FROM WOMB TO TOMB: A PRESCRIPTION FOR IMPROVING OUR NATION’S HEALTH

By Stephen Bezruchka, M.D.

At least half of what influences our health as adults is determined by what happened to us when we were in the womb and for the first few years of life thereafter. Our health is also influenced by what happened to our mother when she was in her mother’s womb. Maternal grandmothers are important for our health. Fathers and grandfathers have some impact, but not as much.

Our health, collectively as a nation, is worse than that of people in over 25 other countries—pretty well all the other rich countries, and a few poor ones as well. We are about as healthy as Cuba, the country we have been strangling for over 45 years. Our happiness measures as a nation fall behind many others, and we house a quarter of the world’s prisoners. Although we are a country that espouses life, liberty and the pursuit of happiness, in reality, we end up with a short life, the illusion of liberty and the pursuit of illness. What’s wrong?

There won’t be anything here that is speculative in the sense that leading scientists and our Federal Government don’t say in official or respected publications. Most of these concepts are not seriously discussed in schools, or in the various media when health is talked about.

I will say what I think needs to be done for our country to regain its health standing in comparison to other rich countries—what medicine we need to take.

What has caused our health to decline?

Our health, yours and mine, if we are from the USA, the world’s richest and most powerful country, has deteriorated profoundly over the last decades compared to other rich countries. The cause of this health decline stems from changes in our own habits—not the individual health-related habits that we all learn about, but our habits as citizens, as the sovereign people of this country. We are abdicating our responsibility as citizens to govern ourselves and are selling this right to the rich and powerful. The result is a bigger gap between the rich and the poor, which I now identify as the root cause of our poor health. In doing this we have abrogated our right to decide our own future. That is now in the hands of our corporate elite, who look after their own welfare very profitably, but not ours. Once we come to understand the cause, and the reasons behind it, then the steps necessary to return to the road for health become apparent. There is no quick fix. The time required for getting ourselves healthy again will take decades at least. The reason is that it is in the first few years of life when the medicine to make us healthy again has to work in order that we as adults regain our health.

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Health research demonstrates that the social and economic environment in which people live is the primary determinant of their health. The level of economic and social support people have is correlated with their physical and mental well-being. People are less sick, live longer, are happier and feel better when there are smaller gaps between the rich and poor in society.

Our health in this country has declined compared to other countries, and in absolute terms. There is no debate about this. The Institute of Medicine, a federally funded agency that looks at health issues, in its 2003 publication, The Future of the Public’s Health in the 21st century”, on page 20 writes “For years, the life expectancies of both men and women in the United States have lagged behind those of their counterparts in most other industrialized nations.” At some point, we didn’t lag behind. You will find that in the late 1940s and early 50s we were one of the healthiest countries in the world.

The role of caring and sharing
What determines health in a population is the nature of caring and sharing relationships in that population. Health is not what we do to make ourselves as individuals healthy, namely the usual do’s and don’ts that I preach to my patients all the time: eat right, exercise, don’t smoke, wear a condom, buckle your seat belt. There is nothing wrong with following that individual advice. But that advice is not that important when it comes to our health. Why? Take Japan, the healthiest country in the world by any measure. Twice as many men smoke in Japan as in the USA. Japan smokes the most of all rich countries, yet it is the healthiest. That is not the reason Japan is the healthiest country—that the men all smoke. Although smoking is bad for you, compared to other things, it isn’t that bad. There are worse things we do for our health than smoke cigarettes. What are those? Not caring for and sharing with each other.

If we define our health as a country by our life expectancy, and if caring and sharing produces health, how can we measure caring and sharing and relate it to health? There are measurements of social capital, of extent of friendships, of income distribution, of political participation, of gender equality, of racism, of environmental quality, of child welfare, of numbers of prisoners (we house one quarter of the world’s jailbirds), of access to medical care and many others. If we care for and share with each other, then there won’t be such a big gap in incomes, or differences in political power, or numbers of prisoners, or women being treated unfairly, or children living in poverty (a UNICEF report released last month shows our commanding lead in having the most poor children of all rich countries). In all of these, there are strong associations of these measures with health outcomes. Can we infer causation from association? Our federal agencies have spelled out the criteria to use, beginning in the 1964 Surgeon General’s Report linking smoking and health. The association linking caring and sharing behaviors of a society to its health is causative. Societies that care for and share with each other are healthier than societies that don’t.

A measure of caring and sharing is income distribution, namely how do we decide what to pay various people in society for the work they do. There are many different statistics for income distribution used by economists and sociologists. How much more money the boss makes compared to an average worker illustrates the concept. A boss or CEO in the US makes 531 times what an average worker makes as reported in 2004. The boss makes in half a day what you and I make in a whole year. If you have looked at almost any newspaper in the last decade, you’ve seen many reports about how the income gap has sky rocketed in this country over the last few decades. Business Week reported that the gap was only 42 to one in 1980. In Japan, the world’s healthiest country, the boss only makes ten times what an average worker makes. As a measure of caring and sharing, during Japan’s economic crisis in the late 1990s, bosses and managers took pay cuts, rather than laying off workers. You can’t imagine that happening here but it is the reason for Japan’s good health.

More egalitarian societies are healthier societies. The Institute of Medicine’s Future of the Public’s Health in the 21st Century, on page 59 says: “more egalitarian societies (ie those with a less steep differential between the richest and the poorest) have better average health.” This federal document was written during the current administration. Perhaps we should have a warning on our paycheck along the lines of: “your low pay compared to the boss is bad for everyone’s health in the US.”

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When caring and sharing matter most
At what point in the human lifespan, from womb to tomb, does caring and sharing matter most? The time when caring and sharing matter most for our health as adults, the most important determinant of our health as adults, is the condition of our being from the time we are a gleam in our parent’s eyes until the age of 4 or 5.

In order to have the healthiest adult life, the conditions in early life, especially while you are in your mother’s womb, and for the first few years outside, are the most critical ones for our health as adults. This information tells us where we must act to produce health.

What we know about how human bodies work comes from various animal studies. These results are then evaluated to see if they explain the common findings in humans. Some animal studies don’t appear to translate to human findings, but many do. It allows me to decide how to investigate illness as a doctor and to prescribe treatment. If you are hemorrhaging and we replace your fluids, you survive, something we learned from bleeding dogs. The results of such animal experiments are routinely accepted. There are others that are overlooked for strange reasons. Many of the overlooked studies dwell on various behaviors, rather than physiological parameters such as blood pressure, or glucose levels.

One example I first learned from Michael Meaney at McGill University concerns mother rats. Studies on rats show that mothers who lick and groom their pups, their babies, will have those pups lick and groom their babies when they become mothers. For mothers who don’t lick and groom their pups, when the pups grow up and have their own babies, they don’t lick and groom them. If the pups are isolated from licking and grooming mothers and not licked and groomed, then when they become mothers, they don’t lick and groom their pups. And vice-versa, pups from non-licking and grooming mothers who are licked and groomed by other rat mothers will lick and groom their babies when they become mothers. Nurturing behaviors appear to be transmitted by non-genetic means. Epigenetics describes how this happens but is yet to be taught in school. This example points out the importance of what happens soon after birth and how that affects subsequent generations.

The biology behind this has two facets. One relates to the stress that you and I experience, and its hormonal manifestations. The other to what happens in the brain, which is also related to the stress of society.

The stress response
We have a physiological system that responds to imminent danger by fighting or fleeing, the so-called fight or flight response. It is mediated by cortisol and adrenaline produced in the adrenal gland. These substances ready your body to succeed in escaping the danger. They save your life. But produce these chemicals most of the time while stuck in traffic, or mad at your boss, or worrying about paying bills, and they turn out to be responsible for half of the diseases of modern society, from diabetes, to high blood pressure to heart attacks.

Studies show that the fetal lamb secretes cortisol in response to stress, whether it is getting inadequate nutrition or not enough oxygen or whether the placenta is behaving badly and allowing mother’s cortisol from her own stress to reach the fetal lamb. So the fetal lamb has to deal with it’s own cortisol production from being stressed, as well as its mothers, and then its own cells are sickened by both. This same endangerment occurs in humans. There is a vast scientific literature supporting the concept that what matters for our health are conditions early in life, especially those associated with stress.

What happens between generations? Irv Emanuel at the University of Washington has been interested in health outcomes that depend on our mothers and grandmothers. He showed the importance of the maternal grandmother in our health. To paraphrase Wordsworth, “the daughter is the mother of the woman.” To understand what impacts the woman, we have to look before her mother to her grandmother’s situation. By creating good conditions for your daughter, she will beget healthy grandchildren! It will take generations.

Another component to the stress response has not been prominently featured in either high school or medical school curriculums, namely the “tend and befriend” or “calm and connection” response mediated by another hormone, oxytocin produced in the brain. Doctors learn that oxytocin expels stuff, either uterine contents when labor is artificially induced or breast milk. It turns out to have a vast repertoire of other actions. Men produce just as much of it as women, but testosterone inhibits its effects while estrogen promotes it. So faced with an emergency, what does a woman do? She takes care of others, tends to her child, instead of abandoning it to the attacker or threat. Oxytocin is a neurotransmitter in the brain and is released during sex, massage, gossiping, trusting and many other situations that are good for us. There is likely much more of this chemical around in more caring and sharing societies and it might be a factor in the licking and grooming of
rat pups. There are studies that demonstrate higher cortisol levels in less caring and sharing human societies, but we don’t yet have population studies with oxytocin yet.

The lower down you are in society’s pecking order, the lower your income, status, wealth, job rank, education level, skin color, accent, the more cortisol you produce. As the sheep experiments show being a poor pregnant mom under stress, more of your cortisol gets into your baby, and so the baby is born not on third base, it often doesn’t even get to first base. It stumbles as it leaves the plate after a bunt. The science is clear: we are not all born equal. Those from more disadvantaged early life situations are already slated to be less healthy at birth and to become sick later. This is evident from their having low birth weights and being born prematurely which are both highly correlated with adult disease. All this happens before birth. What about after?

The Institute of Medicine’s treatise, “From Neurons to Neighborhoods: The Science of Early Childhood Development” talks about brain plasticity, namely the forming and reforming of neuronal connections in early life based on social and environmental influences. Soon after birth, the visual cortex, the part of the brain that processes visual images, is busy being sculpted. The most important reason is what British psychiatrist John Bowlby termed secure attachment on a familiar face that allows the infant to venture forth from a secure base to explore the world, knowing the face will be there when she crawls back. Eye contact is important here and we are the only primate species with whites in our eyes so the infant can know whether the attachment figure is looking at her. The report “From Neurons to Neighborhoods” points out that children who are not securely attached to a caregiver in early life have higher cortisol levels. As adults such individuals are more likely to have worse mental health and depression which is related to depression in the mother and associated with cortisol.

Around the first year of life, the auditory cortex is busy, processing sound and developing language skills. The range of vocabulary and content is vital for later success at school and avoiding behavioral problems later in life. If all you hear are cease and desist orders, namely stop that, shut up, don’t do that, you won’t do as well as an adult than if you were exposed to an engaging diverse vocabulary. Creating a nourishing early language environment is very important for adult health.

The frontal lobes of the brain are very plastic from around age two until teenage hood. The frontal lobes are our social organ. Play, sharing, looking out for one another and understanding social cues is what this period of development is all about.

**Impact of socioeconomic status**

We have cohort studies, studies which follow children from birth into adulthood. These demonstrate the profound importance of early childhood conditions on brain development, success at school, and adult health.

To quote the Feds, in “From Neurons to Neighborhoods:” “Of all aspects of children’s early environment, the family’s socioeconomic status is most powerfully associated with children’s cognitive skills when they enter school. The influence of socioeconomic status during early childhood years appears to be stronger than SES in later years.” They write that “children in single-parent families are at greater risk for poor developmental outcomes.” As well, they point out that “stress resulting from marked threats to physical or psychological well-being can have dramatic effects on health and development.” And: “Psychosocial risks that affect maternal behavior include poverty, family violence, and maternal depression. Supportive and nurturing care giving can help protect offspring from these adverse outcomes.”

Why is this important for us in the USA? In 2003 our National Bureau of Health Statistics reported that for the first time since 1958, our infant mortality rate, the proportion of babies born that die in the first year of life has gone up. Our infant mortality rate is already the highest of all rich countries, so their report sounds a death knell. A French demographer, Emmanuel Todd, noticed such a rise in the infant mortality rate in Russia in the early 1970s and wrote a book in 1976, La Chutte Finale, in which he predicted the collapse of the Soviet Union for just those reasons.

If early childhood is this important, then what do we do to foster good child rearing in the USA? When does society exercise responsibility for childhood? The only time the state legally intervenes is to make sure you have your vaccinations at age 5 to go to school. Before that it is a free-for-all. By age 5, the die is cast and getting your shots is not going to make up for a disadvantaged time in your mother’s womb or the struggles of the first five years of life. All of us have some of this early baggage to live with and I’m not saying you should not do what you can now to better your health. We need to recognize the importance of what happened before we were in a position to make individual choices and structure early life in society for better health outcomes.

We have the highest teen birth rates of all rich countries, twice the rate of the next closest country, and that gap is increasing despite a slight decline in our teen birth rates. The gap between the rich and poor is related to teens giving birth, where there is a bigger gap, more will have children.
We also have studies demonstrating that when teens are reared by a single parent, usually a poor mom, they will initiate sexual activity earlier and get pregnant sooner than if they are in a two parent family. Life for them is precarious, they won’t live that long, so better to begin your family earlier even though it will be a tough life.

Studies demonstrate that being raised in a single parent family is not only harmful for the parent’s health but also bad for the child’s health. Children raised by a single parent not only have more sickness, illicit drug and alcohol problems, and suicide attempts, but a greater chance of dying than children raised in a two parent family. Any parent can attest how difficult it is to raise a child these days. It is harder to do it alone.

The cause of our poor health is that we have given up our sovereignty to decide what is best for you and me in this country. We have been led to believe that as individuals we can achieve any level of health or prosperity we want, we just have to work harder. This is the American Dream. The problem is that we now subsidize the rich and powerful and live the American Nightmare.

Let’s look at Sweden, the second healthiest country in the world. Sweden is a very diverse country. Over 10% of the people living there are born outside of Sweden, comparable to the US rate. Swedes pay high income taxes and have a wealth tax to supply funds for social purposes. It is a decision they made, namely recognizing that everyone does better when everyone does better. They understand the importance of early childhood. In Sweden you have to take a year’s maternity or paternity leave at full pay. You can’t get out of it. After the first year, you can take an additional year of leave at 80% pay. After that if you return to work, then your child can be placed in a government run free daycare. The requirement to work in a Swedish daycare is that you have to have a master’s degree in play. The daycare experience is about learning to play with others. Such conditions give your child the chance to develop secure attachment, be exposed to a rich vocabulary and socialize with peers. It doesn’t guarantee this will happen. But it makes it more likely and the fact that child and adult mortality in Sweden is so low compared to the US attests that it works.

“Health” vs. “health care”

There are no data that support health care (as it is done in the US, at least) as having a positive impact on our health. Health and health care sound synonymous but they are not. Medical care is invested in disease, and our abilities to discover disease are so sophisticated now that I can say with certainty that if you think you are healthy, you haven’t had enough tests yet. We can find disease in anybody, but I’m talking about health. Respected sources, such as the Oxford Textbook of Public Health and others, point out this seemingly unintuitive concept. I’m not suggesting you don’t receive medical care when you need it, but don’t look to health care to make a population healthy.

A prescription for better health

How are we going to produce a caring and sharing society in the USA and get back on the road to health? We can begin by overturning pretty well all the recent legislation that gives everything to the rich while we are to be satisfied by what trickles down from them. Greed isn’t good for our health. We have to make the choice between greed and good if we want health. If we don’t, then we can continue to have ever less so the rich always have more. Not only does this make our health worse, but studies demonstrate the health of the rich is worse too.

Tax cuts for the rich and for rich corporations are not good for our health. Back in 1940, US corporations paid 40% of our federal tax bill. By 1960, it was 26%, by 1990, 13% and in 2000 only 7%. From 1996 to 2000 during a period of strong economic growth in the US, 60% of US corporations paid no tax according to the general accounting office. In 2003, Time Warner, for example, made 4 billion, 224 million dollars in profits and paid no income tax. We can change that, for we the people make the laws in this country. The intent to permanently repeal the estate tax is another example of legislation that we should not allow, for it will be bad for our health if enacted. Our highest personal income tax rates used to be 91% when we were one of the healthiest countries in the world. Now the highest tax rate is 35% and our relative health decline mirrors the drop in tax rates for the rich. We live amongst a few Hood Robbins that take from the poor and give to the rich.

We can have a maximum wage, just as we prescribed for Japan when we wrote their constitution in 1946. At that time the maximum wage was set at 65000 yen in Japan. Today the boss in Japan makes ten times what an average worker makes while ours makes 531 times. For 2003 in the US, the highest wage for CEO’s was 110 million dollars, and in some recent years it has been up to seven times that. Pay for the boss in the last decade has tripled, while corporate profits have only doubled, and worker pay only went up 49% with inflation eating up pretty well

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all of that gain. The average worker is dying for a living. President Roosevelt, a Democrat, put forth legislation in 1942 to create a maximum wage for the US of $25000 a year at that time.

We could go back to that kind of regulation, since we almost had a maximum wage then. President Nixon, a Republican, proposed a negative income tax in his Family Assistance Plan of 1969. He said there would be a guaranteed income for every family with children. Newspaper support was 95% in favor. The bill passed the House of Representatives and languished in the Senate as Nixon became embroiled in Watergate. We could revisit that legislation. Enacting it would help cope with the large numbers of homeless children that were not present back in Nixon’s time.

The medicine we need to produce health is one we used to take or considered taking in the past, so we could compound it again in our political pharmacy. Trickle-down politics is no better than trickle-down economics. We must see that we the people are the source of power, we are our population health doctors and we need to take that power back.

If the health of your children is important to you and if the health of your unborn grandchildren is important to you, then you must become familiar with the ideas presented. The illiterate of the 21st century will not be those who can’t read or write, but those who can not learn, unlearn and relearn. Verify the statements from the Institute of Medicine’s various reports which are available for free on the web. Then delve into other scientific literature. Go to our Population Health Forum’s website (http://depts.washington.edu/eqhlth/), which is a diverse source of materials. You can then teach what you have chosen to learn. Get other people thinking about this question. Band together to organize, and change the rules in this country that determine who gets what share of the pie. Inequality hurts everyone, including the rich, and it is time to redress that. But the rich and powerful won’t give up easily and will try to subvert your efforts if you are effective at organizing large numbers of people to press for better health.

An example of how the rich and powerful subvert you is provided by Martin Luther King Jr. He tried to carry out the Poor People’s Campaign in 1968 to get a half million citizens camping on the mall in Washington, DC to press their legislators for an economic bill of rights. This was too threatening to the US government which had him assassinated. This is a little known fact in the US, namely that the federal government was found guilty of conspiring to murder Dr. King in a court trial in Memphis in 1999. The media don’t report this on Martin Luther King Jr. holiday, but again, if you are interested you can find the transcripts of the trial on the King Center website. There are potential hazards like this in trying to improve health in this country.

As citizens, we need to look at existing policies in this country and new ones proposed to see what they do to the gap between the rich and poor. If they increase it, then we can expect worse health outcomes. If they decrease it, then we can count on a longer time between womb and tomb. We can only influence existing and forthcoming policies by working together to understand their health effects and to help others recognize this. Such organizing begins in our communities. The way to fight organized money is with organized people.

We cherish our democracy, or at least we talk about it, but mostly follow Benjamin’s Law: when all is said and done, more is said than done. We are not aware of how much work it takes to have a democracy. It means much more than voting once every four years. Even so, we have the lowest voting rates of all countries. Plato said 3000 years ago that for a democracy to function, the richest person should be no more than four times as wealthy as the poorest. Today that is close to a trillion to one, or a million million to one.

We don’t have a functioning democracy in this country, at least one where we the people do much work in deciding who benefits from the policies that are enacted in the United States. Democracy is not what we have, democracy is what we do. Democracy is hard work, it takes lots of time. We feel we are too busy to work in the democratic process. It takes too much time to understand the issues and to work together. If we take the time for democracy, we will more than make up for it in added years of productive enjoyable life. What a fantastic investment in ourselves, our children and our grandchildren.

If your well-being is important, you will have to work to improve our health for the rest of your lives. There is no quick fix, no way to check a box on a form and send it in and all will be well. Each of us must inventory our skills, interests and energy and act in concert with those. If you do what you enjoy doing and what you can continue doing for a long time that addresses the big picture of health, then it will make a difference for this country. I try to develop curricula for middle and high schools so that our young people will learn the need to make group decisions for our health. They need to see that being healthy is not an individual matter, but something that a society decides. Our educational system must be reformed to serve the needs of society rather than corporate interests, so this
won’t be an easy task.

It is difficult to make a living in this country espousing economic justice, so keep your day job. One person, working alone, will not help that much. We need solidarity sharing our efforts with one another.

If you give me a fish, you have fed me for a day. If you teach me to fish, then you have fed me until the river is contaminated or the shoreline seized for development. But if you teach me to organize, then whatever the challenge, I can join together with my peers, and we can fashion our own solution. If we organize to bring down the hierarchy to levels 50 years ago when we were one of the healthiest countries, we will all enjoy a much healthier and longer time between womb and tomb.

Stephen Bezruchka MD, MPH is Senior Lecturer in the Department of Health Services at the School of Public Health and Community Medicine, as well as a board-certified Emergency Physician. He may be contacted at sabez@u.washington.edu.

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