

WHY DOES PUBLIC HEALTH MATTER?

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FROM DRAINS TO HEALTH GAINS: A BRIEF HISTORY OF PUBLIC HEALTH



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“The history of public health provokes a big yawn since it conjures up an image of investigating toilets, drains and political statutes through the ages” Dorothy Porter, 1999.

Public health, as we know it today, is a wide ranging subject defined as the ‘science and art of preventing disease, prolonging life and promoting health through organised efforts of society’ (Acheson, 1988). One could easily span the alphabet in listing its many concerns, but the term was coined in the 19th century

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applying chiefly to the improvement of sanitary conditions in towns and ‘populace places’ in England and Wales. One word, *drains*, sums up what was meant by sanitary conditions: the first Public Health Act, 1848, was driven by the threat of ‘King Cholera’: cholera epidemics swept England from the 1830s and the best means of control appeared to be better sanitation, partly because infectious disease was thought to be caused by smells and dirty conditions. Plans for improved sewers were delayed due to cost until the Great Stink of 1858, when the stench from the sewage-laden Thames disrupted the work of Parliament: legislation to allow the Metropolitan Board of Works to install London’s new sewage system was introduced and passed in just 18 days. It was the most advanced system of its kind in the world and the growing evidence of the importance of clean water and efficient sewerage, linked to the development of microbiology and engineering, set public health firmly in the field of sanitation and hygiene. Public health officers were often

nicknamed ‘drains doctors’ and their activities focused on cleaning up the public and their living conditions. In the first half of the 20th century, the history of public health was often portrayed as a triumphant progress from Hippocrates and Roman drains to Joseph Bazalgette’s sewers and the undoubted success of water treatment in controlling diseases such as cholera and typhoid fever.

A reaction to this view of public health was inevitable: practitioners pointed to other origins of collective action to improve health, such as vaccination and the emerging notions of human rights to health in the 18th century; also to other societal trends predating the drains concern, such as the disquiet about health, particularly that of children, in the new industrial towns and cities. The British predilection for counting and measuring disease, starting at least three hundred years before the ‘sanitary revolution’, led to the science of epidemiology and analytical studies comparing population groups with and without particular diseases. Efforts to understand mental health, prison and factory reform and improved nutrition and food safety were also in progress before being overtaken by the sanitary definition of public

health. Twentieth century advances in clinical medicine further eroded the status of the ‘Medical Officer of Health’ as someone dealing with the more sordid and mundane matters of delousing and drain swabs to detect typhoid carriers. Infectious diseases and drains were relegated to a secondary place in the post-WWII public health practice, with the specialty changing its name from social or community medicine to public health medicine and then just to public health, a multi-disciplinary, multi-focus subject claimed by politicians and just about everyone else. Meanwhile, re-organisation of the NHS from 1974 onwards took public health doctors away from their local authority origins and into the field of measuring or auditing clinical practice, planning and managing services.

Educating the public about healthy practices thus shifted from drains and disinfectants to ‘health promotion’ regarding smoking, obesity, alcohol, drugs, accidents and sexual behaviour. Themes of controlling a disorderly and disobedient population, arising in the 18th and early 19th centuries, re-emerged in the late 20th century as the need for all the public to be involved in looking after their health. It is notable that health campaigns have



often needed the nudge of legislation to increase the effect on behaviour, as in tobacco controls. The tension between individual freedoms, choice and the role of the state in improving health is still a challenge for public health, for example the right not to be vaccinated against the 'nanny state' that knows infections cannot be controlled without widespread acceptance of vaccines and other measures. Rights to confidentiality also sit uneasily with rights to health, where large studies requiring personal data are needed to investigate causes and appropriate treatments. In all the contemporary and perhaps too thinly spread efforts of public health, the key role of 'drains' in allowing its development has been sidelined. Before the 19th century Public Health Acts there was little expenditure on population health and no overall organisation or standardisation of activities. The gradual acceptance of the need for trained personnel, budgets and

associated taxes, allowing the range of public health to develop, all stemmed from the sanitary concerns of pioneers such as Edwin Chadwick, William Farr and Dr John Snow. This is more than a historical footnote, acknowledging the importance of sanitation in the emergence of modern public health: the reaction against the 'drains doctors' image had the unfortunate consequence of infection, water and sanitation being seen as dealt with, needing only a maintenance regime. The last major legislative overhaul of public health was the Public Health Act of 1936 and it seems that since then, it has been very hard to find Parliamentary time for these matters. Perhaps we are simply waiting for a dire emergency to occur, since "most changes have occurred because of a failure in the systems or as a response to a crisis" (Kenneth Calman 1998).

At the time of this meeting, at the close of the WHO Year of

Sanitation, an epidemic of cholera was raging in Zimbabwe, following the breakdown of water and sanitation services. Worldwide, 2.6 billion people lack sanitation and the targets to address this are "badly off track" (WHO Director General, 2008). Apart from the now re-established concern with new or re-emerged infections, resistance to antibiotics and antiviral drugs, floods, chemical contamination, wars and civil disruption are constant threats to water and sanitation. Is the toilet "the barometer of civilisation", as a recent author (George 2008) suggested? If so, the meandering and uneven progress towards safe sanitary standards in this country, the comparative lack of emphasis on water and sanitation in international aid and the decline of public lavatories at a time when more people need them for health and wellbeing, all suggest that we need to re-examine that barometer. While the history of water and the drains may make some yawn, it

remains one of the surest cornerstones of public health and an essential concern when disaster strikes.

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WHY DOES PUBLIC HEALTH MATTER?

THE ETHICS OF PUBLIC HEALTH



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Public health is news. Barely a day goes by without comment in the media or Parliament about issues such as obesity, smoking, alcohol consumption, vaccination and preparation for the predicted flu pandemic. In the early days of public health policy, in the 19th century, the emphasis was on providing clean drinking water and proper sewage collection, now considered basic necessities of life in this country. Today, much

of the emphasis of public health policy in the UK is on so called 'lifestyle diseases' that have become the major preventable causes of premature death.

THE NUFFIELD COUNCIL ON BIOETHICS REPORT

A year ago, the Nuffield Council on Bioethics published a report that lays out an ethical framework for public health policy. The report does not provide a set of rules, but rather

a set of guidelines for policy makers. The central question in the report is how to balance individual liberty, responsibility and consent, with the obligations of the state and others to promote the well-being of society as a whole. The Nuffield Council's proposal is that the state has a 'stewardship role'. By this we mean that whilst a premium should be placed on individual responsibility and lack of coercion, there are justifiable

circumstances in which the state might intervene to protect and promote public health. These include preventing people from harming others, protecting vulnerable groups such as children, reducing inequalities, providing education and information, as well as medical and other services.

We also developed the notion of an 'intervention ladder' of policy options. The bottom rungs of the ladder are the least intrusive options, such as doing nothing or providing information, whilst at the top are the most coercive measures such as banning products and practices and restricting choice. In between are options for guiding/enabling choices without actually compelling people. The further up the ladder you go, the stronger the case has to be.

SUBSEQUENT DEVELOPMENTS

Media reaction to the report was predictable. The Guardian saw it as a "gift in the government's lap", whilst the Times described it as "pseudo-philosophy ..used by those who ... chip away at individual freedoms". The health professionals, represented by an editorial in the Lancet, were supportive.

The two opposition parties have struggled to define their position on public health policies. Lib Dem spokesman Norman Lamb suggested that everyone should have a swipe card with which they gain tax

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credits for taking exercise or other healthy pursuits. I wonder if this might include a card reader by the bedside for an 'after sex swipe'. Meanwhile Andrew Lansley said of obese people, that they "eat too much and take too little exercise.. the buck stops with them". Our report viewed this approach of blaming people for being fat, lazy and greedy as too simplistic. It ignores the fact that genetic predisposition, socioeconomic factors and environmental constraints make it more difficult for some people to lead a healthy lifestyle.

We used our framework to examine four case studies: infectious disease, alcohol and tobacco, obesity and fluoridation. In each of these areas there have been significant developments in the last year, many of them along the lines of the recommendations in the Nuffield report. The Queen's speech made reference to relatively coercive policies on both tobacco and alcohol.

SMOKING

As a result of education, taxation and legislation, the proportion of adults smoking in Britain has declined from over 75% in 1950 to 22% today. Now that smoking is a minority sport, further restrictions are acceptable, including the ban on smoking in public places, justified mainly in terms of reducing harm inflicted on others. Nevertheless there are still significant inequalities in

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smoking risk and an estimated 200,000 11-15 year olds were found to be smokers in 2007. The latest proposals to restrict access to vending machines and ban displays in shops were justified in terms of protecting the vulnerable and reducing inequalities: it could have been a quote from the Nuffield report!

DRINKING

The Government's approach to alcohol has been less consistent. No one doubts that excessive alcohol consumption is a major public health problem, providing an argument for a similar approach on alcohol and tobacco. But, perhaps because most people drink and many are employed in the drinks industry, the Government has taken a much softer line on alcohol. In fact the measures in the Alcohol Harm Reduction Strategy for England (AHRSE), such as providing information, run counter to those found to be efficacious in the World Health Organisation's global review. The most effective policies are restricting availability, restricting marketing, and increasing price. But the more coercive approach on pricing and promotion promised by the forthcoming Policing and Crime Bill would certainly be justified within the Nuffield Council's framework.

INDUSTRY'S ROLE

A study by KPMG for the Department of Health concluded that the drinks industry is falling short on its corporate social responsibility

programmes. In the developing world, where smoking is on the increase, cigarettes are overtly marketed at children and teenagers. It seems obvious that manufacturers will put jobs and profit before public health, and in our report we concluded that this is a further justification for state intervention.

INFECTIOUS DISEASE

Some countries, such as France and the USA, have a quasi-mandatory approach to vaccination against MMR, whilst others, including the UK, do not. The Nuffield Council concluded that a quasi-mandatory approach might be justified if it were shown to be effective. In this context, it is worth noting that since the outrageous Wakefield scare and consequent fall off in vaccination, measles cases have risen to a record level. On the question of pandemic flu, whilst the Government has a pandemic flu plan, many of the details of how vaccines and anti-virals are to be distributed and to whom, still remain to be worked out. The House of Lords Science and Technology Select Committee is currently engaged in a follow-up enquiry into the plans.

OBESITY

At about the same time as our report appeared, the Foresight Team produced a report on "Tackling Obesity". Their conclusions were in line with our ethical framework and policy suggestions. Subsequently, the Department of Health launched its £372M



"Healthy Weight, Healthy Lives" strategy. It recognises that no single magic bullet will serve to reverse the rapidly rising prevalence of obesity, and the measures encompass a range of initiatives to improve the diets of children, encourage exercise and provide support for those at risk.

We are still awaiting the results of a study by the Food Standards Agency on which food labelling scheme is the most effective in helping people make healthy choices. Interim findings show that all the main schemes have the potential to cause confusion among consumers. The final recommendations will need to consider a current European Commission proposal to simplify and consolidate existing labelling legislation, which will eventually apply to all

member states.

Which? recently reported that leading food companies in the UK are still not doing enough to curb their marketing of less healthy food to children, adding support to the Nuffield Council recommendation that stronger regulation of advertising food to children should be considered. Ofcom is reviewing the current broadcast restrictions on food and drink advertising to children with results due in autumn 2008.

FLUORIDATION

It is surprising how weak the evidence is for both benefits and risks of fluoridation. The most comprehensive review of the evidence to date concludes that it has some benefit in reducing dental caries but it is not

possible to quantify this. An important ethical consideration here is consent, since it is hard to opt out once fluoride is added. It is, however, not possible to obtain consent from each individual, so a democratic consultation process has to serve as a proxy. Our conclusion was that decisions should be made at a local level, as the benefits will vary according local conditions such as the amount of fluoride in the water from natural sources.

THE FUTURE

Tackling public health problems, particularly those related to so-called lifestyle diseases, is a major challenge, because of the delicate balance between individual freedoms and benefits to society as a

whole. Sir Derek Wanless concluded a few years ago that with 'business as usual', the health problems arising from obesity and other 'lifestyle diseases' will swamp the NHS. Therefore doing nothing is not an option. There is a parallel here with climate change. As individuals we are unlikely to make the radical changes to our lifestyles necessary to tackle the problem without considerable coercion. The challenge for the Government is whether or not it is prepared to take the necessary steps, and the challenge for the electorate is whether they are prepared to vote for politicians who are willing to make hard choices.

WHY DOES PUBLIC HEALTH MATTER?

THE HEALTH PROTECTION AGENCY – CHALLENGING TIMES



Sir William Stewart FRS, FRSE
Chairman, Health Protection
Agency

The National Health Service (NHS) has done a good job over the past 60 years, with much more funding available now than ever before, and with primary care and the hospital services focusing rightly on providing ever-improving health care for the individual. The 2008 Darzi report emphasised how

such a service should develop further in the foreseeable future. What has received less attention is how the health needs of the overall general public, as distinct from the individual, are best catered for. That is where the Health Protection Agency (HPA) comes in.

The HPA, established in 2004, has a staff of 3,400, is a non-departmental public body (NDPB) answerable to the Secretary of State for Health and has a budget of £278 million with 60% being core funding from DH; the rest comes from contracts with the public and private sectors. It is the first one-stop-shop in the world which brings together public health protection against radiation, chemicals and infectious disease hazards. For example what can be done to prevent the nation coming down with a new infectious disease, or the impact

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of the explosion of a nuclear bomb or when, as in Bhopal in India, toxic chemicals decimate the community. How do you seek to ensure that such potential population dangers and disasters are prevented or mitigated?

Equally, the work of the Agency also underpins and advises on other areas where duty of care by the state is currently essential. For example, in helping provide vaccines and in evaluating and advising on their use; on monitoring and advising on HIV, TB, HPV, mumps, measles, rubella, MRSA, sexually transmitted infections, blood borne viruses, SARS, ebola, arenaviruses, gastrointestinal infections, zoonotic infections, anti-viral drugs, antibiotic resistance, flooding, air pollution, pandemic 'flu preparedness, radiation, mobile phones, nuclear bombs, air pollution, terrorist activity; chemicals and poisons etc, etc.

It is important to note that responsibility for health protection against alcohol abuse, smoking and obesity is placed elsewhere in the DH family. Also, the Food Standards Agency (FSA) leads on food standards. These are important points to make because it is often assumed by members of the public that because we are named the Health Protection Agency we have responsibility for these areas. That is not the case. However, the Agency has good links with other DH NDPBs and works well outside

DH with the FSA, Transport, the Home Office, DEFRA, DFID, BERR, MOD, the Cabinet Office, the devolved administrations and others. It is also cognisant of its role in listening to and disseminating advice on health protection issues to the public. This is sometimes a contentious area where it is important not to scare-monger. Nevertheless, in my opinion, openness coupled to fully putting the pro's and con's of any debate are very important. Overall, the HPA seeks to provide a co-ordinated underpinning national resilience able to deal effectively with a huge spectrum of public health protection issues whenever and wherever they arise

Operationally the Agency has 3 major laboratories: the Centre for Radiation, Chemicals and Environmental Hazards, at Oxford (with two satellite laboratories in Leeds and in Glasgow); the Centre for Infections at Colindale in North London, and the Centre for Emergency Planning and Preparedness at Porton Down in Wiltshire. These link with HPA Local and Regional Services and to the HPA Regional Microbiology Network. Approximately 50 per cent of our staff are based in the regions where they work closely with NHS primary care and hospitals trusts, strategic health authorities, local authorities and with the general public. Its headquarters are in central London close to Whitehall. The benefit of such HPA co-

... The Agency is much involved in safety aspects related to new nuclear power developments. . .

ordination was exemplified by the Litvinenko/²¹⁰Polonium incident where unified Agency co-ordination from specialist laboratories through to local and regional services rapidly minimised any general public health risk. In April 2009 the work of the National Institute for Biological Standards and Control (NIBSC) will become integrated in to the HPA, bringing enhanced hybrid vigour to the working and remit of the Agency.

LOOKING TO THE FUTURE

Despite, and because of current challenging and turbulent times, it is important that the Agency's unique role is not compromised. The HPA must continue to be able to deal with public health issues within its remit wherever and whenever they occur. We cannot spend time pontificating. We have to get on with it at the drop of a hat, shifting and prioritising on the use of scarce resources. Additionally, horizon scanning, and focusing on future needs and developments are crucially important. No one can be certain about every future public health protection issue that will emerge, but we have to be generically prepared. My focus has been resolute in seeking to develop an Agency with ongoing underpinning science-based resilience, able to address whatever public health protection issues may arise.

Let me touch on some of the issues on my near-term priority list.

INNOVATION AND EFFICIENCY GAINS MUST BE ONGOING

For a start, the Agency must ensure that the best possible use is made of existing resources as we seek new approaches and technologies to enable us to do things better, safer, faster and more efficiently than ever before. Continual improvement must always be in the mind set.

There will be a huge cross-border international dimension to much of what we do.

Increasing global travel, trade, commerce and industry, the expansion of the EU, and immigration/emigration are all impacting on UK public health protection, because as people travel their microbes travel with them. This is an ever-increasing challenge as HIV and TB surveillance data show. It will also be important in the run-up to, and during, the 2012 Olympic Games. This demands co-ordination of healthcare provision nationally and internationally.

The HPA serves as the UK National Focal point under the WHO-led International Health Regulations. There is a continuum within the UK through our responsibilities for Port Health, our central and regional diagnostic and surveillance systems to our local and regional interactions with the NHS and local authorities. If a worrying new bug turns up there is a good chance that it will be picked up by an effective national surveillance system as

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happened with a recent *Salmonella* in chocolate case. Real time surveillance and diagnostics operating not only at regional level but also at primary care and hospital level, and hopefully in due course at ward levels and GP surgeries, are required. There is still some way to go but global and national surveillance coupled with modern and molecular epidemiology are huge national needs.

EMERGENCY PREPAREDNESS, PANDEMIC 'FLU AND TERRORISM

The Agency has been involved in over 3,000 health protection incidents over the past year. But the really big issues have been, and are, emergency preparedness for things like the recent London bombings and preparedness for pandemic 'flu. The HPA is Category 1 responder under the Civil Contingencies Act. Our emergency preparedness and training work is centred at the Centre for Emergency Preparedness and Response at Porton Down which has first class containment facilities and which also houses some of the most dangerous pathogens in the world. I welcome the fact

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that the Government has agreed that plans be drawn up for a major forward development of the Centre.

A focus is preparedness against the possible release of biological agents by terrorists. It would be naïve, looking ahead, to believe that the increased opportunities which molecular biology/genetics are bringing to improve public health could not also be used for offensive biological use, albeit that the offensive use of biological agents is prohibited by international convention. Equally, on the radiation front, there is a need to be prepared for the impact which the terrorist use of radiation sources and 'dirty bombs' could make. No one country can be totally prepared against such threats but the UK, with major HPA involvement, is amongst the best prepared in the world.

NUCLEAR POWER AND RADIATION

The use of radiation, particularly ionising radiation, is a major economic, environmental and public health issue. It is also an area of concern to the HPA. Ionising radiation sources, for example, are of significant medical benefit and have been

broadly accepted by the public, but concerns have been raised as a result of the use of nuclear bombs in World War II, the proliferation of nuclear power technology, and the fact that accidents can and do happen. The Government issued, in July 2008, a consultation document on the Strategic Siting Assessment Process and Siting Criteria for New Nuclear Power Stations in the UK. The Agency is much involved in safety aspects related to new nuclear power developments and in the event of a Government decision to enable a new programme of nuclear reactors, HPA Radiation Protection Division expects to provide expert advice, based on objective scientific assessments of, for example: likely exposure and health risks to people, interacting international radiation protection principles for UK applications and to provide direct evidence to the public and to Government organisations on areas such as waste management advice, transport of radioactive materials and behaviour of radiation in the environment. I foresee Radiation Protection as a major area of HPA involvement over the next few years.

CHRONIC DISEASES

This is an important future area in need of HPA input. Chronic diseases make a huge impact on public health and well-being, currently costing over £12 billion per annum. Whilst the current emphasis is on the

treatment of strokes, coronary disease etc, there is increasing evidence that other poorly understood chronic illnesses may be caused by biological and environmental factors to which patients have been exposed, particularly in childhood. This is an important area where the Agency has a key role to play.

FRAGMENTATION OF PUBLIC HEALTH

There is a plethora of bodies with an involvement in public health: the HPA, the National Institute for Clinical Excellence, the Healthcare Commission, NIBSC, the Joint Committee on Vaccines and Immunisation, primary care trusts, acute hospitals trusts, strategic health authorities, a surfeit of independent expert committees, the welcome voluntary sector, charities, the private sector; devolved administrations, and others. It's a busy field and needs further critical review building upon Liam Donaldson's initial *Getting Ahead of the Curve*. It is likely to get this as we move towards a general election. Mooted opinions across the political spectrum on what might be done range from the setting up of a separate Ministry for Public Health, to a coming together of different public health organisations, mutually aligned and overseen by an independent board. Watch this space. Whatever the future holds, it will be challenging!

IN DISCUSSION THE FOLLOWING POINTS WERE MADE

Why was no mention made of mental health as an important component of public health? Other topical issues in public health related to smoking and organ donation requiring the need to balance out choices in relation to social architecture. Degenerative disorder related to old age was also raised as a public health issue with reference to the need to provide medical care and the urgent need for research leading to prevention or cure. People are living longer hence the public health agenda is also shifting. Reduced infant mortality is attributed mainly to public health whereas in areas of high mortality the reverse is apparent. A rapid increase in obesity was discussed as evidence for the urgent need to reinvent and

reinvent public health in a more innovative approach that takes a broader and current view of the changing threats to human health. Antibiotics are no longer working for a variety of reasons and if we cannot rely on them forever, much greater emphasis will be needed on hygiene in the future. Human health needs better integration with whole earth strategies for the longer term where for example reduction in obesity would also simultaneously assist with carbon emission reduction. New vaccines will come on stream although antibiotics will not provide a cure for everything. There was a final comment on the need for mobile toilets!