Nature's Riches:

The Health and Financial Benefits of Nearby Nature

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Did you get enough 'Vitamin N' today?

People can make choices to improve personal health, such as going to the gym or eating organic food, but what about just sitting under a tree?

Nearly 40 years of scientific research demonstrates that the experience of nature in cities contributes to our health and wellness. Having nearby nature in the vicinity of one's everyday life – whether during your commute, taking a walk through the neighborhood, or at your child's school – is now recognized to have important, yet often overlooked, positive effects on health. You don't have to travel out beyond the city to gain nature-based benefits; nearby parks, trees, and gardens can improve everyone's quality of life and wellness.

Experiences of metro nature – meaning the entire sweep of native, cultural and built nature in cities – contribute to healthier birth weight in babies, reduced ADHD symptoms in children, stress and anxiety reduction for adults, reduced neighborhood crime, faster healing in hospitals, and improved mental health for seniors. Do you see the pattern? Having access to small bits of nature is important across the entire life cycle, **from cradle to grave.**

Public health officials are increasingly interested in preventive and community-based health strategies. Chronic health issues at an early age can set up a person for other diseases or conditions later in life. Older people are more susceptible to secondary illnesses once they experience injury or disease. Nature doesn't cure all ills, but having nature nearby supports opportunities for better mental and physical health, respite from busy lifestyles, and places that add meaning to life.

NEARBY NATURE INCLUDES A VARIETY OF SPACES AND PLACES

IMAGE BY MIG / SvR

The Green Cities: Good Health web site is hosted by the University of Washington and USDA Forest Service; it provides a summary of the research around nature in cities and human health.

In the United States, health care costs are huge, about 17% of the annual Gross Domestic Product (GDP). A large and growing body of research indicates that access to nature in our cities and towns provides significant health benefits. Trees, parks, and gardens may be thought of as 'nice to have' – amenities that are pleasant but not essential. Research about the environmental and social services of nature in cities and towns only hints at the economic value of nearby nature. Local leaders need estimates of the monetary value of these benefits to justify public spending on parks and natural spaces.

Public health and medical officials are expanding preventative and community-based health programs to reduce disease and promote health for people of all ages. Nature experiences are not bought and sold like medications; it can be difficult to isolate the 'soft profits' of better health in communities, while the hard costs of trees, parks and gardens can be tallied. Yet communities often invest in essential services, knowing that schools, fire and police departments, and road systems provide important benefits.

Recent research has teased out some of the economic impacts of having quality, well-managed green spaces near where people live, work, learn and play in cities. Using a variety of non-market valuation approaches, economists have isolated the nature services that are most likely to offset health costs. The result, based on just a few of the many benefits, adds up to billions of dollars of annual cost savings in our nation.

It is critical to have high quality, nearby nature in our communities, and make it available to everyone.

Modest investments in nearby nature equal billions saved in public health costs!

GREATER INVESTMENT IN THE NATION'S NEARBY NATURE COULD RETURN:

- ANNUAL SAVINGS UP TO:
  $11.7 BILLION
  IN AVOIDED HEALTH CARE COSTS
- ANNUAL INCREASE OF UP TO:
  $1.3 BILLION
  IN HIGH SCHOOL GRADUATES' LIFELONG INCOMES
- ANNUAL SAVINGS UP TO:
  $928 MILLION
  IN AVOIDED COSTS RESULTING FROM CRIME

More cost savings results are inside. The References provide details about the analysis.

Research about nature benefits and economic value is fairly new. Some of the quantified health benefits of nature in cities are easier to convert to economic value than others. Here are some preliminary valuations - estimated for the entire U.S. on an annual basis.

INFANTS

BIRTH WEIGHT

POTENTIAL ECONOMIC VALUE:
$5.5M SAVINGS ON ANNUAL HEALTH CARE COSTS.

Birth weight influences long-term childhood health and development, and has been linked to some adult diseases. Low birth weight is associated with both short- and long-term health care costs, such as longer hospital stays and increased illness. Pregnant women that have more tree canopy and green space near their homes generally have babies with healthier birth weights.

IMMUNE FUNCTION

ECONOMIC IMPLICATION:
STRONGER IMMUNE SYSTEM LEADS TO REDUCED ILLNESS AND CHRONIC DISEASE ACROSS A LIFETIME.

We are most vulnerable in the early months of our lives, when the body and mind are growing and developing at an astonishing rate. The 'hygiene hypothesis' suggests that early contact with outdoor microorganisms stimulates the development of a healthy immune response.

FAMILY DYNAMICS

ECONOMIC IMPLICATION:
IMPROVED FAMILY DYNAMICS, PERHAPS REDUCING MENTAL HEALTH TREATMENT AND COUNSELING SERVICES.

An infant's parents and siblings adjust their lives after a baby arrives, and the changes can bring on stress and anxiety. Nature views and walks help reduce these conditions and improve interactions between people within the household.

Note: All economic values are in 2015 U.S. dollars, and are potential annual savings across the entire U.S.

CHILDREN & TEENS

OVERALL HEALTH AND WELL-BEING

ECONOMIC IMPLICATION:
INCREASED PHYSICAL ACTIVITY, REDUCED ASTHMA (A LEADING CAUSE OF EMERGENCY DEPARTMENT VISITS, HOSPITALIZATIONS AND MISSED SCHOOL DAYS), AND REDUCED RISK OF ADULT SKIN CONDITIONS.

Negative conditions in a child's surroundings can cause both immediate and ongoing health impacts. Nature is a positive influence; playing in nature helps children develop learning, social, and intellectual skills that improve both health and later life achievement. Green spaces clean the air our children and teens breathe, give them space for moderate to vigorous activity, and shade them from too much sun exposure.

ADHD

POTENTIAL ECONOMIC VALUE:
$396M–$1.9B ON MEDICATION SAVINGS PER YEAR.

Millions of children ages 3-17 are treated for Attention Deficit Hyperactivity Disorder (ADHD) in the U.S. Nature exposure is a potential alternative treatment; studies show that activity within nature or green spaces, such as play or just 20 minutes of walking, can reduce symptoms.

FUTURE FINANCIAL SUCCESS

POTENTIAL ECONOMIC VALUE:
$1.3B INCREASE IN HIGH SCHOOL GRADUATES' LIFELONG ANNUAL INCOMES.

School performance affects both near term self-esteem and long-term success. Having green views from classrooms and common spaces in schools can improve students' capacity to direct attention and feel less stressed. Green high school campus landscapes are linked to higher graduation rates.

Nearby nature experiences are important across the entire life cycle, from cradle to grave.

ADULTS

DEPRESSION AND STRESS

ECONOMIC IMPLICATION:
REDUCES FRUSTRATION, MENTAL DISTRESS AND DEPRESSION DISORDERS, AND IMPROVES BODY IMAGE, SELF-ESTEEM AND LIFE SATISFACTION.

Busy, highly scheduled lifestyles take their toll. Nature experiences reduce stress. Nearly 16 million adults experience major depression each year in the U.S., and mental, behavioral, and neuropsychiatric disorders are a leading cause of disability. Nature experiences support respite and mindfulness for improved mental health, mood, and life function. Improved mental health and function reduces disease treatment costs, and improves worker productivity.

CARDIOVASCULAR DISEASE

POTENTIAL ECONOMIC VALUE:
$1.2–$2.3B ANNUAL SAVINGS, BASED ON A 1–2% REDUCTION IN HISTORIC EXPENDITURES.

Cardiovascular Disease is the leading cause of premature death in the U.S. People show slightly reduced risk of CVD if their neighborhoods have greater nature coverage (particularly tree canopy), however it is worth noting the majority of studies have focused on men.

CRIME & SAFETY

POTENTIAL ECONOMIC VALUE:
$928M IN REDUCED COSTS OF CRIME FOR VICTIMS AND PROPERTY OWNERS PER YEAR.

Personal safety and security are important conditions for quality of life. The presence of nature in neighborhoods – community gardens, forest canopy, and landscaped vacant lots – is associated with reduced personal and property crime.

OLDER ADULTS

MOBILITY & QUALITY OF LIFE

POTENTIAL ECONOMIC VALUE:
$1.7–$2.4B SAVINGS ON HEALTH CARE COSTS FROM FALLS PER YEAR.

One in three older adults falls each year, giving rise to fatal and nonfatal injuries. Residents' falls within elder care facilities are particularly expensive medical situations. Being out in nature sustains personal mobility, leading to reduced falls and reduced need for medications. Further, those who are socially isolated are more likely to be unhealthy, so gardening and nature walking activities that promote social interactions support positive lifestyles and quality of life.

HYPERTENSION

POTENTIAL ECONOMIC VALUE:
$1.3–$2.6B SAVINGS ON TREATMENT COSTS ANNUALLY.

Hypertension, or high blood pressure, is one of the five most expensive conditions impacting older adults. Views of nature, particularly forests, and 'forest bathing' (casual walks in naturalistic forest settings) decrease diastolic rates.

COGNITIVE DISORDERS

POTENTIAL ECONOMIC VALUE:
$1.2–$2.5B ANNUAL SAVINGS ON MEDICAL SERVICES, NOT COUNTING THE VALUE OF HOME CAREGIVERS' SERVICES.

About one in five older adults experience mental and cognitive disorders, with age being the greatest risk factor. In 2016, about 11% of people aged 65 or older were afflicted with Alzheimer's disease. Those with dementia have three times as many hospital stays per year as other elders. Encounters with nature improve symptoms related to cognitive disorders, such as agitation, depression, and reduced mobility.

IN CONCLUSION

Community planners and leaders should plan and design with nature to improve wellness & quality of life.

The Biophilia Hypothesis is the notion that humans have an innate, ancient connection to nature. Studies show that this affiliation with nature supports a wide range of health and wellness benefits. Our nation, cities and towns need to integrate high quality experiences of nature into everyday places. It is important to co-design our residential, commercial, and retail areas for co-benefits of clean air, clean water, and better quality of life.

Understanding the economic value of human health and wellness helps community planners and leaders make better investments in nature. Emerging research on the dosage of 'Vitamin N' will improve the cost-to-benefit analysis. In the long run we may find that civic ecology and urban greening are efficient and effective ways to improve livability and wellness for people of all ages. Equity is important; all people should have access to metro nature, even in the most highly populated and diverse urban settings.

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