



COLORADO
Outdoor Recreation
Industry Office

PRESENTS:

COLORADO OUTDOOR RX

ELEVATING COLORADANS' HEALTH THROUGH THE OUTDOORS

COORDINATING LEAD AUTHORS

Janette Heung, Deputy Director, Colorado Outdoor Recreation Industry Office, Governor's Office

Luis Benitez, Director, Colorado Outdoor Recreation Industry Office, Governor's Office

CONTRIBUTING AUTHORS AND PRODUCTION TEAM

Cailin O'Brien-Feeney, Policy Advisor, Outdoor Industry Association

Ian Stafford, Graduate Student, University of Colorado Boulder

Jennifer Merchant, Digital Marketing Manager, Office of Economic Development and International Trade, Governor's Office

Jessica McLendon, Graduate Student, University of Colorado Boulder

Sara Griffith, Graduate Student, University of Colorado Boulder

Samantha Albert, Operations Manager, Colorado Outdoor Recreation Industry Office, Governor's Office

REVIEWERS

Annelise Lovelie, Bobby Cochran, Cailin O'Brien-Feeney, David Madsen, Emily Henke, Gary Gomulinski, Hannah Marion, Jackie Miller, Jamie Hackbarth, Jennifer Merchant, Jim Petterson, Joan Brucha, Jody Kennedy, Justin Cutler, Lee Newman, Kathryn Jantz, Marcelo Perrailon, Meridith Marshall, Michael Pramenko, Michelle Haan, Michelle Miller, Missy Davis, Peter James, Rachel Keith, Rosemary Dempsey, Samantha Albert, Steve Howard, Suzanne White, Ted Smith, Tony Gurzick

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SECRETARIAT

Janette Heung, Collaborative Chair and Founder; Deputy Director, Colorado Outdoor Recreation Industry Office, Governor's Office

Samantha Albert, Collaborative Manager; Operations Manager, Colorado Outdoor Recreation Industry Office, Governor's Office

STEERING COMMITTEE

Annelise Lovelie, Chief Executive Officer, Icelantic Skis

Bobby Cochran, Ph.D., Executive Director, Willamette Partnership

Cailin O'Brien-Feeney, PSM, State and Local Policy Manager, Outdoor Industry Association

Gary Gomulinski, Executive Vice President, Alpine Bank

Jackie Miller, Director of Programs, Great Outdoors Colorado

Janette Heung, ScM, Deputy Director, Colorado Outdoor Recreation Industry Office

Jim Petterson, Colorado & Southwest Director, The Trust for Public Land

Joan Brucha, MPH, Healthy Eating Active Living Manager, Colorado Department of Public Health & Environment

Jody Kennedy, MPA, Public Involvement Specialist, Colorado Parks and Wildlife, Colorado Department of Natural Resources

Justin Cutler, MPA, CPRE, Recreation Services Manager, City of Westminster Parks & Recreation

Lee Newman, MD, MA, Fellow, Co-founder of Health Links; Founding Director of Center for Health, Work, and Environment; Professor in the Departments of Environmental and Occupational Health and Epidemiology, Colorado School of Public Health

Luis Benitez, Director, Colorado Outdoor Recreation Industry Office

Kathryn Jantz, MPH, MSW, Accountable Health Communities Model Director, Rocky Mountain Health Plans

Marcelo Perrailon, PhD, Assistant Professor, Department of Health, Systems, Management & Policy at University of Colorado - Denver

Michael Pramenko, MD, Executive Director & Physician at Primary Care Partners Grand Junction

Michelle Miller, MS, RN, PMP, Chief Nursing Officer, Colorado Department of Healthcare and Financing

Missy Davis, Public Finance Manager, Colorado The Nature Conservancy

Peter James, ScD, MHS, Assistant Professor, Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute

Steve Howard, Director, Health & Safety, Aspen Ski Company

Suzanne White, ScM, Board Member at The Nature Conservancy Colorado; Formerly Senior Program Officer at The Colorado Health Foundation

Tony Gurzick, Creative Services and Marketing Section Manager, Colorado Parks and Wildlife, Colorado Department of Natural Resources

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EXECUTIVE SUMMARY

Throughout history, countless people have found an inherent joy from spending time outdoors, but it's only in the last decade that a growing body of scientific evidence about nature's health benefits has emerged regarding time spent outside. While many public health and parks and recreation organizations realize the health benefits of green spaces and outdoor recreation, it's not always clear how best to bring healthcare payers and providers to the table. New research related to the benefits of nature might compel businesses to include these types of opportunities in their wellness initiatives, leading to a more holistic culture of health.

A cross-sector framework could help connect new research to businesses. It could link the goals and system drivers of partners from multiple sectors to achieve better health through nature-based recreation, and in the process serve business, healthcare, and conservation goals. The purpose of this report is to demonstrate current challenges and opportunities in Colorado and how each sector can plan and implement a strategy that promotes health improvement through the great outdoors. The report, entails real-world examples from various organizations that exemplify the concepts and processes discussed above.

THIS REPORT SHOWS



THE CURRENT CHALLENGES AND OPPORTUNITIES IN USING THE OUTDOORS AS A WAY TO IMPROVE HEALTH, PARTICULARLY IN COLORADO



HOW TO ALIGN INTERESTS ACROSS SECTORS AND INSPIRE SUPPORT FROM KEY STAKEHOLDERS



HOW TO TARGET EFFORTS AT THE INDIVIDUAL, POPULATION, AND ENVIRONMENTAL LEVELS



HOW TO EVALUATE AND CONTINUALLY IMPROVE EFFORTS



THE POLICIES AND PRACTICES THAT PROMOTE ACCESS TO NATURE-BASED RECREATION OPPORTUNITIES

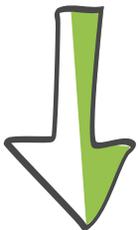
KEY TAKEAWAYS

Today, Americans are spending less time outdoors than they used to. In fact, research has discovered that **people spend roughly 90% of their time inside buildings or vehicles.**¹ This migration indoors can be linked to the act of having traded our outdoor recreation for air conditioned gyms and our outdoor workplace has transformed into desks and cubicles. These lifestyle changes have contributed to the rise of health issues that come from a less active lifestyle. Across the age spectrum, lower socio-economic populations have lower rates of physical activity, outdoor participation, and access to greenspaces.^{2,3} The oft-cited reasons include time, cost, transportation accessibility, and a perceived skills gap.⁴

While a significant portion of Colorado's natural landscapes are available for recreation⁵, people of lower socioeconomic status still face major hurdles in accessing them. This is true for residents in both urban and rural areas. Whether it is a 10-minute walk or 90-minute drive to a local park or trailhead, people may be limited by time and public transportation to get there. In addition, they may not have the equipment, clothing, or knowledge needed to benefit from these outdoor recreation opportunities.

Beyond providing physical health benefits, outdoor recreation presents a suite of mental health benefits. Multiple research studies have demonstrated that exposure to nature or green space produces a reduction in stress levels, improved well-being, and increased social connectedness.⁶ Playing outside, or recreational activities based in nature (nature-based recreation), combines the best of both worlds as participants can reap both physical and mental wellness benefits. In addition, research has found that organized recreation activities, where a facilitator, instructor, or other participants are involved, promoted social inclusion and cohesion.⁷

EXPOSURE TO NATURE OR GREEN SPACE PRODUCES:



A REDUCTION IN
STRESS LEVELS



IMPROVED
WELL-BEING



INCREASED SOCIAL
CONNECTEDNESS

PEOPLE SPEND ROUGHLY
90%
OF THEIR TIME INSIDE
BUILDINGS OR VEHICLES.

The mental wellness benefits of outdoor recreation are especially important for Coloradans. Colorado had the lowest rate of obesity (22.3%) in 2016, compared to the country's highest rate of 37.7%.⁸ Even though statistics show the state has the lowest rate of obesity in the nation, Colorado still faces struggles nationally, having the 8th highest rate of suicide,⁹ the 7th highest non-medical use of prescription pain relievers,¹⁰ and significant racial and ethnic disparities in infant mortality and life expectancy.¹¹

Beyond the mental benefits, the potential for nature-based recreation to increase physical activity levels for Colorado is still a key beneficial factor, because the state's adult obesity rate has more than tripled since the 1990s. (Even though it's the leanest state, its **rate of obesity has increased from 6.9% in 1990 to 22.3% in 2017**¹² and one in four children is now obese¹³.)

Given Colorado has one of the largest and fastest-growing outdoor economies in the country, the state is presented with an unprecedented opportunity to improve people's health through nature-based recreation. Colorado prides itself on its \$28 billion in consumer spending on outdoor recreation and a corresponding job market that supports 229,000 employees.¹⁴ There exists the opportunity to harness the already robust outdoor recreation and outdoor-oriented nonprofit sectors to help more people gain the health benefits of time spent outdoors. Colorado has already begun to recognize the impact and vitality of the outdoor industry by becoming one of the first states to create a state outdoor recreation industry office (ORec) in 2015.

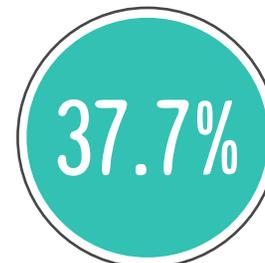
Since 1983, the Colorado Lottery has allowed for investment of over **\$3 billion** in proceeds to invest in outdoor recreation and conservation—land, water, and wildlife.¹⁵ The proceeds go to support the work of organizations such as Great Outdoors Colorado (GOCO), Conservation Trust Fund (CTF), and Colorado Parks and Wildlife (CPW). In May 2018, State Bill 18-066 was signed into law, extending the Lottery Division for 25 more years to 2049. Immense support from all sectors—public, private, and nonprofit—enabled the bill to pass.¹⁶



IN 1990 COLORADO HAD AN OBESITY RATE OF 6.9%



IN 2016 COLORADO HAD THE LOWEST OBESITY RATE, WHICH IS TRIPLE WHAT IT WAS IN 1990



COMPARED TO THE COUNTRY'S HIGHEST RATE



COLORADO HAS THE 7TH HIGHEST USE OF NON-MEDICAL PRESCRIPTION PAIN RELIEVERS

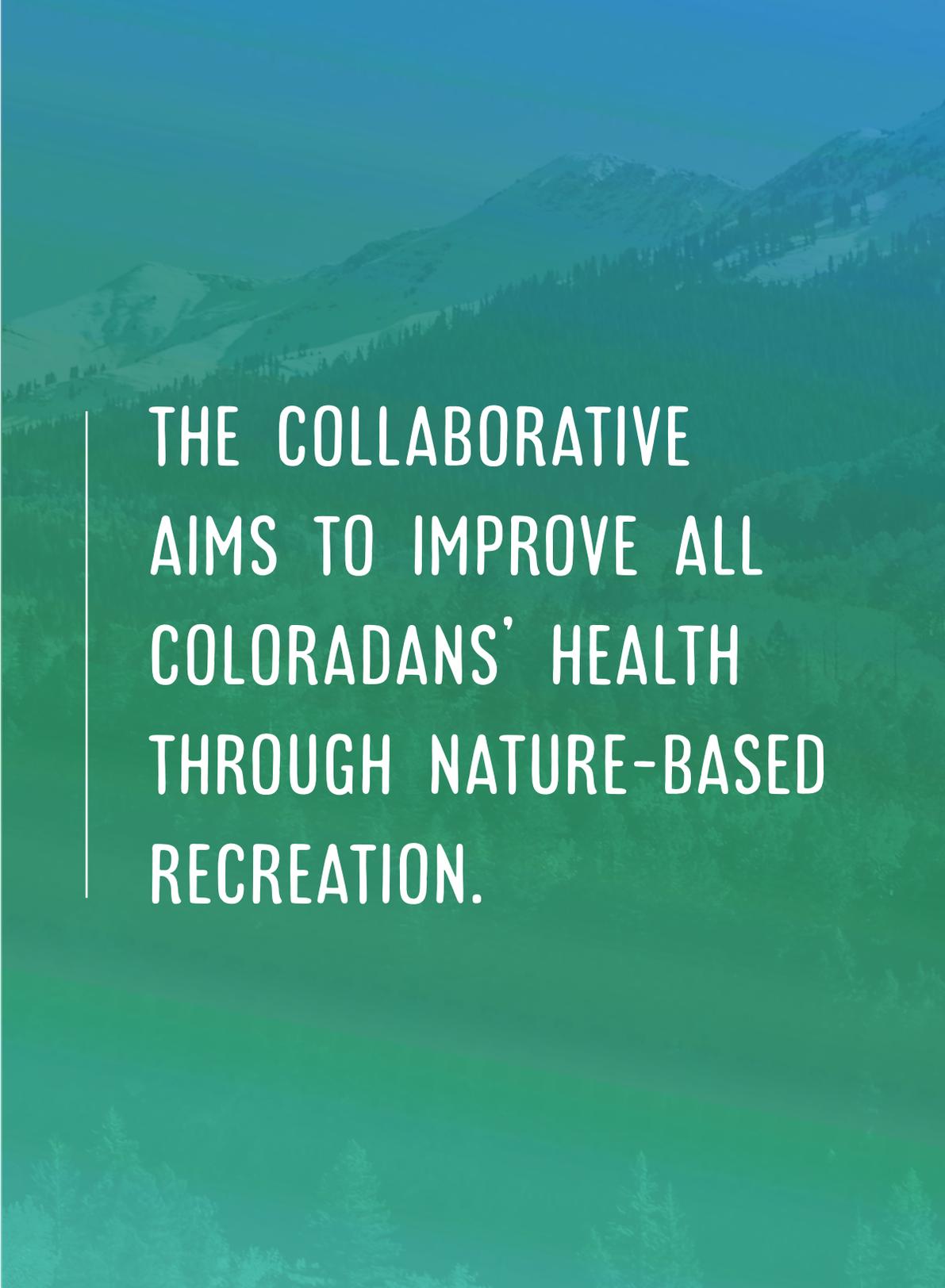


COLORADO HAS THE 8TH HIGHEST SUICIDE RATE

Besides the wealth of outdoor and natural resources that Colorado has to offer, the state also has a progressive Medicaid system that is increasingly focused on better integration of physical and behavioral health and addressing social determinants of health (SDOHs). The social determinants recognized by the healthcare system range from access to food, shelter, and transportation, to clean air, clean water, and parks and recreation opportunities. There is an increasing recognition that “health” is much more than just healthcare access and delivery, where socio-environmental conditions are now recognized as significant contributors to health outcomes.¹⁷

This presents an **opportunity to elevate the role of outdoor and green space access as a core social determinant of health**, opening the opportunity for healthcare payor, providers, outdoor-oriented nonprofits, and parks and recreation entities to align incentives and jointly promote recreation opportunities and improving health of the people. With the various factors at play, Colorado possesses a groundbreaking opportunity to be at the forefront of achieving better health through its great outdoors.

The Colorado Outdoor and Health Collaborative (OHC, aka “**the Collaborative**”) was founded on the belief that health is determined by multiple factors—social, economic, built environment, individual behavior and more. To achieve better health for the people, a much bigger, system-level, cross-sectoral approach is needed.¹⁸ Important actors from across multiple sectors galvanizing long-term commitments will enable collective impact and catalyze long-term social change.¹⁹ In the fall of 2017, ORec convened **the Collaborative** with public, private, and nonprofit leaders from the outdoor business, conservation, and health sectors.



THE COLLABORATIVE AIMS TO IMPROVE ALL COLORADANS' HEALTH THROUGH NATURE-BASED RECREATION.

Over the course of eight months, the Collaborative has developed a cross-sector framework that includes three major strategies and an underlying focus on science-based evaluation:

INDIVIDUAL STRATEGY

Improve health one person at a time by connecting individuals from a care setting, such as clinics or schools, to outdoor recreation opportunities. Leveraging pay-for-performance mechanisms, a member of the care team connects a patient/client to the outdoors.

ORGANIZATIONAL STRATEGY

Improve health one organization at a time by encouraging the adoption of employee wellness benefits that incorporate nature and outdoor elements.

ENVIRONMENTAL STRATEGY

Promote access to green space, improve, or expand existing parks and trails systems, build data evidence on nature's health benefits, promote intersectoral funding support, and foster sustainable recreation ethics.

SCIENCE-BASED APPROACH

Unifying all of the above strategies is a science-based approach, where decisions should be aligned with the latest scientific evidence, and where progress tracking and reporting are incorporated whenever possible. The core belief is that a science-based approach, combined with data tracking and reporting, are key to promoting accountability and fostering quality improvement.



HEALTH

- improve health outcomes
- improve care experience
- increase access to care
- manage cost of care



ENVIRONMENTAL

- manage and conserve biodiversity and natural resources
- connect people and nature
- access to natural open spaces



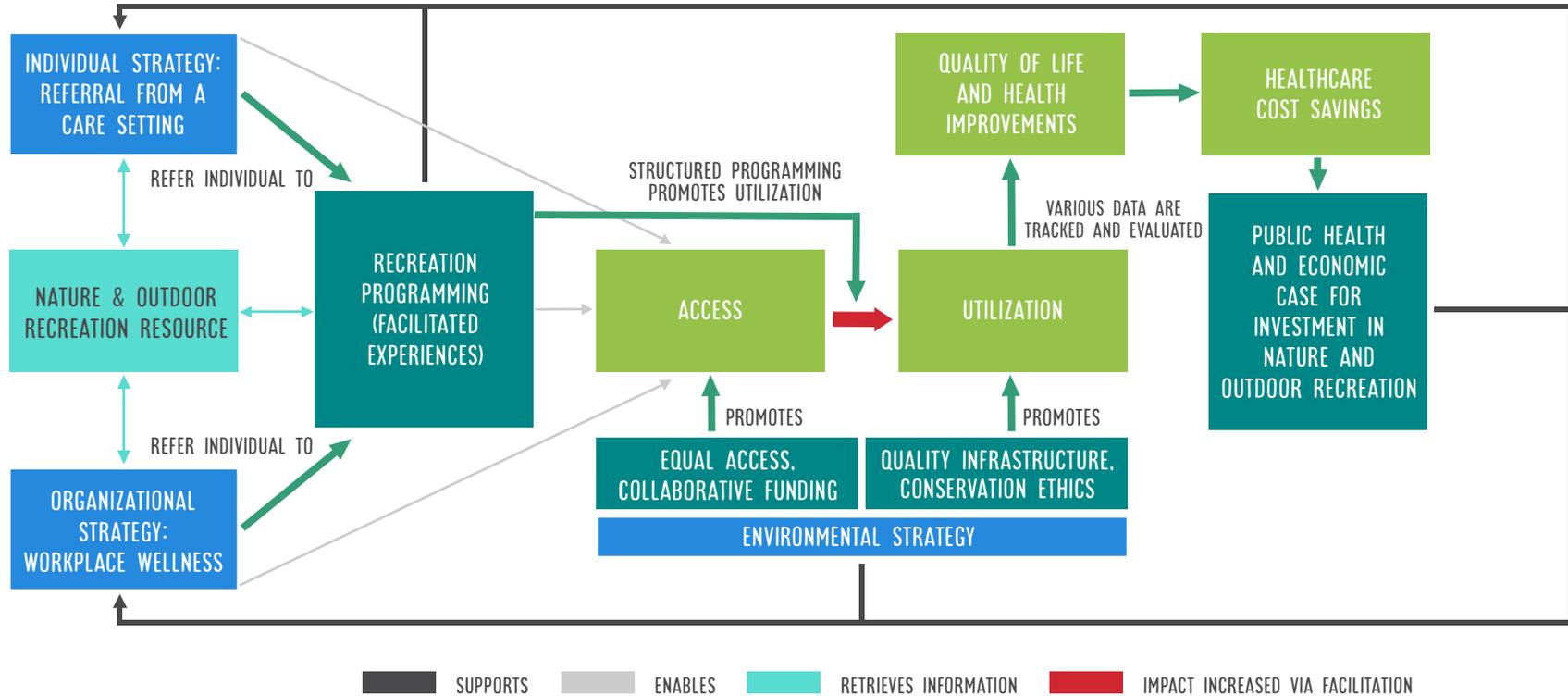
BUSINESS

- increase use of outdoor products and services
- develop workforce
- foster stewardship so there are places to recreate



more Coloradans recreating and improving their health

OUTDOOR AND HEALTH CROSS-SECTOR FRAMEWORK



In order to see the greatest amount of change, the Colorado Outdoor and Health Collaborative set out to identify and recommend policies that will complement all strategic areas. In spring 2018, upon creation of the cross-sector framework, the Collaborative surveyed an array of policies related to improving public health through the outdoors. Policies that best aligned with the framework were identified and prioritized. The recommendations included policies that promote referrals from a clinical or school setting to parks and recreation opportunities; inspired healthcare industry to protect and transform green space; and deepened wellness policies to incorporate outdoor recreation access and stewardship.

Nationally, members of the Collaborative have also contributed to policymaking at a multi-state level, including taking on leadership roles in the Outdoor Recreation Industry Confluence Summit. Founded in January 2018 in Colorado, the Confluence Summit has convened a multi-state delegation to develop a shared vision for the future of the outdoors. In the ensuing months, the Confluence Summit has developed cross-state policy principles in four areas—economy, conservation, education, and health—that serve to maximize the sector's many benefits. The work will culminate in a policy accord, which will be signed by all participating state outdoor offices in July 2018. Once ratified, the accord will remain a living document, open to adjustments and adaptations as best practices are identified and as other states join the process.²⁰ Specific to the accord's health policy areas, the founder of the Colorado Outdoor and Health Collaborative has served on the Confluence's Public Health Workgroup and contributed policy guidance, best practices, and lessons learned from the Collaborative into the accord development process.

As initiatives from local, state, and national levels have demonstrated, inclusive participation from diverse sectors will be critical to creating systematic change that will truly improve Coloradans' health across the state.

GUIDING PRINCIPLES OF AN EFFECTIVE CROSS-SECTORAL APPROACH



CONNECTING PEOPLE TO NATURE AND THE OUTDOORS

The policies, programs, and practices adopted by the organization, business, or agency must be aligned with the vision of connecting more people to green spaces and outdoor recreation opportunities.



COMMITTED

Stakeholders at every level of an organization, including leadership, management, and employees, help plan and carry out efforts to promote nature and outdoor recreation as a health improvement and prevention tool.



COLLABORATIVE

Partners and stakeholders work together to develop outdoor and health initiatives by engaging public and private partners from conservation, healthcare, and outdoor industries. The diverse sectors contribute their complementary skills and resources to the common goal of improving health through time outside.



COMMUNITY-INFORMED

The initiative needs to be tailored to the specific needs, incentives, and resources of a community and their unique sets of risk and protective factors. In some cases, a green space may be valued as sacred, spiritual, or historical by the community, or conversely, viewed as a threat to safety due to crime rates.



TIMELY

Harness opportunities at local, state, or national levels. The cross-sector framework can be applied to a wide variety of regions, by tailoring to unique geography, policies, and resources. In the case of Colorado Medicaid, regional accountable entities (RAEs) are required by the state to implement a population health management strategy.



DATA-DRIVEN

Regular evaluation needs to be incorporated to guide an organization's priority setting, decision making, and continuous improvement. There are also opportunities to translate research into action by building upon existing evidence on nature's health benefits.

CONTENTS

OVERVIEW		INDIVIDUAL STRATEGY: FROM CARE SETTING TO NATURE-BASED RECREATION		ENVIRONMENTAL STRATEGY: ACCESS, INFRASTRUCTURE, FUNDING, AND ETHICS		CALLS TO ACTION BY SECTOR
11	16	23	34	43	56	63
	CROSS-SECTOR FRAMEWORK		ORGANIZATIONAL STRATEGY: THE BUSINESS CASE FOR A CULTURE OF HEALTH		BRINGING IT ALL TOGETHER: SCIENCE-BASED APPROACH	

SECTION 1

OVERVIEW

Introduction

“Nature-deficit disorder” was coined in the 2000s as societies across the globe began to notice that children were spending less time playing in natural places or participating in outdoor activities.²¹ Nationally, Americans spend more than 90% of their time in enclosed areas such as buildings and vehicles.²² Youth, in particular, are spending less time outdoors than they were 20 years ago.²³

A report published by the UK National Trust found that less than a quarter of children use their local “patch of nature” once or twice a week, compared to over half of the adults when they were children.^{24,25} Between 2005-2012, the rate at which doctors prescribe antidepressants to children increased by 26% in the U.S., and by 50-60% in the U.K. and Denmark.²⁶ Also, in the U.S., the percentage of children and adolescents affected by obesity has more than tripled since the 1970s.²⁷ The decreased exposure of children to the outdoors is alarming, compounded with trends of health issues nationally, it shows the societal opportunity costs of separation from nature.

The problem is exacerbated in minority and lower-income communities. Numerous studies have found that underserved communities in U.S. cities have less access to green space.^{28,29,30,31,32,33} In cases where there is reasonable access³⁴, concerns about public safety³⁵ and proximity to pollution sources may be other major deterrents to physical activity in local parks.³⁶ Colorado was ranked 9th for greatest disparities in health status³⁷, and had significant racial and ethnic disparities in infant mortality and life expectancy compared to the rest of the United States.³⁸ In light of our growing understanding about nature’s health benefits^{39,40}, unequal access to green space in the U.S. presents a major challenge in achieving environmental justice and equity.

In addition, the need for green space and outdoor recreation goes beyond issues of disparities. Even though Colorado is often ranked as the leanest state⁴¹, its rate of obesity increased from 6.9% in 1990 to 22.3% in 2017⁴² and one in 4 children is now obese⁴³. Nearly \$117 billion in healthcare costs are linked to an inadequate level of physical activity in the U.S. population.⁴⁴ In addition, Colorado is ranked as having the 8th highest rate of suicide⁴⁵ and 7th highest non-medical use of prescription pain relievers.⁴⁶ If nature has the power to heal and improve wellness, it is even more critical to incorporate nature and outdoor recreation in healthcare promotion and delivery strategies.

Growing Science on the Outdoors’ Health Benefits

In recent years, scientists have dramatically expanded their understanding of the positive link between health and parks of all sorts—from national parks to regional community parks and urban “pocket parks” with just a swing set or a few benches.⁴⁷ These positive mental and physical health benefits include increased physical activity, lower cardiovascular disease risk, improved birth outcomes, increased social connectedness, and reduced

FREQUENTLY USED TERMS

- **Recreation:** “Recreation is an activity that people engage in during their free time, that people enjoy, and that people recognize as having socially redeeming values.”
- **Nature-Based Recreation:** “Outdoor activities in natural settings or otherwise involving in some direct way elements of nature -- terrain, plants, wildlife, water bodies.”
- **Outdoor Recreation:** “Outdoor recreation includes activities that occur outdoors in an urban and man-made environment as well as those activities traditionally associated with the natural environment.”

Sources:

- **Recreation source:** - “Definitions of Leisure, Play, and Recreation.” Human-Kinetics. www.humankinetics.com/excerpts/excerpts/Definitions-of-Leisure-Play-and-Recreation.
- **Nature-Based Recreation source:** - Cordell, H. Ken. The Latest on Trends in Nature-Based Outdoor Recreation. 2008. www.srs.fs.usda.gov/pubs/j/ja/ja_cordell021.pdf.
- **Outdoor Recreation source:** - Phipps, and Maurice L. “Definitions of Outdoor Recreation and Other Associated Terminology.” Center for Civic Innovation, Manhattan Institute for Policy Research. 30 Nov. 1990. eric.ed.gov/?id=ED335189.

mortality.^{48,49} Outdoor recreation presents itself as a cost-effective approach to an increasingly expensive medical care system. In multiple studies, supplementing mental health treatment with prescriptions of time outdoors has helped patients mitigate or even control their symptoms.⁵⁰

The practice of using nature and outdoor places to heal is not new. The Romantic Aesthetics have touted that nature is the “antidote to the viciousness of industrialization”.^{51,52} Renowned conservation biologist E.O. Wilson has written extensively about biophilia—human’s natural affinity for life—and underscored our innate love for nature.⁵³ In *The Nature Fix*, journalist Florence Williams gave a slew of examples of how countries around the world have long used nature for its healing benefits. Some countries even promote nature experiences as a public health policy. For example, in Finland, a place with high rates of depression and alcoholism, government-funded researchers have recommended a minimum nature dosage per month and helped designed “power trails” that encourage walking and mindfulness.⁵⁴ In South Korea, the Korea Forest Agency has announced their plans to create 34 healing forests in the next two years.⁵⁵ In Japan, Shinrin-yoku is a healing practice supported by the government. Shinrin-yoku means “taking in the forest atmosphere”, or “forest bathing”.⁵⁶ There are now over 62 forests in Japan that have a registered trademark for “forest therapy”.⁵⁷

Although environmental agencies and research institutions around the world have started to pay attention to nature’s healing benefits, agencies that are concerned with public welfare, such as the health, social services, and education departments, are not always at the table. This presents an opportunity to encourage cross-sector collaboration with the incorporation of nature into health promotion and delivery. In the U.S., there is a nationwide movement to integrate park visits into disease treatment and prevention through “park prescription” programs. In these programs, the participating provider would ‘prescribe’ patient time in parks or nature.⁵⁸ Nationally, the Healthy Parks and Healthy People Program of the National Park Service (NPS) has been a major proponent of such partnerships at the national parks. Locally, there are increasing number of park prescription programs that involve partnerships between clinical, community, parks, and public health professionals, such as promoting walking and biking along nearby parks and trails.⁵⁹ The growing research evidence offers an entry point for a transdisciplinary dialogue between healthcare, conservation, outdoor recreation, and other public welfare agencies and organizations.

Colorado’s Landscapes, Growing Outdoor Economy, and Progressive Health System

Colorful Colorado is known for its world-renowned outdoor landscapes. Every year, tourists from across the world flock to Colorado to experience the great outdoors—from skiing in Crested Butte, to fly fishing on the Cache La Poudre in Fort Collins. Colorado is a state that prides itself on its \$28 billion in consumer spending on outdoor recreation, and a corresponding job market that supports 229,000 employees.⁶⁰ The state identifies the outdoor recreation sector as a major player within the Colorado economy, and in 2015 Governor John Hickenlooper launched the Outdoor Recreation Industry office (ORec).

Across the state, there is a growing interest in highlighting the outdoors and nature as a way to improve health. Besides creating the ORec office, Governor Hickenlooper launched the Colorado the Beautiful initiative, which aims to protect Colorado's outdoor setting, connect people to the outdoors, and link outdoor areas in Colorado through expanding existing trail systems. The Governor highlighted the goal of having every Coloradan live within 10 minutes of a park, trail, or open space. In recognition of the "16 in 2016" initiative that identified 16 most important trail gaps, the Governor stated, "we need the kind of outdoor access that more easily brings all of us – especially our young people – into the fresh air and away from indoor distractions. Getting more Coloradans outdoors more often is good for our health and a refreshing reminder of how fortunate we are to live in Colorado."⁶¹

The state healthcare system is increasingly focused on healthcare outcomes and gradually migrating towards payment for value, rather than payment for service. Since 2011, Colorado has avoided a net total of \$139 million in healthcare costs while improving health outcomes for thousands of residents.⁶² The Colorado Accountable Care Collaborative is an innovative program designed to pay providers for the increasing value they deliver while better coordinating care for members. Only nine other states have implemented similar models, putting Colorado at the forefront of change across the nation.⁶³ A hybrid of a traditional accountable care organization and a primary care case management system, Colorado's Accountable Care Collaborative works to improve quality and access to care as well as reduce costs for Health First Colorado, the state's Medicaid program.

As part of Colorado Accountable Care Collaborative's Phase II, regional accountable entities (RAEs) are required to create a population health management plan and eventually refer patients to social determinants of health resources.⁶⁴ These resources include food security, housing, income, social inclusion, social safety net, and built environment factors, such as access to healthy grocery stores, safe routes to school, recreation opportunities, and green space—all of which are known to have an impact on health.

The increased focus on social determinants of health in Colorado presents an opportunity for parks and recreation professionals to elevate nature and outdoor recreation as a key social determinant. Identifying common goals and activities could enable cross-sector collaboration between healthcare, conservation, and outdoor recreation sectors. Clinics, schools, and the workplace present good avenues to reach people at different levels—individual and population—to connect them to outdoor recreation and stewardship opportunities. To enable outdoor recreation for all people, there needs to be a culture

KEY HEALTHCARE TERMS

Accountable care organizations (ACO) - An ACO is a group of doctors, hospitals, and other health care constituents, who come together voluntarily to give coordinated high-quality care to their Medicare patients.

Primary Care Case Management (PCCM) - PCCM is a model of Medicaid managed care that is outlined in the Medicaid statute.

Fee-For-Service (FFS) - The state Medicaid agency establishes the fee levels for covered services and pays participating providers directly for each service they deliver to Medicaid beneficiaries.

Pay-For-Performance (P4P) - P4P is a health care payment model that rewards providers or managed care organizations (MCOs) financially for achieving or exceeding specified quality benchmarks or other goals.

Regional Accountable Entity (RAE) - A RAE is a regional entity that is accountable for coordinating both physical and behavioral health for the state Medicaid's enrolled members. As of July 1, 2018, the state will be divided into seven regions—a total of seven RAEs—as part of Colorado Accountable Care Collaborative's Phase II. The seven RAEs replaced the seven Regional Care Collaborative Organizations (RCCOs) and five Behavioral Health Organizations (BHOs) in Phase I, signaling a step closer to integrating primary and behavioral health care.

Source: Henry J. Kaiser Family Foundation, 2015, pp. 2-7, *Medicaid Delivery System and Payment Reform: A Guide to Key Terms and Concepts*; Colorado Health Institute, 2017, *The Route to the RAEs*.

encouraging the health and stewardship of our great outdoors across all sectors. It is paramount that we promote stakeholders and the public's understanding about the importance of stewardship and equity.

Given the health benefits described, the importance of introducing nature to future generations, and the ample outdoor recreation opportunities in Colorado, the timing is right for Colorado to take the lead on how to incorporate public, private, and nonprofit partnerships that encourage people to get outside for health.

SECTION 2

CROSS-SECTOR FRAMEWORK

Colorado Outdoor and Health Collaborative

In Colorado, despite its great outdoors and the growing evidence about the mental and physical health benefits of time spent outside, there are still major barriers to access, especially for underserved populations, such as distance from greenspace, conditions of facilities, insufficient transportation, or a lack of knowledge on the activities.⁶⁵ Physical and economic barriers to access may include parks and trails being too far away, a lack of time, cost, or inadequate transportation.⁶⁶ Social and cultural barriers may include concerns about safety, recreating solo, and perceived lack of skills.⁶⁷ These barriers to access impact both urban and rural areas across the state. In places where there is access to green space, the conditions of the park or trail—its aesthetic appeal, layout and maintenance of facilities—may greatly impact perception of safety and likelihood of public use and activity.⁶⁸

In the fall of 2017, the Colorado Outdoor Recreation Industry Office convened the Colorado Outdoor and Health Collaborative (OHC, aka “the Collaborative”) with leaders from the outdoor business, conservation, and healthcare industries, and across public, private, nonprofit, and academic sectors. The Collaborative aims to improve all Coloradans’ health through nature-based recreation.

The Collaborative was founded on the belief that health is determined by multiple factors—social, economic, built environment, and more. In order to achieve better health for the people, a deeper, system-level, cross-sectoral approach is needed. The Collaborative recognizes the urgency of identifying shared values across sectors and developing action-driven programs and policies towards a common agenda. A heavy focus is placed on pooling resources from different sectors to increase capacity to solve larger and more complex problems in healthcare.

COLORADO OUTDOOR & HEALTH COLLABORATIVE

Mission: To improve all Coloradans’ health through nature-based recreation

CHALLENGES TO BE ADDRESSED

The Collaborative seeks to address several major challenges, with a focus on Colorado issues:

1. **Barriers to access** of recreation opportunities, particularly for lower socioeconomic populations in certain inner-city and rural areas of Colorado
2. **Lack of utilization** of the outdoors in areas of rural Colorado where there may be better access, or shorter distance, to greenspace compared to metro areas
3. **Opportunity cost** to the healthcare system when the state’s abundant greenspace is not harnessed to improve mental well-being and physical activity levels
4. **Siloes** in project funding structures between outdoor and healthcare sectors, when both recognize the benefits of the outdoors to physical and mental well-being

Ultimately, the Colorado Outdoor and Health Collaborative envisions a healthier Colorado where everyone has improved access to outdoor opportunities, increased knowledge about nature’s health benefits, and an ethic of environmental stewardship while playing in the great outdoors.

To achieve that vision, the Collaborative identified calls to action for the public, private, non-profit, and academic sectors to:

- Increase accessibility across all demographics to nature and outdoor recreation opportunities for individuals, communities, and workplaces

- Promote nature-based recreation and time outside as a physical and mental health prevention and management intervention
- Focus on collective impact and work across industries and sectors when developing new programs, policies, and partnerships
- Integrate conservation ethics into all health promotion-focused recreation programs
- Incorporate rigorous measurement and develop scientific evidence for nature and health initiatives

Cross-Sector Framework

The Colorado Outdoor and Health Collaborative created a framework that is comprised of multiple strategies—Individual, Organizational, and Environment—to promote access to green space and outdoor recreation opportunities for all Coloradans.

The framework is encapsulated by the idea of collective impact—in order to achieve long-term social change, there needs to be long-term commitments by important actors from different sectors to a common agenda. It is critical that mechanisms are in place to drive a shared measurement system, mutually-reinforcing strategies, ongoing communication, and the creation of an independent backbone organization in the long run.⁶⁹

1. **Individual Strategy:** Improve health one person at a time by connecting individuals from a care setting, such as clinics or schools, to outdoor recreation opportunities. Leveraging pay-for-performance mechanisms, a member of the care team may connect a patient/client to nature or the outdoors. - See Section III
2. **Organizational Strategy:** Improve health one business or organization at a time by encouraging the adoption of employee wellness benefits that incorporate nature and outdoors. - See Section IV
3. **Environmental Strategy:** Promote access to green space, improve or expand existing parks and trails systems, build data evidence on nature's health benefits, promote intersectoral funding support, and foster sustainable recreation ethics. - See Section V



HEALTH

improve health outcomes
improve care experience
increase access to care
manage cost of care



ENVIRONMENTAL

manage and conserve biodiversity and natural resources
connect people and nature
access to natural open spaces



BUSINESS

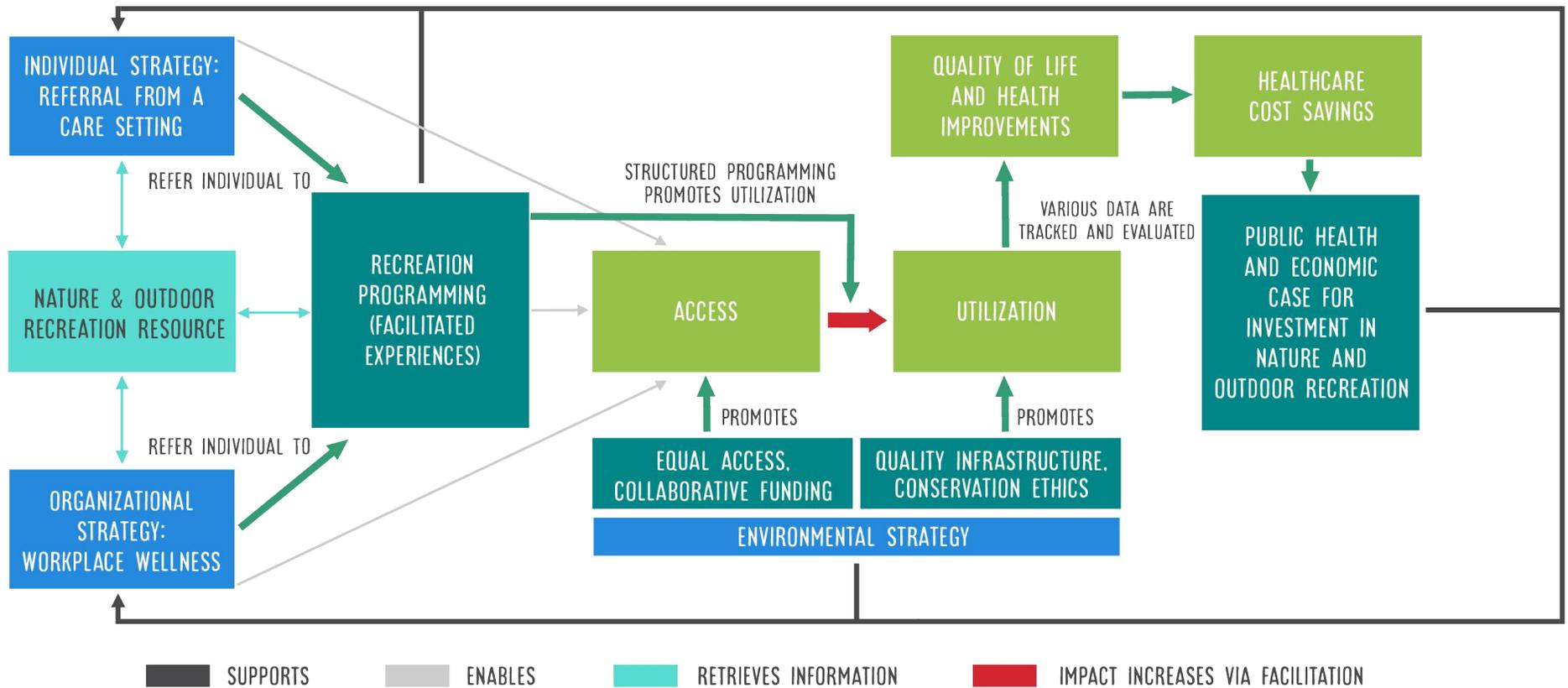
increase use of outdoor products and services
develop workforce
foster stewardship so there are places to recreate



more Coloradans recreating and improving their health

Science-based Approach: Unifying all of the above strategies is a science-based approach, where decisions should be aligned with the latest scientific evidence, and where progress tracking and reporting are incorporated whenever possible. The core belief is that a science-based approach, combined with data tracking and reporting, are key to promoting accountability and fostering quality improvement.

OUTDOOR AND HEALTH CROSS-SECTOR FRAMEWORK



COLORADO IN ACTION: COLORADO OUTDOOR & HEALTH COLLABORATIVE – SUCCESS STORIES

Through a series of strategic planning meetings between December 2017 and June 2018, the Colorado Outdoor and Health Collaborative incubated five project areas, including:

1. **Strategic Planning:** Developed policy, program, and environmental strategies to inform the governor's office and statewide partners about opportunities to improve all Coloradans' health through nature-based recreation. This included input provided to working groups such as the current report and the Statewide Comprehensive Outdoor Recreation Plan (SCORP). Regionally, technical assistance was provided to local communities, including partnership development and grant writing assistance, such as a physician team's project to foster closer family relationships through outdoor recreation.
2. **Evidence Development:** ORec identified and formalized a partnership opportunity with University of Louisville, The Nature Conservancy, and additional partners to design and implement a human subject research study that measures the impact of greenness on health (See Colorado NatureRx study, Page 51). The field work was completed in June 2018, which included mood surveys, the collection of blood and urine samples, and additional biometric data. Analysis of the data collected has commenced and results will be available in late 2018. This pilot study is one of the first rigorous examinations of the immediate cardiovascular health effects of exposure to dense greenery such as forests.
3. **Recreation Referrals – Rocky Mountain Health Plans (RMHP):** Through participation in the Colorado Outdoor and Health Collaborative and obtaining input from its steering committee, RMHP—a Regional Accountable Entity (RAE) that covers roughly 180,000 Medicaid enrollees in Western Slope and Larimer County—announced that it is developing a new program to refer Medicaid patients from a clinical setting to recreation and fitness opportunities. In Spring 2018, RMHP engaged local park/recreation agencies and healthcare providers to begin the program design. According to Colorado Parks and Recreation Association (CPRA), about 75-80% of their member parks and recreation agencies in Colorado have programming outside of the recreation center parameters, such as yoga/fitness in the park, trail walking, and hiking. The new program has a tremendous potential to introduce many more people to the great outdoors and physical activities.
4. **Recreation Referrals – Rx for Health:** Founded by the City of Westminster, Rx for Health is a growing coalition of healthcare and parks/recreation professionals that aims to connect patients from a clinical setting to local recreation centers and programs. Through a series of planning and outreach meetings in Spring 2018, over a dozen of parks and recreation agencies and healthcare practices from the Greater Denver Metropolitan area have joined the movement. In the near future, the coalition is beginning its brand campaign and creating process requirements and an implementation plan to enable members to establish their own versions of prescription-for-activity program and to connect to a broader network of participating recreation centers.
5. **Workplace Wellness:** One of the Colorado Outdoor and Health Collaborative member organizations, Health Links, has announced its intent to develop a new module on nature exposure and promotion of outdoor recreation in 2018-2019. Health Links operates under the Center for Health, Work & Environment in the Colorado School of Public Health. Moving forward in 2018, Health Links is working to identify and recruit businesses to support the pilot module development and participate in its pilot testing phases.

GUIDING PRINCIPLES OF AN EFFECTIVE CROSS-SECTORAL APPROACH



CONNECTING PEOPLE TO NATURE AND THE OUTDOORS

The policies, programs, and practices adopted by the organization, business, or agency must be aligned with the vision of connecting more people to green spaces and outdoor recreation opportunities.



COMMITTED

Stakeholders at every level of an organization, including leadership, management, and employees, help plan and carry out efforts to promote nature and outdoor recreation as a health improvement and prevention tool.



COLLABORATIVE

Partners and stakeholders work together to develop outdoor and health initiatives by engaging public and private partners from conservation, healthcare, and outdoor industries. The diverse sectors contribute their complementary skills and resources to the common goal of improving health through time outside.



COMMUNITY-INFORMED

The initiative needs to be tailored to the specific needs, incentives, and resources of a community and their unique sets of risk and protective factors. In some cases, a green space may be valued as sacred, spiritual, or historical by the community, or conversely, viewed as a threat to safety due to crime rates.



TIMELY

Harness opportunities at local, state, or national levels. The cross-sector framework can be applied to a wide variety of regions, by tailoring to unique geography, policies, and resources. In the case of Colorado Medicaid, regional accountable entities (RAEs) are required by the state to implement a population health management strategy.



DATA-DRIVEN

Regular evaluation needs to be incorporated to guide an organization's priority setting, decision making, and continuous improvement. There are also opportunities to translate research into action by building upon existing evidence on nature's health benefits.

COLORADO IN ACTION: INNOVATION

The Colorado Outdoor and Health Collaborative is innovative in several ways:

- 1. State innovation:** The Collaborative represents the first state-wide initiative in Colorado to bridge the healthcare and outdoor business sectors. The Collaborative has helped to address silos between these sectors and elevated the discussions to state, regional, and local leadership, receiving strong support from the Colorado governor. In addition, the Collaborative has substantive private sector engagement, particularly from the health insurance and outdoor industries. Since its inception, the Collaborative has incubated actionable public-private partnerships and project areas that promote the health of all Coloradans through time outside.
- 2. National innovation:** Nationally, out of the eight state outdoor recreation industry offices, Colorado is the first to create a comprehensive statewide collaborative specifically targeting health and wellness. The significant involvement of the public and private sectors has helped to promote visibility of the Collaborative to policymakers, including state agency leadership, legislators, county commissioners, and the governor. Output from the Collaborative also informed the design of the Confluence Accords, the first multi-state bipartisan policy accord for the outdoor industry in which the ORec team also played a major leadership role.
- 3. State Medicaid engagement:** The Collaborative provided planning guidance and helped Rocky Mountain Health Plans (RMHP) in creating a recreation referral program. This program represents one of few State Medicaid accountable care organizations in the country to refer Medicaid enrollees from clinics to subsidized recreation opportunities while providing reimbursement for the participating recreation and medical practices as part of a population health management plan.

In order to see the greatest amount of change, Colorado Outdoor and Health Collaborative set out to identify and recommend policies that will complement all strategic areas. In spring 2018, upon creation of the cross-sector framework, the Collaborative surveyed an array of policies related to improving public health through the outdoors. Policies that best aligned with the framework were identified and prioritized. The recommendations included policies that promote referrals from a clinical or school setting to parks and recreation opportunities; inspire healthcare industry to protect and transform green space; and deepen wellness policies to incorporate outdoor recreation access and stewardship.

Nationally, members of the Colorado Outdoor and Health Collaborative have also contributed to policymaking at a multi-state level, including taking on leadership roles in the Outdoor Recreation Industry Confluence Summit. Founded in January 2018 in Colorado, the Confluence Summit has convened a multi-state delegation to develop a shared vision for the future of the outdoors. In the ensuing months, the Confluence Summit has developed cross-state policy

principles on four areas—economy, conservation, education, and health—that serve to maximize the sector's many benefits. The work will culminate in a policy accord, which is expected to be signed by all participating state outdoor offices in summer 2018. Once ratified, the accord will remain a living document, open to adjustments and adaptations as best practices are identified and as other states join the process.⁷⁰ Specific to the accord's health policy areas, the founder of the Colorado Outdoor and Health Collaborative has served on the Confluence's Public Health Workgroup and contributed policy guidance, best practices, and lessons learned from the Collaborative into the accord development process.

As initiatives from local, state, and national levels have demonstrated, inclusive participation from diverse sectors will be critical to creating systematic change that will truly improve Coloradans' health across the state.

SECTION 3

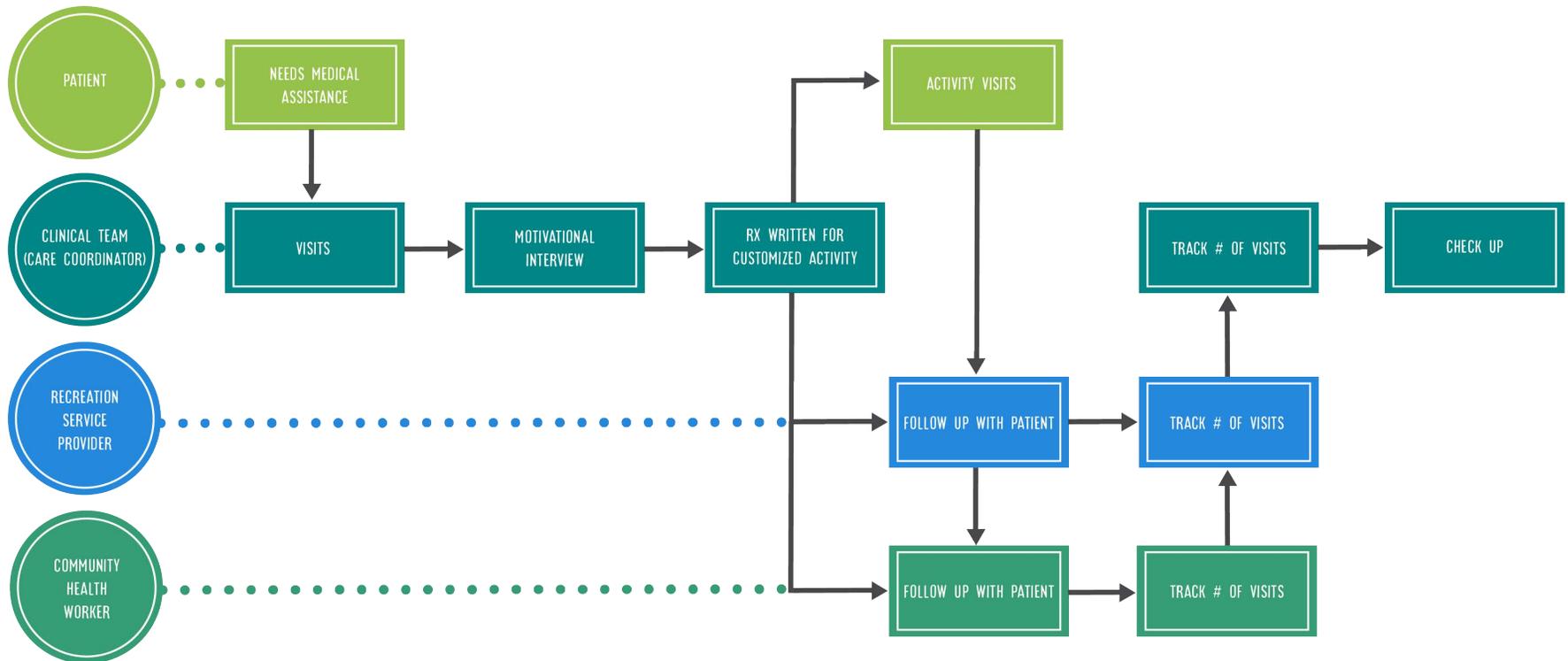
INDIVIDUAL STRATEGY: FROM CARE
SETTING TO NATURE-BASED RECREATION

Individual Referral Strategy Overview

The Individual Strategy looks at how individuals can be referred to nature and the outdoors as part of healthcare promotion and delivery. It seeks to highlight current evidence based on the health benefits of nature and outdoor recreation, and how it is a key social determinant of health.

A member of the care team, whether it's a school, clinic, or community center, can refer the individual to green space and outdoor recreation opportunities. Traditionally, doctors have prescribed exercises to patients, including indoor gyms, taking the stairs, and going for walks, but it's less typical that outdoor venues are prescribed to patients. Now that we know about nature's mental and physical health benefits, we are presented with an expanded opportunity to improve health. Nature-based recreation holds great promise to transform health in Colorado given its geography, outdoor industry, and state Medicaid system.

Below is a graphic depicting a sample workflow for this strategy:



HEALTH NAVIGATORS & COMMUNITY HEALTH WORKERS

Health navigators, also known as patient navigators or resource navigators, are members of the healthcare team who help individuals overcome barriers to quality care. Health navigators often possess medical backgrounds and may have access to a patient's medical records. They have a strong understanding of the community in which they work due to shared life experiences, giving them a wide knowledge of resources available to their patients within the community. Through trusting relationships between the health navigators and their patients, the complex healthcare system becomes easier to navigate through education and support. To better tailor care plans for individuals, the health navigator is responsible for assessing an individual's physical, emotional, and cultural needs.

A second key player is a **community health worker**, paraprofessional health worker, or *promotoras*. In contrast to health navigators, community health workers generally provide non-medical services outside of the medical care setting. They generally do not possess medical backgrounds or have access to a patient's medical records. Sometimes they may be volunteers who are champions for their community. The education and community resources referral provided by community health workers, in turn, can support the primary care medical home team or healthcare specialist who delivers medical care to the patient.

As Colorado State Medicaid commences Accountable Care Collaborative Phase II in July 2018, there will be an increasing focus on the integration of primary and behavioral health care. This means there will likely be a higher demand for the services provided by health navigators and community health workers in order to better coordinate between multiple care providers and guide individuals to appropriate clinical and social services.

intimate knowledge about the local community, can readily attain the patient/client's trust, and understand how to navigate community resources.

Depending on the resources, time, and availability of the participating organizations, some health navigators and community health workers may have to play multiple roles. For example, in cases where a community does not have capacity to staff a CHW, then the recreation provider, the HN, or another member of the care team may become responsible for patient follow-up and participation

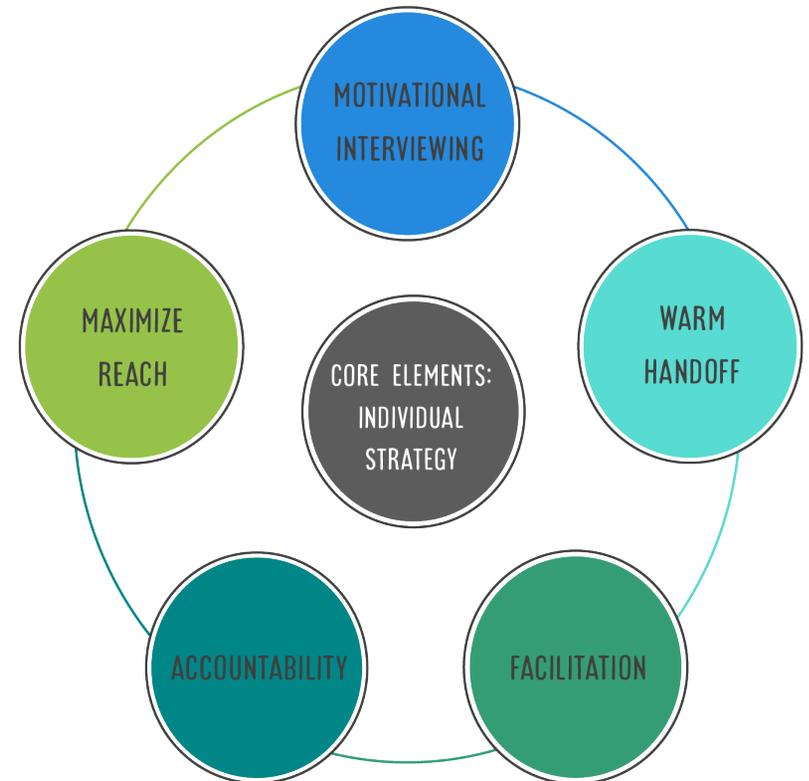
The individual referral strategy can originate from a versatile number of care settings, including clinical, public health, schools, and community settings. Take the clinical care setting as an example, this step may be initiated by a health navigator (HN) who is a member of the clinical team with some clinical background and has access to the patient's medical records. Alternately, if this were in a school setting, this step can also be initiated by a school counselor or school nurse. On the receiving end, the recreation service providers can range from local parks and recreation agencies to non-governmental outdoor recreation companies and organizations. Where available, there may be a community health worker (CHW) or a social worker who can provide additional support to the recreation and care providers, such as helping to follow-up with patients and tracking participation. The community health workers generally have

tracking. Similarly, in cases where the care setting does not have a HN available, the CHW may step in and coordinate between the care team and the recreation providers to ensure patients have all the information they need to attend the program and that attendance is tracked and reported.

Individual Strategy: Five Core Elements

For effective execution of the individual strategy, five core elements need to be incorporated:

1. **Motivational Interviewing:** When referring an individual to nature-based recreation opportunities, motivational interviewing (MI) can help decipher whether the patient has the interest, fitness, and ability to participate in specific nature and recreation programs. MI is defined as “a collaborative conversational style that strengthens a person’s own motivation and commitment to change by exploring and resolving ambivalence,” and it encourages patients to take action.⁷¹ The coordinator runs through a series of questions and topics that will help them better refer patients to tailored medical and non-medical services. MI has been found to have favorable effects on changing patients’ habits and behaviors.^{72,73,74} In this case, MI enables the care team to refer the individuals to more targeted nature-based activities, services, and locations that are tailored to their medical, behavioral, and social needs and conditions.
2. **Warm handoff:** A warm handoff is a transfer of care between two care teams, where the handoff occurs in front of the patient and family. In the case of the individual strategy, the two care teams will refer to the clinical team and the recreation provider team. Warm handoffs have been found to promote patient engagement, patient safety, and improved clinical outcomes⁷⁵.
3. **Facilitation:** Guidance and instructions provided in the nature or recreation setting will promote comfort and ease, as well as increase buy-in from the participant and encourage longer-term participation.
4. **Accountability:** Attendance data needs to be tracked and reported to encourage accountability and collaboration between the recreation and clinical partners. Accuracy is key when it comes to tracking attendance, for example, a bar code for scanning when a participant arrives at a class can prevent paper-based errors. Longer-term, the program rests on the quality of participation and instruction. Evaluation mechanisms can be incorporated to track instructor effectiveness and participant focus and activity intensity. For example,



instructor effectiveness can be determined by participant satisfaction surveys or direct evaluation by peer and supervisor. With appropriate consent and privacy protocols, participants' activity intensity levels can be tracked via biometric devices to measure data such as heart rhythm and gait analysis.

5. **Maximize Reach:** While some recreation referral initiatives may be started by specific healthcare payors, it will be more beneficial to apply the new referral workflow to all patients within the clinical practice or hospital system whenever possible. This is because implementing the individual strategy will necessitate care teams to update their workflows. Therefore, rather than differentiating between, Medicaid/Medicare patients and the general commercial insurance population, it will be more streamlined, impactful, and cost-effective to apply the new workflow to the entire clinical practice. This will allow the practice to maximize their reach and population health impact.

Individual Strategy: Leverage Key Trends and Best Practices

Whenever possible, there are additional trends and best practices that should also be considered in the individual strategy, including:

- **Leverage Pay-for-Performance Healthcare Incentives:** Colorado is increasingly focused on healthcare outcomes and gradually migrating towards payment for value, rather than payment for service. As mentioned in the Overview (Section I), Colorado Accountable Care Collaborative is a program initiated by Colorado State Medicaid to pay providers for the increasing value they deliver while better coordinating care for members. In Phase II, regional accountable entities (RAEs) are required to create a population health management plan and eventually refer patients to social determinants of health resources.⁷⁶ As part of the Phase II contract, some of the RAEs, such as Rocky Mountain Health Plans (RMHP) and Colorado Community Health Alliance (CCHA), have included recreation and physical activity programs in their population health management plan. Providers contracted to the RAEs will get rewarded for executing specific population health programs. This presents an opportunity to align incentives for healthcare players to promote recreation opportunities. Beyond Medicaid, similar alignment opportunities can be found in commercial populations, such as self-insured group health plans and integrated healthcare systems that have a strong emphasis on pay-for-performance and social determinants of health.
- **Two-Generation Practices (2Gen):** When referring subjects to recreational resources, especially for youth, engaging the parents and caretakers at the same time will amplify the impact of the strategy. A 2Gen approach is supported by strong research findings, and demonstrates that the well-being of parents is a crucial ingredient in children's social-emotional, physical, and economic well-being. Similarly, parents' ability to succeed in the workplace can be substantially affected by how well their children are doing.⁷⁷ Some programs have hosted family nature clubs with positive participation results, including participants stating they learned something new, met new people, and experienced an enhanced sense of connection with nature, greater connection with their family.^{78,79}
- **Community-Tailored:** Research the community's various interests and limitations before designing the nature or recreation program. Then, incorporate incentives, education, outreach, and marketing strategies that are tailored to the community's

unique needs and interests. For example, some programs have found that email and social marketing reminders, quizzes, contests, and hosting events at a consistent time have increased participant engagement; but, what works for one community may not work for another.⁸⁰ It is important to make desired behaviors as easy as possible for the targeted demographic.

Outdoor and Nature Prescriptions: Nationwide Examples

Back in October of 2013, the Institute at the Golden Gate and the National Recreation and Parks Association, with National Park Service support, brought practitioners together to start discussing the emerging trend of prescribing nature, rather than medication, to improve mental and physical health.⁸¹ This group established the National ParkRx Initiative (ParkRx.org) to support the use of park prescriptions by an health practitioners and provide a space for knowledge sharing. The National ParkRx Initiative focuses on programs or interventions that include a health or social service provider who encourages patients/clients to spend time in nature with the goal of improving their health and well-being.⁸²

Today, there are a number of park prescription programs across the country that incorporate a variety of tools and approaches, including comprehensive maps of local parks and trails, digital tracking applications, and volunteer opportunities at National Parks.⁸³ The National Parks Service, home to the US Healthy Parks and Healthy People Program (HPPH), is a major partner to a variety of these regional park prescription programs. The first HPPH program began in Parks Victoria, Australia in 2000, and has since found its way across the globe. In the US, some of the largest HPPH programs can be found in the Bay Area (HPPH: Bay Area) and the Greater Washington DC Area (the Greater Washington initiative is also known as ParkRx America). These programs are designed through active collaboration between clinical, public health, community, and parks professionals. For example, the HPPH: Bay Area program, with generous support from Kaiser Permanente, has developed strong partnerships with local healthcare providers and the Golden Gate National Park, and is a core leader in the National ParkRx Initiative.

In addition, the outdoor industry is poised to also take a lead role in improving public health through outdoor activities. Specifically, outdoor and environmental education nonprofits and socially-conscious outdoor guides and outfitter businesses have a crucial role to play. They can become change agents in a growing outdoor prescription (or outdoorRx) movement that aims to improve public health through the great outdoors. First Descents, True North Treks, LEAP Therapeutic Wilderness Program, and Project Healing Waters are examples of the growing number of non-profit organizations that harness the power of outdoor recreation to improve physical and mental health for various populations.

For example, in April 2018, First Descents launched Prescribe Adventure™, a collaboration with healthcare professionals and medical centers nationwide to incorporate outdoor experiences earlier in the treatment plans of their young adult cancer patients. The new program is backed by results from First Descents' research partnerships with the Keck Graduate Institute and the University of Michigan. The studies found that outdoor adventure programming can lower rates of depression, increase self-esteem and body

image, and improve participants' ability to cope with cancer and its psychosocial effects.^{84,85} First Descents also partners with the REI Outdoor School to extend the reach of their impact.⁸⁶ Through partnering with healthcare providers, outdoor recreation service providers have the opportunity to spread the healing power of adventure.

COLORADO IN ACTION: OUTDOOR AND RECREATION PRESCRIPTIONS

The Colorado Outdoor and Health Collaborative has scoped the concept of promoting outdoors and nature activities through clinical and school settings with a number of state and local partners. The examples mentioned below do not require a specific billing code for the recreation services provided. Instead, the key is to align incentives with the healthcare partners, especially those who operate on a value-based care model, so they can use outdoor recreation as a tool for them to achieve better health outcomes for their patients.

Colorado State Medicaid: The Colorado State Medicaid system is increasingly focused on value-based care. A number of RAEs have expressed an interest in promoting their members' health through outdoor activities. One of the RAEs—Rocky Mountain Health Plans (RMHP), a member of the Colorado Outdoor and Health Collaborative—is developing a program to refer Medicaid patients from a clinical setting to recreation and fitness opportunities. The program seeks to provide a number of free or discounted passes to recreation centers or group classes for all Medicaid enrollees in the region. According to Colorado Parks and Recreation Association, about 75-80% of their member organizations in Colorado have programming outside of the recreation center parameters, such as yoga or fitness in the park, trail walking, and hiking.

The new recreation referral program was included in RMHP's State Medicaid Population Health Management Plan with the goal to address social isolation, weight management, and other relevant needs of its members. As part of Phase II, each RAE is required to ensure that, each year, its members receive at least two interventions identified in their population health plan. RMHP sees promoting access to physical and outdoor activities as a key strategy to improving physical and behavioral health. Currently, RMHP covers roughly 180,000 Medicaid enrollees in Western Slope and Larimer County. The new referral program has tremendous potential to introduce more people to outdoor and fitness activities.

Local Parks and Recreation Agencies: Increasing numbers of local parks and recreation agencies are interested in partnering with healthcare entities to refer patients to their recreation centers and programs. In Colorado, one of the largest regional coalitions formed is called Rx for Health. The coalition was founded by the City of Westminster, a member of the Colorado Outdoor and Health Collaborative. Participating clinics and hospitals in the Rx for Health coalition refer patients to a network of recreation centers, where patients receive an initial set of recreation center entrance passes for free or at a discounted rate. Through a series of planning meetings in early 2018, Rx for Health grew to include over a dozen participating clinical providers and parks/recreation agencies in the Greater Denver Area. This coalition is actively expanding its reach across the state, refining its referral process, developing a branding strategy, and incorporating evaluation mechanisms.

GUIDING PRINCIPLES OF AN EFFECTIVE CROSS-SECTORAL APPROACH



CONNECTING PEOPLE TO NATURE AND THE OUTDOORS

The nature or recreation program recommended for referral would be selected based on motivational interviewing tools to ensure the referral is tailored to the individual's skills and abilities and to maximize results and effectiveness.



COMMITTED

Leadership in both the healthcare and recreation agencies needs to be supportive of the initiative and emphasize its desired goals and benefits for the organization. This will ensure the initiative receives broad support and buy-in from management and employees.



COLLABORATIVE

For the initiative to be successful, it needs to be a collaborative effort between clinical, public health, parks, and community stakeholders. For example, the healthcare system updates its processes to include motivational interviewing to refer patients to recreational resources for its social cohesion and mental wellness benefits. The recreation partner verifies incoming participants' eligibility and tracks participation rate. Finally, the community is engaged with the new initiative and offers input to the nature site and recreation program selections to inform organizing agencies' pilot program design and planning.



COMMUNITY-INFORMED

The initiative needs to be tailored to the specific needs of a community, and their unique sets of risk and protective factors. Some of the best fitting OutdoorRx pilot designs are found in communities that already expressed an interest in improving access to outdoor recreation, addressing social isolation and mental wellness issues, and have available trails or parks and recreation classes.



TIMELY

Incentives need to be aligned with a region's unique geography, politics, policies, and resources in order to facilitate a more rapid uptake and buy-in of the new program. For example, each region prioritizes its core healthcare issues and social determinants of health needs differently. When developing a new recreation referral program, look for regions that have identified social determinants and physical/behavioral health conditions that can be ameliorated by access to outdoor recreation.



DATA-DRIVEN

There needs to be established baseline data when creating a new initiative that refers patients to recreation centers. Incorporate accountability mechanisms to encourage tracking and reporting amongst partnering healthcare payors, healthcare providers, and recreation service providers (e.g., class attendance, quality of life indicators, and health data). If a healthcare payor (e.g., a commercial health plan or a regional accountable entity) is participating, then work with the payor to obtain claims-based analytics data results. Work with researchers to design interventions that can be evaluated in a rigorous way.

Policy Recommendations:

Throughout this paper, policy recommendations are shown for each of the strategies in the framework. The policies are intended to broadly apply to any stakeholder within the major sectors—private, public and nonprofit. The stakeholders could include healthcare, conservation, and outdoor businesses, and these groups can tailor their approach to different communities, so they can impact the greatest number of people.

The table below outlines policies that support the individual referral strategy. These policies may be adopted by either a legislative or institutional process. Legislative policies will require the passage of law or executive order from the government to implement. Institutional policies can be adopted directly by the executive leader of the organization, which generally takes less time, and only impacts the community or organization adopting the new policy. The priority-setting process also took into account the policy objectives from the 2013 American Public Health Association policy statement on Improving Health and Wellness through Access to Nature.⁸⁷ The policies below were tailored to the Outdoor and Health Cross-Sector Framework, and specifically, to support the individual strategy.

#	Topic	Policy Description	Option
1	Transform Healthcare Delivery	Create formalized referral relationships between the care setting and the recreation setting. The care setting may include healthcare providers or even school counselors or nurses. The recreation setting may include nature-based recreation service providers and businesses. It is important for all partners involved to incorporate accountability mechanisms that require the recreation partner to report participation data back to the referring healthcare provider, payor, and/or healthcare system.	Institutional
2	Value-Based Care Opportunities	Increase healthcare investments in getting people outdoors by aligning with value-based care opportunities, such as: <ul style="list-style-type: none"> • State Medicaid, Medicare, or accountable care entities that align payor and provider incentives to focus on value instead of volume of care (e.g. incentivizes healthcare payors and providers to incorporate social determinants of health into their care delivery and refer members to community resources.) • Commercial programs that incorporate pay-for-performance or other value-based payment streams to reward healthcare providers for patient outcomes and meet certain quality health metrics. (e.g. The Colorado Hospital Transformation Program offers incentive 	Institutional

		payments to support hospital-led projects related to care integration, integration of physical and behavioral health, and population health management.)	
3	Elevate Behavioral Health Needs	Promote programs that target community-level behavioral health prevention needs, which may include programs that have a family-oriented, environmental, or systemic focus.	Institutional
4	Advocate for Behavioral Health Policies	Pass a bill for nature-based therapy programs that benefit residents of the state, including youth, veterans, and individuals recovering from substance abuse and mental trauma	Legislative
5	Advocate for Local Legislatures	Work with local jurisdictions to vote on a tax (e.g. sales, soda, or marijuana tax) to fund outdoor recreation programs.	Legislative
6	Science-based Standards	Invest in the development of best practice standards that certify a list of high quality, science-based recreation programs and services targeted to improve specific health conditions. Longer-term, these standards can be used by advocates seeking to promote the reimbursement of recreation services by government and commercial healthcare payors.	Institutional (OR legislative possible)

Desired Outcomes:

The desired outcomes of the Individual Referral Strategy are:

- Public health and well-being are improved through outdoor activities
- Outdoor activities are referred to patients/clients by care providers
- Greater collaboration occurs between community, parks, outdoor, and health professionals

With the State of Colorado Medicaid's movement towards value-based care and a growing number of regional accountable entities' involvement with the Colorado Outdoor and Health Collaborative, more diverse and underserved populations are anticipated to be introduced to outdoor activities. Longer-term, as the outdoor and health movement grows, more outdoor activity programs are anticipated to be included in population health management plans of government and commercial healthcare payors.

SECTION 4

ORGANIZATIONAL STRATEGY:
THE BUSINESS CASE FOR A
CULTURE OF HEALTH

Organizational Strategy Overview

Every organization—public, private, or nonprofit—has the opportunity to positively impact the public's health while reaping brand recognition and financial rewards. Businesses and organizations can focus on four areas that influence health:⁸⁸

- Employee Health: The well-being of employees and organizational culture
- Consumer Health: Healthfulness and safety of products, programs, and services
- Community Health: Health and safety efforts in location of doing business
- Environmental Health: Impact of operations on the environment

To improve health through the outdoors and nature, organizations—regardless of whether they provide health-related products and services—will deliver the most impact when they start from the inside and focus first on their people, i.e., employee health.

In addition, organizations can create synergy by partnering with others to improve the health of their consumers, communities, and environment, which in turn will strengthen their organizational culture, leading to more rewards and benefits.

The Business Case for a Culture of Health

Some businesses have adopted a culture of health in the interest of strengthening organizational effectiveness.^{89,90} This movement maximizes good health and well-being of employees, consumers, communities, and the environment, ultimately contributing to a healthier population and economy.

Organizations that invest in a strong, performance-enhancing culture and employee well-being are found to perform significantly better than companies that do not. In 1992, Harvard Business School Professors John Kotter and James Heskett studied the performance of 207 large US companies in 22 industries over 11 years.⁹¹ They found that companies with a strong organizational culture that addressed the needs of multiple stakeholders and shareholders, including their consumers and employees, outperformed companies that did not. Organizations that invested in performance-enhancing cultures resulted in 682% revenue growth versus 166% for companies that did not; stock price increased by 901% versus 74%; and a net income increase of 756% versus 1%.⁹²

In a more recent study, Harvard Business School professors Michael Porter and Mark Kramer promoted a new concept called shared value capitalism. They proposed a set of practices that can make a company more competitive, even as the company works to expand the economic and social well-being of workers, customers, and communities—in addition to their shareholders.⁹³

Of note, the benefits for a business or an organization investing in a culture of health include:⁹⁴

- Reducing costs:
 - Minimizing losses associated with “presenteeism” (working while ill) and absenteeism
 - Decrease illnesses and injuries, resulting in cost savings
- Increasing revenues and profits:
 - Facilitate economic growth by shaping a healthier and a more efficient workforce
 - Healthier communities have more disposable income to spend on products and services
- Enhancing reputations:
 - Improve consumer perceptions and public reputation by helping to solve important societal challenges
 - Enhance current and potential employees’ view of the company to retain and attract top talent

The Outdoors as a Tool for Total Worker Health

Total Worker Health is defined as “policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.”⁹⁵ In the case of utilizing the outdoors and nature as a health improvement tool, the opportunity lies in preventing illnesses and advancing worker well-being.

In 1995, Stephen Kaplan developed the attention restoration theory, which expands on evidence showing that stress and fatigue experienced by humans comes from intense directed attention.⁹⁶ Many work tasks demand focused attention. Over time, this directed attention builds up and results in exhaustion, leading to burnout. In order to recover and restore attention, meaningful breaks are necessary for re-energizing brain function.

Building on Kaplan’s work, many researchers have explored the use of nature to improve health and wellness. Time in nature provides an environment that is conducive to attention recovery. In particular, walking meetings have been reported to promote creativity and increase employee engagement.⁹⁷ Walk breaks in an environment outside of the building have been found to improve attention and promote stress reduction.⁹⁸ Taking it beyond day-to-day business, an organization may consider hosting a stewardship day (e.g. trail building, river cleanup) or hosting team-building activities in parks and green spaces.

In addition, within the constructs of an office building, the implementation of natural elements, or biophilic design, can make a significant difference. There is evidence that biophilic designs such as natural light, abundance of plants, and other elements inspired by the natural world can lead to happier, more productive, and more creative employees.⁹⁹

Colorado is rich with natural spaces including urban parks, an expansive multi-use trail system, reservoirs, ski resorts, and more. Promotion and utilization of these spaces in the workplace can contribute to positive health outcomes for workplace wellness programs.

Workplace Health and Wellness: Success Stories

The private industry is beginning to take steps that encourage employees to spend time in the outdoors. One of the companies doing the largest amount of work in encouraging employees, and also customers, is REI. The company has nine stores spread across Colorado, and operates the “OptOutside” campaign which has spread across the nation. In recent years as part of the OptOutside campaign, REI has closed its physical store doors as well as internet sales on Black Friday. In 2016 this campaign resulted in 6.7 billion media impressions, 1.7 billion social impressions, and encouraged 1.4 million people to get outside on the busiest shopping day of the year.¹⁰⁰

Along with encouraging people to spend time outdoors, Colorado-based companies such as Ground Floor Media (located in Denver) and Forum Phi Architecture (located in Aspen) actively encourage their employees to take advantage of team building and coworker lead hikes, bike rides, and ski sessions during the business day as a break from the standard 9-5 schedule.¹⁰¹ Private industry is ripe for leading the charge to promote a healthy work-life balance and a thriving workplace environment.

The global giant Johnson & Johnson (J&J) has stated a goal of being the world's healthiest company, an objective that underscores its belief in the strong connection between wellness, productivity, and competitiveness. J&J has instituted a culture of health programs, including a tobacco-free workplace, free health profiles, an employee assistance program, stress management, and awareness of specific diseases and risk factors. In its 2015 citizenship and sustainability report, it reported that the health and wellness program saved an annual \$565 in health care costs per US based employee, over the 7 year period, producing a return on investment equal to a range of \$1.88 to \$3.92 saved for every dollar spent on the program.¹⁰²

Employee Health and Wellness: Colorado Opportunities

Across the nation, there are a wide variety of corporate wellness program vendors. Some of these health coaching vendors offer specific features such as biometric screening and tracking, while others offer a full suite of highly-customized and comprehensive programs that include live support, web platforms, and mobile apps. Some of the larger employers have also created in-house, employee-led wellness committees that play an active role in designing tailored wellness programs for their specific workplaces.

Smaller companies, on the other hand, often do not have the luxury to devote a separate staff member or budget to create their own wellness committee or hire a comprehensive corporate wellness vendor. In Colorado, 99.5% of businesses are considered small businesses.¹⁰³ A small business is generally considered by U.S. Small Business Administration as an independent business having fewer than 500 employees, although it may vary by industry in formal government programs and contracting standards.¹⁰⁴

Fortunately, Colorado has a number of coalitions, nonprofits, and academic centers that can provide assistance to small businesses seeking to create a culture of health in the workplace. In particular, the Center for Health, Work, and Environment at the Colorado School of Public Health is one of six Centers of Excellence for Total Worker Health in the country. The center operates with support from the National Institute for Occupational Safety and Health (NIOSH). One of its signature programs is Health Links, which collaborates

with employers to build a culture of health and safety in the workplace.

Backed by the expertise of researchers and local community advisors, Health Links:¹⁰⁵

- Assess organizations' health and safety policies and programs
- Advise on actionable goals in one-on-one advising sessions
- Connect like-minded businesses with one another and to local resources
- Certify qualifying employers as Healthy Businesses

Not only does Health Links provide assessments, the program also provides trainings for employees focused on mental health, physical health, and continuing education.¹⁰⁶ Over 400 organizations from a variety of sectors and industries have connected with Health Links to become recognized as a Health Links Healthy Business. Some recognized organizations include the Office of Economic Development and International Trade, Colorado Department of Public Health and Environment, Mountain Family Health Centers, and Children's Hospital Colorado. Towns such as Frisco, Alamosa, and Aurora have also been recognized through the program and use their assessments to help cultivate a healthy lifestyle for their employees.

Another organization that is helping provide a voice for promoting healthy lifestyles is the Colorado Business Group on Health (CBGH). fostering transparency, and empowering value-based purchasing, the CBGH is able to use power of numbers to promote change within the current health system.¹⁰⁷ Members include the US Olympic Committee, TIAA, Boulder Valley School District, State of Colorado, and more.¹⁰⁸ These members are spread across the state, and they represent thousands of voices within the healthcare system, private industry, and school districts.¹⁰⁹

COLORADO IN ACTION: PILOT ASSESSMENT MODULE ON NATURE AND THE OUTDOORS

"Healthy business is better business" is a slogan of Health Links. The Center for Health, Work, and Environment at the Colorado School of Public Health is working with the Governor's Office of Economic Development and International Trade (OEDIT) to create a new outdoor recreation assessment tool to evaluate a workplace's utilization of nature and outdoor recreation resources. The goal is to integrate and promote the use of nature and outdoor recreation to enhance the health and well-being of employees and cultivate a positive work environment.

In the near-term, Health Links will develop the pilot assessment tool and recruit 60 employers to complete the assessment. The process and results will provide preliminary knowledge about workplace attitudes, behaviors, and engagement with nature and the outdoors. It will also inform the center of any changes and improvements needed to be incorporated into a revised beta version of the assessment and meet future research needs.

In the long-term, as part of Phase Two of the pilot, Health Links will work with key partners, including OEDIT and local business leaders, to develop education and training modules for employers and employees. The goal is to develop more workplace policy and program development for nature and outdoor recreation, support education about conservation ethics, and connect more employees to local nature and outdoor recreation resources. Education is a key component of increasing utilization of outdoor recreation equitably.

Furthermore, both OEDIT and Health Links will examine its scoring criteria for their wellness program awards, such as the Governor's Healthy Business Award, to include bonus scores for businesses that have adopted the outdoor recreation pilot module.

CROSS-SECTORAL ORGANIZATIONAL STRATEGY: GUIDING PRINCIPLES



CONNECTING PEOPLE TO NATURE AND THE OUTDOORS

Incorporate programs that promote employee knowledge about nature and outdoor recreation opportunities and connect them with benefits that aid access. The recreation service providers and locations need to be well-vetted to ensure quality service. The skills and equipment need to be outlined. Biophilic design (e.g. green space in the office building) and corporate policies (e.g. walk breaks) can also be incorporated.



COMMUNITY-INFORMED

The wellness initiative and its offerings should be tailored to the interests and abilities of the employees, the risk and protective factors of the local communities, and the workplace culture.



COMMITTED

Leadership and management in the organization needs to communicate the goals of the outdoor wellness initiatives and outline the benefit options available to the employee. This will promote buy-in and uptake by the staff.



TIMELY

A majority of Colorado businesses are small businesses that generally don't have budget to set up a comprehensive health and wellness benefits program for their employees. This presents potential to generate significant uptake in a low-cost outdoor wellness initiative such as Health Links. In addition, the move of the Outdoor Retailer trade show to Denver, Colorado in 2018 offers a great venue to recruit small outdoor businesses that are interested in promoting a culture of health at the workplace and connecting their employees with the outdoors and nature.



COLLABORATIVE

The wellness initiative can form partnerships with environmental/outdoor education non-profits, outdoor retailers, and recreation service providers to promote access and utilization for the employees. Group rates can be negotiated with the recreation providers or through a broker to set up win-win partnerships between the employer and recreation providers.



SCIENCE-BASED

It is recommended to collect baseline data when implementing a new wellness initiative. Data related to employee wellness and productivity should be collected at the start and periodically measured to facilitate evaluation and continuous improvement.

Policy Recommendations:

Throughout this paper, policy recommendations are shown for each of the strategies in the framework. The policies are intended to broadly apply to any stakeholder within the major sectors—private, public and nonprofit. The stakeholders could include healthcare, conservation, and outdoor businesses, and these groups can tailor their approach to different communities, so they can impact the greatest number of people.

The table below outlines policies that support the organizational strategy. These policies may be adopted by either a legislative or institutional process. Legislative policies will require the passage of law or executive order from the government to implement. Institutional policies can be adopted directly by the executive leader of the organization, which generally takes less time, and only impacts the community or organization adopting the new policy. The priority-setting process also took into account the policy objectives from the 2013 American Public Health Association policy statement on Improving Health and Wellness through Access to Nature.¹¹¹ The policies below were tailored to the Outdoor and Health Cross-Sector Framework, and specifically, to support the organizational strategy.

#	Topic	Policy Description	Policy Type
1	Organizational Wellness Programs	<p>Agencies and organizations can implement health/wellness policies that involve nature-based recreation and outdoor activities, including:</p> <ul style="list-style-type: none"> • Subsidize outdoor products and services for employees • Subsidize park passes for employees • Partner with companies to create outdoor and nature wellness programs, such as: <ul style="list-style-type: none"> ○ Financial incentives for tracking outdoor miles per month ○ Support the use of fitness apps and personal biometric devices for data tracking • Allow two 15-minute wellness breaks per day • Incorporate volunteering and team-building days that involve outdoor recreation or nature settings, such as river cleanups and trail-building <p>The above recommendations can apply to any organizations from the public, private, and nonprofit sectors. As an example, the above recommendations can apply to the State of Colorado Department of Personnel Administration, the largest employer in Colorado, just as they can also apply to a small business seeking to promote employee</p>	Institutional (OR legislative possible for the first two examples here on subsidies)

		wellness.	
2	Equity	Identify underserved populations that do not currently have easy access to parks, trails, or outdoor recreation opportunities and provide additional subsidies or design pilot programs to promote their access. For example: <ul style="list-style-type: none"> • Offer capacity building, training, or subsidies to small businesses and organizations in lower-income and culturally diverse neighborhoods so they can incorporate wellness programs into their organizational policies. 	Institutional
3	Stewardship	Ensure conservation and stewardship messages are integrated into programs, such as: <ul style="list-style-type: none"> • Importance of plants and wildlife • The Leave No Trace Seven Principles¹¹² 	Institutional

Desired Outcomes:

The desired outcomes of the Organizational Strategy are:

- More workplaces connected to nature and outdoor recreation opportunities
- More workplaces benefitting from tailored wellness programs designed for their region
- Increased sustainable use of nature through education provided by the wellness initiative
- Increased health and well-being in workplaces including stress reduction, increased physical activity, social connectedness, and job satisfaction
- Improved productivity and economic viability in workplaces that adopted the initiative

The Organizational Strategy enables more businesses, agencies, and organizations to create a culture of health by creating a stronger performance-enhancing culture and connecting more workplaces to nature and recreation opportunities. This creates more avenues for improving mental and physical health and well-being of the employees. Monitoring the health of the employees, productivity, and financial performance of the company upon adoption of a new wellness initiatives would encourage reporting, evaluation, and continuous improvement of the initiatives.

SECTION 5

ENVIRONMENTAL STRATEGY:
ACCESS, INFRASTRUCTURE,
FUNDING, ETHICS

Environmental Strategy Overview

The environmental strategy focuses on ways to develop and improve greenspace and recreation infrastructure and promote a conservation ethic. Working in tandem with existing programs and policies across the state, the environmental strategy aims to improve quality of life and well-being by providing more people access to outdoor recreation opportunities and allowing them to learn about a conservation ethic.

Colorado's Commitment to Recreation, Conservation, and Well-Being

Colorado's Outdoor Principles is a testament to the state's commitment to conserve and care for landscapes, waterways, and wildlife, while allowing for sustainable recreation opportunities.¹¹³ These principles allow Coloradans and visitors to enjoy the abundant open space and outdoor recreation opportunities that contribute to a high quality of life and economic vitality.

One of the principles declares, "Both recreation and conservation are needed to sustain Colorado's quality of life. Both are beneficial to local economic well-being, for personal health, and for sustaining Colorado's natural resources."¹¹⁴ There are a number of efforts led by Colorado Department of Public Health and the Environment as well as Department of Natural Resources that are examining environmental and built environment factors' impact on health and quality of life.

Health, well-being, and quality of life are major considerations in the strategic planning processes of the Colorado Outdoor Partnership (CO-OP), a statewide cross-sector collaboration with a vision that, "in 2050, Colorado's people and economy thrive because of our healthy lands, water, wildlife, working farms and ranches, and improved hunting, angling and outdoor recreation opportunities for all."¹¹⁵ ORec is part of the CO-OP's efforts in developing the 2019-2023 Statewide Comprehensive Outdoor Recreation Plan (SCORP). Compared to the 2014 SCORP, the 2019-2023 plan will have an even stronger emphasis on health—and will require commitment from partners on numerous topics—while also incorporating some of the recommendations from the current Outdoor and Health Cross-Sector Framework. Colorado is one of the fastest growing states in the country, projected to grow from 5.68 million in 2018 to 7.8 million in 2040.¹¹⁶ Any strategies targeted to improve and develop new green spaces, such as parks and trails, would need to be coordinated with efforts to educate the public about a conservation ethic.

Cross-Sector Collaboration: Engaging the Healthcare Industry

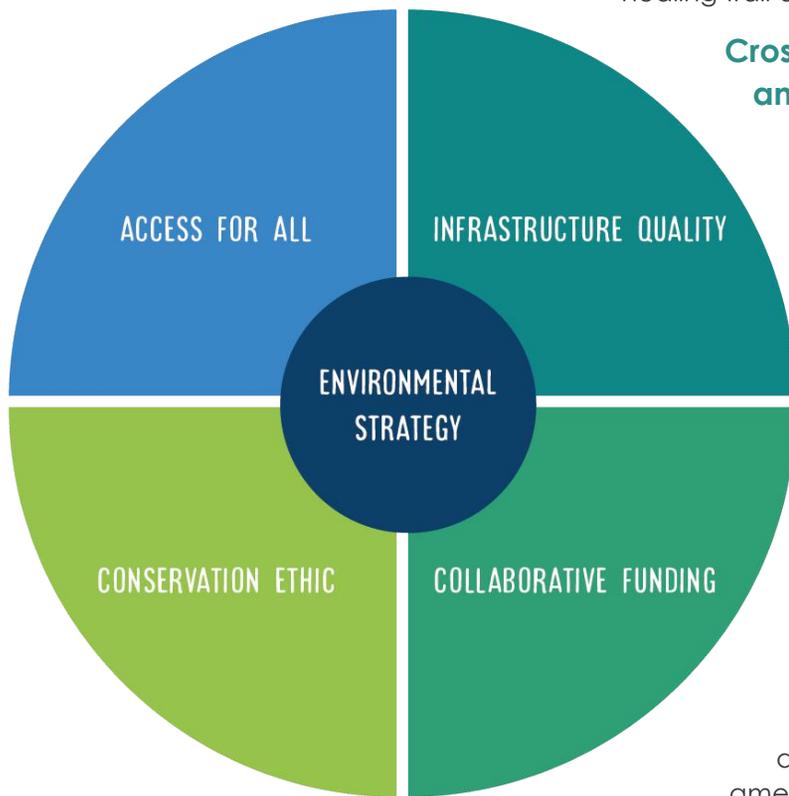
Given the increasing evidence about outdoor, nature, and recreation's health benefits, it is important to expand beyond the silos of the outdoor and recreation sectors, but also to engage the healthcare industry. One of the opportunities for the outdoor and conservation industries to align with the healthcare industry is through the community benefits requirements of non-profit hospitals.

Non-profit hospitals receive financial benefits from their tax-exempt status—valued at \$24.6 billion in 2011.¹¹⁷ In light of recent changes outlined in the Affordable Care Act (ACA) there is a renewed effort to refocus a larger percent of these funds towards community benefit activities. While costs of charity care remain a recognized community benefit activity, other cash and in-kind contributions to specific community-level health improvement activities are also recognized (e.g., hosting a health screening). Furthermore, hospitals

can claim community development activities such as investments in housing or environmental improvements (e.g., parks, trails, healing gardens) if there is documentation that such investments are linked to health improvements.

There is also a greater focus on prevention and population health under the ACA requirements. Non-profit hospitals are required to conduct community health needs assessments (CHNA) every three years along with an implementation strategy that addresses the needs identified during the CHNA.

To increase engagement of healthcare sectors in the outdoors and nature, conservation and parks and recreation organizations can evaluate a hospital's CHNA priority health issues, and align their nature and recreation proposal to address the hospital region's community health goals. Depending on local needs, this may include support of a parks improvement project or creation of a healing trail around the hospital.



Cross-Sector Environmental Strategy: Access, Infrastructure, Funding, and Ethic

Four components need to be addressed to support the environmental strategy: (1.) Disparities in Access, (2.) Infrastructure Design of Parks and Greenspace, (3.) Collaborative Funding Sources, and (4.) Education of a Conservation Ethic.

1) **Access for All:** The environment in which we live and play can have a direct effect on our chances of developing certain diseases and chronic conditions.¹¹⁸ Built environments that discourage physical activity present a major obesity and chronic diseases risk for adults and children.¹¹⁹ Greater access to open, green spaces can promote physical activity in populations, which helps to reduce these health risks.¹²⁰ Unfortunately, there exists disparities of access between populations, causing some communities to miss out on the health benefits of green spaces.¹²¹

Studies from a variety of countries (e.g. United States, England, Turkey, Australia) have found that a majority of low-income and ethnic minority populations tended to live further away from parks, or had lower access to high quality urban parks and open space with natural elements, such as trees, or amenities such as fountains, tables, and cycling paths.¹²²

Within Colorado, similar barriers to access exist in both urban and rural areas. A recent study in Denver, Colorado, found that

lower-income neighborhoods with higher concentrations of minority populations had significantly less access to play opportunities in urban parks, or parks with quality natural elements or green spaces, compared to mid-and high-income white neighborhoods.¹²³ For Colorado's rural populations, there may be abundant green space and trailheads within a short drive away, however, there is often a lack of bus routes or other public transportation options available to reach these places. These factors may limit outdoor play opportunities for individuals without personal automobiles, such as youth and children. In addition, people who are not already familiar with hiking, birding, or other nature-based activities, and do not want to spend the extra gas money, may not feel motivated to spend time driving to get there. Improved access to quality green spaces could help raise physical activity levels and minimize health risks for these populations.^{124, 125, 126}

COLORADO IN ACTION: PROMOTING ACCESS – CHECK OUT COLORADO STATE PARKS

A program that helps jump the access hurdle of not being able to afford a state park pass is the *Check Out Colorado State Parks* library loan program. It is an inter-agency partnership between Colorado Parks and Wildlife, the Colorado Department of Education State Library, and local libraries to enable the general public to explore Colorado's state parks for free. Nearly 300 libraries are currently participating in the program, including all of Colorado's public libraries, its military base libraries, and its publically-funded academic libraries.

The program was founded to increase the public's awareness of Colorado's State Parks, educate the public about nature, and offer an engaging nature-based recreation experience. Each library has a promotion display for the program and 1-2 backpacks for checkout. The backpack includes a State Park Pass for free park entry, Leave No Trace™ Outdoor Ethics card, a set of binoculars, and various guides related to plants and wildlife, fishing instruction sheet, and more.

Source: "Check Out Colorado State Park Toolkit for Library Staff", Colorado Department of Education, <https://www.cde.state.co.us/cdelib/checkoutcostateparks>

In cities across the country, The Trust for Public Land (TPL), in partnership with the National Recreation and Park Association and the Urban Land Institute, is leading a nationwide movement to ensure there's a great park within a 10-minute walk of every person, in every neighborhood, in every city across America.¹²⁷ The 10-Minute Walk Campaign was founded upon data indicating the needs for parks (one in three Americans don't have a park within a 10-minute walk) and the growing body of research showing that parks are essential to the physical, mental, social, environmental, and economic well-being of a community.^{128,129} There are 193 mayors (and counting) in the U.S. who are making a concerted effort to endorse the 10-minute walk to a park standard for all.¹³⁰

The growing recognition about the importance of urban parks, trails, and green spaces is offering new ways for the outdoor industry to

be involved and get more people outside. In 2017, The North Face (TNF) launched their million-dollar "Walls Are Meant For Climbing" campaign to make climbing more accessible and inclusive and to highlight the connections formed through climbing—as "walls" are places to unite. As part of the campaign, TNF donated \$1 million to TPL to help build public climbing walls in underserved urban communities. The Montbello Open Space Park in the Montbello neighborhood of Denver, Colorado, became TNF's first chosen location in the nation.

The climbing wall, scheduled to open in summer 2018, would join forces with the larger ongoing restoration project at Montbello Open Space Park. Besides TPL and now TNF, other key players who have been instrumental in the restoration efforts include the nonprofit Environmental Learning for Kids (ELK), the City and County of Denver, and Great Outdoors Colorado (GOCO). The restoration aims to transform the 5-acre Montbello Open Space Park into a restored natural area with native gardens, educational kiosks, walking trails, and interactive play spaces. The park is estimated to serve 40,000+ low-to moderate-income youth and families from the area.¹³¹

When developing parks and green space, it will be beneficial to measure and compare visitation data, quality of life indicators, and/or health outcomes before and after the construction activities. If there is an increased park visitation rate, or if increased visitation led to better quality of life or health outcomes, such data will draw in even more partners and funders from the healthcare and outdoor industries to support conservation and recreation projects.

- 2) **Infrastructure Quality:** When examining the issue of access to outdoor recreation opportunities, it is important to look beyond physical distances to parks, trails, and green spaces—simply having access is not enough to ensure actual utilization. Instead, one needs to also look to the quality of the green space and recreation facilities, including the type or range of amenities (e.g. playgrounds, sport facilities, trails) and their condition (e.g. quality and safety of park equipment, and perceived aesthetics). A community's perception of the green space's safety and quality of amenities plays a major role in determining usage levels.¹³² There needs to be concerted efforts to understand community interests in order to design a green space that is safe and aesthetically appealing. Aesthetic features that can influence usage may include the park or trail's landscaping, the balance between sun and shade, decorative features such as ponds or sculptures, or layout, such as placement of benches, picnic tables, and drinking fountains near playgrounds or resting areas.¹³³ In order to determine the most appropriate design

COLORADO IN ACTION: DESIGNING COMMUNITY-CENTERED, NATURE-BASED RECREATION OPPORTUNITIES

Westwood (Denver, CO): Through a confluence of efforts between civil society and government leadership in recent years, the Westwood neighborhood in Denver is being transformed. The culturally diverse neighborhood (primarily Spanish and some Vietnamese) has proven to be resilient despite its many challenges including, unsafe pedestrian environment (e.g. disconnected sidewalks), lack of neighborhood amenities (e.g. nearby grocery store), and a higher rate of poverty and crime than Denver as a whole. In 2016, through a collaborative community-informed process, the City and County of Denver approved the Westwood Neighborhood Plan—a first in 30 years. The plan included recommendations from a health impact assessment, which identified that greater proportions of Westwood residents suffer from chronic health conditions related to a lack of physical activity compared to residents of other Denver neighborhoods.

Up until then, the neighborhood had sparse tree cover, lacked green spaces, and the sidewalks were narrow or disconnected in places. A number of green space and outdoor active living projects have been initiated by Cool Connected Westwood (CCW), a coalition of public, private, and nonprofit organizations active in the Westwood Neighborhood. For example, Denver Parks and Recreation awarded a grant to Trust for Public Land (TPL) and Westwood Unidos to develop a 5-mile urban trail, *Via Verde*. As another example, The Park People planted 245 new trees in 2017 with support from The Colorado State Forest Service and the Colorado Tree Coalition. As next steps, The Park People are looking to incorporate youth job training, community science, and innovative approaches for resident engagement. Moving forward, CCW members are actively working to incorporate arts, culture, youth job training, and community science into the revitalization efforts—the collaborative community approach is an epitome of the placemaking process.

Globeville, Elyria, and Swansea (GES) (Denver, CO): Through a collaborative process between local governments and civil society, including GES Coalition, UCAN Globeville, The Big Sandbox, Garden Place Academy, and The Nature Conservancy (TNC), the community identified Garden Place Academy Elementary School as a high priority location for tree planting. Together, TNC and the City and County of Denver Forestry Division donated 55 trees to be planted around the schoolyard and nearby homes. The work will provide immediate aesthetic appeal to a neighborhood where tree cover is traditionally lacking. The trees will offer long-term benefits of shade that will cool city streets, reduce air pollution, and encourage outdoor activity in the neighborhood.

GES are historically underserved neighborhoods that face higher crime and poverty rates than most of Denver. These neighborhoods are also challenged by environmental quality issues, including air pollution from the intersection of interstate highways 25 and 70. In a 2017 survey sent to all residences in GES, it was found that 1 in 3 adults got very little exercise, almost half of kids didn't get daily exercise, and that the residents had higher risks for diabetes compared to the state average (1.5 in 10 people have diabetes compared to the state average of 0.6 in 10.) The City/County of Denver has developed new neighborhood plans (2014 and 2015) as well as a health impact assessment (2014) with input from public, private, and community leaders. The plans also accounted for recommendations from earlier plans such as Denver Moves (2011). To-date, the GES HIA Implementation Workgroup, comprised of local government and community leaders, has continued to meet to ensure timely execution of the neighborhood plan's recommendations, which include the promotion of healthy eating and active living, safe routes to school programs, and sidewalks and bike lane connectivity.

Source: "Health Impact Assessment for the Westwood Neighborhood Plan", Denver Environmental Health, City and County of Denver, July 2016;

"The Westwood Neighborhood Plan: 2016", Community Planning and Development, City and County of Denver, July 2016.;

"Planting Healthy Air", The Nature Conservancy, October 2016; "Community Tree Planting at Garden Place Academy" North Denver Cornerstone Collaborative, City and County of Denver, Sep 28, 2017.

<https://www.denvergov.org/content/denvergov/en/north-denver-cornerstone-collaborative/latest-news-from-the-nadcc/2017/tree-planting-garden-place-academy.html>

Urban planning pioneers such as Jane Jacobs, Kevin Lynch, and William H. Whyte have espoused the idea of people-centered town planning since the 1960s, which is an approach that is now often referred to as placemaking. This approach focuses on designing public spaces for people, rather than for another shopping mall or park for its own sake, or simply to round out the amenities needed by a land developer. Through deliberate engagement of local communities, placemaking promotes cultural vibrancy of the place, revitalizes the community, and deepens social cohesion¹³⁴. This can lead to a host of other socioeconomic and public health benefits. Today, placemaking ranges from grassroots one-day efforts to turn a parking

lot into a temporary public park (i.e. Park(ing) Day¹³⁵), to a multi-year, multi-agency planning initiative to transform an entire city neighborhood (e.g. Denver Colorado's Westwood neighborhood became certified as a creative district.) Organizations around the U.S. have embraced the principles of placemaking, including nonprofit organizations such as Project for Public Spaces, Trust for Public Land, and governmental entities such as the State of Colorado's Department of Local Affairs and New York City's Department of Transportation, as well as funders such as Blue Cross Blue Shield Minnesota's Center for Prevention. For a community seeking to promote physical activity levels and social cohesion, parks and trails can serve as attractive options in the placemaking process. Given some healthcare payors and providers also share similar interests in supporting active living and social cohesion—which are major social determinants of health—organizations engaged in placemaking are well-positioned to engage healthcare stakeholders in the planning and fundraising process.

MAJOR FACTORS DETERMINING PARK USE & ACTIVITY LEVELS

The National Recreation and Park Association has identified four leading factors that affect park use and physical activity levels:

- **Park Access:** Easier park access brings a greater level of park use and makes physical activity a more frequent occurrence in a person's life. This is especially true when an individual lives within walking distance of a park.
- **Park Distribution:** There is an evident increase of participation in physical activity when more green park acreage exists within a community. Unfortunately, there are disparities in park distribution for lower income and minority populations.
- **Park Facilities:** Quality, not just quantity, also impacts the usage of park facilities. Trails and playgrounds in parks, for instance, have been found to encourage more physical activity than parks that do not incorporate that infrastructure. Other features such as picnic tables and shelters have been found to increase visitation.
- **Park Conditions:** The overall condition of the park and its facilities will either encourage more visitors or deter them from using the park. Parks that are more aesthetically appealing, have a stronger sense of perceived safety, and are better maintained will encourage higher levels of physical activity in the communities around them.

Source: *Parks and Recreation in Underserved Areas: A Public Health Perspective*. National Recreation and Park Association, 2012, *Parks and Recreation in Underserved Areas: A Public Health Perspective*, www.nrpa.org/uploadedFiles/nrpa.org/Publications_and_Research/Research/Papers/Parks-Rec-Underserved-Areas.pdf; Evenson, Kelly R., et al. "Park Characteristics, Use, and Physical Activity: A Review of Studies Using SOPARC (System for

Beyond the importance of a collaborative design process for the green space, there also needs to be a proper maintenance schedule to upkeep the quality of the area's amenities. Parks that are well-maintained can attract more users and promote

physical activity levels compared to places that have rundown playground equipment and can avoid unintended injuries due to unsafe equipment.¹³⁶ Public expenditures on park and open space per resident vary widely across the country. Managing costs of programs and maintenance schedules, while continuing to devote time to advocacy, fundraising, and diversifying funding sources will be critical to ensuring continual vitality of the parks and trails.

- 3) **Collaborative Funding Sources:** A suite of tools is available to funders—investing, grantmaking, collaborating, convening, facilitating, and more. Determining the right mix of capital improvement opportunities requires a solid understanding of both system-level drivers and community-informed needs and interests. At the systems level, it will be beneficial for funders to understand the landscape of funders and their interests and priorities. By balancing the existing mix of skill sets and resources in the target communities and targeting areas with the greatest gaps, funders can identify areas with the greatest opportunities for making a positive impact. This will help to avoid duplication of efforts and instead, create complementary programs that amplify impacts.

Specifically, the Colorado Outdoor and Health Collaborative recommends that funders collaborate across sectors and devise joint grant or investment criteria to support programs that are targeted to improve public health through outdoor activities. For example, conservation and healthcare foundations can work together to co-create grant opportunities that support green space infrastructure improvement projects or conservation-minded recreation programs that promote active living. As another example, since outdoor businesses innately share the Collaborative's goal of getting more people outside, it makes good business sense for outdoor businesses to partner with environmental and healthcare funders to provide financial and capacity building support to communities and organizations developing outdoor prescription programs.

An example of a national effort that encourages cross-sector funding is Blue Sky Funders Forum, a working group of the Environmental Grantmakers Association (EGA). Blue Sky helps its members connect more people to nature and advance environmental literacy. It is actively working to broaden its constituency and facilitate collaboration between more diverse funders, reaching beyond environmental grantmakers to education, health, and community funders.¹³⁷ In addition, The Funders Network For Smart Growth and Livable Communities (TFN) is another example of a member-based funders network that inspire, strengthen, and expand philanthropic leadership that will promote equitable social, environmental, and economically prosperous regions.¹³⁸ The network has engaged public, private, and nonprofit sectors to create diverse sources of funding for programs that actively create stronger communities. Of note, specific to promoting public health benefits of nature and outdoor recreation, there nevertheless remains a growing need to convene a funders collaborative that directly supports the intersection.

- 4) **Conservation Ethic:** Public health, conservation, and parks and recreation organizations interested in promoting physical activities in nature and the outdoors are well-positioned to educate the public about a responsible recreation ethic. These organizations have the environmental science and conservation knowledge to develop new outreach materials or share existing best practices with the public. At the local level, many of these environmental and public health organizations also have the trust of the community. There is an opportunity for these organizations to develop and promote strong, consistent messaging that will educate the public about conservation and mobilize a cultural change.

Given the rapid population growth in Colorado in recent years, proper land use and responsible recreation is critical. Conservation and outdoor organizations are especially conscious of this fact due to their interest in land being used in a sustainable manner. In order to take this stance, it is important to recognize there are a variety of approaches companies can take to promote education, conservation, and access.

Nationally, organizations such as the Leave No Trace Center for Outdoor Ethics (LNT) have an array of cutting-edge education and outreach materials to educate the public on how best to enjoy and protect our natural spaces. Internationally, The Nature Conservancy (TNC) made it a priority to build healthy cities around the world and better connect people and nature. "By mid-century, 2 out of every 3 people will call cities home. This historic urban growth, coupled with a changing climate, calls for us to team up with communities to ensure a future where nature and people thrive in cities."¹³⁹ TNC is developing strategies to (1) protect healthy air and water and promote quality of life for people in cities, (2) engage communities and municipalities in planning flourishing and sustainable cities, and (3) protect biodiversity and promote access to green space as populations in cities expand.¹⁴⁰ These are just a few of the many conservation organizations that could serve as a good partner inspiring people to enjoy it responsibly.

COLORADO IN ACTION: GREAT OUTDOORS COLORADO (GOCO)

GOCO is a good example of an innovative funding mechanism for supporting conservation projects and fostering a conservation ethic. Its robust grant programs and wide network of communities offer entry points for engaging healthcare stakeholders interested in promoting physical activity levels and mental well-being through the great outdoors. Cross-sector stakeholders are presented with an opportunity to join efforts in designing programs or grants that promote outdoor activities while fostering a conservation ethic.

GOCO invests a portion of Colorado Lottery proceeds to help preserve and enhance the state's parks, trails, wildlife, rivers, and open spaces. Created by voters in 1992, GOCO has committed over \$1.1 billion in Lottery proceeds to more than 5,000 projects in all 64 counties without any tax dollar support. The organization is currently guided by three overarching goals: (1.) *Protect* more urban and rural land for people and wildlife, (2.) *Connect* people to the outdoors by increasing bike and pedestrian access, and (3.) *Inspire* more kids and their families to explore and take care of our great outdoors.

Specifically, the Inspire initiative has several focus areas that will serve to promote a conservation ethic and encourage responsible recreation:

- **Generation Wild:** Born out of GOCO's Inspire Initiative, the Generation Wild program provides funding for outdoor places to play, programs to activate those sites, and pathways to leadership and careers in natural resources. Kaiser Permanente Institute for Health Research is evaluating the program's reach and traction. As part of the effort launched in 2015, coalitions made up of more than 100 partner organizations in 15 Generation Wild communities have identified their communities' own unique barriers to getting people outdoors and are working to break them down. The work has impacted 85,000 youth and created 1,400 jobs. In 2017, GOCO launched Generation Wild as a statewide marketing campaign to get Colorado children and families outside more often. Its list of "100 Things to Do Before You're 12" and other inspirational content have been delivered through high-visibility media tactics across the state, reaching over 67% Colorado moms according to initial surveys. Phase two launched in June 2018.

- **Support Outdoor Stewardship Organizations:** GOCO believes that developing a conservation ethic, promoting volunteer stewardship of nature, and educating people about the connections between agriculture and land conservation are vital to protecting the great outdoors. In partnership with Colorado Youth Corps Association, GOCO offers funding each year to local governments to hire youth conservation corps for land, water, and energy conservation projects. GOCO has also supported the Colorado Outdoor Stewardship Coalition's Statewide Stewardship Initiative, which aims to establish best practices and tools to meet Colorado's population growth and growing stewardship needs. In 2018, the Coalition released a Stewardship Best Practices Guide and identified a list of statewide volunteering and learning opportunities.

In May 2018, the State of Colorado reauthorized the Lottery Division to direct funding towards GOCO until July 1, 2049. This means that GOCO's sole funding source is secure through 2049, and the organization will continue to invest Lottery proceeds in outdoor recreation and conservation projects across the state. Given the increasing evidence about the health benefits of nature and recreation, there is an opportunity to continue bringing more diverse funders including healthcare payors, providers, and foundations to the table and further elevate the health of Coloradans.

Source: Personal communications with Rosemary Dempsey, Director of Communications, Great Outdoors Colorado, June 2018; "Strategic Plan", GOCO, <http://www.goco.org/about-us/strategic-plan> (Accessed: June 29, 2018); "Kids Grow Better Outside: GOCO's Generation Wild Campaign", Great Outdoors Colorado, June 28, 2018. <http://www.goco.org/blog/kids-grow-better-outside-gocos-generation-wild-campaign> (Accessed: June 29, 2018.)

CROSS-SECTORAL ENVIRONMENTAL STRATEGY: GUIDING PRINCIPLES



CONNECTING PEOPLE TO NATURE AND THE OUTDOORS

Support the creation of more greenspaces and local trails, invest in and engage the community in the design and planning of parks, such as ensuring the park is aesthetically safe and welcoming, and at the same time, promote a conservation ethic.



COMMITTED

Broad support from the state, local, and community level is important for master planning efforts, such as in creating and improving parks and trails. Support from local champions is important for generating buy-in from the community.



COLLABORATIVE

The greenspace strategy will benefit from input from diverse sectors, particularly the environmental, recreation, public health, and community stakeholders.



COMMUNITY-INFORMED

The design of the park can be tailored to the community's perception of safety and aesthetics. Aesthetic features that influence park use and physical activity include park size, layout design, landscaping, balance of sun and shade, and ponds. Poor lighting and signs of disorder such as graffiti, garbage, and vandalism can decrease feelings of perceived safety and result in lower usage.



TIMELY

Colorado renewed its commitment to conservation by adopting Colorado's Outdoor Principles (SHIFT). The principles emphasize a respect for the state's abundant open space and outdoor recreation opportunities, while recognizing these wild places also contribute to our quality of life and economic vitality.



SCIENCE-BASED

Establish user participation and park features data pre, post, and at baseline. Report progress to stakeholders to continually elicit engagement and track progress.

Policy Recommendations:

Throughout this paper, policy recommendations are presented for each of the strategies in the framework. The policies are intended to broadly apply to any stakeholder within the major sectors—private, public and nonprofit. The stakeholders could include healthcare, conservation, and outdoor businesses, and these groups can tailor their approach to different communities, so they can impact the greatest number of people.

The table below outlines policies that support the environmental strategy. These policies may be adopted by either a legislative or institutional process. Legislative policies will require the passage of law or executive order from the government to implement. Institutional policies can be adopted directly by the executive leader of the organization, which generally takes less time, and only impacts the community or organization adopting the new policy. The priority-setting process also took into account the policy objectives from the 2013 American Public Health Association policy statement on Improving Health and Wellness through Access to Nature.¹⁴¹ The policies below were tailored to the Outdoor and Health Cross-Sector Framework, and specifically, to support the environmental strategy.

#	Topic	Policy Description	Policy Option
1	Infrastructure Improvement	Create and improve park amenities and green space infrastructure by incorporating features such as: <ul style="list-style-type: none"> • Loop trails • Park benches • Group picnic facilities • Water fountains 	Institutional or Legislative
2	Transportation	Provision of low-cost transportation options to enable greater access to parks and greenspace: <ul style="list-style-type: none"> • Develop connections to popular parks and trailheads • Prioritize pedestrian and bike path safety and connectivity into state and regional transportation planning 	Legislative or Institutional
3	Stewardship	Ensure conservation and stewardship messages are integrated in programs, such as: <ul style="list-style-type: none"> • Importance of plants and wildlife • Leave No Trace principles 	Institutional

4	Equity	Identify underserved populations that do not currently have easy access to quality parks, trails, or outdoor recreation opportunities and provide additional subsidies to promote access and improve the quality of their amenities.	Institutional
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Desired Outcomes:

The desired outcomes of the Environmental Strategy are:

- Increased access and utilization of outdoor spaces for all
- Improved existing infrastructure of trails, parks, and greenspaces
- Expanded public transportation options, reaching more green space areas
- Increased knowledge of outdoor recreation and conservation ethics

Overall, the strategy is intended to bring about improved access and responsible usage of public recreation areas for everyone alike. Collaborative efforts by the conservation, recreation and health sectors would be critical to facilitate the implementation of these initiatives.

SECTION 6

BRINGING IT ALL TOGETHER:
SCIENCE-BASED APPROACH

Science-Based Approach Overview

To ensure the policies and programs developed are science-based and grounded by evidence, it is essential to incorporate data tracking, reporting, and evaluation mechanisms into the strategies. Regular evaluation guides an organization's priority-setting, informs decision-making, and encourages continuous improvement of the organization's initiatives.¹⁴²

Whether it is to demonstrate health improvements or economic savings, it is important there is data to back that claim. When possible, a robust research design should be incorporated to allow researchers to establish the causal effect of new policies and programs. Health and quality of life improvement data will be critical to building a public health case for investing in nature and outdoor recreation; similarly, economic savings data will be critical for building the business case.

There are several ways to achieve a science-based approach:

- Evidence Development: Engage in, or partner with, research that builds the body of evidence on nature and outdoor health impacts. (See the NatureRx study described below.)
- Continuous Improvement: Early in the process, incorporate robust data measurement mechanisms into all programs and strategies. That way, data can be tracked, reported, and evaluated to help inform decision-making and continuous improvement of the initiative.
- Economic Valuation: Initiatives encouraging outdoor recreation have the potential to save future medical costs by reducing utilization or improving disease symptoms. Economic studies should follow best-practices as recommended by the Second Panel on Cost-Effectiveness in Health and Medicine.

Applying the Outdoor and Health Cross-Sector Framework

The science-based approach can be applied to each of the three strategies of the Outdoor and Health Cross-Sector Framework in the following ways:

1. **Individual strategy:** It is critical to track whether there are any quality of life or health improvements resulting from referring someone to greenspace and outdoor recreation opportunities. Within a short exposure timeframe, there may not always be measurable changes in clinical health outcomes or changes in frequency or severity of diseases—this is when non-clinical data can serve as a great alternative or complementary measurement tool. Non-clinical data may include data from wearable technologies, environmental sensors, social media, and patient-reported outcomes.

A variety of survey tools can be used to measure patient-reported outcomes. The World Health Organization Quality of Life (WHOQOL) instruments—WHOQOL-100 and WHOQOL-BREF (an abbreviated version of the former)—are rigorously tested surveys. Until this tool was developed, there were only satisfactory ways of measuring frequency and severity of clinical conditions. The WHOQOL instruments have revolutionized the measurement of health by enabling the evaluation of well-being and quality of life. In addition, the instruments have been tested for their reliability and validity across cultural settings, as

WHOQOL-100 was a result of an extensive collaboration between the World Health Organization (WHO) and 15 research centers around the world. The six broad domains of quality of life measured include: physical health, psychological, level of independence, social relations, environment, and spirituality/religion/personal beliefs. These instruments can be applied to a variety of studies, including clinical practice, health services, research, audits, and in policymaking.¹⁴³

For routine assessment of healthcare outcomes, an example of a tool used by managed care organizations and by Medicare, is the 36-Item Short Form Health Survey (SF-36). The form was developed by the RAND Corporation and contains a set of generic, coherent, and easily administered mental and physical health questions. A longer version of the survey also exists to measure functioning and well-being of patients, particularly those with chronic conditions.^{144,145}

For programs that have capacity to outfit program participants with wearable technologies, additional data can be collected to fill the gaps in electronic health records and patient-reported outcomes. This may include data such as activity levels and sleep patterns. Devices with accelerometer sensors can also detect the unique gait of a person to assist with authentication of longitudinal data. With proper privacy protocols and informed consent, wearable technologies can enable recreation referral programs to build in additional incentives to motivate behavioral change.

2. **Organizational strategy:** For the organizational strategy, a business or agency is recommended to collect baseline data and track outcomes from implementing an outdoor and nature-focused workplace wellness initiative. The data may include productivity indicators such as number of sick days, and financial performance of divisions and departments. In addition, similar to the Individual Strategy, wearable technologies data can also be used to measure physical activity levels as a way to build in additional behavioral incentives for the workplace wellness initiative.
3. **Environmental strategy:** It is important to survey resident interest and satisfaction with the amenities, and monitoring park and trails usage before and after an infrastructure development or improvement project. In addition, questions that measure perception and understanding of environmental stewardship ethics can also be incorporated. The National Park Service (NPS) and Centers for Diseases Control and Prevention (CDC) published eight common measures in 2017 that evaluate whether specific parks and trails are meeting public health goals. The measures included: proximity, walking access, park connectivity, land area, physical activity, visitation, frequency, and duration.¹⁴⁶ For example, the physical activity measure evaluates the percentage of users engaged in sedentary, moderate, or vigorous physical activity at a specific facility area. Direct observation using validated protocols is recommended.¹⁴⁷

Colorado Outdoor & Health Collaborative: Evidence Development Pilot – NatureRx Study

The University of Louisville (UofL) is working with the Colorado Outdoor Recreation Industry Office (ORec), the Nature Conservancy (TNC), Volunteers for Outdoors Colorado (VOC), and additional partners on a pilot research project—NatureRx. It is based off the Japanese concept of Shinrin-yoku, which means “taking in the forest atmosphere”, or “forest bathing”.¹⁴⁸ The idea is that trees and shrubs have salutary effects on health. In contrast to hiking, forest bathing does not generally involve a specific trail or mountain

objective, instead, it's seeking to meld mindfulness and greenspace immersion to improve health.

For this pilot study, the intervention involves urban dwellers visiting a densely-forested area and quantitatively assessing the impact of greenness on their health. Specifically, the study aims to examine and document changes in stress, immunological, and cardiovascular functions in individuals exposed to dense forests in Colorado and Kentucky, and to determine whether these changes are associated with exposure to vegetation-emitted volatile organic chemicals. A subset of the results obtained will be compared to determine differences in exposure to local plant species and altitude between Kentucky and Colorado.

Subjects were asked to not spend any time in areas with dense greenness (e.g. trail running, hiking, camping) for up to a minimum of 72 hours prior to the study. The time period is based on the typical half-life¹⁴⁹ of the volatile organic chemicals, or the time it takes for the chemicals to degrade to non-traceable levels. The subjects also followed a strict study protocol, including the use of specialized unscented toiletries and a restricted diet for 24-48 hours prior to the study. On the day of, health and lifestyle surveys, a brief physical exam, and blood and urine samples were collected before and after the greenspace immersion. During the half day spent in the field, subjects also regularly provided urine samples for collection.

This study complements another Louisville-based research project, called Greenheart study, which is examining a second greening intervention. This intervention involves examining the health impacts of physically increasing the amount of green spaces through tree planting in urban settings. A partnership between UofL, TNC, and additional organizations, the Greenheart study is a five-year longitudinal randomized clinical-controlled trial that received significant National Institutes of Health funding. In the field of nature and health research, the Greenheart study, with its breadth in both time and spatial scales, and its rigorous clinical study design, is often seen as the first-of-its-kind in the world.

Of note, Greenheart is focused on examining neighborhood-scale greenery changes over time, whereas the NatureRx (forest bathing) study is focused on immediate health impacts through exposure to greenness in a limited episodic timeframe. Therefore, taken together, the two studies are significant in that they complement each other and will paint a more complete picture of nature's health benefits at both spectrums of the time and spatial scales.

Preliminary results from the Colorado pilot study will be available in late 2018. As the body of evidence around greenness' health benefits deepens, there is an urgency to elevate the role of forests and other green spaces and their protection and promotion in public welfare policy agenda and organizational policies.

CROSS-SECTORAL SCIENCE-BASED APPROACH: GUIDING PRINCIPLES



CONNECTING PEOPLE TO NATURE AND THE OUTDOORS

Each of the strategies in the framework—individual, organizational, and environmental—can be made more robust by incorporating data tracking mechanisms. Seek input from community members, partners, and experts when defining program goals and metrics, such as metrics on the outcomes and effectiveness of a program in connecting people to nature and the outdoors.



COMMUNITY-INFORMED

Collaborate with local parks and recreation and public health agencies to learn about current community health initiatives when designing a community recreation program. For the employee wellness strategy, engage multiple levels of employees and obtain their input individually or in groups or committees. This ensures there is no duplication and allows a baseline understanding of the community's interests and needs. In addition, leverage data from local health assessments completed in the initiative design, such as risk and protective factors identified through initiatives like Community That Cares (CTC).



COMMITTED

Evaluation can be a powerful tool to sustain top leadership dedication. When data is regularly presented to an organization's leaders, they are kept informed, aware, and engaged. This provides them with the information they need to support and participate in a new program, practice, or initiative.



TIMELY

Incorporate existing resources to support data collection and evaluation efforts. For example, if a regional accountable entity (RAE) is involved in an initiative to promote parks and recreation access as one of their population health management strategies, that means the RAE can offer analytics capability since they have access to a large claims database of all Medicaid enrollees in their region. The new initiative created can be designed according to the RAE and organization's complementary strengths.



COLLABORATIVE

Different organizations, departments, and agencies can work together to design the evaluation tools, discuss findings, and determine next steps.



SCIENCE-BASED

Regular evaluation—through data analyses, surveys, interviews, and more—clearly supports scientifically-informed change. Findings can be used to provide upper management with reports on progress and impacts, set priorities and guide decision-making, and determine next steps for continual improvement.

Policy Recommendations:

Throughout this paper, policy recommendations are presented for each component of the framework. The policies are intended to broadly apply to any stakeholder within the major sectors—private, public and nonprofit. The stakeholders could include healthcare, conservation, and outdoor businesses, and these groups can tailor their approach to different communities, so they can impact the greatest number of people.

The table below outlines policies that support the science-based approach. These policies may be adopted by either a legislative or institutional process. Legislative policies will require the passage of law or executive order from the government to implement. Institutional policies can be adopted directly by the executive leader of the organization, which generally takes less time, and only impacts the community or organization adopting the new policy. The priority-setting process also took into account the policy objectives from the 2013 American Public Health Association policy statement on Improving Health and Wellness through Access to Nature.¹⁵⁰ The policies below were tailored to the Outdoor and Health Cross-Sector Framework, and specifically, to support the science-based approach.

#	Topic	Policy Description	Policy Type
1	Research Grant Support	<ul style="list-style-type: none"> • Increase funding for research that studies the impact of health-related quality of life from nature-based recreation and its policy implications • Explore state-level grant making opportunities • Expand joint-grant funding opportunities between conservation and healthcare funders 	Institutional
2	Pilot Design	<ul style="list-style-type: none"> • The program needs to be financially sustainable without increasing costs to partners (unless they have the money to dedicate to the program) • Early on – focus on pilot programs and develop small successes to build on • Incorporate data collection mechanisms into all programs and strategies 	Institutional
3	Economic Study	<ul style="list-style-type: none"> • Examine the fiscal impact of park prescription programs and variants of such outdoor and health programs. For example, to facilitate a health entity in referring patients to parks at a 	Legislative (or Institutional)

		<p>clinical encounter, it would be helpful to have fiscal impact data to support such organizational workflow changes. The governmental entity can pass a budget to support the economic valuation study across a specific jurisdiction. Alternately, such an economic study can also be led by the private sector or a joint public-private partner initiative, starting with a particular organizational or community population.</p>	
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Desired Outcomes:

The desired outcomes of the Evaluation Strategy are:

- Increased data availability on outdoor recreation programs' health and wellness impacts
- Recreation and wellness program designs are improved as a result of increased data availability
- More science-based interventions that promote health improvements through outdoor activities are developed
- More organizations across sectors and industries incorporate robust measurement and evaluation strategy in their program designs

Overall, the Evaluation Strategy will provide valuable analytical information and help stakeholders improve on their program design and implementation. The resulting data will also further academia research and enable continual evaluation of the health and societal effects of outdoor recreation.

SECTION 7

CALL TO ACTION

Call to Action by Sector: An Overview

An important factor in the success of the Colorado Outdoor and Health Collaborative is whether stakeholders throughout the state can come together and take action towards the Outdoor and Health Cross-Sector Framework. Through a series of actions across the public, private, nonprofit, and academic sectors, it is imperative that there be direction and focus in the actions needed for success. The long-term success of the Collaborative will rely heavily on cross-sector collaboration, communication, and dedication.

The Collaborative has developed a Call To Action for groups across Colorado. These action items will act as a road map that will detail a successful path forward for stakeholders across the state. Action items will vary in difficulty, scope, and duration, but will allow for all Coloradans to reap positive benefits from the work led by the Collaborative and its many partners.

Sector	Focuses	Call To Action
Public	Health	<ul style="list-style-type: none"> • Work across sectors to develop programs and interventions that promote health through outdoor activities, including programs that increase access to outdoor recreation • Incorporate nature and outdoor recreation into workplace wellness benefits • Increase funding for research and evaluation; allocate funding for evaluation when developing new program areas • Support green space infrastructure improvements • Educate the public about conservation ethics and health benefits when promoting outdoor recreation • Expand the development of an information hub that enables care teams, patients, and the general public to locate their closest recreation activities and areas, including pictures and directions for close-to-home green spaces and trails
	Natural Resources	
	Parks and Recreation	
	Human Services	
	Transportation	
	State & Local Governments	
	National Park Service	
Private	Health Insurance Companies	<ul style="list-style-type: none"> • Provide financial and capacity building support to communities and organizations developing programs that improve health through outdoor activities • Incorporate nature and outdoor recreation into workplace wellness benefits • Support research and evaluation, and allocate funding for robust measurements
	Outdoor Industry Companies	
	Tourism Providers	

	Retailers	when developing new program areas <ul style="list-style-type: none"> • Partner with school districts to provide outdoor and environmental education for youth
	Financial	
Nonprofit	Conservation	<ul style="list-style-type: none"> • Provide environmental and outdoor education opportunities, such as experiential learning in nature and outdoor skills courses • Ensure stewardship and public health messages are integrated into pilot programs, such as introducing Leave No Trace recreation ethics, or illustrating public health benefits of nature in order to increase appreciation of the outdoors and health literacy • Increase support from diverse sectors, particularly healthcare stakeholders, to develop programs and interventions that promote health through outdoor activities
	Public Health	
	Outdoor	
	Government	

By working step-by-step across sectors and industries to implement the Outdoor and Health Cross-Sector Framework, Colorado can begin to lead the country on a journey to improve public health through nature and the great outdoors. It will be through innovative partnerships and a continued focus on science-based program design and evaluation that the Collaborative will be able to create lasting public health improvements.



COLORADO
Outdoor Recreation
Industry Office

ENDNOTES

- 1 Klepeis, Neil E, et al. "The National Human Activity Pattern Survey (NHAPS): a Resource for Assessing Exposure to Environmental Pollutants." Nature News, Nature Publishing Group, 24 July 2001, www.nature.com/articles/7500165.
- 2 "Healthy Kids Colorado Survey." Parents as Their Child's Certified Nursing Aide (CNA) | Department of Public Health and Environment, www.colorado.gov/cdphe/hkcs.
- 3 Frumkin, H. et. al. Nature Contact and Human Health: A Research Agenda, Environmental Health Perspectives, July 2017, <https://ehp.niehs.nih.gov/EHP1663/>
- 4 Outdoor Industry Association, "Outdoor Participation Report 2017", 2017.
- 5 Over 45% of the state of Colorado is public land, which includes national parks, forests, wildlife refuges, monuments, wilderness areas and lands managed by the Bureau of Land Management. Statistics cited from: Sausser, B. & Smith, J. W. (2018). Elevating Outdoor Recreation Together: Opportunities for synergy between state offices of outdoor recreation and federal land-management agencies, the outdoor recreation industry, non-governmental organizations, and local outdoor recreation providers. Logan, UT: Institute of Outdoor Recreation and Tourism.
- 6 Frumkin, H. et. al. 2017. Ibid.
- 7 "The Relationship between Organised Recreational Activity and Mental Health." Benefits of Sport and Recreation, www.dsr.wa.gov.au/support-and-advice/research-and-policies/organised-recreational-activity-and-mental-health.
- 8 "Adult Obesity Prevalence Maps." Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, 31 Aug. 2017, www.cdc.gov/obesity/data/prevalence-maps.html.
- 9 Substance Abuse and Mental Health Services Administration, "National Survey on Drug Use and Health", 2015
- 10 United Health Foundation, America's Health Rankings, 2016.
- 11 Substance Abuse and Mental Health Services Administration, "National Survey on Drug Use and Health", 2015
- 12 "The State of Obesity in Colorado." The State of Obesity, Trust for America's Health and Robert Wood Johnson Foundation, 2016, stateofobesity.org/states/co/.
- 13 Childhood Overweight and Obesity in Colorado. Department of Public Health and Environment, 2017, Childhood Overweight and Obesity in Colorado, www.colorado.gov/pacific/sites/default/files/DC_CD_fact-sheet_Childhood-Obesity.pdf.
- 14 "Colorado Outdoor Recreation Economy Report." Outdoor Industry Association, outdoorindustry.org/resource/colorado-outdoor-recreation-economy-report/.
- 15 "Gov. John Hickenlooper Signs Lottery Division Extension into Law." Denver Shifting toward Natural Playgrounds | Great Outdoors Colorado, Great Outdoors Colorado, 1 May 2018, www.goco.org/news/gov-john-hickenlooper-signs-lottery-division-extension-law.
- 16 Great Outdoors Colorado, Ibid
- 17 Whitmee, Sarah, et al. "Safeguarding Human Health in the Anthropocene Epoch." Pediatric Physical Therapy, Lippincott Williams and Wilkins, 9 Feb. 2016, iths.pure.elsevier.com/en/publications/safeguarding-human-health-in-the-anthropocene-epoch-report-of-the.
- 18 Jamison, et al. "Disease Control Priorities, Third Edition." Open Knowledge Repository, World Bank, Washington, DC, 1 Nov. 2017, openknowledge.worldbank.org/handle/10986/28877.
- 19 Kania, John, and Mark Kramer. Collective Impact. 1st ed., vol. 9, Stanford Social Innovation Review, 2011, pp. 36–41, Collective Impact.
- 20 REI CO-OP, "REI to support second-ever "Confluence Summit" among outdoor recreation leaders in Asheville, N.C., this July", REI CO-OP Newsroom, February 20, 2018. <https://newsroom.rei.com/news/corporate/rei-to-support-second-ever-confluence-summit-among-outdoor-recreation-leaders-in-asheville-nc-this-july.htm>

- ²¹ Louv, Richard. *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*. Atlantic Books, 2010.
- ²² Klepeis, Neil E, et al. "The National Human Activity Pattern Survey (NHAPS): a Resource for Assessing Exposure to Environmental Pollutants." *Nature News*, Nature Publishing Group, 24 July 2001, www.nature.com/articles/7500165.
- ²³ Moss, Stephen. *Natural Childhood Report*. National Trust, 2012, *Natural Childhood Report*, www.nationaltrust.org.uk/documents/read-our-natural-childhood-report.pdf.
- ²⁴ Ibid.
- ²⁵ England Marketing, 2009. Report to Natural England on Childhood and Nature: A survey of changing relationships with nature across generations.
- ²⁶ Bachmann, Christian, et. al. "Trends and patterns of antidepressant use in children and adolescents from five western countries, 2005–2012" *European Neuropsychopharmacology* (2016) 26, 411–419
- ²⁷ Fryar CD, Carroll MD, Ogden CL. Prevalence of overweight and obesity among children and adolescents: United States, 1963-1965 through 2011-2012. *Health E-Stats*. 2014. https://www.cdc.gov/nchs/data/hestat/obesity_child_11_12/obesity_child_11_12.htm. Accessed December 21, 2017.
- ²⁸ Landry S.M., Chakraborty J. Street trees and equity: Evaluating the spatial distribution of an urban amenity. *Environ. Plan. A*. 2009;41:2651–2670. doi: 10.1068/a41236.
- ²⁹ Wolch J.R., Byrne J., Newell J.P. Urban green space, public health, and environmental justice: The challenge of making cities "just green enough". *Landscape and Urban Planning*. 2014;125:234–244. doi: 10.1016/j.landurbplan.2014.01.017
- ³⁰ Sister C., Wolch J., Wilson J. Got green? Addressing environmental justice in park provision. *Geo J*. 2010;75:229–248.
- ³¹ A community survey on neighborhood violence, park use, and physical activity among urban youth. Echeverria SE, Luan Kang A, Isasi CR, Johnson-Dias J, Pacquiao D J *Phys Act Health*. 2014 Jan; 11(1):186-94.
- ³² Echeverria, S E, et al. "A Community Survey on Neighborhood Violence, Park Use, and Physical Activity among Urban Youth." U.S. National Library of Medicine, U.S. National Library of Medicine, Jan. 2014, www.ncbi.nlm.nih.gov/pubmed/23359105/.
- ³³ Jennings, Viniece, and Cassandra Johnson Gaither. "Approaching Environmental Health Disparities and Green Spaces: An Ecosystem Services Perspective." *US National Library of Medicine National Institutes of Health*, U.S. National Library of Medicine, Feb. 2015, www.ncbi.nlm.nih.gov/pmc/articles/PMC4344703/.
- ³⁴ Abercrombie, L C, et al. "Income and Racial Disparities in Access to Public Parks and Private Recreation Facilities." *US National Library of Medicine National Institutes of Health*, U.S. National Library of Medicine, Jan. 2008, www.ncbi.nlm.nih.gov/pubmed/18083445/.
- ³⁵ Molnar, B E, et al. "Unsafe to Play? Neighborhood Disorder and Lack of Safety Predict Reduced Physical Activity among Urban Children and Adolescents." *US National Library of Medicine National Institutes of Health*, U.S. National Library of Medicine, www.ncbi.nlm.nih.gov/pubmed/15163139/.
- ³⁶ Escobedo, F J, et al. "Urban Forests and Pollution Mitigation: Analyzing Ecosystem Services and Disservices." *US National Library of Medicine National Institutes of Health*, U.S. National Library of Medicine, Aug. 2011, www.ncbi.nlm.nih.gov/pubmed/21316130/.
- ³⁷ Substance Abuse and Mental Health Services Administration, "National Survey on Drug Use and Health", 2015
- ³⁸ Colorado Department of Public Health and Environment, "State Health Assessment", 2013

-
- ³⁹ Frumkin, H. et. al. Nature Contact and Human Health: A Research Agenda, *Environmental Health Perspectives*, July 2017, <https://ehp.niehs.nih.gov/EHP1663/>
- ⁴⁰ "Ecosystems and Human Well-Being: Health Synthesis." *World Health Organization*, World Health Organization, 28 July 2016, www.who.int/globalchange/publications/ecosystems05/en/.
- ⁴¹ "Adult Obesity Prevalence Maps." *Centers for Disease Control and Prevention*, U.S. Department of Health and Human Services, 31 Aug. 2017, www.cdc.gov/obesity/data/prevalence-maps.html
- ⁴² "The State of Obesity in Colorado." *The State of Obesity*, Trust for America's Health and Robert Wood Johnson Foundation, 2016, stateofobesity.org/states/co/.
- ⁴³ *Childhood Overweight and Obesity in Colorado*. Department of Public Health and Environment, 2017, *Childhood Overweight and Obesity in Colorado*, www.colorado.gov/pacific/sites/default/files/DC_CD_fact-sheet_Childhood-Obesity.pdf.
- ⁴⁴ "The State of Obesity: Obesity Data Trends and Policy Analysis." *Iowa State Obesity Data, Rates and Trends - The State of Obesity*, stateofobesity.org/.
- ⁴⁵ Substance Abuse and Mental Health Services Administration, "National Survey on Drug Use and Health", 2015
- ⁴⁶ Schenck, Anna, et al. *America's Health Rankings Annual Report*. 2016, assets.americashealthrankings.org/app/uploads/ahr16-complete-v2.pdf.
- ⁴⁷ Seltenrich, Nate. "Just What the Doctor Ordered: Using Parks to Improve Children's Health" *Environmental Health Perspectives*, 2015. Volume 123, No. 10.
- ⁴⁸ Frumkin, Ibid.
- ⁴⁹ "Ecosystems and Human Well-Being: Health Synthesis." *World Health Organization*, 28 July 2016, www.who.int/globalchange/publications/ecosystems05/en/.
- ⁵⁰ Frumkin, Ibid.
- ⁵¹ Saha, Santosh C. *Amartya K. Sen: A Philosophical Approach*. Bookventure, 2017.
- ⁵² Gorodeisky, Keren, "19th Century Romantic Aesthetics", *The Stanford Encyclopedia of Philosophy* (Fall 2016 Edition), Edward N. Zalta (ed.), <https://plato.stanford.edu/archives/fall2016/entries/aesthetics-19th-romantic>.
- ⁵³ Wilson, Edward O. *Nature Revealed: Selected Writings, 1949-2006*. Johns Hopkins University Press, 2006.
- ⁵⁴ Williams, Florence. *The Nature Fix: Why Nature Makes Us Happier, Healthier, and More Creative*. W.W. Norton & Company, 2018.
- ⁵⁵ "Can Trees Heal People?" *Ideas.ted.com*, ideas.ted.com, 6 June 2017, ideas.ted.com/can-trees-heal-people/.
- ⁵⁶ "Shinrin-Yoku Forest Medicine." *Shinrin-Yoku: the Medicine of Being in the Forest*, www.shinrin-yoku.org/shinrin-yoku.html.
- ⁵⁷ Forest Therapy Comprehensive Site, www.fo-society.jp/therapy/cn45/e_en.html.
- ⁵⁸ Seltenrich, Nate. "Just What the Doctor Ordered: Using Parks to Improve Children's Health" *Environmental Health Perspectives*, 2015. Volume 123, No. 10.
- ⁵⁹ Seltenrich, Ibid.
- ⁶⁰ "Colorado." *Outdoor Industry Association*, outdoorindustry.org/state/colorado/.
- ⁶¹ "Gov. Hickenlooper Announces 16 Highest Priority Trail Projects." *Renewable Energy Standard | Colorado Energy Office*, Colorado Governor's Office, 20 Jan. 2016, colorado.gov/governor/news/gov-hickenlooper-announces-16-highest-priority-trail-projects.
- ⁶² CO Department of Health Care Policy and Financing. "Accountable Care Collaborative FY2015-2016. Legislative Information Request for Information #3. Submitted to Joint Budget Committee." November 1, 2016.

-
- ⁶³ "Accountable Care Organizations." *Centers for Medicare & Medicaid Services*, 3 May 2018, www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO/.
- ⁶⁴ CO Department of Health Care Policy and Financing. "Regional Accountable Entity for the Accountable Care Collaborative: Request for Proposals 2017000265". 2017.
- ⁶⁵ Parks and Recreation in Underserved Areas: A Public Health Perspective. Ashburn, VA: National Recreation and Park Association; 2012.
- ⁶⁶ Outdoor Industry Association, "Outdoor Participation Report 2017", 2017.
- ⁶⁷ Ibid.
- ⁶⁸ National Recreation and Park Association, Ibid.
- ⁶⁹ Kania, John, and Mark Kramer. *Collective Impact*. 1st ed., vol. 9, *Stanford Social Innovation Review*, 2011, pp. 36–41, *Collective Impact*.
- ⁷⁰ REI CO-OP, "REI to support second-ever "Confluence Summit" among outdoor recreation leaders in Asheville, N.C., this July", REI CO-OP Newsroom, February 20, 2018. <https://newsroom.rei.com/news/corporate/rei-to-support-second-ever-confluence-summit-among-outdoor-recreation-leaders-in-asheville-nc-this-july.htm>
- ⁷¹ "Motivational Interviewing." *Behavioral Health and Wellness Program*, University of Colorado Anschutz Medical Campus, 2018, www.bhwellness.org/programs/motivational-interviewing.
- ⁷² Zomahoun, HTV et. al. "Effectiveness of motivational interviewing interventions on medication adherence in adults with chronic diseases: a systematic review and meta-analysis." *International Journal of Epidemiology* 2017; 46(2)589-602.
- ⁷³ Lee, W. et. al. "Effectiveness of motivational interviewing on lifestyle modification and health outcomes of clients at risk or diagnosed with cardiovascular diseases: A systematic review." *International Journal of Nursing Studies*. 2016. 53:331-341
- ⁷⁴ Jiang, S. et. al. "Beyond face-to-face individual counseling: A systematic review on alternative models of motivational interviewing in substance abuse treatment and prevention". *Addictive Behaviors*. 2017. 73:216-235
- ⁷⁵ Agency for Healthcare Research and Quality, "Implementation Quick Start Guide: Warm Handoff", <https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patient-family-engagement/pfprimarycare/warmhandoff-quickstartfull.pdf> (Accessed June 2018)
- ⁷⁶ CO Department of Health Care Policy and Financing. "Regional Accountable Entity for the Accountable Care Collaborative: Request for Proposals 2017000265". 2017.
- ⁷⁷ "What Is 2Gen Approach?" *Ascend at the Aspen Institute*, June 2018, ascend.aspeninstitute.org/two-generation/what-is-2gen/.
- ⁷⁸ Chiara. "Family Nature Clubs: An Intergenerational Opportunity to Foster Love of the Natural World." *Latest TOC RSS*, Medical Journals Limited, 1 Nov. 2016.
- ⁷⁹ D'Amore, Chiara. *Family Nature Clubs: Creating the Conditions for Social and Environmental Connection and Care*. ProQuest, 2015, pp. 241–244, *Family Nature Clubs: Creating the Conditions for Social and Environmental Connection and Care*.
- ⁸⁰ D'Amore, Chiara, and Louise Chawla. "Many Children in the Woods: Applying Principles of Community-Based Social Marketing to a Family Nature Club." *Ecopsychology*, vol. 9, no. 4, 1 Dec. 2017, pp. 232–240., doi:10.1089/eco.2017.0019.
- ⁸¹ Institute at the Golden Gate. "About Park Prescriptions." *Park Rx*, 2016, parkrx.org/about.
- ⁸² Ibid.
- ⁸³ Ibid.

-
- ⁸⁴ Rosenberg, Robin S. et. al. "An Outdoor Adventure Program for Young Adults with Cancer: Positive Effects on Body Image and Psychosocial Functioning." *Journal of Psychosocial Oncology*. 2014. 32:622-636
- ⁸⁵ Zebrack, B. et. al. "First Descents, an adventure program for young adults with cancer: who benefits?" *Support Care in Cancer*. Published Online: June, 2017. DOI 10.1007/s00520-017-3792-7
- ⁸⁶ "REI and First Descents Partner to Offer Life-Changing Outdoor Experiences for Young Adults Impacted by Cancer." *REI Newsroom*, 9 May 2018, newsroom.rei.com/news/programs-adventures/rei-and-first-descents-partner-to-offer-life-changing-outdoor-experiences-for-young-adults-impacted-by-cancer.htm.
- ⁸⁷ American Public Health Association. "APHA Policy Statement 20137 – Improving Health and Wellness through Access to Nature." 2013. <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/08/09/18/improving-health-and-wellness-through-access-to-nature>
- ⁸⁸ "Executive and Continuing Professional Education." *Obesity Prevention Source*, Harvard School Of Public Health, www.hsph.harvard.edu/ecpe/category/culture-of-health/.
- ⁸⁹ "About a Culture of Health." *Robert Wood Johnson Foundation*, 14 Dec. 2017, www.rwjf.org/en/cultureofhealth/about.html.
- ⁹⁰ "Culture Of Health" *Obesity Prevention Source*, Harvard School Of Public Health, www.hsph.harvard.edu/ecpe/category/culture-of-health/.
- ⁹¹ Kotter, J. and Heskett J. *Corporate Culture and Performance*. Free Press. 1992.
- ⁹² Kotter, John. "Does Corporate Culture Drive Financial Performance?" *Forbes: Leadership*, Forbes Magazine, 23 June 2012, www.forbes.com/sites/johnkotter/2011/02/10/does-corporate-culture-drive-financial-performance.
- ⁹³ Porter, M. and Kramer, M. (2011) "Creating Shared Value: How to reinvent capitalism – and unleash a wave of innovation and growth". *Harvard Business Review*, 89(1/2): 62-77.
- ⁹⁴ Ibid.
- ⁹⁵ "What Is Total Worker Health?" *The National Institute for Occupational Safety and Health (NIOSH)*, Centers for Disease Control and Prevention, 18 May 2018, www.cdc.gov/niosh/twh/default.html
- ⁹⁶ Kaplan, Stephen. *The Restorative Benefits of Nature: Toward an Integrative Framework*. willsull.net/resources/KaplanS1995.pdf.
- ⁹⁷ Smothers, Russell et al, "How to Do Walking Meetings Right." *Harvard Business Review*, 27 Sept. 2017, hbr.org/2015/08/how-to-do-walking-meetings-right.
- ⁹⁸ Kaplan, Stephen. *The Restorative Benefits of Nature: Toward an Integrative Framework*. willsull.net/resources/KaplanS1995.pdf.
- ⁹⁹ Interface. *HUMAN SPACES: The Global Impact of Biophilic Design in the Workplace*. Interface, 2015, pp. 7–12, *HUMAN SPACES: The Global Impact of Biophilic Design in the Workplace*.
- ¹⁰⁰ "OptOutside: Find Trails & Get Inspired." *REI Co-Op Journal*, REI, 2016, www.rei.com/opt-outside.
- ¹⁰¹ Harris, Colette, and Ford. "The Best Places to Work in 2017." *Outside Online*, Outside Magazine, 5 Jan. 2018, www.outsideonline.com/2257551/100-best-places-work-2017.
- ¹⁰² Rachel M. Henke, et. al. "Recent experience in health promotion at Johnson & Johnson: Lower Health Spending, Strong Return on Investment," *Health Affairs* 30, no. 30 (March 2011).
- ¹⁰³ Office Of Advocacy. *Small Business Profile*. US Small Business Administration, 2016, *Small Business Profile*, www.sba.gov/sites/default/files/advocacy/United_States.pdf.

-
- ¹⁰⁴ Office Of Advocacy. *Frequently Asked Questions*. US Small Business Administration, 2012, *Frequently Asked Questions*, www.sba.gov/sites/default/files/FAQ_Sept_2012.pdf.
- ¹⁰⁵ "Our Story." *Health Links*, 2018, www.healthlinkscertified.org/about/our-story.
- ¹⁰⁶ Ibid.
- ¹⁰⁷ Ibid.
- ¹⁰⁸ Ibid.
- ¹⁰⁹ Ibid.
- ¹¹⁰ "Mission." *Colorado Business Group on Health » Mission*, 2018, cbghealth.org/mission/.
- ¹¹¹ American Public Health Association, Ibid.
- ¹¹² "The Leave No Trace Seven Principles", Leave No Trace Center for Outdoor Ethics, <https://lnt.org/learn/7-principles>
- ¹¹³ "Principles for Recreation and Conservation." *SHIFT*, shiftjh.org/the-principles-for-advancing-outdoor-recreation-and-conservation/.
- ¹¹⁴ Colorado Parks and Wildlife. "Colorado's Adoption of the Shift Principles– Shaping How We Invest for Tomorrow." *Colorado's Outdoor Principles*, 12 Apr. 2018, pp. 1–2., doi:10.3897/bdj.4.e7720.figure2f.
- ¹¹⁵ "Our Vision." *The Colorado Outdoor Partnership*, June 2018, copartnership.org/.
- ¹¹⁶ "Colorado Population 2018." *World Population Review*, Jan. 2018, worldpopulationreview.com/states/colorado-population/.
- ¹¹⁷ Rosenbaum, S. et. al. "The Value Of The Nonprofit Hospital Tax Exemption Was \$24.6 Billion In 2011" *Health Affairs*, 2015 Jul;34(7):1225-33. doi: 10.1377/hlthaff.2014.1424.
- ¹¹⁸ Acharya, Karabi, et al. *Inclusive Healthy Places: A Guide to Inclusion & Health in Public Space: Learning Globally to Transform Locally*. Gehl Institute, June 2018, gehl.institute.org/wp-content/uploads/2018/06/Inclusive-Healthy-Places_Gehl-Institute.pdf.
- ¹¹⁹ Lee, Karen K. "Developing and Implementing the Active Design Guidelines in New York City." *Health Place*, vol. 18, no. 1, Jan. 2012, pp. 5–7.
- ¹²⁰ Acharya, Karabi, et al. *Inclusive Healthy Places: A Guide to Inclusion & Health in Public Space: Learning Globally to Transform Locally*. Gehl Institute, June 2018, gehl.institute.org/wp-content/uploads/2018/06/Inclusive-Healthy-Places_Gehl-Institute.pdf.
- ¹²¹ Ibid.
- ¹²² Rigolon, Alessandro, and Travis Flohr. *Access to Parks for Youth as an Environmental Justice Issue: Access Inequalities and Possible Solutions*. vol. 4, Buildings, 2014, pp. 69–94, *Access to Parks for Youth as an Environmental Justice Issue: Access Inequalities and Possible Solutions*.
- ¹²³ Ibid.
- ¹²⁴ Ibid.
- ¹²⁵ Acharya, *Ibid.*
- ¹²⁶ Mitchell, Richard, and Frank Popham. "Effect of Exposure to Natural Environment on Health Inequalities: An Observational Population Study." *Lancet*, vol. 372, no. 9, Nov. 2008, pp. 1655–1660.
- ¹²⁷ "10 Minute Walk." *10 Minute Walk*, Trust For Public Land, www.10minutewalk.org/.
- ¹²⁸ Ibid.
- ¹²⁹ "ParkScore® 2018." *About ParkScore*, Trust For Public Land, <http://parkscore.tpl.org/about.php>.
- ¹³⁰ Ibid.
- ¹³¹ "Montbello Open Space", Trust for Public Land, <https://www.tpl.org/our-work/montbello-open-space>.

-
- ¹³² National Recreation and Park Association, Ibid.
- ¹³³ Bedimo-Rung, A., Mowen, A., & Cohen, D. "The significance of parks to physical activity and public health: A conceptual model." *American Journal of Preventive Medicine*. 2005;28(2S2) 159-168.
- ¹³⁴ Silberg, S., Lorah, K., Disbrow, R., Muessig, A. "Places in the Making: How placemaking builds places and communities." MIT Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2013.
- ¹³⁵ "Park(ing)Day", *Wikipedia*, [https://en.wikipedia.org/wiki/Rebar_art_and_design_studio#Park\(ing\)_Day](https://en.wikipedia.org/wiki/Rebar_art_and_design_studio#Park(ing)_Day)
- ¹³⁶ Bedimo-Rung, A. Ibid.
- ¹³⁷ "About." Blue Sky Funders Forum. <https://blueskyfundersforum.org/about>
- ¹³⁸ "About." Funders' Network for Smart Growth and Livable Communities. <https://www.fundersnetwork.org/about/>
- ¹³⁹ "Cities." *Nature Conservancy Global Solutions*, global.nature.org/our-global-solutions/cities.
- ¹⁴⁰ "Our Priorities: Cities | The Nature Conservancy." *Global Cities: Natural Solutions*, The Nature Conservancy, www.nature.org/ourinitiatives/urgentissues/nature-in-cities/index.htm.
- ¹⁴¹ American Public Health Association, Ibid.
- ¹⁴² McLellan, Deborah, et al. Ibid.
- ¹⁴³ "World Health Organization Quality of Life Instruments (WHOQOL-BREF)." *Seattle Quality of Life Group*, University of Washington School of Public Health, 2011, depts.washington.edu/seaqol/WHOQOL-BREF.
- ¹⁴⁴ "36-Item Short Form Survey from the RAND Medical Outcomes Study." *RAND Corporation*, www.rand.org/health/surveys_tools/mos/36-item-short-form.html.
- ¹⁴⁵ "RAND Medical Outcomes Study" *RAND Corporation*, https://www.rand.org/health/surveys_tools/mos.html.
- ¹⁴⁶ Merriam, D.; Bality, A.; Stein, J.; Boehmer, T. 2017. Improving Public Health through Public Parks and Trails: Eight Common Measures. Summary report. US Department of Health and Human Services, Centers for Disease Control and Prevention and US Department of the Interior, National Park Service. http://go.nps.gov/improving_public_health
- ¹⁴⁷ "Tools and Measures" Active Living Research, Robert Wood Johnson Foundation, <https://activelivingresearch.org/toolsandresources/toolsandmeasures>
- ¹⁴⁸ "Shinrin-Yoku Forest Medicine." *Shinrin-Yoku: the Medicine of Being in the Forest*, www.shinrin-yoku.org/shinrin-yoku.html.
- ¹⁴⁹ Half-life is defined as the time taken for the radioactivity of a specific isotope to fall to half its original value.
- ¹⁵⁰ American Public Health Association, Ibid.



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