Introduction

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Public health is the foundation of a healthy society. To understand and improve public health requires that one do more than aggregate what one understands about individual health. We know some of the components that influence individual health: genetic predisposition or determination, social background, disposable income, climate, advances in health technologies and caring protocols, organisational capacity for multisectoral and multidisciplinary working, peer influence, personality, motivation and capacity and willingness to look after oneself and one's family, friends and neighbours. For public health, however, one needs to do more than quantify the sum, or the mean, of the health of all the individuals within a society or population and consider the context in which individuals and societies live, for example, the role of the state as regulator, provider of social and physical infrastructure, and educator. One needs to develop optimum routes to secure public goods without creating the moral hazard of undercutting individual responsibility. One needs to consider attributions of legitimacy and accountability between members of diverse professions and lay public members; and in the 21st century one needs to consider the impact of globalisation on human lifestyles and microbial life patterns. Thus to understand and act upon the burdens, challenges and opportunities encountered in promoting individual health, itself a herculean task, only gets one part way on the journey to understanding and acting upon the burdens, challenges and opportunities encountered in promoting public health. Yet that is what this book sets out to do.

An historical and comparative perspective can provide evidence of specific celebrated successes in advancing public health in England. They are often prompted by notorious incidents sparking widespread fear and/or remarkable leadership. Three weeks of the infamous London smog of 1952, killing more people than did bombs dropped on London for the entirety of 1939–1945 war, was crucial in the formation and enactment of the Clean Air Act in 1956 (Holland and Reid, 1965). The results of poor sanitation, another environmental hazard, were evident for all to smell in the 'Big

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Stink' of 1858 on the Thames (Holland and Stewart, 1998) and so followed public investment in a sewer building programme of unprecedented proportions. Similar stories can be told about advances in the control of infectious diseases, like the removal by local authorities during the 1854 cholera epidemic in London of the handle to the Broad Street pump made famous by John Snow (Johnson, 2006), or more recently the distribution of insecticide-treated mosquito nets as part of a combination of preventative measures in malarial zones (Nyarango *et al.*, 2007); the introduction of oral rehydration therapy, which has brought the number of children dying from diarrhoea worldwide from 4.6 million in 1980 to 1.5 million in 2000 (Victora *et al.*, 2000); and public programmes of vaccination, like the compulsory vaccination against smallpox in England and Wales in 1853 (Durbach, 2005), and the coordinated worldwide battle against smallpox which led to the last case of naturally-occurring smallpox being recorded in Somalia in 1977 (Breman and Henderson, 2002). Given their complexity, it is difficult to apportion costs and benefits of public health interventions even though, for example, it is undisputed that some of the changes in life expectancy in England and Wales from 49 for men and 53 for women in 1910 (itself a dramatic rise from just over 40 for men in the 35 years since the 1875 Public Health Act) to 75 for men and 80 for women in 1998, can be attributed to public health interventions (Holland and Stewart, 1998).

Yet if such benefits can be suggested, why is public health so often the 'poor relation' when it comes to share of expenditure and attention in the 21st century? Five reasons come immediately to mind as the scene is set for this book: the effect of strong competitors fighting for resources and attention in the same health tent; lack of rigorous measurement and clarity on outcomes and value for money from public health investments; expansion of the ambit of public health from seeking to 'control others' who are creating health hazards for members of a population, to seeking to influence whole populations to control, minimise or eradicate aspects of their own behaviours which are damaging to individual and public health; the dilemma of comprehensive coverage versus tackling inequalities; and finally the sheer complex indeterminacy of the issues and the task.

One might be forgiven for thinking that as the UK has a health system which is predominantly funded through public taxation, and as investments in public health would arguably reduce the call on expensive services for acute and chronic care, it should be easy to advocate and sustain public health investment. But that is to ignore the first reason for its partial eclipse: the extremely powerful political, professional, industrial and advocacy groups that argue, with confident justification, within a highly politicised arena, for more expenditure from the health pot on their celebrated causes. Sausman and Dawson (2005) describe the complex stakeholder web of interests and drivers for supply and demand in the UK health care system which create remarkable complexity and almost by default leave health

promotion in the shadows of health care. Thus the very fact that in England expenditure on public health comes from the same health pot as does expenditure on health care for individuals with acute and chronic illness is itself a hazard limiting investment in public health. The 2008 UK Budget lists £91.7b in spending on the NHS in England[1] whereas *Choosing Health* (Department of Health, 2004), the government's public health strategy, identifies £1b for supporting the public health agenda. Approximately half of the £1b was to be passed through Primary Care Trusts[2] and half through national programmes. As the allocation was not formally ring-fenced and budget crises were evident in the system, it cannot be certain that even this allocated amount of money has been spent on public health. The NHS, with its remit to provide health care, its focus on hospitals and its workforce concentrated on dealing with people with illness, receives considerably more public, media and political attention than the institutions and professions that are employed to promote the less emotionally-charged and less immediate public health agenda. Instant, sudden attention can be focused on public health issues in a time of crisis or fear, as we saw internationally in respect of SARS (BBC, 2004) or locally when an outbreak of meningitis appears (BBC, 1999); but as the crisis and fear subsides, so too does the policy priority.

The second reason is lack of clear and focused evaluation. Wanless and colleagues (2007), when invited to look back at the five years since Wanless' 2002 report, noted that 'it is impossible to track trends in public health or health promotion spending since 2002 as no official figures are kept' (p. xxiii). In an age of targets and performance measurement, any lack of measurement of input or outcome is a serious invitation to ignore the activity, or to assume that none has taken place. Wanless *et al.* observed that 'it is also indicative of the relatively low priority given to public health that, while non-public health medical staff numbers have increased by nearly 60 per cent since 1997, and real spending on the NHS is up 50 per cent since 2002, the number of public health consultants and registrars has gone down overall' (Wanless *et al.*, 2007, p. xxiii). They chided the government for never having implemented the public health portion of the 2004 review (Wanless, 2004) and placed progress on population health as somewhere 'between slow uptake and solid progress' (Wanless *et al.*, 2007, p. 38). Wanless had not expected public health to generate its own momentum; he knew it would require focused public investment, and at the time he had been modest and, he thought, realistic. The 2007 assessment observed that 'the 2002 review estimated health promotion expenditure in England of around £250m – less than the NHS spends in a day and a half' (p. xxiii).

The third reason why the challenges in public health promotion are particularly profound is that we have seen a shift in the emphasis of public health programmes; the target has moved from specific offenders to the citizenry at large. This has excited some ambivalence about the extent to which we 'the public' wish to encourage external intervention focused on

our own or others' lifestyles. At base there is a generic argument about what constitutes individual freedom. Is it not up to all of us to live our lives as we choose? What is the justification for seeking to change behaviour or lifestyle by cajoling, embarrassing or incentivising through an institutionalised system of punishments and rewards,[3] or outright forcing with the rule of law? Few of a *laissez-faire* persuasion want to be surveilled, mollycoddled and restricted by what some would call a 'nanny state'.[4] Coote argues that fear of this label increases politicians' wariness of placing too much attention on prevention rather than cure (Coote, 2004).

There are degrees to which there is acknowledgement that help is needed for those who are particularly disadvantaged, by background or disability, but for the ordinary citizen the argument is easily accepted that each citizen has a 'right' to choose how much investment they make in their own health; it is in essence their choice. The debate becomes more complicated if and when it is demonstrated that one individual's free choice endangers another's without their consent, e.g. through passive smoking. At this juncture the issues become more like those associated with infectious diseases, where there is greater acceptance of the need to prevent contagion, provided it is not thought to damage those whose freedom the intervention somehow effects. Even those at the interventionist end of the spectrum may distinguish between the sanctity of their own freedoms and the desirability of intervention with others. It may be easy to agree that 'others' need to be held to account, observed, cajoled, educated into adopting healthy lifestyles which will avoid obesity, addiction, unsafe sexual behaviour and dysfunctional family life: but surely, the argument goes, this does not apply to 'us' and our particular behaviour?

The opportunity for such debates to dampen enthusiasm for public health interventions reflects a change in their emphasis. Although public health victories in the 19th and 20th century were won by focusing attention on the burdens or 'externalities' that third parties imposed on the health of populations by their actions or inactions which polluted air or water, and remediation was therefore to require these third parties to reduce and/or pay for the burdens they imposed upon others, in the 21st century public health victories need much more attention to the burdens of poor health we inflict on ourselves. Thus improvements in public health require 'us' to behave differently, often on the basis of arguments and investments made through PCTs which often are themselves disadvantaged by a lack of 'critical mass' to change attitudes and make the case for prevention (Bacon, Orchard, Milne, 2007).

The fourth reason why public health investment rarely triumphs in a spending round, or its impact is limited, is that policy development balances on a tightrope strung between comprehensive coverage and targeting inequities. Patterns of eating, drinking, sexual behaviour, community relations, and substance addiction are not randomly distributed amongst a

national population. Tackling inequity needs to be at the heart of public health policy (*Choosing Health*, 2004). Yet an ideology of comprehensive coverage may result in 'successful programmes' dealing with, for example, nutrition or exercise being disproportionately taken up by those who are already relatively advantaged. Thus whilst the indices of coverage champion success, their very success may in fact exaggerate differences, leaving the disadvantaged in what relatively is poorer health (Commission on the Social Determinants of Health, 2008).

The fifth and last reason for public health's 'poor relation' status in terms of expenditure, the overwhelming complexity and indeterminacy of the issues and the task, will be made evident throughout the book.

This book seeks to provide evidence on the nature of the issues that must be addressed if public heath policy is to be successfully developed in the 21st century, to summarise what we know about successful interventions and to emphasise the need for appropriate means of evaluation and measurement if change is going to be sustained. Thus it is structured in three parts. The first, Policy Frameworks, covers the political, social and institutional context in which policy is formed. The second, Influencing Outcomes, shows ways in which success can be created, and the third, Evaluation and Measurement for Public Health, examines how a more robust framework of measurement needs to underpin developments so that progress may be evaluated and learning for the future secured.

Policy frameworks

The opening paper by Greer illustrates the impact of political institutions in shaping the policy context. With devolution to the home countries of the UK, policies for health and health care have substantially diverged and created very different conversations about the state's role in public health. In Scotland, the focus is much more on the conditions which influence people's lifestyles and decisions about health than on personal responsibility, which catches the focus in England. Greer describes how in Wales and Scotland, the most significant opposition to the ruling Labour party comes from the left, whereas in England it comes from the right. Thus it is easy to see that it is really only in England that the debate about individual, personal responsibility lies at the centre of public health thinking and policy. In Chapter 2 Amery and Gillam use the sharp lens of public health policy in developing countries to remind the reader that robust primary care services are the foundation for any public health programme. Robust health systems are vital to population health in both resource poor and well-resourced settings. Strong primary care enables a more effective response to current and future health needs and contributes to greater equity of health outcomes.

Atkinson, in Chapter 3, takes the perspective of an ideal policymaker and describes the imperatives they face in terms of the need to balance on

several tightropes. They need to sustain balance between competing claims: to focus on individual behaviour and lifestyle and on the broader social determinants of individual behaviour; to be able to demonstrate action within the limits of politically- dictated timetables and to pursue an evidence-based approach; to develop cross-sectoral collaboration and working partnerships between government departments and to secure specialist input to the policy process; to utilise the resources of health professionals and institutions to achieve an integrated approach to health initiatives in institutions with a primary focus which is not health but work, education and urban planning.

In Chapter 4 French advocates the application of social marketing in public health policy. He argues that public health has tended to adopt overly paternalistic views that do not sufficiently emphasise joint, shared responsibility for health. Rather than viewing consumerism and a market-based society as part of the problem, social marketing integrates public health advocacy into the existing market-oriented society such that it can compete more effectively with other market messages in an attempt to guide people's behaviour. It encourages choice and responsibility on the part of providers and consumers.

Influencing outcomes

Part II of the book contains six papers that deal with how to influence outcomes and secure change in individual behaviour, social norms and social structures, and thereby in indicators of health and sickness, morbidity and mortality. In Chapter 5 Corbett opens with a sustained argument for public health policy to embrace the findings of health psychology on how social and psychological factors influence health attitudes, beliefs, values and behaviours. She reviews various initiatives based on different theoretical models, concluding that there is no one-size-fits-all theory to public health; selection must be contingent on context and target audience. She advocates a mix of mass communications, empowerment schemes, skills development and community improvement programmes appropriate to defined community needs and available resources.

Morris and Dawson follow in Chapter 6 by advocating the need to embed public health policy in the social as well as the psychological context. Taking the example of sexual health policy programmes that aim to change behaviour, they discuss how lay people interpret and respond to perceived risks to their health, and how policy can be adjusted to achieve change in light of this. They show that lay perceptions of risk may not be those which are guiding policy and that until deeper insight into how people conceive risk is developed, the impact of policy will continue to be limited. For example, people may do nothing to avert risk because they see risk factors as outside their control; or because risk taking is viewed with positive excitement, rather than negative avoidance, or because in a choice between two perceived

risks, one is seen as more acceptable, or less undesirable, than the other. There are some basic policy guidelines that have been shown to help people manage risk more effectively, but there is less evidence about how to deal with risk aversion, reactance, and compensation. Because some things work for some people some of the time, interventions that are not only embedded in context, but also employ a number of strategies and channels, are also likely to be the most successful.

In Chapter 7 Karlsson, Mayhew and Rickayzen open the first of three papers that, whilst dealing with different aspects, focus attention on one of the critical public health issues of the 21st Century: ageing. They develop an econometric model to analyse the effects of cohabitation on disability over time whilst taking account of socioeconomic differences as captured by educational qualifications. Changing family structure for the elderly (higher divorce rates, longer life expectancy and an increase in lone-person households), a predicted shortage in informal carers (as spouses or children are no longer willing or available for a dominant caring role) and increased demand for care by the elderly in the future highlight the importance of securing estimations of costs. The analysis provides further evidence of the positive influence on health of cohabitation, a factor that is not directly amenable to health policy. Once more we are reminded of the need to locate our understanding of population health in wider social context, since household formation stands firmly outside the health policy domain but clearly impacts upon it. Given these results, it could be a wise public health policy that invested in programmes to promote cohabitation, as well as to support partners through bereavement, not out of sympathy but for the sake of their health. The chapter also provides the potential for calculating long-term care insurance premiums.

In the second paper on ageing, (Chapter 8) Doyle, Sherriff and McKee set out to refine the concept of 'successful ageing' beyond the oft-employed objective measures, to include subjective evaluations of levels of engagement and feelings of confidence and self esteem. 'Successful ageing' is shown to be linked to social engagement, physical activities and recent health experience more than with experience of disease and disability. The theme of social inequality is raised yet again, in that certain groups, such as women, the obese, and the less affluent are less likely to be active in old age. The messages for policy are clear: there needs to be support to create and sustain opportunities for older people to engage in social, cultural and physical activities and to enhance their social esteem by enabling them to more easily and visibly contribute to society and the economy. Housing is also important, and more and stronger alternatives need to be found to living either an isolated, vulnerable life alone at home, or in a care home with little sense of confidence or esteem.

In the last of the trio on ageing (Chapter 9) Coast, Flynn, Grewal, Lewis, Natarajan, Sproston and Peters develop an index of capability for older

people as providing a new form for measuring public health interventions. The authors seek to move beyond the measurement of QALYs (quality of adjusted life years), arguing that they are overly focused on health outcomes and insufficiently focused on older peoples' quality of life and well-being. The paper's empirical contribution is to identify five components of quality of life in older people: 'love and friendship' (attachment); 'doing things that make you feel valued' (role); 'enjoyment and pleasure' (enjoyment); 'thinking about the future without concern' (security); and 'being independent' (control). Of these, attachment was found to be the most important to the subjects of their study, and security the least. The authors indicate that education, social care and crime would also influence quality of life as measured in their framework. Once again, the focus of intervention is shown to be much wider than what would normally be circumscribed as health.

In Chapter 10, the concluding paper in Part II on influencing outcomes, Bhalotra and Shepard review recruitment into lifestyle modification programmes intended to encourage and facilitate patient-centred care and evidence-based medicine in the management of increasingly prevalent chronic diseases, from which English policymakers might draw lessons. They report on their study of one such US-based programme that ran from 2000 to 2006, and that was designed to control health costs and reduce cardiac problems amongst the elderly through a focus on healthy diet, regular exercise and stress reduction. Low enrolment was a problem tackled by a variety of initiatives, with mixed results. Financial incentives alone were found to be largely ineffective, whereas a combination of the tools of social marketing, organisational restructuring and patient empowerment were found to have some effect. During the study, which ran from 2000 to 2006, success factors for increased enrolment included establishing programme champions within the service provider organisations, interest by referring physicians, data systems for keeping track of patients as they moved, and patient support systems for encouragement, anxiety relief and, when needed, transportation.

Evaluation and measurement

Echoing Wanless' lament that we need harder evidence of policy impact – on the benefits, and costs, where they are borne, and over what timescale – the third and last part of the book takes the complexity described earlier in its stride and determines to set out what can usefully be done in evaluation and measurement for public health. In Chapter 11 Lister, Fordham, Mugford, Olukoga, Wilson and McVey seek to develop a common approach to evaluating the societal costs of potentially preventable illnesses and high risk behaviour. Taking alcohol misuse, smoking, obesity, preventable cardiovascular disease and preventable mental illness, the paper shows that despite many studies on their prevention, there is no common methodology or set of shared assumptions, and few where illness or high-risk behaviour is eval-

uated in terms of its wider costs to society. The authors consider costs to individuals and households, NHS treatment and care services, the rest of the public sector, employers and wider social impacts and costs. They provide a much more holistic analysis than is currently the norm, and demonstrate that costs (especially those incurred outside the NHS) are generally much higher than are officially counted in health and care statistics. They conclude that while costs to the health service of these diseases and behaviours might not present a clear cut case for increased investment in their prevention, the costs to society certainly do.

In Chapter 12, McDaid and Needle provide a review of existing economic evaluations of public health interventions. This is a growing area of work, notwithstanding that evidence is hard to retrieve and often buried in studies geared toward reporting some other kind of result. Half of the studies included came from the USA, and many of these took place in the workplace. In the US employers have a very clear incentive to keep their employees healthy. Most evaluations were of interventions that were medically oriented, such as prevention of communicable diseases and early detection of cancer. Under-researched areas were mental health and socioeconomic determinants of health. Commenting on the centrality to public health of cooperation and coordination between agencies in public health interventions, the authors emphasise that economic evaluations must reach across agencies and budgets, as well as outside the health sector altogether into such venues as schools and workplaces. For example, if an intervention is shown to be highly cost-effective, but takes place in a school, and is only evaluated from within the school's perspective and budget, it might seem very expensive to local school systems if they did not realise (or care about) the benefits of such an investment, from a wider social perspective. Incentives, or transfers of funding, might be necessary to make such an intervention happen, for which economic evaluation would be a very important foundation. A corollary example is a situation where a health intervention is not shown to deliver large health gains, but demonstrates large non-health ones, like economic performance or community cohesion. In conclusion they warn that unless the funding of public health interventions and evaluations is dramatically increased, what we know about what works in public health will continue to lag behind richly funded (and, they argue, much less cost-effective) health care interventions.

Fordham, in Chapter 13, continues on the theme of economic evaluation in public health, arguing that it has been less effective in responding to cries to demonstrate the burden of economic proof than have advocates of acute care, and that this may partially explain the comparative higher rates of growth of investments in acute care. Like McDaid and Needle he unearths more studies than have been popularly assumed to exist, and like Lister *et al.*, he argues for more consistent methodologies and standardised practice. He critically evaluates the applicability of different approaches to economic evaluation in health, and emphasises the importance of values in

defining and evaluating outcomes. As an example of what he means by the inevitability of value judgements, he illustrates the choice between equity and efficiency in screening programmes; to focus on the former would lead to measuring take-up as an outcome, and on the latter to measuring disease outcomes. He finds that comparing programmes by cost per QALY (quality adjusted life year) has proven more effective than other methods, and that further use of this unit may help provide the momentum to shift policy toward prevention and behaviour/lifestyle change programmes and away from expensive treatments of illnesses which have not been prevented. The chapter, like so many others, stresses the importance of appreciating the wider social context in public health and the dangers of reading across from the majority of cost-effectiveness studies which originate in the USA directly to the UK where different incentives and values prevail.

Moving through the book we discover then that the field is not as 'data-free' as we might have supposed. There is data which can guide choices, and many of these studies favour a broad cross-sectoral, yet context-specific, public health policy domain. However, in order to maximise the effectiveness of economic evaluation on future public health, economists need to develop and agree standard methodological practices in order to assist policy-makers in their decisions. The National Institute for Health and Clinical Excellence (NICE) has begun this process and we turn to their activities in the last chapter (Chapter 14) in this part, in which Chalkidou, Culyer, Naidoo and Littlejohns give an insiders' perspective on the challenges of developing cost-effective public health guidance. They acknowledge the often conflicting aims of consistency and cross-evaluation comparability on the one hand and the need for methods that are most appropriate for public health guidance on the other. Their chapter chronicles NICE, from the framework set out in the Wanless reports to its current state, including its additional remit to evaluate 'health' as well as clinical interventions.[5] It identifies the five principal issues posed by attempts to use economic evaluation for the purposes of valuing public health initiatives: (1) appropriate outcome measures, which may supplement or replace the QALY and are better at including externalities (positive and negative) in the evaluation; (2) processes to synthesise different literatures that use different techniques; (3) systems to weigh costs and benefits appropriately in a way that is fair and equitable, without assuming a homogeneous public; (4) conceptualising the role of equity in public health priorities; and (5) securing the inclusion of public health interventions and motivating relevant behaviour changes in environments that are not the explicit domain of health (e.g., schools and workplaces) and which operate according to different aims and incentives.

The development of public health policy is thus hugely challenging. Serious investment in public health is on occasion relatively unattractive to citizens who resist control, unattractive to members of strong professionally qualified workforces in health care who would rather the investment

went into their 'patch', and unattractive to politicians because it is unattractive to key interest groups and if effective, which it may not be, is likely only to be so revealed in longer time spans than electoral cycles. Yet even though it is sometimes difficult to find loud champions for public health, the burdens of poor public health are felt at state level as financial, social, and political consequences, as well as at the individual and community level in terms of suffering, despair and fear.

The situation is complex and dynamic and as we finish the book there are signs of a real change in public and political attitudes, so public health may yet emerge as an arena full of mainstream public champions. For example, it is barely a year since smoking was banned from all public places in the UK; and yet public acceptance is high.[6] Furthermore in the last few months we have seen a change in public and political attitudes and behaviour towards policies to tackle what is now described as the looming epidemic of obesity.[7] Perhaps after all the burdens on the public's health can be reduced and the opportunities for improving health status be seriously seized.

Notes

1 Available at http://www.hm-treasury.gov.uk/media/7/3/bud08_chapterc.pdf
2 Primary Care Trusts (PCTs) are the NHS bodies that serve chiefly to compensate GPs and commission services like hospital and mental health care, though they still provide some services directly. Most share boundaries with local authorities.
3 NHS Trusts have discussed the possibility of refusing operations to smokers until they quit, and smokers are now urged to give up smoking in the time leading up to their operation. See, for example, http://www.timesonline.co.uk/tol/news/uk/health/article1875561.ece
4 Nanny state is a derogatory term referring to what critics see as excessive state intervention to control economic or social policy and practices. It was probably coined by the Conservative British MP Iain Macleod who wrote 'what I like to call the nanny state ….' in his column 'Quoodle' in the December 3, 1965 edition of The Spectator.
5 NICE produces guidance on public health interventions and programmes with the aim of helping public health professionals and practitioners in local government and NHS organisations achieve the targets set out in the 2004 white paper *Choosing Health: Making Healthy Choices Easier*.
6 Weeks after the smoking ban in public places came into effect on 1 July 2007, 75 per cent of the population supported the law, and more smokers supported it (47 per cent) than opposed it (37 per cent) (Smokefree England, 2007). It was reported in January 2008 that the number of people successfully using the NHS' Stop Smoking Service was up 28 per cent from April to September 2007 over the same period in 2006 (BBC, 2008). There is now support for the policy idea of removing cigarettes from view in pubs and shops (BBC, 2008).
7 In January 2008 the government made cooking classes compulsory for children aged 11–14 (BBC, 2008). The City Council in Liverpool is discussing banning fast food restaurants from giving away free toys, though this is still in discussion stages (BBC, 2008). The debate is much more geared toward combating child obesity than that of adults, possibly because it sidesteps, to some extent, the nanny state argument.

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