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HOW PEAK OIL WILL AFFECT HEALTH CARE AND WHAT WE SHOULD DO ABOUT IT

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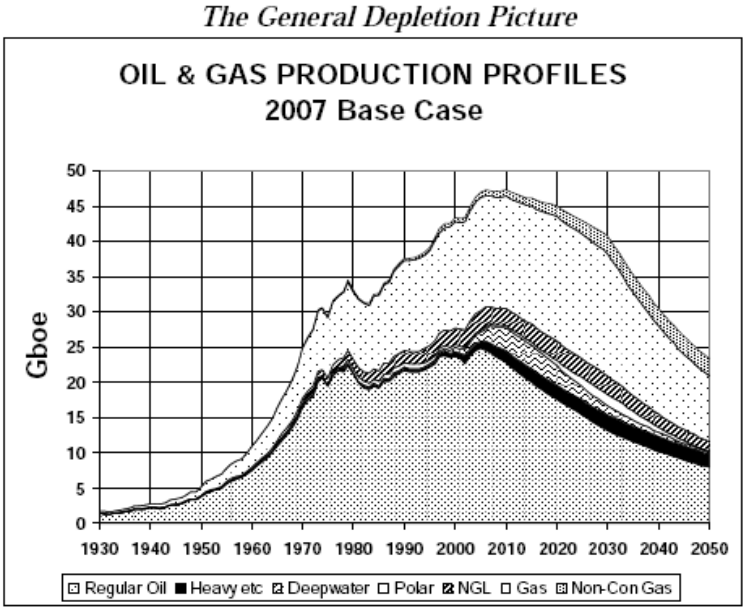
Summary

This paper explores the concept of peak oil, its relationship to health care in the UK and suggests that the Cuban model of health care may provide a framework for future UK health care provision. The rate of extraction of oil is reaching a plateau, yet demand for oil continues to rise. Simple economic theory dictates that the price of oil will rise rapidly as demand outstrips supply, and this is demonstrated by the recent price of oil exceeding $100 per barrel. Oil underpins the UK National Health System, as well as the functioning of wider society, and in order to prevent a collapse of the NHS, radical change is suggested. The key to societal survival of peak oil is a drastic reduction in reliance on oil, and Cuba provides a model of how this had to be achieved in health care when the 1990s 'Special Period' saw a dramatic fall in the supply of oil, and yet Cuba managed to maintain health indicators on par with and in some cases exceeding those of the UK. The paper suggests that the UK public, clinicians and media are not ready for the challenge of change required, which would effectively move health care away from cure and from increasing profits through privatisation, to prevention and to state provision, and there are lessons that can be learnt from the Cuban experience.

In January 2008 oil hit $100 a barrel for the first time and in the UK pump prices now exceed £1 per litre, with diesel and unleaded petrol prices rising by around 18% during the last 12 months (Automobile Association, 2008). Many believe that the world is experiencing a phenomenon known as peak oil. 'Hubbert's Peak' is the point at which oil extraction rates are at their maximum: in other words, the supply of oil cannot be speeded up. As oil fields are exploited, the rate at which oil can be extracted increases over time and then declines; typically, the maximum rate of extraction is achieved 30 years after the discovery of the oil field (Mobbs, 2005). The early extractions of oil from fields are characteristically quick and over time these slow down as the oil becomes heavier and harder to extract (Tooke, 2005). Thus, oil extraction is very different to the usual 'petrol tank' analogy which implies a tank full of very accessible fuel.

Existing oil reserves are not fully audited, leading to overestimations of supply (Mobbs 2005). However, oil fields can be mapped together to show overall production rates of oil and future trends can be predicted. Figure 1 shows the mapping by the Association for the Study of Peak Oil (2008) and suggests that peak production of oil is happening now.

Figure 1: The general depletion picture (Association for the Study of Peak Oil, 2008). (Gboe = Billion barrels of oil equivalent)



The graph shows that oil does not run out immediately but will be extracted more slowly in the future. Demand for oil, which has kept pace with the increasing supply, is not predicted to fall as supply plateaus and then drops. Demand is increasing at around 2% per year (Tooke, 2005) and, as it overtakes supply, prices will rise rapidly. Oil demand is relatively inelastic (Cohen, 2007) and this further exacerbates the price rises.

We have lived the last 100 years as though oil was an infinite resource and have behaved as if continued economic growth will last forever. Collectively, as a species, we are starting to realise that infinite growth on a finite planet is not possible.

The effect of peak oil will hit the poorer members of society first and it will hit them hardest. The impact will be felt at a very basic level with the core needs of food, shelter and security being challenged. Currently there are around 17% percent of people in the UK in 'fuel poverty' (Webb, 2008), a number that will increase rapidly as prices continue to rise ('fuel poverty' is considered to apply where a household needs to spend more than 10% of its income on domestic fuel use). With the mild winter of 2008, the effect is yet to be felt in terms of lives. In addition, petrol prices have hit an all time high (The Automobile Association, 2008).

Peak oil will not only affect direct fuel costs such as petrol, it will also impact on every other aspect of modern life. Food, with its current reliance on intensive farming, agro chemicals and long journeys to the plate, will become scarcer and more expensive. Intensive farming methods that rely on high inputs of energy have not only led to poor animal welfare but also to cheap food; however as energy prices rise and greater human labour is required in food production, the low prices we currently pay for our food are likely to end. The impact will not just be felt on tangible products and services. For example, national security will be under threat unless a managed solution to energy is found quickly; the fuel protests of 2000 were an indication of what might happen.

Impact on health care

While such effects are documented and now beginning to be felt, one aspect that has yet to be explored in any depth is the effect of peak oil on health and health care. There seems to just one major researcher into the effect on health care, Dan Bednarz, an American who generally focuses on the US healthcare system. In the UK the Transition Towns Movement (2008), set up to provide a localised plan for managing energy decent, is just starting to consider health and health care implications of peak oil (Transition Town Totnes, 2008).

While the ecology of health care has been considered to some degree, ranging from public health (Lawson, 1997) to the co-creation of health (Tudor-Hart, 2006), peak oil presents a stark and specific challenge. It also presents a great opportunity for both health and health care - provided there is a strong vision and the political, clinical and public will exists to meet the challenge.

When we consider health care, a sector that accounts for around 8% of our economic activity and employs over a million people in the UK, it becomes clear that the current model of provision is unlikely to survive.

Firstly, as regards pharmaceuticals, there are great risks to costs of production and therefore prices, with the development and transportation of medicines almost entirely dependent on oil and energy. Currently the UK's National Health Service (NHS) budget for drugs is rising at about 7% each year (Department of Health, 2007). This is a long-term trend, despite a diminishing return on effectiveness and with increasing concerns over polypharmacy (people taking more than three medications regularly – a level where the interactions of the drugs on the body and on each other render medications far more dangerous than they are on their own). Currently the drug industry receives over £10 billion of the NHS funding (Department of Health, 2007) and with the rise in oil prices having a direct effect on the cost of medicine, it is only possible to speculate what would happen if these costs were to double over a two to three year period. Whatever the outcome of this, it is likely to be dramatic.

According to the Department of Transport, 5% of all car journeys are connected to healthcare (Department of Health, 1996) and are estimated at 25 billion passenger kilometres, 83% of which were by car or van (Best Foot Forward, 2004). Again, these journeys are reliant on oil and therefore will become much harder to fund. Staff will struggle to afford to get to work, patients will struggle to afford to get to hospitals for appointments and people will struggle to afford to

visit relatives. The complaints about car parking charges will fade into the background as the cost of fuel exercises minds. The knock-on effects of staff and patients needing to travel to predominately out-of-town hospitals will be enormous, yet this will be dwarfed by the needs of people in more remote areas. Developing countries often have an urban / rural split in their health care delivery and it is easy to see how this could happen in the UK as driving becomes increasingly expensive.

A third issue is that hospitals and General Practice (GP) surgeries are themselves often inefficient users of energy. The existing stock of Victorian hospitals are draughty and costly to heat. National tariff offers no extra money for heating bills for specific hospitals and has been designed to disadvantage hospitals with high overheads, as the Private Finance Initiative hospitals are already aware. Patients need to be nursed in warm, therapeutic environments rather than in hospitals that are too expensive to heat. In this respect, investment in NHS estate has not been adequate during its 60-year history - and the last 10 years of Private Finance Initiatives will only serve to exacerbate the cost of running hospitals under peak oil. In addition is the embodied oil use within the daily workings of health care. From plastic syringes to dressings to the energy in ambulances, it is likely that the running costs of healthcare will become unsustainable, with a possible doubling of expenditure in the short-term, if we are to continue with the current model of health care.

There is a real and urgent need to address the way healthcare is organised, administered as well as to reduce the amount of energy that healthcare consumes. Radical change could not just reduce our costs and improve equity, but could also make a marked difference to the UK's carbon emissions. Ensuring continuity of universal health care would also help society to remain cohesive and supportive, rather than descending into barbarism (Power of Community, 2008). Radical change could be a win-win solution for climate change, peak oil and society.

The Cuban example

Cuba is only one country that has successfully managed an energy descent similar to that required by peak oil. The Special Period in Cuba in the early 1990s saw oil imports fall by almost 50% (Power of Community, 2008) yet it retained its position as having first world health care and first world public health outcomes. Their infant mortality rate is comparable with the UK and better than the US. With life expectancy at birth around 75 years for men and 79 for women (World Health Organization, 2007) Cuba has managed a health service that could easily have been brought to its knees by the oil shortages. There is clearly much to learn from Cuba if the UK wants to have a health service in a post peak oil world.

Despite the NHS having been the envy of the world for much of its 60year life, public perception and government treatment of the service is changing. Successive UK governments have fragmented and privatised parts of the service, pushing the NHS towards a market-based system and away from community and clinical control. The internal market introduced in 1990 has given way to an external market with private health care providers increasing supplying small

parts of care to patients. Recent developments include the payment by results system of funding - which both drives the fragmentation of care and greatly increases administrative costs. In short, the current approach to health care in England is rapidly approaching the US model and moving further away from the Cuban one. The US model spends almost twice as much as the UK as a proportion of GDP (World Health Organization 2007), yet leaves over 50 million people without easy access to health care (Marwick, 2002).

Cuba manages to run a health service with a ratio of one doctor to every 174 people, whereas the UK has one doctor to every 600 (Pietroni, 2001). Cuban health care takes just 6.3% of the nation's GDP to run, compared with around 8% in the UK and 15% in the US (World Health Organization, 2007). Cuba also runs large training schools and exports doctors to other countries. However, Cuban doctors are not paid disproportionately to others in society, typically earning $240 (Carroll, 2007) to $300 per annum (Bernal, 2007) - about twice the national average wage (BBC, 2005a). This can be contrasted with the UK where GPs typically earn 4 times the national average: £100,000 compared with £24,000 (BBC, 2005b and National Statistics, 2007).

The focus on public health and primary care is core to Cuban health care. The UK favours large GP practices, and increasingly large practices run by large health care companies, whereas the focus in Cuba is on primary care doctors working closely with their communities. A doctor will typically work in a single-handed primary care practice based at the heart of the community and have a strong connection with their patients.

Cuban doctors are trained to use 'triple diagnosis'. They will consider patients physically, psychologically and socially in their approach to health care, often visiting patients unannounced at home to get a real feel for patients' lives. While the better GPs in this country will also use a more holistic model of diagnosis, many do not, and even the better GPs do not have time to visit their patients at home. GPs may have 2000 patients on their books, some GPs have many more, and it is questionable how good preventative care can be provided with such low levels of staffing in the community. The disproportionate pay of UK doctors in comparison with their Cuban counterparts is a limiting factor as regards the number of GPs that the NHS can afford to employ. Conversely, halving GPs' pay would have a disastrous effect on moral and recruitment and would increase the problem of low doctor numbers. The UK suffers from a cultural problem that currently prevents us from moving from the high pay / low number of doctors model to the more community focussed and egalitarian perspective demonstrated in Cuba.

Polyclinics and public health

The next level of care up from primary care has been referred to as intermediate care: here again there are parallels and differences between the UK and Cuba. The UK government has talked about moving care closer to home, and has invested in community matrons as part of this initiative. However this policy has been grossly under-resourced and focuses efforts on the chronically ill rather than preventing chronic illnesses developing in the first place. There is little

support to counter the obesity epidemic within the NHS and arguably no effective policies to encourage people to eat better food or take more productive exercise.

One Cuban idea that has broken through into English public policy is that of polyclinics (Batty 2007). In Cuba, polyclinics act as an intermediate service between primary care and acute hospital services. Cuban polyclinics are an extra layer of health care serving smaller populations, providing outpatients, diagnostics, social services, emergency services and out of hours family doctors.

The Darzi report on the future of health care in London also proposes polyclinics (NHS, 2007); however the Darzi model of polyclinics differs widely from the Cuban model. Darzi's polyclinics are likely to be run by private healthcare companies paid for out of the public purse, which will fragment care and increase costs to the taxpayer. They are also likely to replace GP surgeries, centralising primary care provision and thus increasing distances to access them. Coupled with the registration of patients with GP practices rather than individual GPs, this will diminish personalised primary care; in other words, there will be a reduction in the continuity of care and a negative impact on the ability of GPs to know and understand their patients.

The role of acute hospitals in Cuba seems broadly similar to those in the UK, which suggests other key factors influence Cuban health more strongly: these could be put down to diet, exercise, a strong immunisation programme and primary care services. During the Special Period (Franco et al, 2007) there was a halving of obesity rates among Cubans. Cuba now has a far higher reliance on locally grown in-season produce and a lower meat intake. Cuban travel also radically altered during this period with a large increase in bicycle and public transport use (The Community Solution, 2007).

The Cuban health care model has shown itself to be effective in the face of drastic cuts in energy and oil supplies and therefore could serve as an example for the UK and the rest of the world as we face peak oil. It could be argued that a reversal of primary care policy in order to move the UK's primary health care system towards a Cuban model may be necessary.

Perhaps the fundamental issue facing British society is not that a new NHS able to withstand the ravages of peak oil cannot be built - but whether the medical establishment, pharmaceutical companies, politicians and the public would accept a different model.

The Cuban model is not the Rolls Royce that the public expects when it comes to treatment and cure: it is one of keeping people healthy as long as possible and could be considered more of a Ford Escort model. It implies the need for society to accept that there are limits to the curative side of health care. Treatment must take second place to good public health (prevention is better than cure) and there will be hard choices to make over expensive care to save one life or using that money to benefit people more widely. Newspaper headlines often put pressure on any manager, politician or clinician taking a pragmatic stance when faced with cost effectiveness decisions. However, many British people are unaware of the 3000 deaths each year that pharmaceuticals cause in the UK or the thousands of deaths through other iatrogenic routes - although these issues have been gaining prevalence in the media of late. The role of the media in

shaping society cannot be underestimated and presents one of the greatest challenges to building a health care service resilient to peak oil. The necessary sea change in the attitude of society is more likely to come through grass roots movements and a stark realisation of the challenges facing the country than through the media.

There was certainly political will within Cuba to ensure the continuation of health care as a stabilising factor for society during the Special Period. However, in the UK, political will for such a change seems lacking at present. Primary care and public health are perhaps not considered as exciting as the treatment of illness. Given the market ethos and the drive for the private sector supplying health care services to the NHS, the current fragmentation of UK health care seems set to continue: a reversal of policy seems unlikely.

Bednarz and Bradford (2008) talk of the need for clinical leadership in the transformation to a lower energy health service and it may be an endearing legacy of Guevara within the Cuban health care system that supported this process during the Special Period. Under a different model, UK clinicians would be paid at a level that was closer to the average wage and would not be able to top it up from private practice. Furthermore, there would be no role for GP surgeries to remain as small businesses, technically outside the NHS. To ensure that profiteering is minimised, a state owned and state run health care system is essential. If the UK wanted to reach the level of clinicians that Cuba enjoys there would need to be a far higher contribution of taxation to the NHS; clinicians would need to be paid less; or government spending would need to be diverted from other areas. As each of these options requires sacrifice, perhaps an increase in clinicians would be most fairly achieved using all three options to share the pain.

It remains to be seen whether the majority of clinicians are ready to give up many of the new treatments they have spent years researching or to switch their efforts to understanding the role of preventative health care and the wider implications of poverty, pollution and stress in society on health. Yet I would argue that, with political, public and clinical will, a post peak oil health service is possible. Not only that: it would be a far better health service than the one we currently have.

Stuart Jeffery is Health spokesperson for the Green Party.

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