EVIDENCE BASED PUBLIC HEALTH POLICY AND PRACTICE

Sick individuals and sick populations: 20 years later

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Twenty years after Geoffrey Rose published his classic paper, the central messages remain highly relevant to modern public health policy and practice. The individual and population approaches are fundamentally different but both are needed. Recent examples of powerful population approaches prove Rose's point that norms can change benefiting the most deprived. Individual approaches have also succeeded but their protection of the most deprived communities is limited. Consumerism in health and over-reliance on individual approaches risk widening health inequalities.

In 1984 the late Geoffrey Rose gave a lecture to the International Epidemiological Association in Vancouver and subsequently published his paper: Sick Individuals and Sick Populations.[1] Rose's paper remains highly relevant to public health.

The central tenet of the paper is that individual and population approaches to improving health are fundamentally different and achieve different aims. The individual strategy aims to curtail high risk and it is therefore personal to both the individual and the intervener (usually a clinician). The benefit to risk ratio is favourable for the individual, and motivation to intervene is likely to be higher with the clinician. However, it is not a radical approach and has limited utility even for the individual. In 1984, risk assessment for individual futures was considered imprecise. Twenty years later this is still mainly true, even for coronary heart disease. Despite extensive work, predictive scores of coronary disease in individuals have two major problems. Firstly, they are not good at predicting events in those with low short term but significant lifetime risks, because changes in risk status occur over time and these interactions are still imperfectly understood.[2] Secondly, conventional risk factors alone are not reliable in predicting the totality of risk. An evaluation of 122 458 patients enrolled in 14 international trials investigating the predictive power of smoking, hypertension, diabetes, and hyperlipidaemia found that one in five men with coronary disease had none of the four factors. Furthermore, 70% of coronary events continue despite statin therapy of these individuals.[3]

Most importantly, the individual approach is very difficult for people, even those who are highly motivated. Lifestyle attention is grinding. Regular uptake of screening and primary prevention is demanding. Forgoing immediate sexual gratification may be out of sink with surrounding social norms. Good outcomes in these cases are: health—an ephemeral concept—and non-events, commodities that have not captured the public imagination. More fundamentally those most at risk may not perceive a problem with their behaviours, so attempts to curtail harm in such individuals is doomed from the start. As Rose noted, people act for immediate and substantial personal rewards. If we can't do better on individual risk prediction, and if it is so hard to achieve and sustain behavioural change, then protection of individuals from harm is strictly limited in its potential.

The individual approach has had some successes. Evidence from national long term care surveys in the USA shows a decline in the rate of disability in older people. The rate in 1994 was 3.6% lower than in 1981.[4] Furthermore, for those with few behavioural health risks the onset of disability could be postponed for up to 12 years. Fries reviewed the profile of the US population in 2003. Two developments had occurred, consistent with his proposal that compression of morbidity was feasible if individual risk could be attenuated. The first development was that disability declined in the USA at an accelerated rate since 1982, currently about 2% per year, while mortality declined by about 1% per year. The second was that, in addition to this reduction in disability, there had been a large reduction in risk factor prevalence, an improved health status, and decreased medical utilisation, confirmed by analysis of claims.[5] The problem, as always, is sustaining improvements dependent on individual actions. Now diabetes, fuelled by increasing levels of obesity, is steadily increasing.

By contrast the population strategy attempts to shift the whole distribution of exposure in a population. As a clinical epidemiologist, Rose considered these approaches powerful. Mass exposure controls such as tobacco control and the regulation of the food industry were potentially radical and once through the period of proposal and change, they would become the social norm. This made it easy for everyone to change, and could benefit some hard to reach groups disproportionately. However, Rose touched on an emerging nerve: population approaches frequently yielded small benefit to individuals. Because of this, the risk benefit-ratio could pose difficulties. As long as the population was compliant, this obstacle could be overcome. But what would happen if the population became more assertive—or if the State lost confidence in mass approaches?

In the UK, mortality from circulatory disease and cancer has decreased more rapidly than projected some years ago and life expectancy at birth is rising. However, there is a deep rooted problem. The life expectancy gap between England as a whole and the quintile of local authorities with the lowest life expectancy is also increasing.[6] The excess mortality in these areas is attributable mainly to more and earlier death from the major killers for the population as a whole. Rose's paper asks: ''Why did *this* person, get *this* disease at *this* time?'' The answer is that such people acquire multiple risk factors that seem to leave them vulnerable through

What this paper adds

- The relevance of Sick Individuals and Sick Populations to modern public health practice
- The demonstration of how Rose's propositions have played out in the intervening 20 years.

Policy implications

- The paper highlights the policy drawbacks of adopting one approach exclusively.
- Over-dependence on individual choice will not achieve changes in society norms because of barriers in deprived communities, assertive consumerism in the more affluent that excludes altruistic action, and the difficulty for everyone in sustaining challenging lifestyles.
- We question health policy drifts towards the rights of the individual consumer over the needs of the population, particularly the more vulnerable and less assertive members.
- The paper poses a challenge to those implementing public health programmes nationally and locally to consider which approach they are taking, being clear about its appropriateness and drawbacks.

individual and population mechanisms to the major killer diseases over a lifetime of exposure.[7]

Communities with poor internal bonds and high social dysfunction also manifest high incidence of disease. International interest has arisen in how to build capacity in local communities experiencing distress because of economic disparities, social and political exclusion.[8] Building their internal resilience and harnessing their latent resources is purported to improve psychosocial health and enable individuals to make healthier choices in their lives. However, social capital as a discrete, credible entity also raises doubts. The evidence as to how it operates is ambiguous, particularly whether it influences health independently of economic welfare; and measuring it is also problematic. More fundamentally, it hinges on a romanticised view of certain communities that, far from exhibiting potential for networks, exist on the edge of regular conflict.[9]

Many current solutions in England are dependent on the individual. This is exemplified by health targets, driven through the NHS. They include smoking cessation, vaccination uptake, various forms of screening, uptake of rehabilitation for drug misuse, and reduction in teenage pregnancies. These solutions depend on people accepting preventive and treatment services or taking preventive action themselves, and here is an important problem with the individual approach. The prevalence of adverse risk factors such as obesity, smoking, and poor diet is higher in geographical areas of deprivation. Appealing to individual willpower to change in such communities leads to a disproportionate amount of effort for small returns.[10] Partly this is because the financial and non-financial costs of personal lifestyle change in these communities is comparatively high, starting from a base of poverty and living in degraded environments. So, the overall success of individual approaches can be impressive, but may mask serious inequalities in health prone to widen. The cost-benefit of smoking cessation seems impressive in England. In the third year of a national programme 234 000 people used the service and 124 100 set a quit date an annual cost of £24m.[11] This was more than anticipated in the national target; however, performance remained poor in many of the most deprived areas where prevalence of smoking is very high.[6] Overall, the scale of this problem in western societies cannot be addressed solely by health services treating their way out of disease.

A more strategic population approach is exemplified by mass public health environmental control. This is best undertaken at national level and is the difference between smoking cessation and tobacco control; using fluoride toothpaste and fluoridating water, traffic calming as well as speed limits; and compulsory immunisation before school entry compared with individual parental choice in presenting their child. As Rose noted, once the population approach is taken, the balance of risk and benefit changes. This raises the second problem with dependence on the individual approach: the advent of more assertive consumerism in health. Fluoridation, which will benefit children disadvantaged because of the lack of fluoride toothpaste, is bitterly opposed by groups who are not persuaded of the benefit to others for the risk they perceive to themselves. Herd immunity, a dreadful phrase but nevertheless important in protecting the population, seems to aggravate parents as a rationale for opting in to immunisation programmes. Worse still, some parents seem more willing to accept the ''lesser'' harm of measles or mumps in their own children than the (wrongly) anticipated responsibility and regret of long term sequelae.[12] Consequently MMR vaccination based on parental choice is now as low as 60% in places, and large outbreaks of measles and mumps have occurred in several parts of the British Isles. It is clear from experience with tobacco control in Ireland that the social norm has changed in a way unimaginable some years ago, just as Rose postulated.

Sublimating population to individually dependent approaches is not likely to achieve the shifts in population health envisaged as needed for a fully engaged population and a manageable UK health system in the future.[13] Internationally, it is recognised that policies at national level need to address equity in health through work with communities as well as with individuals.[14] Furthermore, policy interventions may be more effective if they look beyond individual characteristics to incorporate strategies that address economic factors in areas where health care uptake appears inequitable.[15] Without a strong population focus the influence of essentially well, self interested consumers and strong treatment service providers will prevail.

Most importantly the population approach deals with causes of disease incidence. The complementary role of modern population programmes to prevention for individuals requires clear thinking and honest evaluation. But shifts in trends require national as well as local approaches. Most especially we need to be brave about the efficacy and efficiency gains from mass intervention for the silent majority and even quieter minorities. Twenty years on, we need both approaches and they need to work incrementally.

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THE *JECH* GALLERY

User fees and worst off: it's time to find a solution

Rooted in market oriented approaches to health financing, user fees have been recommended for two decades by international agencies and aid donors as a mechanism for mobilising new resources and rationalising service delivery. Many developing countries are still relying on user fees. No credit was permitted in a health centre in Haïti (January 2005, in French and Creole: ''no credit for you today, perhaps tomorrow, thank you''). In contrast with the claims of user fees proponents, such financing methods have excluded vulnerable populations from basic health service, with damaging implications for equity.[1] Even the World Bank is stating now that they ''did not support user fees for basic health services for poor people''.[2] Removing user fees for primary care is necessary but it's not enough[3] even if the case of Uganda seems interesting in terms of equity.[4] Prepayment and voluntary insurance schemes are not able to protect the worst off and most of the exemption systems have failed to protect the poorest. We still know so little about health financing to promote access in low income settings.[5] In the context of user fees and cost recovery schemes, some pilot projects are emerging in Cambodia (Equity Fund), Mali (Medical Assistance Fund), and Burkina Faso (Community exemptions schemes), but more research is needed to provide evidence to decision makers to implement more health equity policies.

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This picture was taken in Haïti during an evaluation mission for the NGO ''Fondation Terre des homes'' and funded by ECHO.

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