Healthy Places: Exploring the Evidence

"Sense of place" is a widely discussed concept in fields as diverse as geography, environmental psychology, and art, but it has little traction in the field of public health. The health impact of place includes physical, psychological, social, spiritual, and aesthetic outcomes.

In this article, the author introduces sense of place as a public health construct. While many recommendations for "good places" are available, few are based on empirical evidence, and thus they are incompatible with current public health practice. Evidence-based recommendations for healthy place making could have important public health implications.

Four aspects of the built environment, at different spatial scales—nature contact, buildings, public spaces, and urban form—are identified as offering promising opportunities for public health research, and potential research agendas for each are discussed. (*Am J Public Health.* 2003;93:1451–1456)

| Howard Frumkin, MD, MPH, DrPH

SOME PLACES ARE ROMANTIC, and some places are depressing. There are places that are confusing, places that are peaceful, places that are frightening, and places that are safe. We like some places better than others. Place matters.

"Sense of place" is a widely used term, and one that remains difficult to define. The antecedent Latin term, *genius loci*, referred not to a place itself but to the guardian divinity of that place. In modern, more secular times, the term connotes the *atmosphere* of a place, the quality of its *environment.* This matters because "we recognize that certain localities have an attraction which gives us a certain indefinable sense of well-being and which we want to return to, time and again."[1(pp157–158)]

The features of a place affect us in many ways. We gain spatial orientation—our sense of where we are and how to get where we are going—from place cues.[2, 3] Places can evoke memories, arouse emotions, and excite passions.[4,5] Some places have spiritual resonance; every religion has sacred places, some natural such as the Himalayas for Buddhists and Hindus[6] and some built such as the great Catholic cathedrals. Legends are grounded in places.[7] Places affect our performance as we work and study. Some places—the social gathering spots that sociologist Ray Oldenburg[8,9] has called "great good places"— help us connect with other people. Some places, as every vacationer knows, seem to enhance well-being. Some places may even promote good health.

The qualities of a place—and its potential impact on health—represent more than its physical features. Place is also a social construct. As noted by sociologists Kevin Fitzpatrick and Mark LaGory[10] in their discussion of inner-city neighborhoods:

> While a place's character is a function of physical qualities, it is also a product of risks and opportunities, the nature of the social organization attached to the locale, its political, social, and economic relationships with other places, the psychosocial characteristics of the individuals occupying the space, and the local cultural milieu. We learn to act in specific ways in certain places; we don't genuflect in bars or drink beer and eat popcorn in churches. Hence, our actions in various places are conditioned by a number of factors, all of which may operate on the individual to affect not only their [sic] behavior, but also their [sic] health.[10(p17)]

People are heterogeneous and vary in their responses to place. Some like forests, others like deserts, others like manicured back yards, and others like bustling city streets. A person's "place in the world," including socioeconomic status, sense of efficacy and opportunity, and cultural heritage, affects the experience of place.[11] As with any medication, infectious exposure, or toxin, a full understanding of the effect of places on people requires an understanding of human variability.

There is every reason for those who care about public health to care about place. If places have such varied and far-reaching effects on people, we would expect some places to surpass others in promoting health and well-being. There is an analogy to medications, for which we consider both efficacy and safety. The field of environmental health has focused much attention on safety, defining the dangers of such places as cliff edges, hazardous waste sites, and lead smelters. But what about efficacy? How do we know what makes a good place?

THE EVIDENCE OF GOOD PLACES

There is no shortage of guidelines on how to recognize, design, and build a good place. Where do these guidelines originate? Sources range from personal opinion to empirical data.

First, some guidelines appear as *ex cathedra* pronouncements. Much of the literature in architecture, art, and design exemplifies this approach. Authors declare what is beautiful and what is not, what works well and what does not, and how places ought to be built. It often makes for lively reading, but the reader may wonder: Says who? By what authority? Does this arrangement actually *work*? Does it make people happier or healthier? How would success be measured?

Second, some guidelines emerge out of deductive inference. The practice of Feng Shui, which begins with general principles of place and deduces specific recommendations about how to design rooms, homes, and other buildings, is an example.[12] So is the current interest in

biophilia, the theory that humans have an "innately emotional affiliation . . . to other living organisms."[13,14] On the basis of this theory, some authors have asserted that humans should be around natural places. While there is a certain amount of empirical evidence for both lines of thought, many recommendations have flowed directly from the conviction that nature contact must be a good thing—an application of general principle to specific actions.

Third, some guidelines emerge from qualitative observational research. Jane Jacobs' careful scrutiny of Greenwich Village, New York, in the 1940s and 1950s—walking its streets, visiting its shops, and lingering in its cafes—as recorded in her *Death and Life of Great American Cities*,[15] and William Holly Whyte's detailed photography of the sidewalks, parks, playgrounds, and streets of New York a generation later, as described in *The Social Life of Small Urban Spaces*[16] and *City: Rediscovering the Center*,[17] are classic examples. In the manner of anthropologists, these observers noted patterns that seemed to function well, such as mixed land uses around parks, and offered them as prescriptions for urban design.

Fourth, empirical studies of stated preference, published for the most part in the environmental psychology literature, have yielded conclusions about what makes good places. Rachel and Stephen Kaplan of the University of Michigan, pioneers in this research, have reviewed much of their work and that of others in *The Experience of Nature*[18] and *With People in Mind*.[19] Respondents are shown photographs of different kinds of places and asked to choose which they prefer. People consistently favor such features as a balance of trees and pasture, clear borders, and alluring paths that curve out of sight. The general features of preferred places that emerge include spatial definition, coherence, legibility, and mystery (the promise of learning more through exploration).

Finally, empirical research has demonstrated associations between certain aspects of place and behavioral and health outcomes.[20] For example, Ulrich[21] took advantage of an inadvertent architectural experiment. On the surgical floors of a 200-bed suburban Pennsylvania hospital, some patient rooms faced a stand of deciduous trees, while others faced a brick wall. Postoperative patients were assigned essentially at random to one or the other kind of room. Ulrich reviewed the records of cholecystectomy patients over a 10-year interval. Patients with tree views had statistically significantly shorter hospitalizations (7.96 days vs 8.70 days), less need for pain medications, and fewer negative nurses' notes than patients with wall views. These results suggest that views of trees have a salutary effect and, together with other evidence, support the notion that trees are part of a "good place."

Recent empirical studies have documented small-area geographic variability in lead toxicity,[22] childhood asthma,[23] disability among the elderly,[24] and infectious diseases,[25,26] among other outcomes, suggesting a role for place-based risk factors. Such findings resonate with modern medical and public health science and offer the prospect of evidence-based guidelines for healthy places.

A PLACE FOR PLACE IN PUBLIC HEALTH

The appreciation that place matters for health is not new. Twenty-five centuries ago, in *Airs, Waters, and Places*, Hippocrates helped his readers distinguish unhealthy places (such as swamps) from healthy places (such as sunny, breezy hillsides). Fredric Law Olmsted, the preeminent landscape architect and planner of the 19th century, explicitly placed human health at the heart of his work.[27,28] A half century ago, the American Public Health Association issued a set of standards, *Planning the Neighborhood*,[29] that addressed "the physical setting in which homes should be located." These standards addressed site selection, sanitary infrastructure, planting and landscape design, street layout, lighting, residential density, and community amenities. More recently, urban planners have recognized the implications of their work for public health,[30–33] and the field of medical geography has been reinvigorated,[34] including a new journal, *Health & Place*.

But today's challenges are different from those of the past. First, the built environment is far more complex, with more materials used in construction, more elaborate building systems, and more intricate urban networks. In some ways, technical advances have reduced health risks (indoor air is now far cleaner than in the days of wood- and coal-burning stoves), but new risks need to be better defined. Second, in a highly mobile society, traditional links to place may be weakened. If a "sense of place" has benefits for health and well-being, then understanding how to design for it may have real public health value. Third, many more aspects of design, construction, and transportation are regulated than in the past, if not by law then by voluntary standards. This requires that the evidence of how places affect health and well-being be collected and codified as well. Finally, in an age of electronic communication, such information is widely and instantaneously accessible. If it is useful in advancing public health, it can be useful on a large scale.

Members of the public increasingly value their health; consider the environment to be an important influence on health; and want to live, work, and play in healthy environments. Both professionals and members of the public increasingly expect health recommendations to be supported by solid data. For all of these reasons, then, public health needs to refocus on the health implications of place. We need a broad, vigorous research agenda, and we need to apply research findings to practice.

RESEARCH ON PLACE AND HEALTH

If health research needs to focus more on place, and if empirical research can profitably be applied to questions of place and health, what are the topics to be investigated? Four aspects of the built environment offer promising opportunities for health research: nature contact, buildings, public spaces, and urban form.

Nature Contact

Contact with nature seems to be good for health, at least for some people in some circumstances.[35] As noted earlier, there is evidence that nature views speed recovery among postoperative patients. In other studies,

contact with nature has been associated with fewer sick call visits among prisoners,[36] improved attention among children with attention deficit disorder,[37] improved self-discipline among inner-city girls,[38] decreased mortality among senior citizens,[39] lower blood pressure and less anxiety among dental patients,[40] and better pain control among bronchoscopy patients.[41] There is evidence that nature contact enhances emotional, cognitive, and values-related development in children, especially during middle childhood and early adolescence.[42] Nature contact has been credited with reducing stress and enhancing work performance.[18]

These findings have important potential implications for the design of the built environment. Should gardens be incorporated into housing? Should windows in offices offer views of trees? Should neighborhood parks include certain kinds of plantings? Should hospitals offer healing gardens to patients and their families? However, before such questions can be answered, research needs to be carried out. This research needs to include careful operational definitions of nature contact, including the kinds of nature (flowers? trees? animals?) and the kinds of contact (viewing? touching? entering?). It needs to include careful operational definitions of health endpoints. It needs careful specification of the populations that are studied, and of personal attributes of study participants, to help clarify individual and group variations in responses to nature contact. It also needs careful control of potential confounders and careful consideration of alternative hypotheses. For example, wilderness experiences may be salutary because of the benefits

of companionship, being physically active, taking a vacation, or meeting a challenge, and not because of nature contact per se. As evidence emerges, we will have a clear basis for guidelines on incorporating nature contact into the built environment.

Buildings

Building design is a second arena in which health research offers great promise. Recent attention to "sick buildings" has focused attention on indoor air quality as a determinant of health.[43,44] Indeed, choosing building materials, furnishings, and cleaning agents that minimize indoor emissions; designing and operating effective ventilation systems; and maintaining air circulation and humidity at optimal levels are all recognized as important design strategies to protect health, and evidence-based recommendations are available.[45–48]

However, broader public health considerations apply as well. First, the design principles known as "green building" (see the US Green Building Council at http://www.usgbc.org, the Energy and Environmental Building Association at http://www.eeba.org, or EarthCraft Homes at http://www.southface.org/home/ech/earthcraft_home.htm),[49,50] geared primarily toward environmental sustainability, may offer substantial (if indirect) public health benefits. For example, designing for energy conservation may reduce the demand for energy, in turn reducing the emission of air pollutants from power plants. Similarly, using sustainably harvested wood may help reduce deforestation, slowing global climate change and preserving biodiversity. Public health research that takes full account

of the health benefits of such environmental building practices will yield important insights.

Second, some aspects of building design are not generally recognized as having direct health impacts but deserve renewed attention. For example, despite the established health benefits of physical activity,[51] most modern buildings with more than 2 or 3 floors have conspicuous elevators in their lobbies, and staircases that are concealed and unappealing. Could the return of prominent, graceful, well-lit staircases seduce people into walking instead of riding to higher floors?

Similarly, although there is some evidence of the role of natural lighting in promoting comfort and performance,[52] not enough is known about how lighting can be designed to promote health. With the advent of energy-efficient compact fluorescent bulbs, this question takes on added importance. Finally, although substandard housing is clearly bad for health,[53] a recent review indicated that evidence of the health benefits of specific housing interventions is scarce.[54] How to design and build good homes, schools, and workplaces remains a pressing, and largely unanswered, health question.

Public Places

Many of the best places are neither home nor work, but "third places" in the public realm: streets and sidewalks, parks and cafes, theaters and sports facilities.[9] Such public places are important venues for a wide variety of activities, of which some—such as social interaction and physical activity—have clear health implications.[55,56]

What makes a good street? There is no shortage of design guidelines issued by government

agencies and private groups. Those issued by state departments of transportation typically aim to maximize motor vehicle traffic flow and prevent collisions. Guidelines from other sources are oriented more toward pedestrians. Some, such as Dan Burden's *Street Design Guidelines for Healthy Neighborhoods*,[57] explicitly focus on health. Such sources typically recommend streets that are narrower and incorporate traffic-calming strategies; sidewalks with sufficient width, buffers, continuity, and connectivity; safe crosswalks; and bicycle lanes.

What about parks? Parks exist in a variety of settings, from urban pocket parks to waterfronts, from large expanses such as Cullen Park in Houston, Fairmont Park in Philadelphia, and Griffith Park in Los Angeles to reclaimed transportation corridors such as the C&O Canal between Washington, DC and Cumberland, Md.[58,59] Research on park use suggests that several design features play a role, including amount and type of vegetation; presence of interesting, meandering pathways; quiet areas for sitting and reading; recreational amenities; adequate information and signage; and perceived level of safety.[60] People's conceptions of parks, the expectations they bring to them, and the ways they use them vary greatly according to age, gender, ethnicity, and other factors.[61–63]

What features of street and park design predict social interactions and physical activity? A large literature provides some answers with regard to physical activity.[64–68] Proximity, accessibility, attractive scenery, good lighting, toilets and drinking water, and well-designed and well-maintained paths all seem

to predict physical activity. Less information is available regarding social interactions, but studies have suggested that "sense of community" increases when neighborhoods are walkable[69–71] and when well-maintained public spaces are located near homes.[72]

Again, much remains to be learned. If a sidewalk or trail is built, will people walk and bike? If a park is built, will people come? Which park designs are most restorative? What are the best ways to site, design, and build public places in ways that attract people, lift their spirits, encourage them to socialize, and promote physical activity?

Urban Form

Urban form results from design, transportation, and land use decisions at a larger scale than buildings and public places. In recent decades, the growing dominance of the automobile, the migration from central cities to suburbs, and zoning codes that segregate different land uses have resulted in the phenomenon known as "urban sprawl." There is no single pattern of urban sprawl, but principal features include low residential and employment density; separation of distinct land uses such as housing, employment, and retail sales; low connectivity among destinations; weak and dispersed activity centers and downtowns; and heavy reliance on automobiles with few available transportation alternatives.[73,74]

A corollary of suburban growth has been the decline of central cities. As jobs and economic activity migrated from the center to the periphery, the neighborhoods left behind became different kinds of places, with neglected and abandoned buildings, dilapidated and dangerous parks and streets, dysfunctional transportation systems, and failing infrastructures.[10,75] Poor people and members of minority groups are concentrated in such environments, raising profound social justice concerns.

Research has suggested that the land use and transportation patterns that characterize urban sprawl have health implications.[76] Heavy use of motor vehicles contributes to air pollution, which increases respiratory and cardiovascular disease as well as overall mortality. Declining physical activity, related to decreased walking, contributes to obesity, diabetes, and associated ailments. Increased time spent in traffic raises the risk of traffic crashes, and roads built for cars but not pedestrians pose a risk of pedestrian injuries and fatalities.

Mental health is threatened by factors as diverse as road rage and physical inactivity, and social capital—an important predictor of health, both directly and mediated through income inequality—may decline. At the same time, the complex of physical and social risk factors in the central city—the concentration of poverty, the dearth of social and medical services, the prevalence of substandard housing, the threats of crime and drug use, the squalor of many areas—are so well recognized that they have spawned a subfield, "urban health," with its own research centers, journals, and specialists.[77–81]

Urban form has much to do with health. Attention to the health problems of the center city has focused largely on social and organizational factors rather than features of the built environment. Similarly, health research on the consequences of suburban sprawl has been limited. Research is needed on a variety of issues. What urban arrangements, what zoning codes, what transportation plans, and what industrial policies lead to the most livable and healthy cities and suburbs? Of the many sweeping plans for urban design and urban renewal, that have come and gone over the years, which do the most for human health and welfare? What methods are available for "health impact assessment,"[82–86] and how are they best applied?

CONCLUSIONS

Public health needs to rediscover the importance of place. From nature contact to buildings, from public places to cities, there are research needs and unmet opportunities to design and build healthy places. As health professionals, urban planners and architects, transportation engineers and real estate developers, environmental psychologists and geographers learn the vocabularies and perspectives of each other's fields and pursue active collaborations, these research questions will be asked and answered with solid evidence, and healthier, more sustainable human environments will be envisioned, planned, and built. ∎

About the Author

The author is with the Department of Environmental and Occupational Health, Rollins School of Public Health, Emory University, Atlanta, Ga.

Requests for reprints should be sent to Howard Frumkin, MD, MPH, DrPH, Emory University, Rollins School of Public Health, Department of Environmental and Occupational Health, 1518 Clifton Rd, Atlanta, GA 30322 (e-mail: medhf@sph.emory.edu).

This article was accepted May 6, 2003.

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