Diseases of comfort: primary cause of death in the 22nd century

Bernard C K Choi, David J Hunter, Walter Tsou, Peter Sainsbury


Three public health questions dominate policy discussion in the opening years of the 21st century: What is really driving the global chronic disease epidemic? Why are demands on health care rising, putting growing pressure on health care expenditure? What has to happen to stem the rising tide of obesity and physical inactivity? With what is claimed to be human progress playing a part in the answer to them, these central questions may be the tip of the iceberg warning signs that, in this and the 22nd centuries, the search for perfection and the assumption of "progress" will become a major public health problem in this and the next century.

Objective: To describe the concept, causes, and prevention and control strategies of diseases of comfort.

Methods: Brokered by a senior research scientist specialised in knowledge translation, a chair, a president, and a past president of national public health associations contributed their views on the subject.

Results: Diseases of comfort have emerged as a price of living in a modern society. It is inevitable that these diseases will become more common and more disabling if human "progress" and civilisation continue toward better (more comfortable) living, without necessarily considering their effects on health. Modern technology must be combined with education, legislation, intersectoral action, and community involvement to create built and social environments that encourage, and make easy, walking, physical activity, and nutritious food choices, to reduce the health damaging effects of modern society for all citizens and not only the few.

Conclusions: Public health needs to be more passionate about the health issues caused by human progress and adopt a health promotion stance, challenging the assumptions behind the notion of social "progress" that is giving rise to the burden of chronic disease and developing the skills to create more health promoting societies in which individual health thrives.

Context: The world has started to feel the impact of a global chronic disease epidemic, which is putting pressure on our health care systems. If uncurbed, a new generation of "diseases of comfort" (such as those chronic diseases caused by obesity and physical inactivity) will become a major public health problem in this and the next century.

The biggest technological innovation in history is perhaps the invention of electric lighting, such as the first incandescent lamp (by Thomas Edison in 1879), the electric motor and generator, and electronic equipment, the quality of life has improved for many people. However, there are unanticipated side effects. The television (TV, invented in 1925), and more recently the computer and computer games (increasingly popular since 1980), extend the hours of indoor sedentary entertainment. Children are hooked on to television sets and computers for long hours, instead of playing physical games in the backyard or in local playgrounds and parks.

Technology adds to the complex and interrelated social dynamics that are in operation, as the modern sedentary lifestyle is also a result of design issues. Presumably unintentionally, many planners and developers design crime in and safety out of many communities and neighbourhoods. Streets and public areas become unsafe because of the way buildings and spaces are configured. There are also community safety issues arising from perceptions (often misplaced and fuelled by the media) that crime is on the increase and that our streets are unsafe. Increases in traffic volume can lead to the same outcome. This makes parents overprotective of their children with the result that children become housebound rather than encouraged to play on the streets. Confined indoors it is little wonder that they seek diversion in television and computer games, thereby completing the vicious circle.

Invention of the first automobile, or self powered wheeled vehicle (by Thomas Newcomen in 1705), changed the whole lifestyle of people. Children are now driven to school, instead of walking. Also, clothes washers, dryers, and dish washers take away the opportunities of old fashioned household physical activities. Even sweeping the footpath has been replaced by (environmentally unfriendly) petrol powered blowers. Robots, or servomechanisms (invented in 1921), are now available to perform activities for people.

Another sign of human "progress" is the development of refined and fast food, such as ready to eat and ready to cook...
Japanese, and other traditional diets are very different, and meals in increasingly larger portions. The Mediterranean, popular in North America, is not quite so evident in Europe. Fast food and drive through restaurants, very down together to eat food that has been prepared and cooked (table 1). Is this modern change in eating habits good or are so refined and “energy dense” that their nutrients are food, to go with the faster rhythm of modern life. These foods Diseases of comfort 1031

Table 1 Causes of diseases of comfort

<table>
<thead>
<tr>
<th>Level</th>
<th>Mechanism</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Diseases of comfort</td>
<td>problem</td>
<td>Global chronic disease epidemic of heart diseases, cancers, respiratory diseases, mental disorders, diabetes, musculoskeletal disorders, etc</td>
</tr>
<tr>
<td>(2) Immediate causes</td>
<td></td>
<td>Obesity, high blood pressure, high blood cholesterol, stress</td>
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<tr>
<td>(3) Underlying causes</td>
<td></td>
<td>Physical inactivity, imbalanced diet, smoking, excessive alcohol</td>
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<tr>
<td>(4) Technological advance</td>
<td></td>
<td>Electricity, machines, automation, energy dense food, poor urban planning, modern life, globalised economy</td>
</tr>
<tr>
<td>(5) Civilisation</td>
<td></td>
<td>Human progress towards “perfection” (comfort, convenience and pleasure)</td>
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The kind of food that we are being encouraged to consume and the choices available to consumers represent not just individual lifestyle changes but the way our very wants and preferences are shaped by commercial conglomerates with sophisticated means of marketing their products and creating demand for them. This is especially evident among young people who can be targeted directly not only via children’s programmes on television but also increasingly through mobile telephones that very young children now possess in growing numbers. Developments like TV and faster and cheaper travel make it possible for such forms of cultural imperialism to be projected and disseminated on a global scale. In the early days, to get light, people had to walk to collect fuel and use friction to start a fire, which can mean hours of physical activity. Then came the oil lamp and the candle, matches (invented by John Walker in 1827) and the cigarette lighter, which made life easier. An electric lamp brings light on the flick of a switch, but people still need to walk to the switch. Right now there are devices that allow people to clap their hands to turn a lamp on or off, without the walking. More advanced models are based on infrared remote control, but this still requires pushing a button and there is no reason to assume that we have reached the zenith of domestic illuminatory inactivity. In the future, there may be brain wave detection devices so that people simply lie on their couch, and think “give me light”. And the light goes on.

The pill

Comfort (which includes convenience and instant gratification) is hard to resist, and is both a benefit and an inevitable price of living in a modern society. One response to diseases of comfort lies in education and in raising individuals’ health literacy (table 2). Through awareness and knowledge transfer activities, people may come to realise that comfort has a dark side. For example, enlightened car users may prefer walking instead of driving between stores that are within the same block in an open air shopping centre. Public health’s role is to promote appropriate use of modern technology to create a built and social environment that encourages walking, exercise, and nutritious food choices.

Health education has an essential role in raising awareness about healthier lifestyle choices among people. But we have to acknowledge the limits of health education. In the USA, a study of national data has shown that only 3% of Americans followed all four of the recommended health rules, namely, don’t smoke, maintain a normal weight, eat fruit and vegetables, and get some exercise.

The effect of following these lifestyle changes is greater than anything else medicine has to offer but the challenge for the public, policymakers, and public health practitioners is how to achieve these changes. A considerable investment in public health and social marketing should be undertaken to combat the commercialisation of comfort. Other public policy measures are required, too, to give priority to healthy public policy interventions.

Public funds need to be invested in building an environment that provides the comfort of modern living, but also makes healthier lifestyles a desirable and an easy choice. Some examples—none of them new but lamentably absent, ineffective, or poorly implemented—include: encouraging mass transit as a cheaper alternative to driving; clustering worksite and residential homes near public transportation facilities; making bicycle racks a priority feature at building

Table 2 Prevention and control strategies of diseases of comfort

<table>
<thead>
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<th>Mechanism</th>
<th>Events</th>
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<tbody>
<tr>
<td>(A) Diseases of comfort</td>
<td>reversal</td>
<td>Global chronic disease epidemic of heart diseases, cancers, respiratory diseases, mental disorders, diabetes, musculoskeletal disorders, etc</td>
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<tr>
<td>(B) Interventions</td>
<td></td>
<td>Education (health literacy), legislation, participative democracy, intersectional action, community involvement, healthy technology, built environment, recreational choices</td>
</tr>
<tr>
<td>(C) Continuous civilisation</td>
<td>solution</td>
<td>Comfort choices are healthy choices for all</td>
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increase consumer purchases of healthier foods. In other

tion and store coupons, may be used in the supermarket to

entrances; creating neighbourhood business within walking

distances of residential homes; and having green space and

parks for people and groups to enjoy. Health marketing

strategies, such as prompting, product sample, price reduc-
tion and store coupons, may be used in the supermarket to

increase consumer purchases of healthier foods. In other

words, there is a need for modern urban planning and health

marketing to create an enabling environment to encourage

healthier lifestyles.

If education fails or is simply not seen as sufficient or

appropriate to the nature or scale of the problem—and the

evidence is not encouraging—then the answer may lie in

legislative action (table 2). Just as seat belt regulations have

saved lives, is there a need for fast or junk food regulations?

For example, should all salad dressings be calorie reduced?

Should all shopping areas be designed to require comfortable

walking from store to store? Instead of, or in addition to,
coffee or snack breaks, how about physical exercise breaks at

work and school?

Public health needs to promote a balance between

education and legislation. Some public health practitioners

may not feel philosophically prepared to embrace public

health legislation, for example, fast food legislation, unless

we have already done everything we can to educate the

public. On the other hand, it may not be possible for public

health practitioners to do all we can to educate people about

food before we support government action to regulate the

availability of certain foods or the amount of sugar and salt

they contain, because there isn’t time given the rapid rise of

comfort related and other lifestyle diseases especially among

young people. Public health needs to act now to tackle the

problem through the support of a combination of education

and legislation. For example, it makes no sense to give

children messages about healthy eating at school when the

vending machines in those same schools are stuffed with

junk food snacks and fizzy drinks. Where is the logic in that?

Commercial pressures are the reason but both education and

legislation (such as education and legislation) will be key. Public health has now

reached a point where we need some more concrete

suggestions, even if in fairly general terms, about what

people, industries, governments, non-profit organisations

and society can and must do to tackle lifestyle diseases that

threaten the longevity of current and future generations.

THE THRILL

The same technology developed to bring us comfort,

convenience, and pleasure of living can also be designed to

bring us healthy living. There is today ample evidence

supporting the association between longevity and food intake

patterns. The European prospective envesigation into cancer

and nutrition (EPIC) study confirmed the association

between diet, nutritional status, various lifestyle and

environmental factors, and the incidence of different forms

of cancer and other chronic diseases. These and many

other studies can be used to design better health promotion

and chronic disease prevention and control strategies.

A single daily pill, or a “Polypill”, that contains six

ingredients—a statin, a blood pressure lowering

agent, and folic acid—has been proposed for all people over

What this paper adds

This paper describes reasons for the non-communicable
disease epidemic and the need for comprehensive health
promotion activities to tackle the problem. It is a policy
analysis that aims to draw attention to the fact that despite the
available research evidence, there remain issues in public
health policy that require a new approach. This centres on
the need for a political response in thinking afresh about how
we might wish to lead our lives. It would include societal
developments that are not solely technology driven simply
because the technology exists and it is assumed that this must
represent progress and improve lives.

Policy implications

This paper has extensive and global policy implications, as
revealed by the peer reviewers’ comments: “The paper is
timely and can be potentially useful for health policy
makers”, and “This is an important paper that has potential
to affect policy making all over the world”. Public health
leaders need to become more visible and assertive, and to
challenge the assumptions, stated or otherwise, around
concepts such as “progress”, “modernisation”, and “glo-
balisation”. Health policies can and should be developed to
make sure that the same science and technology that has
created comfort choices, in the course of human “progress”
and civilisation, must ensure that comfort choices are also
healthy choices for all and not merely the few.

and concluded that by 2022 if a grip was not achieved in
respect of upstream public health measures then the demand
pressures on the NHS would become unsustainable for a
publicly funded system of health care.13 14 New drugs just
about to hit the marketplace threaten to distress nationally
funded health systems unless we adopt a different approach
to our health—the notion of a “pill for every ill” and an “ill
for every pill” has to be confronted.17–19 People will generally
for the easy quick fix rather than the preventive approach
that may require personal sacrifices and lifestyle changes that
seem less palatable. But with more than one billion adults
worldwide overweight and at least 300 million clinically
obese, and a global average of 41% of adults having
insufficient physical activity,20 medical treatment of chronic
diseases on a case by case basis will soon be out of the
question, and mass prevention and control strategies (such as
education and legislation) will be key. Public health has now
reached a point where we need some more concrete
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people, industries, governments, non-profit organisations
and society can and must do to tackle lifestyle diseases that
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World cholesterol levels were found to be reduced by subsidising berry farming in North
Karelia, Finland23 24; and by introducing soybean oil alongside
an intensive public health education in Mauritius.25 26

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agent, and folic acid—has been proposed for all people over

enchanting
55 years regardless of their risk status to target major cardiovascular risk factors, as a more efficient strategy than promoting healthy life style. A “Polymeal” that is based on a healthy diet of seven food components—wine, fish, chocolate, fruits, vegetables, garlic, and nuts—has also been recommended as a safer and tastier alternative than the Polypill to reduce cardiovascular disease. Although critics, including ourselves, may consider the Polypill to be too much like “Polyfilla” (a crack filler) in terms of papering over the visible problem and disguising the root causes, the Polymeal could use modern technology and knowledge to promote public health by changing unhealthy behaviours.

CONCLUSIONS
The needs of the collective are not the same as the sum of individual preferences. The principal role of stewardship and governance is the protection of the population’s health. This is an essential role for government but it must include intersectoral collaboration with the private sector and non-government organisations and community involvement in decision making and action. Collective responsibility and action should not be abandoned in favour of a focus on individual choice and consumer models of health promotion and prevention in which it is all a matter of giving people information and advice to allow them to exercise informed choice. The growing marketisation of public policy threatens and weakens the legitimate stewardship role of government as the ties between individuals as citizens and the state become looser to be replaced by individuals acting as consumers in a marketplace. In countries with more developed economies, we take safe water for granted so why not safe food that has reduced levels of fat, sugar, and salt in line with international healthy guidelines?

There is a need for a more vigorous critique of the notion of human “progress”, particularly one that is economically driven and adheres to a particular conception of progress and economic development. Public health needs to be more passionate about health issues associated with human progress and adopt a health promotion stance. Its practitioners can no longer merely be dispassionate bystanders. Many people are helpless when faced with largely unhealthy choices. Public health should be leading the way, pointing out that diseases of comfort are an outcome of human “progress” and civilisation, and ensuring that, through health promoting education, built and social environments and legislation, comfort choices are healthy choices for all and not merely the few. For this to happen, the public health workforce needs to be equipped with the necessary skills and critical perspectives to tackle the issues identified in this paper.

We believe our message is a clear one. It may not be new but bears repeating. Public health has to become more assertive and politically aware and a powerful advocate for political and social change. In recent times, public health has failed to display these qualities and attributes. Public health leaders need to become more visible and vocal and to challenge the dogma surrounding concepts like “progress” and “modernisation” when it comes to promoting health. By restating the facts that are known to many, this paper by an international authorship is a call for global action to spread and act on the message—before it is too late.

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REFERENCES

The St Rollox works in Springburn (top left image—In 1955) was the last surviving locomotive works in Scotland. At the height of production during the First World War the St Rollox complex covered over 190 acres and provided work for about 5000 men. In 1965 the works underwent major renovations at a cost of £1.5 million (top right). By the early 1980s however the works had failed to make the transition from steam technology to modern diesel and electric engines. As a result thousands of jobs were lost when the works closed. In 1987 the site was described as a scene of “urban desolation” with poor quality high rise housing (middle left) and the area suffered from severe decline (middle right). Policymakers have suggested that the development of food superstores in deprived communities can improve the diet and health of residents, and stimulate the local economy.

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Digital images (photos 1–4) used in this article are from the Springburn Virtual Museum, part of the Glasgow Digital Library. For more information please go to http://gdld.cdrf.strath.ac.uk/springburn/ and http://gdld.cdrf.strath.ac.uk/. The authors prepared this paper while funded by a grant from the Department of Health Reducing Health Inequalities Initiative (ref 121/7492). The views expressed here are those of the authors and not necessarily those of the Department of Health.

**REFERENCES**