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Noncommunicable Diseases

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What are NCDs?

NCDs, or noncommunicable diseases, are a group of diseases connected by their causes — or what doesn't cause them. They are a group of diseases defined by what they are not. Quite literally, their name means those diseases we cannot catch from another person, and the group include diabetes, heart disease, cancers, lung conditions and mental illnesses. They are often referred to as chronic or lifestyle diseases, due to the fact that they are ailments often affecting an individual over a long timeframe and deeply connected to the way in which we live, but also the economic and social opportunities we are afforded.

More on that soon.

Put simply, NCDs are a group of diseases that share determinants or drivers. These include poor diet, often resulting from a food system driven by consumption and profit; a lack of exercise, in part resulting from a rapidly urbanising and mechanising world; tobacco use as the tobacco industry moves its focus to poorer nations as a source of addicts; and harmful alcohol consumption. Originally defined by the World Health Organization as four diseases with four shared, modifiable risk factors, when we talk about diseases that are 'noncommunicable' we also include global challenges like mental illness, road-traffic accidents and injuries.

All in all, NCDs account for about two-thirds, or 36 million of the total 56 million annual deaths worldwide — more than

HIV, TB and all other causes combined. The vast majority of these deaths and global burden occur in developing countries where the majority of the world lives, but also where we see some of the highest rates of disease.

A natural first question, once we realise that these diseases are the largest contributors to global deaths today, is where did they come from? How did we get to a point where a group of largely ignored diseases kill more people that HIV, TB, malaria and Ebola combined? Well, it's actually for a number of reasons. First of all, it's because of the major successes in public health and resulting extensions of life expectancies we saw in the 20th century. We have seen enormous progress in addressing issues of water and sanitation, mass infection, nutritional insecurity, and maternal and child care for billions on the planet. This means people are now living longer, ageing populations are a common situation in many countries, the demographic structures of most nations are changing, and therefore people live long enough to develop these diseases and must die of something new. But this is only part of the picture, as we are seeing not just more people affected by NCDs, but affected at earlier ages and dying younger.

Another major driver of the global epidemic is the massive urbanisation and industrialisation processes we have seen in the past 50 years. For the first time in history, more people live in cities than not, in environments that are associated with higher levels of air and water pollution, lower levels of active transport and with food environments conducive to 'Western' diets and lifestyles. This is a major driver of cancer, heart disease, obesity and diabetes in developing countries. Finally, and likely more controversially, our economic model and globalisation have brought enormous benefits to our global populations. Billions have pulled themselves out of poverty and the globalisation of markets has allowed previously poor nations to enter the economic markets and prosper. The downside is that it is not only the economy that has globalised, but also our food system and

lifestyles. Food is now a leading risk factor for disease worldwide — surpassing tobacco. What we eat is increasingly homogenous worldwide and we are seeing an explosion of fast food consumption in developing countries. With this, we have seen enormous increases in the rates of obesity in these nations. McDonald's expected to open 700 new stores in China in 2013, with no signs of slowing. This globalisation of the diet plays an important role in the globalisation of NCDs. Finally, it is not only you who may not have heard of NCDs until very recently. The fact is that the political world, and many national governments, have only recently or are even yet to wake up to the daunting challenge of this group of chronic diseases. This lag time between disease and political actions also played a role in the enormity of the burden we face today.

With all this in mind, there is a lot to explore when it comes to NCDs. But when it all boils down, there are six key myths that stop global progress and political action on NCDs. These are key misunderstandings that lead societies and their leaders to think that NCDs are diseases of old, fat, lazy, American men — when, in fact, the reality is quite different.

Summarising the key messages

In 2015, NCDs are the leading cause of global deaths and account for around two in three deaths worldwide. Four in five, or 80% of these deaths occur in the world's developing countries, and more than 50% occur in working-age people aged less than 70 years — a time when individuals are able to contribute most to economic development and growth. For women, this burden is even more serious. Often taking a caregiving role, diseases that cause high levels of protracted morbidity over many years can result in the permanent withdrawal of women from educational and employment opportunities, and with NCDs causing 65% of global deaths among females, some regard NCDs as a leading threat to economic and social development. Crucially important though, is that NCDs are not diseases that result from ignorance or laziness,

but are deeply connected with the social determinants of health — the economic and social opportunities that are afforded to an individual or family and the environments in which they live, grow, work, play and age. Air pollution, both from indoor cooking and industrial outdoor air pollution, is a major driver of lung disease and lung cancers. Poor urban planning and an inadequately structured and often poorly accessible or affordable food system drives global obesity rates. Finally though, is the good news. The leader of the United Nations famously said that NCDs are a 'political issue, not a technical one' — that we know what to do, we just need to find the ways to do it. In reality, almost 80% of heart disease and diabetes, and one-third of cancers can be averted today with the technology and knowledge we already possess.

Let's talk details

In this section, we briefly look at some of the major NCDs in more detail; a taste for sections to come.

Diabetes

Diabetes mellitus, or type 2 diabetes, is a metabolic disease of insulin resistance and pancreatic fatigue or failure. In short, due to longterm exposure to high levels of sugar in the bloodstream and fat in the body, your body has difficulty processing the sugar. This is because processing sugar and turning it into active or stored energy takes a hormone called insulin. The more sugar is around, the more insulin is secreted. Eventually though, there is so much of both that the insulin no longer works as effectively, and the organ that makes insulin 'runs out of juice'.

Think about a classroom of screaming students and a teacher that is keeping them in check. If there are three students and one teacher, all is fine. Add another ten students and the teacher starts to get tired, show signs of strain, and maybe cannot control the students as effectively. Add another ten students and the teacher simply cannot cope, the students don't listen to the teacher any

more and eventually he gives up and goes home. The teacher is the pancreas and insulin — the students are the sugar.

There are three main types of diabetes — and indeed there is one called type 1 that is present from an early age. For this chapter, we are focusing on the lifestyle-related diabetes, or type 2. Within type 2, we have three main levels that all require different treatments. Those who are borderline diabetic (the students are starting to play up and the teacher has less control) can often control or even reverse their diagnosis with weight loss, dietary change and exercise. Then there are those with clinical diabetes but where the body still produces insulin, just that it is less sensitive and therefore produces more than usual. For this group, oral medications are often added. Finally, for those with advanced diabetes, when the pancreas has failed and no longer produces sufficient insulin, the treatment may involve exogenous insulin — through regular injections. In this last group, disease reversal through lifestyle change is not usually possible.

Cardiovascular disease

Cardiovascular disease is actually the leading cause of global deaths within NCDs. It is responsible for around one in four of the deaths worldwide each year. Again, this group is a collection of conditions in which the blood vessels of the body are affected. This can take two main forms — where disease affects the heart and leads to, among other things, a heart attack; or where it affects the small vessels in the brain and can lead to stroke. Whether because of a blockage or a bleed in the vessel, and often resulting in part from long-term exposure to factors like high blood pressure, a family history and smoking, the result is that the brain or heart is starved of blood-filled oxygen, which can lead quickly to serious disability or even death.

Mental illness

In Australia, one in five of us experiences a mental illness in the average year. Almost half of Australians aged from 16 to 85 years

will experience a mental illness at some stage during their lives. Mental illness is the third highest cause of morbidity in Australia, accounting for almost three in ten years lost to disability in the population. Major depression makes up more days lost to illness than almost any other illness.

Despite mental illness being common in Australia — and an illness like any other — it still attracts an enormous amount of stigma. A barrier to discussion and awareness, stigma around mental illness also affects the acceptability of, and therefore access to prevention and diagnosis services — and care generally.

Cancers

An important realisation when it comes to cancer, is that cancer is far from one disease. Affecting any part of the body and sometimes having a contagious basis (I know, but it is still an NCD — told you nothing is simple), this group of diseases sees an uncontrolled overgrowing of cells. Every cell in our body is finely controlled and we keep the right amount of cells at any one time by limiting the amount that are created or ensuring that they expire at a time when they're no longer needed. In cancer, one or both of these mechanisms are usually switched off and so cells grow out of control and often into spaces or places where they should not be. Eventually, they begin to grow into tumours and impede important functions of organs, block tubes and processes, or grow in spaces that are limited and as such cause physical damage to surrounding tissue. Why does this occur? Well, DNA change is usually the reason, and this is caused by a range of 'carcinogens', including radiation (for example, from the sun or nuclear radiation), chemicals (through food or air contaminants) or through chronic inflammation and irritation (for example, with some viruses).

Lung diseases

An important but often overlooked group of NCDs is the group of chronic lung diseases. Together these cause about 7% of global

deaths and include include asthma and chronic obstructive pulmonary disease or COPD. Asthma alone is estimated to cause 250,000 deaths each year, primarily from a lack of proper treatment access.

Where is the world at?

Despite suggesting that a lag in political awareness and action has stalled action and progress on addressing the global and national burdens of NCDs, it is important to acknowledge that meaningful progress has also been made, particularly in the last five years.

Global efforts

At the global level, we have seen enormous progress in the rhetoric and action around NCDs as well as their prioritisation and efforts towards mitigation and prevention:

Major Milestones in Global Action on NCDs

2000	Global Strategy for the Prevention and Control of NCDs
2003	Framework Convention on Tobacco Control
2004	Global Strategy on Diet, Physical Activity and Health
2008	2008–2013 Action Plan on the Global Strategy for the Prevention and Control of NCDs
2009	Global Strategy to Reduce Harmful Use of Alcohol
2010	First WHO Status Report on NCDs
2011	2011 UN Political Declaration on NCDs
2013	WHO Global Action Plan 2013–2020
2014	UN Outcomes Document on NCDs
2015	Country Framework for Action to engage sectors beyond health on NCDs; and adoption of the Post-2015 Development Agenda

The first and likely greatest achievement in the global fight on NCDs thus far came in the form of the Framework Convention on Tobacco Control (FCTC). This is a health treaty of the United Nations, set out by the World Health Organization. Coming into force in 2005, it has been signed by 168 nations and is legally

binding in almost every nation on the planet. One of the most rapidly ratified treaties in United Nations history, the FCTC acts as a package of universal standards and rules on the production, sale, distribution, advertising and taxation of tobacco.

More recently, another major breakthrough on NCDs came in 2011, when for the second time only in history, the United Nations held a High Level Meeting on a health topic — NCDs. This was crucial, as the first and only precedent of such a meeting was in 2001 for HIV and AIDS, which led to momentous economic and political mobilisation. More than simply a meeting of governments, this high-level convening resulted in the United Nations Political Declaration on NCDs and heralded an awakening by policy makers, on the magnitude and urgency of the global burden.

Since 2011, the global community, through the United Nations platform, has established the '25×25' target to reduce the burden of NCDs by 25%, by 2025. Although somewhat aspirational, this important vision paved the way for more focused targets in the 2013 Global Action Plan on NCDs. This action plan addresses nine domains through voluntary targets that aim to catalyse progress in important areas, including access to medicines and care; disease outcomes like diabetes; metabolic risk factors like high blood pressure; and through lifestyle factors such as tobacco use, salt intake and physical inactivity. To ensure progress was tracked and reported, a complementary monitoring framework has also been established, and in 2014 the preliminary results were reported.

National efforts

Global efforts must be matched by strong national government action, a clear message from the latest Global Status Report on NCDs. In this light, many governments have been making strong and meaningful progress towards the mitigation and prevention of NCDs.

One such example is the introduction by Australia's government in 2012 of plain packaging of tobacco. The first of its kind, it requires packaging of tobacco to be uniform 'drab dark brown', logo free, and devoid of any commercial branding reference. Plain packaging of cigarettes is currently being introduced in England and Ireland, and these requirements will come into effect in May 2016 and May 2017 respectively.

Another important example of national leadership in addressing NCDs is the introduction of a 'fat tax' in Denmark from 2011 to 2012. Although repealed after only one year, many say due to strong lobbying by local dairy and meat industries, such taxes have been shown to be effective when combined with other public health measures. They are also supported by the World Health Organization as important mechanisms for encouraging healthier behaviours in populations, particularly when related taxation revenue is used to subsidise healthier food options or health promotion initiatives.

Links to poverty and development, locally and globally

Probably the most important take-away message when it comes to NCDs is that they are not simply diseases of the rich and lazy. In fact, whether globally or locally, NCDs disproportionately and overwhelmingly affect the poor. Whether here in Australia or in the worldwide perspective, and whether looking at risk factors such as smoking rates, alcohol consumption or unhealthy diet; or looking at disease outcomes such as mental illness, obesity and heart disease, the poor are worst hit.

Now at face value this may seem simple, but in reality the reasons for this are multiple and complex. Lower levels of educational access result in poorer health literacy and understanding of healthy behaviours; financial barriers to attaining healthier and often more expensive food options as well as healthcare itself; poorer neighbourhoods that are often associated with less green-

space infrastructure, public transport access and healthy food outlets, as well as higher levels of crime that deter physical activity; intensification of marketing by tobacco, alcohol and fast food companies on lower socioeconomic regions; and the list goes on.

Moreover, though, it is the cyclical relationship between poverty and NCDs that is of most concern,. Whether in nations like Malawi, where the care for one family member with diabetes can cost up to 70% of a family income, or more empirically, where NCDs can cause chronic disability and reduced employment opportunities or abilities, it is compounded by the need for long-term care from family members and regular, routine and often costly medical intervention.

I often summarise this relationship as NCDs being a 'poverty cycle catalyst'. NCDs can cause poverty through their direct and indirect social and economic costs, but poverty is a risk factor for NCDs. In this light, this is a group of diseases that has the potential to trap and entrench families and even populations in poverty, something the global community is waking up to.

Making the links to other global health challenges

A mantra I live by with much frustration is the concept that nothing is ever as simple as it seems and that everything is linked. A guiding principle that reminds me every day to move away from archaic 20th-century approaches to medicine, public health and healthcare, where we silo issues, their funding and those that must rise and overcome the related challenges — and instead see connections, common opportunities and co-mitigation strategies.

Now, NCDs are one of the biggest challenges facing our planet today — and the largest health issue in terms of mortality and suffering. But, just as they themselves are a mixed group of varied diseases, combined by their common determinants and therefore solutions, global health more widely is a discipline and a science that transgresses multiple sectors, continents and disciplines, often involving a range of players to address. Knowing what

NCDs are is a crucial first step, but then seeing the links between NCDs and other major development and health issues is the big, crucial and paramount leap.

What am I talking about?

I might be a doctor, but actually I wasn't always medically focused. In fact, in my final year of high school, I was captain for the environment. A young college leader, I was passionate about the sustainability of our waterways, oceans and forests — I believed strongly in protecting the integrity of our natural surrounds and the wider ecosystem we inhabit. Jump forward more than a decade and I am now a medical doctor focused instead on the shifts in epidemiology we are witnessing worldwide and the rapid rise in NCDs.

From climate health, to human health

For many, this transition may seem disjointed and unrelated. How could someone go from being so passionate about the environment to being passionate about human population health? The answer is, nothing changed. There was no leap and it wasn't a conscious transition — it was a gradual shift along a single continuum. You see, these two issues are not polar opposites, but in fact largely overlapping. Human health and planetary health are really two sides of the same coin.

A few stunning *Lancet* series later, much more accepted science and the fulminant effects of climate change playing out around the globe, people are awakening to the overlap of these two issues. People see the link between human health and a healthy environment; that if our natural environment is sick, we in turn are likely to become sick; that our health is reliant on the health of the natural surroundings — our oceans, our forests and our air. But actually, this relationship goes a long way further. It is not only that a struggling planet makes for an unhealthy human race, but also that the process of becoming unwell as a population fuels the degradation of our planet. In fact, this is an important

concept to appreciate — because it is not our planet's fault that we are, in fact, becoming unwell. Both are our fault, and each are fuelling the other.

Shared risks

Think about NCDs. Largely, these diseases are a reflection of the technological gains we have made in the past century and the hyper-consumerist lifestyles many around the globe now lead. Mechanised lives lead to less and less caloric expenditure, cars replace our morning walk to work or school, we use electronics instead of being outdoors and we have mostly replaced manual labour with desk-bound work. At the same time, our diets which were once based on natural, seasonal, local, unprocessed foods are now calorie-dense, ultra-processed and served to us on a tray. Many of us eat meat most days while added sugar and fats have become ubiquitous ingredients even in our food staples.

But, hang on a moment, they were some of the major drivers of the NCD epidemic. Or were they the drivers of climate change? Carbon-intensive, mechanised lifestyles; passive, fuel-reliant transport; ultra-processed foods; meat, sugar, and oils. The reality is that these drivers of NCDs are also some of the major drivers of climate change; that in many regards, these two fundamental challenges for our global community this century are one and the same. Yes, an unhealthy world makes for an unhealthy population. Pollution and fragile eco-systems make populations more vulnerable to a range of disease outcomes but, furthermore, the drivers of both are actually shared!

Shared opportunities

The exciting part is that the reverse is also true. Mitigation for one will lead to mitigation for both and actually, additional positive externalities. If we build cities that are conducive to the use of active or public transport, we could go a long way to addressing burdens of diabetes and lung conditions and also cut our carbon emissions. If we encouraged a few more people to be weekday

vegetarians and only enjoy meat on weekends, we would likely protect a few of them from a heart attack and also reduce the methane emissions related to the production of that meat. If we could teach more of our children to connect with food, understand food, and to cook wholesome food, we might find that they are able to make healthier, more local and seasonal food choices —- foods that don't require carbon-intensive hothouses, long-distance transportation or high levels of processing.

We can have both.

I would argue that our two pressing global health challenges are in fact one. That environmental activists are public health activists and vice versa. A classic story of the whole being much more than the sum of the parts.

Climate health is human health — and human health is climate. The sooner we see and act on common opportunities, the sooner we will see transformative action on both.

Points of discussion

In this section, I want to challenge you to rethink the systems and ideologies that create and recreate health. The ideological debate of individual versus collective responsibility — is it our own fault that we or our children are fat? Is the environment in which we buy and consume food as passive as they say? And do bike lanes just look nice, or can urban planning create health?

These are stirring exerpts from my blog, and I would recommend you take a moment after each to stop, think and reflect on both sides of a difficult argument.

Your fault you're fat? I don't buy it

In October of 2014 I was in the middle of a busy week of work in Global Health. My working week started in London and ended in Mexico City. Beginning on one side of the ocean in the Queen's capital and six days later finishing up in a very different megacity, this transition was one of contrasts. From fish and chips to tortillas

and tostadas. Flat white to cafe con leche. The food, the culture, the weather — it seemed like two different worlds.

Yet, as I explored the Mexican capital, one shared element stood out. Walking the streets, parks and public spaces, a commonality surprised me about both these incredible urban meccas.

Throughout both Mexico City and London, I could not help but notice the amount of alcohol and junk-food advertising. Almost ubiquitous, it was largely impossible in either city to take in a view of the urban environment without noticing the billboards, bus-boards or moving advertisements dotted throughout the visual field. In London, the sheer amount of alcohol advertising — bus shelter after bus shelter — and on the other side of the Atlantic, the endless red and white soda billboards.

Now in countries where binge drinking and obesity are a huge strain on the healthcare system and wider society, this got me thinking. What of the continued and passionate debate on the paradox between personal responsibility and structural determinants of these health issues. Far from a consensus, this discussion is often driven by conflicting ideology and political viewpoints. In short, the question is: Does our fatness and our love of alcohol come down to stupidity or poor self-control on the part of individuals? Or is something bigger at play here?

Are people making poor but informed choices on what they eat and drink, or are we all being duped by industry?

As I enjoyed my cafe con leche in the nation with one of the highest rates of obesity in the world, I thought back to medical school; in particular, to our ethics classes and the concept of informed consent. To be able to put someone to sleep or even give them a vaccination (assuming they are not unconscious and their life is not in direct danger), then a doctor must be very careful to ensure that consent for any procedure meets three strict criteria.

So, how do these stack up when we apply them to our health choices?

1. Full and open disclosure

First, to agree to any medical procedure, the patient must be given all the facts. Not just the benefits of the procedure, but also the chances of something going wrong — however small or unlikely. They must be told in a way that they can easily understand, and the onus is on the doctor to make sure they do.

Compare this to soda or alcohol companies and their interactions with consumers. Sure, there might be a small warning on the label or a nutrition panel that no-one can easily understand without a nutrition degree, but it is hardly a drop in the proverbial ocean when compared to the endless 'information' that is provided on the benefits of consumption. Does the company have to provide all the facts and risks? No. Does the company have to make sure that the person understands soda is linked with obesity, and alcohol with cancer? No.

2. Free from coercion

The second criteria is to be free of coercion. The doctor cannot force, mislead or talk the patient into having the procedure — or manipulate them in any way.

Now, I don't claim that companies force anyone to do anything, but the advertisements I keep seeing are certainly misleading and sometimes manipulative. Sexy scenes of fun nights out; themes of health, wealth and happiness in a poverty-stricken nation; using children's characters and even people's own names on the label to get them to try the products.

3. Be in a sound state of mind

Finally, to have legal, informed consent even for the most minor of medical procedures, the person must be of sound state of mind at the time. They cannot be in terrible pain, or under the influence of drugs or alcohol, and they cannot be a minor.

Yet …

When it comes to products like soda and alcohol — linked with serious disease outcomes — we allow advertising in bars and

clubs where people are under the influence. We most certainly allow junk-food and soda advertising directed at children or in the view of children. Sure, in many nations we don't allow the sale of alcohol to seriously intoxicated customers, but are there many measures to help people make better choices before they get to this point?

I don't buy it.

Now, I am not saying that we have all been brainwashed and that we can take no responsibility over what we eat or drink. I know many of you will respond with angry calls that I am paternalistic, socialist, or in favour of Big Government.

But take just a moment and actually reflect on things.

When we have almost no health education or worse, rely on industry for this; when we are ill-equipped to critically navigate the advert-laden, urban landscape; when we are bombarded with predatory advertising and the risks are written in tiny letters with almost comical brevity; and when we are hooked as children on these products or indoctrinated into a culture of wanting them long before we have the insight and critical thinking ability to question it … Is this really about personal choice? Is this really about just choosing to eat healthier, be thinner, or drink less?

At a time when two-thirds of Australians, Americans and Mexicans (and many other nations) are overweight or obese, does this rapid and unprecedented rise come down to a sudden lack of insight, intelligence or personal control on the part of individuals?

Is it simply your fault?… I don't buy it.

Conspiracy or commercialism.

If you're anything like me, you can't get in and out of a supermarket without spending twice as much as you planned. What's more, you always leave with three or four things you don't really need and never went there to buy: those incredible bargains at the ends of the aisle, or delicious sweets at the checkout, the cooled fizzy-

drinks placed just at the exit, or the most tantalising of treats at eyeing or grabbing height …

An annoying, but random eventuality — or is it? …

Believe it or not, there is nothing random about the supermarket environment. The lack of windows; the generic, streamlined layout; the long aisles — and even the bargains at their ends. Supermarket design is anything but random. In fact, your local chain grocer is about as evidence-based as the latest issue of the *Lancet!*

Layout is scientific — finely tuned and carefully crafted to make you hungry, make you buy and even influence what you buy. Now I know this sounds like conspiracy theory, but forget the little green men — this is the real deal. The moment you walk in and grab your trolley, the experience has been purposefully manipulated to guide your decisions in a direction that suits the supermarket and their major brands.

Here are three examples of what I mean.

1. Quite the casino. Ever noticed you spend three times longer than planned at the chain grocer? Supermarkets generally have no windows and as such, no natural light or reminders of the outside world. In a similar way that casinos have no windows, this is to limit our reference to the time of day, and along with the bland, generic and streamlined interior, encourage us to stay longer and therefore buy more.

It has also been shown that brighter lighting may increase the chances of us picking up a product and background music can increase the time we spend in a store. Even spotlights at the ends of aisles have been shown to increase the time we spend looking at the products under them!

2. Chockies at the checkout. The Achille's heel of any shopper, those sweets and treats at the checkout are no accident either. Impulse shopping is again well studied and retailers know what products will sell — what brands, at what price and in what combination.

Note the lack of home-brand options, let alone healthy alternatives!

High margin, high fat, high sugar and high salt — that is the recipe for the checkout.

3. The science of placement. This is the part that really fascinates me! Based on eye-movement studies from as far back as the 1960s, products are even placed on shelves at levels and stages in the aisles to maximise interest and boost sales. Products that bring the largest profit margins (often calorie-dense) are placed at eye level or even between two shelves of 'essentials' to ensure they are seen by shoppers.

Even within the store itself, staples and perishable items have long been placed at the very rear of the store as this ensures we walk through the entire shop to get our daily milk and eggs — passing the chocolate, cakes and ice-cream on the way.

Again, all based on solid evidences, not a store-manager's hunch.

What about those discounts on the aisle-ends? Chosen and stocked with precision. Combinations of products are carefully paired and cases are filled to ensure that the products while being discounted, don't appear cheap. Researchers also know that by placing discounted cake mix next to cake icing, or crisps near soft drink, it increases the sales of both! We go to buy one (and often none), realise it would be better with both, and end up buying the pair!

Finally, aisle lengths are not even random — studies have been done and the verdict is in. The longer the aisles, the more products one has to pass to get to what we want, and the more likely we are to buy more things. But too long, and we won't pass down them at all.

It's all a careful formula.

Now, there is not necessarily anything wrong with the fact that supermarkets are being designed to increase consumption and

manipulate our buying habits. It is their space and their profit margins, but we had better be aware! So, next time you walk into the supermarket, think for a moment on what is placed where and how this influences your choices. Make active decisions on what you buy and stick to a list if you can (good luck!).

Be under no false pretences, the supermarket environment is a finely crafted science and not a random collection of products. But, whether it is just aesthetic acts or commercial coercion, I will let you decide. One thing is for sure, the supermarket chains know exactly what they are doing — and now you do too.

Why a Scandinavian model is not just a pretty concept

Very often, I find myself back in the Nordic North — the Danish capital, Copenhagen. Having lived there for a number of years, and then moved to the United States, it is interesting to come back and have another chance to reflect on the 'Scandinavian Model'. Different now as an outsider, I find it fascinating to watch on as people ride their bicycles in the snow, leave work at a reasonable hour, accept high levels of government regulation and, of course, pay almost 50% in income tax.

In fact, the movement around which Danes and Scandinavians live, work and socialise has become so widely captivating, it's become a verb …

To Copenhagenize

So, why is this? What's so great about this small group of islands and peninsula nations and the way they go about life? Let's look at some facts from the OECD's (Organisation for Economic Co-operation and Development) Better Life Index …

First of all, 94% of Danish citizens believe that they know someone they could rely on in time of need, higher than the OECD average. Voluntary voter turnout, which is regarded as a measure of public trust in government and of citizens' participation in the political process, is around 88%; considerably higher than the OECD average of 72%.

In terms of the economics, more than 73% of people aged 15 to 64 in Denmark have a paid job, well above the OECD employment average of 66%. The balance of women and men in the workforce is better than most nations — 76% of men are in paid work, compared with 70% of women. Danes work around 29 hours a week, significantly less than the OECD average of 34 hours and face the lowest income inequality with the highest minimum wages in the world.

They also score well on environmental parameters, with some 20% of national power production from renewable sources and two in five Copenhageners using a bike to get to work each day.

To globalise

So, this all sounds lovely, and one can imagine a city of Viking descendants pedalling their way to work, kids on the back, arriving at a reasonable hour to their wind-powered, gender-equal workplace. It sounds pretty good. And, despite the weather (which, trust me, is fairly oppressive at times), Danes are among the happiest in the world.

But, is it just something the rest of us have to imagine with envy? Or visit? Why can't we, in nations such as Australia, set our benchmark for a future society around similar goals?

Recently, I was reminded that the Scandinavian Model of universal healthcare and education, subsidised childcare, greater levels of government regulation, an emphasis on social welfare and a focus on people-centred, urban design is not just a utopia that the rest of the world can discuss but not achieve. Actually, and despite the fact that Denmark faces challenges including the same economic woes as the rest of Europe, the model can and should be seen as a blueprint for cities and societies around the world. Including ours.

Moreover, it is not just a vision for a cosier address, but also a more sustainable future. Think for a moment about our two biggest challenges for the coming century globally — climate change, and

the epidemic of chronic disease. Now ponder what a city would look like were we to build it around mitigating these great threats and deciding to actively turn the Titanic we're all on …

Societies where the collective decide to create a financial and social safety net through reasonable, progressive taxation to ensure the protection of all, including paying university students to study (as well as providing their courses for free) and a year of maternity leave for parents that can be shared between both partners. Cities that are built for people and for happiness, not cars. A working culture in which we work to live, not vice versa, and where it is acceptable to mould our working hours around family and for those hours to be reasonable — in part, because debt and credit cards are less of an accepted concept. A housing market that is flat and affordable due to laws that ensure housing is seen (like water and food) as a right and not a commodity, with laws prohibiting the buying of property for investment purposes. Cities, as a result, that are contained, dense urban centres with a concentration of high-quality services, infrastructure and greenspaces. The list goes on …

To localise

Now, I am not Danish and I am a proud Australian. I do not have shares in the Danish tourism industry. I have not been brainwashed. But spending time in a nation with an obesity rate half that of Australia, where people are happier, lives are just about as long, where people pay higher taxes but seem to get so much back — it makes me wonder. Could we learn a lot from our Nordic neighbours?

Maybe it is time to stop calling it the 'Scandinavian Model' and start calling it 'The Future Blueprint'.

Copenhagenize us? I'd be up for that.

NCDs as an opportunity

Okay, let's take a step back now. Breathe for a moment and not lose sight of the bigger picture on NCDs. When it comes to our

largest global health challenges, it's easy to get bogged down in focusing only on the problems: how many millions die each year, or the economic cost of disease, the social toll of neglected health issues, or the exponential increase in communities affected.

But, actually, the world is an incredibly adaptive system, and humans have a record of innovating to overcome even the biggest challenges. In the last century we made meaningful and unprecedented progress on global economic and social development, we saw billions of people achieve food security, we established worldwide agreements on human rights and healthcare and we near eradicated major disease threats and avoided looming epidemics.

In short, we have a lot to be positive about. In fact, we need to be positive when it comes to addressing NCDs.

Defining the problem is essential, but endless discussion focused solely on the challenges can be dangerous. 'Doomsday talk' leads us down a path of feeling overwhelmed, numbed and paralysed; a path where we avoid discussing the issue altogether; a path that leads to inaction and eventually (and most dangerously), political and social apathy. In 2015, we are in desperate need for a change in focus: a new rhetoric. A shift from talking about the problems facing humanity to beginning a discussion about solutions. It is time we accepted that the problems exist, achieve consensus that they are a priority and actually move a step closer towards overcoming them.

We now know that NCDs are issues that we have created and that therefore we can solve. We know that they are hitting the poorest on the globe hardest and threaten to undo some of the great progress we have made in health and development over the last centuries. We know that together they threaten the very fabric of our global community, the integrity of our natural planet, and that the time is never going to be easier or more crucial for action than now.

But, more than this, when it comes to diseases such as diabetes, heart disease, cancers, lung diseases and mental illness,

we also know the solutions, and that those solutions are possible, will probably actually save us money and will definitively save lives.

We know that rethinking the way we design cities to make health easier will result in healthier urban populations. This, in a world where more than 50% of our global community now lives in cities. We know that tighter regulation of the food system and retail environments will result in healthier diets at a time when poor diet is a leading risk factor for disease worldwide. We also know that addressing the high cost of good food and the cheap nature of junk food (and building in the true costs of those unhealthy foods) will result in healthier choices by families and individuals. We know that investing more in preventative health will actually likely save us money from the healthcare system and bring added economic, social and health benefits to those it serves.

Globally, 80% of diabetes and heart disease and one in three cancers is currently preventable with the tools, skills and knowledge we have. It is not about nanotechnologies or magic pills, the solutions exist today.

We just have to start talking about them — and the first step is this book.

Happy reading.