Promoting and Sustaining Positive Personal Health Behaviors – Putting the Person First

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ABSTRACT  Amidst the national debate on the future of health care, there must be a focus on how individuals, communities, and the system need to change to promote and sustain health rather than reactively treat sickness and disability. To transition from a health care system to a “System for Health”, we need to move from a patient-focused to a person-focused position. A system that focuses on improving personal decisions related to activity, nutrition, sleep, and tobacco-free living could have a profound impact on health and well-being. The delivery of health, instead of just health care, entails more than just preventing sickness and disability; it requires focusing on building personal wellness, resilience, and endurance. Engaging the individual person to embrace a healthier lifestyle through education, incentives, and technology we can have a positive impact on reducing costs and improving health outcomes. The purpose of this commentary is three-fold: (1) to address the need to implement prescriptions for health, (2) advocate for the need for a person-centric model to help our health care system transition to a system for health, and (3) demonstrate how simple behavior changes can help drive the change to health.

INTRODUCTION
To hamper the morbidity of lifestyle-related diseases, we must move away from focusing on cost strategies to improve our health care system and move towards focusing on health habits, and lifestyle choices as key determinants of health care utilization and health. As the health of our nation worsens health care costs continue to increase at an unsustainable rate. Some of the most common causes of death and disability are from preventable chronic diseases. This article will discuss how personal lifestyle habits such as physical inactivity, poor nutritional choices, lack of sleep, and tobacco use are major contributing factors to disease. The U.S. health care system needs to shift from a “sickness-driven system to one of promoting and sustaining health” through better lifestyle choices.

In order for health care to meaningfully improve health, it must focus on the entire person and not just the patient. Health care should not focused solely on disease, prescriptions, and procedures. With current time-constrained appointments, providers react to a patient’s symptoms, and decide a treatment plan. In this system, patients are often waiting to be treated and cured by the health care provider; even when personal health choices are the underlying cause of the current condition. Shifting the focus from the “patient” back to the person can help shape a system that develops strong relationships between the health care provider and the patient. Adopting a person-centric approach, allows health care providers to proactively facilitate a conversation around the person’s goals, options for improving their health, and how to maximize their well-being.

Although research suggests that health behaviors impact a wide range of physical and mental conditions, the optimal way to promote health in a medical setting remains underdeveloped. Small weight losses of 2–5% can decrease risk of type 2 diabetes, and 15–30 minutes of brisk walking a day can cut the risk of heart disease by 10%. Health care providers have a responsibility to help motivate patients to make these lifestyle changes. To do this effectively, health care teams must utilize evidence-based techniques, from motivational interviewing to standard education on nutrition, and exercise, to modify patient lifestyle choices. Technology can also assist health care providers in achieving better health outcomes for their patients by allowing them to reach outside the brick and mortar facilities to reach people where they live.

Improvements in sleep, activity, exercise, healthy eating, and tobacco-free living can supersede the effectiveness of medications in promoting health, especially when these changes are tied to a sustained lifestyle change. This commentary will address the need to implement prescriptions that promote health, advocate for a person-centric health care model that will be focused on promoting health, and demonstrate how behavior changes are essential to promoting health.

IMPACT OF ACTIVITY, NUTRITION, SMOKING, AND SLEEP
The evidence to support the health benefits of exercise has led the American College of Sports Medicine, the American Heart Association, and the Center for Disease Control and Prevention to outline the following guidelines for good health: 30 minutes of moderate activity on most days of the week, or 20 minutes of vigorous activity on most days of the week. A healthy diet also plays a key role in promoting health, with recommendations for consuming a variety of fruits, vegetables, whole grains, and lean proteins. In addition, quitting smoking and avoiding tobacco use is essential for promoting health. This commentary will discuss the evidence to support the health benefits of improved physical activity, healthy eating, and tobacco-free living.
Prevention to advocate that 18–65 year olds need a minimum of 30 minutes of moderate-intensity exercise 5 days a week or a minimum of 20 minutes of vigorous-intensity exercise 3 days a week. Healthy People 2020, an initiative from the U.S. Department of Health and Human Services, has set goal to have 47.9% of the population meet this recommendation by 2020. While the health benefits of moderate-vigorous activities have been well documented, there is emerging evidence that physical inactivity and sedentary behaviors are an independent risk factor for poor health.

The impact of sedentary activity on health is concerning given the number of jobs requiring only light activity, the number of miles spent in a vehicle, and the number of hours spent in front of a computer or television continues to increase. In fact sitting may be the “new smoking.” Chau et al found 34% higher overall mortality in those that sat more than 10 hours per day, even after accounting for physical activity levels. Approximately 60% of the world’s population gets less than 30 minutes of physical activity a day and the average American spends 7.7 hours a day in sedentary behaviors that expend very little energy. Increased sedentary behavior is associated with increased consumption of soft drinks and unhealthy snacks and decreased vegetable consumption. This evidence may help motivate those resistant to initiating a physical fitness program. Walking 10 minutes after sitting for 50 minutes or aiming for 10,000 steps a day may be simple steps for those that are not in the habit of physical fitness training.

Decreased physical activity can also contribute to excessive weight gain. The medical costs associated with obesity totaled $147 billion in 2008. Obesity is associated with a greater risk for diabetes, cardiovascular disease, and most causes of death. The odds of sustaining a musculoskeletal injury are 15% greater for those considered overweight, and increase incrementally with each progressive class of obesity (I–III) up to 48% greater. In the military, BMI has also associated with a higher prevalence of injury, illness, and cost of care compared with those with normal weight. However, obesity is preventable and reversible. Healthy People 2020 current goal is to have 33.9% of the population have a healthy weight by 2020. To achieve this, policy and practices should support affordable and accessible healthy choices including stressing the importance of physical activity.

Despite perceptions, many who are overweight and obese can also be undernourished. Children with chronic malnutrition can have stunted growth despite being overweight. Urban areas with fewer grocery stores, more fast food restaurants, and lower rates of fruit and vegetable consumptions are associated with higher rates of obesity and chronic disease. Diets with more nutritious foods have even been associated with a decrease likelihood of depression and anxiety. Diet quality in older adults also influences both quality of health and well-being.

Smoking is another important modifiable risk factor impairing health. In addition to numerous negative health effects, smoking is also adversely related to functional outcomes of musculoskeletal injury (e.g., low back pain, shoulder conditions, and lower extremity injuries). Recruits with a history of smoking a month prior to the start of basic training had higher rates of injury; the effect was strongest for overuse injuries. Smoking has also been associated with time-loss injuries in both male and female Soldiers in basic training and has been a risk factor for training-related injuries in infantry units. Smoking has also been found to be an individual risk factor associated with premature discharge from the military.

Despite the increased rates of sedentary behavior, insufficient sleep is a common problem. Sleep is vital for health, performance, and well-being. Proper sleep hygiene rituals, that promote optimal sleep duration and sleep quality, are important for adults and children. Poor sleep is associated with mental distress, obesity, diabetes, coronary heart disease, stroke, high blood pressure, asthma, and arthritis. Poor sleep quantity and quality have also been associated with other unhealthy habits such as smoking, binge drinking, physical inactivity, and unhealthy food habits. In addition to health effects, fatigue and sleepiness also increase motor vehicle and industrial accidents. Healthy People 2020’s goal is for 70.9% of the population to get 7–8 hours of sleep per night.

ADVOCATING FOR A PERSON-CENTRIC VS. PATIENT-CENTRIC SYSTEM OF HEALTH

Despite the overwhelming evidence supporting the effect of increased activity, better nutrition, enhanced sleep, and tobacco-free living on health, preventative medicine in the USA often focuses on cost reduction, improved clinical prediction rules, medication adherence, and imaging utilization. While prescribing medications for lifestyle-related diseases provides a quick solution to shrinking patient appointment times; it does not appear that approach has been successful in improving overall health. Our system should shift focus from “sickness and health care” to one focused on “health”. This requires the health care system to move from reacting to disease and disability to proactively pursuing health and wellness. It compels health care teams to engage people before they become ill. People should engage their health care providers in the decision-making process for their lifestyle choices so they better understand their effect on their overall health.

Part of the art of health and healing is finding how to meet the person in front of you in a manner that will help them move towards health. Each of us is distinct in our definition of family and who we include in our circles of trust and love. We each have our own idiosyncrasies, quirks, likes, dislikes, preferences, values, and essentially our own
stuff that makes us unique and personal. Personalized health plans focused on individual preferences and needs could help move them towards health.

The changes required to create a healthier America and affect costs associated with lifestyle-related diseases needs to happen on a personal level. That mandates that Americans be more mindful and prudent about their lives, activity, and health. Person-centricity requires that each person be vested with the responsibility for their health and become an active agent in the course of their lives. Personal accountability and responsibility is a logical requirement towards promoting health.

However, personal lifestyle choices should not rely on willpower alone. There are many resources a person can utilize to help them reach their health goals. We live in an age of ever-increasing connectedness through social spaces, technology, and apps. The emergence of mobile health in developing nations demonstrates the power that technology has in the lives of people and their health space. \(^{58,59}\) Communities are emerging around each of us that we physically or virtually belong to. We cannot underestimate the power of community and connectivity through apps and tech devices. Human beings, the person, bring these to life and it is a basic human desire to be happy. One can argue that good health, or the lack of disease, is strongly relational to mental, spiritual, physical, and financial happiness. In creating a healthier country, we have to begin by finding ways to make the healthy choice the easy choice.

**CREATING AND SUSTAINING CHANGES IN PERSONAL HEALTH**

Improving health choices is not as simple as increasing access and understanding of reliable health information. Although health literacy may be a necessary foundation to healthier lifestyle choices, it is not sufficient. If knowledge was the only essential ingredient to health, then one would expect health care providers to be healthier than non-health care providers. However, 54% of health care providers \((n = 4,980)\) reported being overweight or obese despite knowing the negative health effects of obesity. \(^{60}\) Only 35% of medical residents and 52% of medical students reach 10,000 daily step goal, \(^{61}\) while 3.3% of medical students, 8.8% of dental students, and 13.5% of nursing students continue to smoke. \(^{62,63}\) Poor sleep hygiene also persists among health care providers despite the negative health implications and the known increased medical error rate associated with limited sleep. \(^{57}\) Modest improvements in healthy lifestyle choices can have a substantial impact on health. \(^{64}\)

When it comes to creating and sustaining health it may well be that knowledge plus action equals power. However, the lack of time, knowledge, and social support can often prevent the achieving of health goals. \(^{65,66}\) The health care team needs to be fluent in interventions that decrease perceived barriers. A critical first step is for the health care team to understand “why” an individual may be motivated to improve their health. New healthy behaviors have been found to be more readily adopted when the goal matches the individual’s motivation, the advantage is clear, the behavior change matches personal preferences, and the benefits are easy for the individual to observe. \(^{57}\) For example, athletes and coaches are more likely to adopt healthy behaviors and injury risk mitigation strategies if those strategies also enhance performance. \(^{68}\)

Health care providers can prescribe technology to assist with identifying and tracking personal lifestyle choices while providing tools to help make the improvements in these lifestyle choices more achievable. As technology has become more available, there is an opportunity to leverage mobile technology to assist in providing strategies to decrease the barriers to health. It has been estimated that by 2015, two billion smartphones will be in use and 500 million people will be using mobile health care apps. \(^{69,70}\) Therefore, there is an opportunity to utilize the leading evidence on creating and sustaining changes for health on a platform that is already being utilized by people seeking health.

If applied properly, technology could assist health care teams to deliver health by reaching people where they live. Technology could help to minimize the barriers to health by providing tailored and personalized health messaging. The use of messaging \((e.g.,\) text-messaging) has proven effective for promoting health behavior change, including weight control \(^{71,72,73,74}\) and increased physical activity. \(^{75-77}\) Digital diaries that track activity, nutrition, and sleep could link to online health resources; including exercise and meal planners to assist with achieving personal goals. Biosensors that automatically track activity and sleeping patterns can minimize the perceived barrier of time required to track personal habits. Health care providers can use social platforms for people focused on similar goals to improve social support of behavior change. \(^{78}\) Finally, utilization of video gaming and virtual world platforms is emerging as an effective means to deliver health behavior change interventions and creates a fun environment for the individual as they work towards meeting their goals. \(^{79-81}\)

Health care teams can also use technology to help people develop healthier habits. Since 45% of daily life consists of habits and many lifestyle behaviors have a habitual component \((e.g.,\) eating habits, sedentary work routines, exercise, smoking, etc.), \(^{82}\) programs focused on an individual’s intentions often have limited effectiveness. \(^{79}\) Smartphone technology with GPS enabled features could provide personalized messages based on your current contextual environment and past behavior to help disrupt poor health habits. For example, if you like to eat popcorn at the movies; technology could provide a warning about potential mindless eating when you enter a movie theater and provide a suggested strategy to limit mindless eating such as eating with the non-dominant hand. \(^{83}\) Technology can also assist in maintaining healthy habits when there is a contextual change. For example, when you...
are traveling your smartphone could recommend areas in the vicinity to exercise or healthy places to eat. These types of tailored messages may be more effective in assisting with creating and sustaining changes in health.\textsuperscript{54} For example, 40.5\% of the individuals that received a program that combined education, self-monitoring, and personalized messages achieved a 5\% or more weight loss compared to 13.2\% of the individuals that received education alone.\textsuperscript{85}

Health care providers often use interventions that track food, exercise, and sleep behaviors because they are often effective in improving health behavior change.\textsuperscript{21,58,86,87} However, time requirements, inability to develop a personal plan, and limited knowledge on how to effectively track caloric intake and expenditure decrease compliance. Health care teams could prescribe digital biosensors (i.e., accelerometers, actigraphs, weight scales, blood pressure cuffs, heart rate monitors, and glucometers) and personalized dashboards on smartphone or web applications to help minimize these barriers. Recent systematic reviews have found that monitoring devices increased physical activity by over 25\%, improved weight loss, and systolic blood pressure.\textsuperscript{21,88}

Technologies using automated food libraries, digital food diaries, meal planners, and frequent weighing have resulted in increased compliance, improved dietary intake, and successful weight loss.\textsuperscript{22,23,89–94} In regards to sleep, cognitive behavior therapies that incorporate education and a sleep diary resulted in an increase of 50 minutes of sleep per night.\textsuperscript{87}

As the evidence that utilization of technology can effectively contribute to behavior change intervention continues to accumulate,\textsuperscript{95–97} it is important to recognize that ultimately it will be essential that individuals have the ability to share appropriate health information with their health care provider(s). Dashboards that ensure patient privacy but share this information with health care providers can help extend their reach outside of the traditional brick-mortar facilities so health care providers can reach people where they live and provide appropriate encouragement and support. An integrated solution that warns health care providers when a patient is either waning or meeting their personalized goals provides an opportunity for appropriate encouragement and possible interventions to occur. If the ultimate goal is to transition from a health care system to a system for health, then technology solutions that allow patients and providers to have timely and effective communication in the person’s life and not in the health care facility will be essential.

**IT TAKES A VILLAGE**

When the Army Surgeon General talks about a System for Health she alludes to the fact that creating and sustaining changes towards health not only involves the individual seeking health but it is significantly influenced by friends, family, neighborhoods, communities, work, and other environmental factors. Although an individual’s family, friends, and co-workers have a dramatic impact on creating and sustaining changes in health, as a system we need to address strategic and national policies to create and sustain environments that make health not only the best choice – but the easy choice.

From the national perspective, the National Prevention Strategy provides the framework for building and creating an integrated System for Health.\textsuperscript{12,13} The National Prevention Strategy involves all agencies within the federal government and includes an aggressive plan for each agency to take action to move the nation from a focus on sickness and disease to one based on prevention and wellness. The Secretary of Defense designated the Assistant Secretary of Defense for Health Affairs (ASD(HA)) as the lead for implementation of the National Prevention Strategy within the DoD. Operation Live Well is the Defense Department’s long-term education, outreach and behavior change initiative established to improve the health and well-being of all members of the defense community. Operation Live Well aligns with the Affordable Care Act and the Military Health System Quadruple Aim. Operation Live Well’s demonstrative arm, Healthy Base Initiative, is helping to ensure the environments on each military installation support making the healthy option both an available option and the easy option through trying to eliminate food deserts on installations, increasing healthy food options, improved access to farmers markets, and increasing walking paths and bike lanes.

The Army Surgeon General’s vision is focused on leading the nation toward better health through the tenets of the Performance Triad initiative, which is the second demonstrative arm of Operation Live Well. The Triad is nested within the Army’s Ready and Resilient Campaign and is focused on embedding healthy Activity, Nutrition and Sleep behaviors into the Army’s “DNA” like the Army Values (Loyalty, Duty, Respect, Selfless Service, Honor, Integrity, and Personal Courage). The Performance Triad promotes healthy lifestyles and choices through a robust health education campaign. The program design is to share knowledge and increase awareness to impact the health behaviors and performance of Soldiers, Family members, DA Civilians and beneficiary population. Each week there is a weekly challenge that highlights how small and easy changes towards health can result in increased quality of life, health, and ultimately readiness. While each component of the Performance Triad is independently important, it is believed optimal health performance is achieved when all three are addressed and practiced simultaneously. The Performance Triad seeks to promote healthy behaviors that support individual Soldier performance and overall unit readiness, as well as a lifestyle of healthy behaviors for Soldiers and their Families, DA Civilians and retirees. By increasing awareness in these three areas, it is expected that performance and resilience will improve, thus improving the overall health, readiness, and resilience of the Total Army.

The strengths of the Performance Triad are the simplicity of the program design, the seemingly achievable daily targets of sleep, activity and nutrition, the customizable and
robust traditional and social media communication strategy, and the use of technology. While it is too soon to tell the positive outcomes, the groundswell of interest builds as evidenced by senior leaders and organizations within the Army becoming increasingly interested in the Performance Triad and implementing the tenets within their units. There are already numerous stories being captured regarding personal and transformative success because of adapting the tenets and technology the Performance Triad.

CONCLUSION

We have proposed that health care professionals need a person-centric model that focuses on health to address the current health care crisis in our nation. To promote and maintain health and healthy behaviors, we need to move beyond the sick-care paradigm to a model focused on optimizing physical, mental, and emotional well-being. Health care providers can help individuals transition to health by teaching, encouraging, and prioritizing healthy behaviors that move them towards health. This requires health care providers that are able to help individuals learn that their health and well-being are based on the small choices they make daily and that healthy choices can quality to their lives and life to their years. The prescription for health centers on meaningful changes in behavior in concert with person-centric solutions. Strategic policies have to help support this transition by making the healthy choice the easy choice: ultimately resulting in healthier living, healthier persons, and healthier communities.

REFERENCES