Frameworks
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At the beginning of the 20th century, business leaders, physicians, planners and architects saw daily the effects of bad urban environments. Most evident were communicable diseases which were known to be coming from bad housing, crowding, little sunlight, unfit drinking water, mosquitoes and unremoved waste. Virtually every family had lost a loved one to an infectious disease of environmental origin. Controlling these diseases required cleaning up and better designing urban areas. These leaders proposed and put in place the funding for large urban improvements and public sanitation efforts. It was evident, one could not be well if the neighbor had typhoid and a business partner had TB. These infrastructure improvements could not have occurred if each of the professions remained isolated within its specialty. Doctors had to care about sewers, architects about sunlight, and politicians about public health accountability. The success of these efforts has been magnificent. American life spans have doubled since that time, from 40 to 80 years, and only 7 of those added years have come from medical care. The other 33 years have come from "Public Health writ large"—especially better housing, food, water, workplaces, and immunizations.

Today America must confront a different set of serious epidemics. These are epidemics of chronic diseases: long lasting difficult diseases like diabetes, obesity, depression, osteoporosis, and cancer. They are devastating to quality of life, and costly. In 1960 the United States spent 5.1% of the Gross Domestic Product on health care; in 2003 the portion was 15.3%, that is, $1.7 trillion, a tripling in the ratio in 43 years. The one year increase in dollars spent over 2002 was 7.7%. And the nation is just beginning to confront the cost of caring for an immense cohort of baby boomers who are entering the most medically expensive life stages. In the year 2000 just 9% of Americans were age 65 or over, in 2020 nearly 20% will be. While expenditures on medical care skyrocket, efforts to delay or prevent the onset of age-related diseases are just beginning to be addressed.

The epidemic of obesity will only increase these staggering costs. In 1978 15% of Americans were not just overweight but obese, by 2002 31% of us were. The average 11 year old boy today is 11 pounds heavier than he was in 1973. Overweight and obesity increase the risks of cancer, heart disease, stroke, high blood pressure, joint and bone disease, and many other afflictions. The most rapidly increasing surgery in adults and in children is bariatric surgery ("stomach stapling"). Absolute numbers of these surgeries in California have tripled in just the last 4 years. Obesity increases our risk of becoming

diabetic in adulthood nearly 40 times. When I was a young pediatrician, I never saw a child with Type 2 diabetes (adult onset type); now it is more than one third of the pediatric diabetes population. Developing diabetes before age 40 shortens life on average 14 years, and diminishes the quality of life by 20 years. The children of today may be the first generation in American history to live less long than their parents because of their overweight and lack of fitness. Much of the obesity epidemic is due to a "toxic" nutrition environment: abundant cheap high-calorie food and drinks (even at school) and a saturation of junk food advertising. But it is also because we and our children cannot walk to where we need to do our life work: schools, sports fields, friends' homes, libraries, shops or churches.

While the good news is that technology has eliminated a lot of the really backbreaking labor from our lives, we have also "designed" a lot of walking out of our lives. In 1970 66% of children walked or bicycled to school, today it is about 16%. Overall, Americans walk or bike a trivial amount –only about 6% of our trips—as compared to close to 50% for the people of chilly Scandinavia. From 1960 to 2000, we more than doubled per person driving-- from 4,000 to close to 10,000 miles per year. An American mother spends more than one hour per day in her car and half of that time is spent chauffeuring children or doing errands, again way up from a generation ago.

This lifestyle is not making us healthier and happier. Just in the last ten years the number of days that the average American reports as feeling unwell or outright sick has increased by 12 more days per year spent unwell. Expenditures for antidepressants have skyrocketed and for many health plans they are the second largest prescription expense (after cholesterol lowering medications). Our children—many of whom have little chance for home- or school-based exercise--are increasingly medicated for inattentiveness or hyperactivity.

Population changes in the 21st century will astonish. Our nation will have twice today's population at the end of the century, nearly 600 million people. California's population in 2000 was 34 million; the estimate for 2050 is 54.8 million. Riverside and Kern Counties will triple in population. The year 2050 projected population for Sacramento County is 2.8 million, larger than today's city of Chicago. Fresno County will be 1.6 million, the size of today's Philadelphia. Yet we continue to build subdivisions as if land were limitless.

Climate warming is real; the debate is just about the degree. Sacramento is projected to match the temperature of Phoenix by mid-century and the Sierra snowpack to be just a memory by the end of the century. Land use will change California's economy. In 1945 the state's most productive agricultural county was Los Angeles. Today, LA has little agriculture and most of its food comes from long distances, as does its water. Few LA children have access to parks, and for many Angelenos a chief conversation topic after real estate prices is how long it takes to get anywhere in the gridlocked city. Sadly, the Central Valley of the State, the producer of more than half the nation's fruits and vegetables, a huge economic engine, will be by the end of the century a subdivided, very hot, very air polluted Los Angeles look-alike.

This sad vision may feel overwhelming, but it is not surprising to the average American. For many of us, *things don't feel right*. We can afford homes, but they are far from work and we spend more time working and commuting than our parents did. The average American works 1835 hours per year, more than in any other developed country, and we sit in our cars for stupefying amounts of time. Despite electronic toys, cell phones, and the internet, many of our children are lonely and disconnected—more than 3 million American children today have significant depression symptoms.

What is the best non-drug way to treat depression? Exercise and social connectedness. What is the best non-drug way to treat Type 2 diabetes? Exercise and weight loss. What is the safest form of exercise? Walking. What are the most fuel-efficient least-polluting ways to commute? Walking and biking. For persons with diabetes, walking for exercise just two hours per week reduced their death rate by nearly 40%. I believe that reducing opportunities for walking as exercise is a national health threat. If you ask people why they don't walk or bike, you get answers like: "It is not safe. There are no sidewalks or bike routes or nearby destinations or proximal transit stops." Or "I feel vulnerable." "We don't have people watching out for each other the way we did when I was a kid".

After 30 years of hard work in environmental health, I have become convinced that that this confluence of threats must be countered with a congruence of benefits: what is good for us as individuals is good for community, and is good for the planet. As individuals, we need to eat plenty of fruits and vegetables, using meats and oils as condiments. This argues not only for saving California's agriculture, but for gardens nearby our homes, schools and neighborhoods. It means that as individuals, we must walk as a major form of exercise -- "10,000 steps a day". If we lived closer to work we could get those steps in and if we did not need so much car time, we might have more time with the people we love—and who care about us.

We need to belong to a community, one that is the hub and support for the routine demands of life: learning, shopping, socializing, mourning and rejoicing. Well designed communities make this much easier. For this, and for the reason that we must put 50 million Californians somewhere, we must re-create denser communities that have privacy, safety, beauty, tranquility, and culture. Such communities need to cluster near mass transit; people who use mass transit walk more and pollute less. Well designed communities can also be the safe haven during the weather disasters that global warming will bring us.

We are at the Tipping Point with global warming in the words of the prescient James Hansen of NASA. Unless we dramatically reduce the carbon loading of the atmosphere, a two to three degree temperature rise is inevitable with accelerating icepack melting and an average sea level rise of 80 feet. Green and sustainable building and community design must advance past sustainability and become "restorative".

As I see it, the biggest challenge is not knowledge (though plenty more research is needed) and it is not good will (we all want to give our children a planet as healthful,

diverse and beautiful as the one we were given). The biggest challenge is one of leadership – we need to be articulating and getting ownership of a vision of healthy communities that superbly support families, children, old people, workers, and parents, as well as the natural world around us. Well designed communities can make this much easier—it is not the only solution, but a community that is a place of the heart, as well as the wallet, is a big step towards health.

Technology benefits our lives and is built on specialization. But to achieve healthy persons, communities and planet, the barriers that separate the disciplines of health from business from design from transportation from politics must be torn down. The challenges are daunting but critical: we need to confront them just as the doctors, designers, business people and politicians did a century ago. A first step is for the medical, public health, urban design, and planning professions to work together to create active and livable communities