Zinn. Langer wrote the classic book *Mindfulness* in 1989. In 1996 the first empirical research project about mindfulness in the workplace was conducted. The mobile mindfulness app Headspace was made available in 2012. In 2013 the number of articles about mindfulness totaled 549. *Mindful*, a new magazine, was launched in 2013 to promote mindfulness. *Time* magazine featured *The Mindful Revolution* on its cover in 2014. A mindfulness segment featuring Anderson Cooper was aired on the television show *60 Minutes* in 2014 (Frey & Totten, 2015). The coverage of mindfulness has grown dramatically in recent years.

Types of Workplace Mindfulness Program

Generally speaking, mindfulness programs can be classified as contemplative or non-contemplative. Contemplative-based mindfulness programs are those that "emphasize shortened versions of contemplative practices such as meditation" (Yeganeh & Good, 2016, p. 26). Non-contemplative based programs introduce practices that focus on "analyzing automatic routines, shifting attention to the five senses, and mindful thinking" (Yeganeh & Good, 2016, p. 26).

In addition to seated meditation, contemplative-based mindfulness programs can include practices such as walking meditation, focused breathing activities (pranayama), yoga in its many forms, chanting, and tai chi and its variant forms. These longstanding contemplative Oriental practices are widely perceived by healthcare professionals as means for reducing stress and increasing employee wellbeing (e.g., Dwivedi, Kumari, & Nagendra, 2015). All of these practices require a moderate amount of intentionality, which is conscious awareness of what you are doing and why you are doing it, and engagement, which is full and active participation.

Practitioners find that many traditional but difficult-to-master exotic contemplative practices appeal to only some employees. For example, employees who have xenophobic tendencies and strong cultural attachment to the American way of life may shy away from foreign-originated contemplative-type health and wellness activities such as meditation and chanting. For those who have experienced trauma or post-traumatic stress disorder (PTSD), the closing of eyes during meditation activities may cause anxiety. Others may perceive the names of certain common yoga poses such as savasana (corpse pose, which is traditionally the last pose practiced in a yoga class because it is relaxing) as revolting and culturally unacceptable. Atheists oftentimes object to engaging in the anjali mudra (prayer pose with the palms of the hands together by the heart center), another common yoga pose, because of their beliefs. The Sanskrit yoga vocabulary used by most teachers puzzles and alienates some neophyte yoga learners. Chanting may be perceived as having a mystical or spiritual connotation that can be objectionable or unacceptable to some employees. Others may frown upon these contemplative practices and embrace easier-to-master less traditional but more practically oriented non-contemplative techniques such as journaling and mindful eating.

Non-contemplative mindfulness programs consist of three basic approaches: modifying automatic responses, focusing on the five senses, and thinking mindfully. Modifying automatic responses involves moving from subconscious autopilot reactions to consciously aware ways when necessary. Such automatic behaviors are helpful when they are appropriate; in other words, these behaviors "enable us to save energy for new situations by reducing energy spent on the things we do every day" (Yeganeh & Good, 2016, p. 27). In new situations, automatic responses should be set aside to avoid catastrophic thinking and related calamities.

Focusing on the five senses of seeing, hearing, touching, smelling, and tasting allows employees to disrupt their automatic response patterns and to obtain a more accurate multiple-sensory perspective of reality. Noticing the details of the workplace environment shifts the observer's mind to the senses. For example, seeing a colleague's facial expressions while speaking shifts the observer's attention by engaging in the present moment (Yeganeh & Good, 2016). While some may perceive engaging the senses as a passive or useless activity, "intentionally engaging the senses is a powerful way to shape how we pay attention to the present moment" (Yeganeh & Good, 2016, p. 29).

Mindful thinking focuses around accepting the moment rather than rejecting it. The practice of acceptance allows employees to switch from the unhealthful, stress-inducing worrying mode to the healthful, stress-reducing caring mode (Yeganeh & Good, 2016). For example, rather than responding to a colleague who is unprepared for a meeting by thinking "I can't believe this person is not fully prepared; what a waste of everyone's time when we all have lots of work to do," a mindful thinker might depersonalize the situation and think "I am very annoyed by this; it's all right for me to be angry with unprepared colleagues occasionally." This acceptance of the emotion allows the person to move on to address the situation constructively.

Pros and Cons of Organizational Mindfulness

The pros and cons of selected organizational mindfulness practices are presented in Table 1. Most of the listed mindfulness practices are contemplative with journaling and mindful eating standing out as non-contemplative practices. Primary benefits and drawbacks are presented.

Table 1

Primary Intended Benefits and Primary Potential Drawbacks of Selected Mindfulness Practices

Mindfulness practice	Intended benefits	Potential drawbacks
Meditation	Reduces stress levels	Misguided beliefs that meditation requires long periods of time
Pranayama* (breathing practices)	Increased level of energy Experience calmness Can promote sleep	Perceived by some as difficult to practice
Yoga	Reduces stress levels Fosters mind-body connection	Perceived confusion about which yoga style(s) to practice Viewed as costly at yoga studios (except for community classes)
Chanting	Clears the mind	Requires a separate room Inhibited participant responses
Journaling	Allows processing of emotions May reduce stress levels	Can be done virtually anywhere, any time Considered difficult by some
Mindful eating	Allows focus on food consumed Identifies emotional eaters Reduces tendency to eat on autopilot	Requires self-discipline

**Note*. Benefit varies depending on the type of breath practiced.

Most of Fidelity's 2016 survey of Employer-Sponsored Health and Wellbeing revealed that the level of employee engagement in wellness programs ranged from 10% for consulting a life coach to 53% when employees completed a basic health survey (Fry, 2017). Lewis (as cited by Fry, 2017, p. 99) distinguishes wellness programs and benefits that are done for employees from "wellness done to employees," which includes compulsory weight-loss programs among other initiatives.

The language used during a wellbeing program can influence the acceptance of the mindfulness program. Reitz (2016/2017) suggests using the words "performance" and "attention" in addition to the word "mindfulness" during presentations and workshops since the word "mindfulness" has a negative connotation for some people and its use may discourage employee participation.

Silcox (2016) recommends using the following strategies when introducing and building a wellbeing program: (a) involve employees in policy development, (b) use multiple media to communicate about the wellbeing program, (c) use company data (e.g., about absences) and data gleaned from employee surveys when designing a wellness program, (d) determine how to hook

employees who typically do not participate in wellness programs (men often participate at a lower rate than do women), (e) follow and evaluate wellness program participation rates, (f) consider holding workplace competitions and giving recognition, (g) schedule health seminars and fairs featuring speakers from outside the firm, (h) consider using interactive activities since they have been found to sustain interest, (i) schedule a launch for each new wellbeing activity, (j) provide staff with adequate notice about events to encourage participation, and (k) give employees time off from work responsibilities to engage in wellbeing activities.

One potential practice is to have employees complete a mindfulness questionnaire twice: once as a pretest before training begins and again following the training as a posttest measure. While there are several instruments from which to choose, a commonly used public domain measure is the Five Facet Mindfulness Questionnaire (FFMQ). The FFMQ focuses on the five mindfulness components of observing, describing, detaching, acting mindfully, and loving yourself (being self-compassionate) (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Strosahl & Robinson, 2015).

Forty workplace mindfulness intervention programs disseminated in the literature were analyzed by Jamieson and Tuckey (2017, p. 189). Of these intervention programs, 22 investigated the "effect of mindfulness interventions on at least one aspect of employee health or well-being." Results from three of the less robust studies did not support the use of mindfulness intervention programs in the workplace; nevertheless, most of the studies produced results that corroborate the efficacy of mindfulness programs. Duarte and Pinto-Gouveia (2016) introduced a six-week mindfulness-based intervention program to oncology nurses. This intervention involved exposure to mindful eating, mindful communication, pranayama (breathing exercises), and various types of meditation and appeared to reduce burnout and helped to decrease compassion fatigue.

Workplace mindfulness programs should be voluntary, not imposed on employees (Brendel, 2017). The voluntary nature of workplace mindfulness programs encourages employee participation.

Business Case for Supporting Mindfulness

The current business environment has been dubbed the attention economy in which "the ability to maintain focus and concentration is every bit as important as technical or management skills" (Hougaard & Carter, 2017, p. 40). Langer (2017), who has conducted mindfulness research for over 40 years, identifies better performance, greater innovation, enhanced charisma, a lower level of procrastination, and being less judgmental about other people as mindfulness practice benefits.

Congleton, Holzel, and Lazar (2017) assert that mindfulness research results have revealed that mindfulness is now a necessity for executives. Two areas of the brain that are positively affected by mindfulness practice are the anterior cingulate cortex, important in self-regulation, and the hippocampus, which is central to resilience (Congleton et al., 2017).

Chakravorty (2017, p. 29) reported that a mindfulness program introduced in a critical care unit (CCU) resulted in "a significant increase in throughput, (e.g., number of patients admitted in CCU per year), a decrease in work-in-process (e.g., average number of hours in CCU per patient), and an increase in quality (e.g., live discharge) with a slight decrease in cost." Staff were encouraged to engage in meditation for five to ten minutes every few hours. Prior to treating a patient, staff were asked to "clear their mind[s] for one to two minutes" and taught "to communicate often with other caregivers about patient condition."

Although research has indicated that mindfulness training provides several benefits, practicing mindfulness is not a panacea for all ills. While mindfulness practice is a valuable endeavor, the practice is only one of several potential offerings that can be beneficial for employees. As Connolly, Stuhlmacher, and Cellar (2016) so elegantly stated, "Given the variety of objectives, techniques, and outcomes, it is imperative that mindfulness training receives mindful scrutiny" (p. 682). Above all, it is important to acknowledge that results from workplace mindfulness programs take time to become apparent (Adams, 2016).

Conclusion

Workplace mindfulness programs have become widespread—perhaps even trendy—over the last decade. While several research studies have demonstrated various wellbeing benefits stemming from corporate mindfulness programs including decreased costs, diminished compassion fatigue, and reduction of stress levels, care should be taken in the design and implementation of workplace mindfulness programs with experts. Involving employees during the program design, implementation, and follow-up stages is critical to the success and sustainability of mindfulness program participation. Evaluation of program results should be conducted on an ongoing basis to determine the efficacy of the program and to identify aspects that should be added, changed, or omitted. Follow-up training offerings would be a mindful practice to encourage employee and program sustainability.

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B O O K R E V I E W

The Gene: An Intimate History by Siddhartha Mukherjee, M.D.

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Health care in the United States of America is a complex topic fraught with the historical and emotional trappings of most political minefields. With so many health care companies and organizations focusing upon the endless minutiae of how to deliver, manage, and reimburse health care; embracing a "big picture" perspective is a path followed only by those rare innovators who are willing and discerning enough to embrace the unknown. In this review, I will focus upon a book that calls out to the latter group and speaks to the larger and more hopeful perspective of twenty-first century innovation in health care.

Through my lifelong fascination with the history of science and technology, I have navigated and explored the never-ending landscape of biomedical innovations as diverse as assisted reproductive technologies, cutting-edge human prosthetics, and other technological promises of a post-human vision. Many authors have intrigued me but Siddhartha Mukherjee, M.D., the author of "*The Gene: An Intimate History (2016)*," is one author who eloquently amplifies the potential of such a future world. In his most recent book, he reveals not only an amazing grasp of the history of (biological) science, but also a preternatural understanding of how health in general and our DNA specifically can impact, devastate, and even enlighten our everyday lives. Through his eyes, we can challenge and reimagine preconceived notions of health and wellness. And, through his powerful and historically informed gaze, we can recognize that we have entered a new era—one that will hopefully change the means and machinations of health, health care delivery, and anything related to it for decades to come.

Organized in a thought-provoking combination of chronological, historical events and thematic groupings; Mukherjee's book leads us through the convoluted and sometimes serendipitous discovery of the human genome. In an approach like his earlier book on the history of cancer; Mukherjee draws us into the story by weaving his personal stories, those of his patients, and the history of science into a powerful chronicle about how all these perspectives are so deeply connected (Mukherjee, 2010). Genetics, a relatively new science whose origins can be traced historically back to Gregor Johann Mendel's 1866 study of pea plants, is based upon a surprisingly simple concept—the forty-six chromosomes in the human genetic code (Mendel, 1866; Mukherjee 2010, 2016). These chromosomes, twenty-three received from one biological parent and twenty-three received from the other, contain thousands of genes that provide the master instructions to build, repair, and maintain a unique human being (Mukherjee, 2016). Clearly, as Mukherjee (2016) points out, this scientific discovery is fraught with the same paradox of simplicity and complexity inherent in the discovery of two other transformational scientific discoveries—the atom and the byte. On one hand, the human genome offers the promise of unlocking the mystery of human existence. By doing so, the field of medicine and our understanding of health and wellness can be revolutionized beyond our collective imaginations. On the other hand, it offers

the danger of man-made manipulation as evidenced by the gruesome application of human eugenics in 1940s Nazi Germany; an idea launched originally, by the way, by English and American reformers in search of a way to engineer human evolution. Mukherjee (2016) adeptly travels through a historical chain of post-World War II discoveries that reach their crescendo in the Human Genome Project, a global project to map and sequence the entire human genome. And, unlike the measured and objective image of the academic and scientific worlds that is typically portrayed to the public eye; Mukherjee (2016) exposes us to the backstage rivalry, politics, and maneuverings involved in the prolonged "race" to claim the genomic victory. Backstage politics aside, the draft sequence of the human genome was finally published in 2001 through a joint effort of the publicly funded Human Genome Project and the privately funded effort of Celera Genomics. To date, the modern science of genetics continues to uncover the mysteries of both the normal and abnormal behavior of genes. And, this transformational knowledge gives us a deeper understanding of diseases and how to prevent them. While the backstage politics is no doubt here to stay, the competition could possibly lead to new discoveries to help eradicate genetic disorders such as Huntington's disease or cystic fibrosis. For those in search of a historical understanding of the human genome and its fascinating evolution over time; Mukherjee's book offers us a thrilling journey and helps us to contemplate the possible implications for the practice of medicine and health care delivery, the notion of health and wellness, and how much we can or cannot control about our unique genetic codes in the end.

For the healthcare industry specifically, the implications are endless. And, according to Robinson (2016), as genomic medicine becomes more mainstream; it is even more important that health care professionals and companies stay informed of the dynamic changes in this field. Jimenez-Sanchez (2015) discusses some of the health care industry innovations that have emerged from the genomic revolution. For example, he contemplates its valuable contributions to the identification of genes associated with common diseases such as diabetes, obesity, cardiovascular disease, and cancers and how genomics will be merged with other technologies such as gene therapy and personalized drugs to eradicate such diseases. While these new technologies are no doubt changing the way such diseases are diagnosed and treated; they also offer the opportunity for astute, informed innovators to create companies that utilize these very technologies. For example, the emerging genomics and pharmagenomics industries exemplify this global market trend (http://medicalfuturist.com/top-companies-genomics/). While many social and ethical questions remain, successful innovators such as the personal genomics company 23andMe (https://www.23andme.com) the pharmagenomics company MyDNA (https://www.mydna.life), and the diagnostic genomics company Rosetta Genomics (https://rosettagx.com) are at the forefront of transforming the business and practice of health care. As the price of genome sequencing continues to fall drastically, the start-up potential will continue to grow exponentially. And so, Mukherjee's "*The Gene: An Intimate History*" is a book that arrived just in time for those who understand the critical need for a "big picture" perspective. It provides a powerful and insightful gaze into the history and journey of the human genome—a must read for anyone even remotely connected to or interested in its implications for the health care industry, health care delivery, and the transformation of health and wellness as we know it.

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The ***Business Forum***, a scholar-practitioner, peer-reviewed journal published by the College of Business and Economics at Cal State LA, invites submissions and reviewers for its Fall 2018 "Startups" Issue.

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Whether your paper is about synthesizing theory and practice, applying interesting research to contemporary business issues related to startups, or illustrating both in a rigorous and vivid case, all submissions must curb academic jargon in favor of incorporating research findings in accessible language for non-specialist business audiences. Each submission should include practical insights and recommendations for managers.

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