

Dr Jack Lord  
CEO, Navigenics Inc.

## Future of Health





## The Global Challenge

The world is a connected and shrinking place - and whilst we all are connected - the global issues for health are both dissimilar but connected! How so? I see three major challenges:

Firstly, between now and 2020 we are likely to see somewhere between 2 to 3 global pandemics. Several years ago the pandemic of Avian flu began in Asia; today the world faces the Swine flu that can be traced back to central and south America. And tomorrow? In general these pandemics arise in areas that do not have the top tier of preventative or public health infrastructure and, from there, spread to the advanced Western countries. And our ability to achieve global bio-surveillance for disease is limited because of unequal infrastructure, inadequate local investments and only limited global cooperation. So issue number one is bio-surveillance and adequacy of public health infrastructure.

This raises the age-old social questions about re-distribution of wealth from the richest nations to the poorest ones. Perhaps this is the decade that it will occur? If “enlightened self-interest” is a driver of behaviour, then in a world with airplanes, ships, and dependencies on global sourcing for food, it seems only logical to attack the pre-existing conditions that give rise to pandemic and invest in the infrastructure to track and treat. Of the issues the “answer” is the easiest of the global challenges - the question is “is there a will to do this?”

Secondly, for the industrialized world from the United States to Europe to Japan the cost burdens of healthcare in the face of demographic shifts (aging), increasing rate of chronic illness and related pre-cursor conditions (eg obesity) present enormous systemic challenges. The increasing cost of these effects government and personal budgets but has failed to provoke a change in approach. The context of these systems is a cultural “more is better” attitude to the investment in treatment of illness without a

corresponding investment in prevention and health. The industrial age model of treating disease in hospitals or other high intervention settings has almost a “nuclear arms” like pace of investment that outstrip any evidence of improved productivity or quality of life. So issue number two: “The world is older, sicker and fatter” than it has ever been.

We are victims of our own success. By successfully “rooting out” the causes of death and at least deferring death, we have ended up in a spot with far more people living into age bands that the world hasn’t had experience before. Consider this - today there are more people living over the age of 65 than ever have before in the entire history of the world! How do we adjust to new roles for people in these age bands? How do we engage their minds so that they remain active and contributing in the face of age related changes? What are the new rules for work, retirement, and “family”? What do our communities need to look like? And stepping beyond that the “rules” of history around work, exercise, food and natural resources are turned upside down. In a world where we used to get paid for physical work, we now pay to go to gyms to work out! We have created incredible productivity for relatively cheap food and have been super sized as a result! And today we pay more for water than we do for petrol. So, issues like behavioral change, social policies around obesity and personal responsibility for health, public investment in programs to prevent illness through a variety of means are all questions in an incredibly complex situation.

Thirdly, the role of healthcare as an important part of the economic infrastructure is often overlooked. Balancing investments in new technologies, prevention, healthcare related Information Technology with existing

Between now and 2020 we are likely to see somewhere between 2 to 3 global pandemics.

China, India and the Middle East are all seeing spikes in the rates of diabetes, heart disease and obesity. It is an inevitable march that seems to be associated with affluence and a knowledge based economy.

labor intense processes present a challenge. The balancing is complex in and of itself, so high expenditure already does not guarantee a high level of quality. Above and beyond this whilst almost every industrialized country has undertaken some approaches to healthcare reform, none have tackled the fundamental economic questions about healthcare, the healthcare workforce, and healthcare investment. This issue needs to be contextualized to the other societal investments that need to be made in education, sustainability and infrastructure. So issue number three is the 'right' amount of healthcare to spend as a percentage of GDP.

There are two tracks here: One related to the revamping of the provisioning of health care services

and the other around the process of discovery. On provisioning, when will the industry join the "information age", how will it rethink the labor and productivity related challenges, and how and who will provide prevention services? Embedded in this discussion is the entire transition from a "sick care" system to a "health care" system. The investment in discovery will parallel that transition - from "thermonuclear war" against death to the aspirational march to improving health and the quality of life. How do government policies need to change to re-prioritize these investments? How does government thinking need to move from "budgeter" to "risk manager"? And how do new discoveries around genetics, probabilistic medicine and regeneration influence the balance of prevention vs. treatment?

## Options and Possibilities

As the old saying goes "nothing is certain but death and taxes". But the pandemic of chronic illness and obesity is about as certain as one could come too. And that certainty isn't only for the developed world; it appears to be certain for the developing world as well: China, India and the Middle East are all seeing spikes in the rates of diabetes, heart disease and obesity. It is an inevitable march that seems to be associated with affluence and a knowledge based economy.

There is a reasonable level of certainty to the waves of infectious pandemics - what is not clear is the source and vectors. But given history, these diseases seem to follow a wave form and become generally more complex to treat and eradicate.

On the provisioning of health care, inertia seems to be the greatest force. Whilst there are many great discussions of healthcare reforms, the betting man would need to say that the problems as they exist today will only grow as budgets get leaner and the population

has greater demands. On discovery, high probability of a "fly" wheel effect for new diagnostic and therapeutic interventions; a questionable appetite to rebalance and invest in prevention

There are two paths that need to be worked in parallel. A holistic view of what needs to change for the twenty first century and a geographically focused bottom up for reforming healthcare systems.



Holistically the possible changes that need to be considered include; the move from a sick-care system to a healthcare systems accompanied by a shift from a passive view to health to a more active view to co-creating health. At the same time we could change from conducting research to treat disease primarily to

one where a balanced research investment - disease and prevention. In parallel with this, we can choose to migrate from provincial mindsets of health systems to a more global view of health and disease, and move from a professional driven system to a popular frame of consumer driven health.

In an ideal world the organizations responsible for global health would move from their marginalized roles to a lead role on the public stage.

## Proposed Way Forward

Given the three main issues of improving bio-surveillance and adequacy of public health infrastructure; dealing with a world that is older, sicker and fatter than it has ever been; and, at the same time, determining the “right” amount of healthcare spend as a percentage of GDP, we have some pretty substantial challenges to address. However, as outlined above, we also have a number of alternatives available to us. So what is the best path forward?

Many would now agree that, from the bottom up, individual health economies need to undertake assessments of future risk and management of future health inflation. In addition, we need to establish public policy forums around entitlement to health, sharing risks, personal responsibility, and basic health access vs. specialized healthcare services. The exploration of the utility and impact of social media, transparency of information and incentives and rewards for healthy behaviors is another one on the ‘to-do’ list. On top of that we should review the effectiveness of bio-surveillance programs and undertake strategic planning for the role of the healthcare industry in context of domestic economies

with subsequent strategies for mitigating or eliminating risk; leveraging the emerging power of science that allows us to predict future health and take organized steps to prevent illness; creating a global approach to sharing best practices, standards for information technology platforms; leveraging technologies to improve bio-surveillance and; providing education and access to social media resources that enable people to better co-create their own health as opposed to being dependent on a sick-care system or be subject to environmental influences that they are completely unaware about.

I see that in an ideal world the organizations responsible for global health would move from their marginalized roles to a lead role on the public stage. From that stage, the items that need to be addressed include; looking at population health from a risk managers view

## Impacts and Implications

The next decade is not likely to be the time for change, but instead a time that "stressors" on the system become progressively evident. Increased burdens of demography and chronic illness will remain unabated.

While progress could be achieved from quickly addressing the key challenges, unfortunately the most likely outcome is one that results from inertia. The next decade is not likely to be the time for change, but instead a time that "stressors" on the system become progressively evident. The march of increased burdens of demography and chronic illness will remain unabated; for industrialized countries the ratio of workers contributing to the system compared to the people utilizing government sponsored entitlements will continue to drop; and international collaboration to prevent illness in underserved regions will likely remain perfunctory. The net - net is we will see continuing and rising concerns about health and health care setting up the next decade for fundamental change.

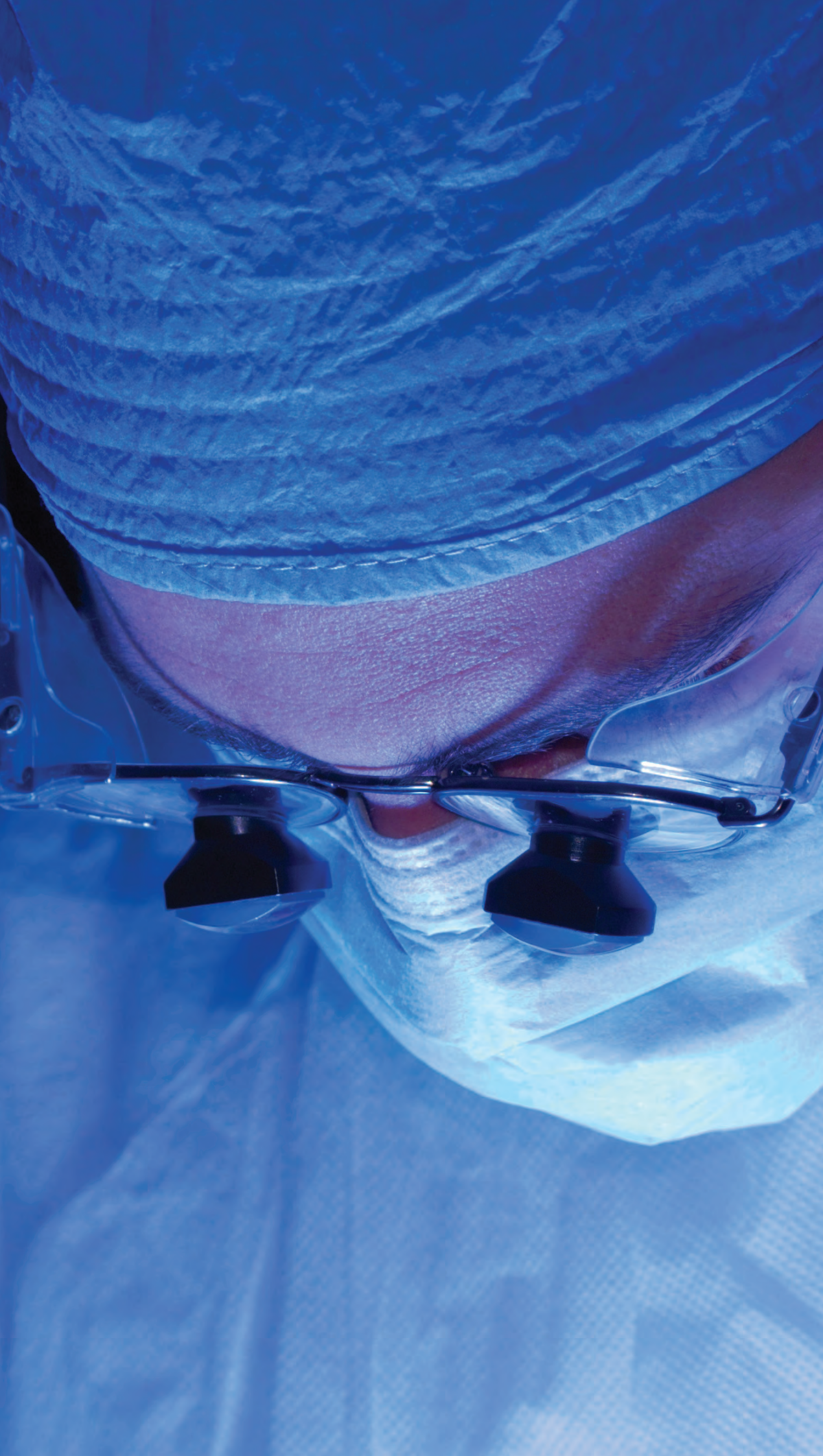
While health changes will affect and be affected by developments outside in such areas as food, technology, housing, public policy and financing, the core implications are clear. Each of the issues discussed contains a paradox that challenges our conventional ideas about how we think about these risks.

To protect ourselves from rogue infections on our own shores, in today's interconnected world we may have to think about investing in a global public health infrastructure abroad. The boundary between us and them is permeable.

We tend to view our personal health behaviors as personal and not really anybody else's business but our own, and yet the diseases that issue from our indolence, gluttony, and addictions to tobacco and alcohol are going to be financed by those of us who chose to exercise, eat sensibly, and shun smoke and drink. The boundary between me and you is permeable.

And we tend to think that the way to reduce health costs is to beat down the supply of care, when we really need to invest in preventive strategies today that will reduce the future demand for care. The boundary between now and later is permeable.

To manage these risks we need to get beyond the binary thinking. Between this and that, between us and them, between you and me, between now and later, there is an infinity of intimate connections that we can't ignore and we can't break. We can't choose between personal behavior and social responsibility. It has to be both because our personal behavior has social consequences. We can't choose between reducing health costs and investing in health promotion - it has to be both or we won't have either. We need a new kind of thinking for the pursuit of health.



We can't choose between reducing health costs and investing in health promotion - it has to be both or we won't have either.