Personal carbon trading: a potential "stealth intervention" for obesity reduction?

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ABSTRACT

- The obesity epidemic and global warming are linked through energy use.
- A personal carbon trading scheme aimed at reducing fossil fuel usage could act as a "stealth intervention" for reducing obesity by increasing personal energy use.
- Such a scheme would complement a corporate "cap and trade" system for carbon emissions, which should increase the relative price of processed, energy-dense foods.
- The scheme would work by reducing global carbon emissions to a sustainable level (contraction), while offering potential for trade of emission rights between frugal and profligate users of non-renewable energy (convergence).
- A key goal would be changed attitudes to conspicuous (and obesogenic) consumption.
- Adoption of the scheme would make healthy choices the easy choice.

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Over 15% of the world's population are now overweight or obese.[1] One approach to address this modern epidemic involves paying greater attention to the environmental antecedents, with systems for diagnosing and modifying "obesogenic" environments.[2] However, the prospect of doing this on a large scale is daunting. Localised programs offer hope, but expansion of these requires significant dedicated resources.

The rise of global warming on the political agenda offers a unique opportunity for a "stealth intervention"* to change this. Recommendations to reduce greenhouse gas emissions provide the opportunity to not only affect climate change and non-renewable fuel usage, but also coincidentally to change food and activity environments in favour of a more healthy energy balance, to reduce population levels of obesity.

Obesity is the metaphorical canary that has alerted us to the epidemic of lifestyle-related diseases, which now account for about 70% of all visits to general practitioners.[4] Although genetics play a part in this, the star player is undoubtedly the environment. Ironically, it is growth — although not only of the waistline — that links obesity, fossil fuel energy use, and climate change: growth of the world's population, from around one billion people 200 years ago to over six billion today, and a projected nine billion in the next 40 years; growth in use of energy "sources", and a consequent outpacing of "sinks" to soak up the additional greenhouse gases emitted; and, underlying all this, economic growth, with its built-in requirement for increased consumption, irrespective of outcome.

Energy is an underlying factor linking obesity and climate change: too little personal energy expended and too much food energy consumed in the case of obesity; and too much fossil fuel energy burned and waste emissions given off in the case of climate change. Numerous reports and recommendations have been developed to deal with both of these, most employing appeals to logic or social responsibility, with a change in public attitudes being an implicit goal. But attitudes are not necessarily a driver of behaviour — often it occurs the other way around. Random breath testing, seatbelt usage, and pool safety are just a few examples of attitudes following behaviour that is legislated or regulated. The axiom "legislate and regulate where possible; educate and motivate where not" provides health promotion with a wide broom for making healthy choices the easy choice. Using the other great modern motivator — the hip-pocket nerve — can also serve to improve the outcome.

How personal carbon trading works

Carbon emissions from the oxidation of organic fuel sources make up around 70% of the world's greenhouse gases. These can now be accurately measured and attributed to the specific quantity of energy usage (ie, per unit of fuel, electricity, heating, cooling, etc) on a per capita basis. Individual carbon emissions, and hence energy use, are thus able to be given a value that can then be traded on an open market, like any other commodity.

The proposal for individual carbon trading, first mooted by Aubrey Meyer of the Global Commons Institute in the United Kingdom in 1996[5] and expanded upon by others,[6,7] stimulated interest in the development of a workable financial incentive system that provides equity and efficiency in reducing non-renewable energy use and greenhouse gas emissions. It proposes this through a system of "Contraction and Convergence", with annual contraction of global carbon emissions over a number of years to an agreed sustainable, safe level, and convergence towards equal per capita emissions globally through trade of emission rights between frugal energy users (usually the poor) and profligate emitters (usually the rich).

An individual carbon trading system overcomes the huge deficiencies of current carbon offset systems, where trees are planted in the hope that they will "soak up" atmospheric carbon. Known by a number of names, perhaps the most current of which is TEQs (tradeable energy quotas), the scheme is based on the premise that about 40% of all energy use occurs at the individual and household levels. Hence, while a corporate "cap and trade" system for carbon emissions (now accepted by most governments) may help reduce greenhouse gases, if the demand for energy among consumers remains high, the marketplace will overcome price rises.

For a personal carbon trading scheme, the plan is to allocate every individual an equal number of tradeable energy units per year, based on about 40% of a total budget (that includes both personal and corporate quotas) set by a central budgetary council. Each unit is equivalent to 1 kg of carbon released through energy usage. Trade of units is conducted either through existing credit cards, or through a carbon card system administered by banks. Individuals who are left with carbon credits (ie, those who are

* According to Robinson and Sirard, a "stealth intervention" for obesity is one done for another purpose that has a side effect of more physical activity and/or less energy intake.[3]

Theoretical effects of personal carbon trading on obesity and climate change*

- Finite and contracting energy quotas per person lead to frugality of non-renewable energy use
- Conspicuous *non*-consumption becomes an acceptable public more
- Personal energy expenditure for transport (eg, walking, cycling) is increased
- Infrastructure for personal energy-driven transport is improved (eg, cycleways, walking paths, pedestrians/cyclists given right of way at all times)
- Increases in cost of non-renewable energy-consumptive passive entertainment (eg, television, video, electronic games) lead to more active leisure pursuits in children
- Industry carbon trading increases cost of processed, energy-dense foods, relative to unprocessed, less energy-dense foods like fruit and vegetables
- Population levels of personal energy expenditure are increased, and levels of energy intake are decreased
- Reductions in non-renewable energy use mean lower carbon emissions and hence reduced effect on climate change
- Through reductions in non-renewable energy "sources" and less pressure on "sinks",[10] a more sustainable economic and ecological system is encouraged

* The outcomes presented here are obviously utopian and are proposed primarily to stimulate debate. ◆

frugal with non-renewable energy use) are then able to sell these back into the marketplace, thereby gaining financial benefit. Those who overuse their quota pay a premium price for extra energy use. (A complete summary of the proposed practical applications of the scheme is available elsewhere.[7])

This system has equity, in that convergence occurs within countries from rich, high-energy users to poor, frugal users, and between countries, also from rich to poor, serving as a more empowering alternative to aid. Unused units are retired, with a view to contraction of the total energy budget to a sustainable level. A discussion of the environmental implications of this system in a health context has recently been provided.[8] However, the potential implications for the more than one in two in the Australian population who are currently overweight or obese[1] have not been considered.

Effects of personal carbon trading on obesity and climate change

A serendipitous effect of this system could be the modification of the existing obesogenic environment by encouraging greater use of personal energy (eg, walking or cycling) in place of non-renewable energy (eg, driving fossil fuel-powered vehicles). Combined with industry carbon trading, which might be expected to reduce demand for energy-dense foods by increasing their price relative to non-processed foods (due to their associated corporate carbon costs), the outcome might not just affect climate change, but also change attitudes to overconsumption, which is currently negatively influencing human health.

A TEQ system is relatively simple to deliver through existing infrastructure, once public acceptance is achieved,[7] and is designed to reduce fossil fuel energy use and carbon emissions within a feasible time span. Reduced use of motor vehicles (mainly by limiting short trips) would mean more public support for infrastructure for pedestrians and cyclists, would make the roads safer, and potentially change laws, such as giving cyclists and pedestrians greater rights of way. Reducing inactivity in children related to passive entertainment has been shown to be more effective in increasing their personal energy expenditure than increasing their involvement in active sports.[9]

Most important within this scheme is the potential change in attitudes that is likely to follow, where the lust for non-renewable (and often fattening) consumables is reduced and the importance of health is elevated, almost coincidentally. Indirectly, this could also address newly resurrected world concerns about limits to growth in a finite system.[10] Finally, the scheme would help correct the current global disparity in access to resources, a chief cause of health differentials. Some of the possible effects of a personal carbon trading scheme on obesity and climate change are shown in the Box.

There are, of course, potential hurdles to such a system. Without population control, individual carbon emission reductions may still have a positive effect on obesity but are likely to only maintain the status quo with respect to global warming, which is not sustainable at the current level of emissions. Concessions will need to be looked at for those in essential industries and in rural and remote areas. Our notion of economic growth based on production and sale of products and services, irrespective of their social or environmental impact, will also have to be re-examined (this was intimated in the 1930s by J M Keynes, the architect of the modern economic growth system, but seems to have been lost in modern consumerist economics). Finally, lack of political will and pressure from the wealthy may hinder the uptake of such a scheme, although the urgency of the situation and accompanying social pressure might be expected to overtake this.

Future prediction is an imprecise science. There is no guarantee that the need for such a proposal will not be overcome by the development of an unlimited renewable, non-carbon-emitting energy source (a positive in itself), thereby requiring even less use of personal energy. This is unlikely to occur in the short term however, and is no major argument against the proposal anyway. Indeed, conversion to renewable energy sources and service industries will be required in any sustainable economy to follow the inevitable change required in the current system. In the meantime, the dictum of "do no harm" applies not only to the individual, but also to the environment.

The involvement of the health professions, as advocates of stealth interventions for public health issues, is vital if we are to make a dent in the rising tide of lifestyle-related diseases. This issue adds to the rapidly expanding requirements of medicine to include the broader issues of lifestyle, environmental and even economic factors in health care. If nothing else, it should stimulate a healthy debate in an increasingly unhealthy environment.

Competing interests

None identified.

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