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Towards a preventative approach to improving health and reducing health inequalities: a view from Scotland

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ABSTRACT

Pressures on the health system are intense. Prevention is often seen as a sustainable way to manage these pressures. However, the impact of prevention on the demand for health and social care is not fully understood. It will reflect the balance of opposing forces: reduced needs for health and social care because of improving health and increased needs associated with increasing life expectancy and the diseases of old age, mediated by how the system manages the resulting pressures. This article illustrates how some of these factors are playing out in Scotland. The article also highlights the substantial growth in the evidence base on the economics of prevention and identifies policy developments with the potential to support a shift to prevention that might help move towards more sustainable demands on the health and social care system. These include recognition of the importance of the social determinants of health, the integration of health and social care and 'realistic medicine'. The article suggests that more use needs to be made of available evidence on the economics of prevention and that all stakeholders need to be engaged in tackling the technical and political challenges posed by the shift to prevention.

Introduction

Pressures on the health system are intense.[1] Demands continue to grow more rapidly than the resources available. Preventing the onset or progression of disease and preventing inappropriate use of health services are seen as offering the potential to manage growing demand in more sustainable ways.[2,3] However, the impact of prevention on the demand for health care is not fully understood. In this article, we discuss some of the challenges in understanding the role prevention can play in managing demands on the health system.

We do not attempt a systematic or comprehensive review of factors driving the demand for health care. These have been considered at length elsewhere, for example, by Wanless as long ago as the early 2000s[4,5] and much more recently by the Institute for Fiscal Studies.[6] Rather, we focus on demographic

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and health criteria and select population health measures that illustrate some of the challenges in understanding the economic implications of prevention. A discussion section considers the implications for future pressures on health and other services important in improving the population's health. The focus is Scotland, but the themes explored are equally relevant to the rest of the United Kingdom.

Background

Studies modelling future demands on health systems have considered a wide variety of factors thought to influence the balance between the demand for and supply of health care:

- changes in the health needs of the population;
- improvements in service quality and advances in medical technologies;
- economic factors such as input prices and productivity improvements; and
- changes in public and patient expectations, driven in part by rising incomes.

In this article, we focus on changes in health needs and how they might influence demand. Health needs are driven in part by changes in:

- the age structure of the population, particularly the extent to which life expectancy (LE) continues to rise and the number of older people increases;
- the health status of the population, particularly the extent to which improvements in LE are accompanied by improvements in healthy LE. The levels of ill health (particularly among elderly people) are key determinants of the use of health and social care; and
- the likelihood of people seeking health care for a given level of need.

Wanless highlighted the uncertainties in how these trends might unfold over time and, crucially for the argument here, that these trends are themselves dependent on decisions taken at a policy, practice and individual level with respect to prevention. Demand will depend in part on the age of the population, but it will also depend on how healthily we age, which in turn will depend in part on how much and how efficiently we invest in prevention. Demand will depend on the health status of the population, but it will also depend on how much and how efficiently we invest in the systems in place to manage that demand. Wanless described three scenarios that made different assumptions about how these trends would unfold. All three scenarios envisaged that substantial increases in expenditure would be required to provide a publicly funded, comprehensive and high quality service. The scenario that led to the slowest growth in the resources required assumed effective prevention leading to positive changes in health and the determinants of health, and effective whole system working to ensure the effective and efficient management of demand. Over a decade later, substantial uncertainties remain about how these trends will unfold.[6] The remainder of the article reflects on how these trends are developing in Scotland, how the evidence base on the cost-effectiveness of prevention has improved and what this might mean for future investment in prevention and its potential to ease pressures on the health and social care systems.

Trends in health needs and demands

The Scottish population is ageing. People aged 75 years and above are projected to be the fastest growing age group in Scotland. Their numbers are expected to increase by 27% over the next 10 years and by 79% over the next 25 years.[7] Combined with the increased use of health and social care in later life,[8] projections such as these lead to stark warnings about the future pressures faced by the health and social care systems. In practice, the health of the population will mediate the link between ageing and demand, underlining the importance of prevention. We return to this theme in the discussion.

Age-specific death rates over recent decades have declined among almost all the major causes of deaths: cancer, coronary heart disease, stroke, chronic obstructive pulmonary disease, accidents and suicides. The only exception has been alcohol-related death rates, which peaked in 2003 but then fell until 2012, when the downward trend in Scotland stalled. For women, rates have actually increased in each of the last 3 years. Falling death rates are reflected in a general improvement in LE at birth in Scotland since 1980, although the rate of improvement has slowed in recent years and now appears to have stalled.[9,10]

Male LE at birth in Scotland increased by nearly 4 years, and female LE by just over 2 years since the early 2000s but both changed little between 2012–14 and 2014–16, and LE at birth in Scotland actually declined in 2015–2017 for males and females. It also stopped falling in the United Kingdom as a whole.[11,12] This slowdown in the rate of improvement occurred primarily amongst elderly men and women, in whom mortality has actually increased in recent years.[13] Similar trends have occurred in England and Wales.[14]

Healthy life expectancy (HLE) in Scotland changed little between 2009–10 (when changes were made in the way HLE is calculated, which mean that figures up to 2008 and from 2009 are not comparable) and 2015–2016.[15] As a result, the gap between LE and HLE for males born between 2009 and 2016 has increased slightly from 15.9 years to 17.7 years, and the percentage of life expected to be spent in a 'healthy' state has fallen, from 79% in 2009 to 77% in 2016. The gap between LE and HLE has been fairly constant for females born between 2009 and 2016 (around 18.7 years).[16] In short, in Scotland, we are not seeing the compression of morbidity which we need to see if the impact of an ageing population on demand for health care is to be reduced.

Trends in behavioural health risk factors in Scotland

Trends in behavioural risk factors present a mixed picture. Scotland has among the highest levels of obesity prevalence for men and women (aged 16–64) among Organisation for Economic Co-operation and Development (OECD) countries.

Prevalence increased dramatically from 1995 until 2009/2010, decreased slightly for males until 2014 and increased again in 2015 and 2016. Prevalence for women remained fairly constant over the period 2008 to 2016.[17] In contrast, smoking prevalence dropped between 2003 and 2013, although it has changed little since then.[18] Likewise, after increasing over the 1990s and early 2000s, alcohol sales, generally regarded as the best measure of consumption,[19] stabilised between 2005 and 2009, declined until 2013 and have since remained broadly stable.[20] Data on levels of physical activity in Scotland show that progress towards meeting national targets for increasing walking, cycling and overall physical activity levels is limited.[21] Overall, therefore, there have been some successes in relation to reducing the prevalence of risk factors likely to increase the demand for care, but progress has been variable.

Trends in health inequalities in Scotland

Health inequalities in Scotland remain substantial. In 2016, the death rate for the most deprived tenth of the population (decile) based on small geographical areas was more than double that for the least deprived decile.[10] Inequalities in HLE are also large. In 2015-16, male HLE at birth in the 10% most deprived areas in Scotland was 43.9 years, 26.0 years lower than in the least deprived areas (69.8 years). For women, the gap was 22.2 years.[15] This has changed little since 2009–2010. With the exception of the Healthy Birthweight indicator, significant health inequalities persist for each indicator covered in the Scottish Government's Monitoring Long-Term Inequalities report, although some have narrowed in absolute and/or relative terms.[15]

Absolute inequalities in some measures of health have fallen as the incidence or prevalence has fallen at a population level. For some, such as alcohol-related mortality, falling absolute inequalities have been driven by reduced rates in the most deprived areas. But relative inequalities on many measures remain wide, some have increased even as absolute inequalities have diminished, and on some measures, neither absolute nor relative inequalities are narrowing. For example, the latest data on trends in health inequalities in Scotland for premature (<75y) mortality and HLE show that for both, inequalities are now increasing in relative and absolute terms.[15] The ageing of the population may reinforce these pressures given that the social gradient in health across the adult population is replicated amongst the elderly.[22]

Improvement in the evidence base

There has been a massive growth in the cost-effectiveness evidence available to inform prevention-focused public health strategies,[23–27] including strategies for tackling the wider determinants of health.[28–31] The evidence remains patchy in terms of coverage and methodological quality. Evidence on the cost-effectiveness of preventative measures to reduce health inequalities is particularly limited. However, the implications are consistent: many preventative interventions are cost-effective, many have the potential to reduce demand for health and social care and some are potentially cost-saving. Some authors have challenged the emphasis on savings in a health context,[32–34] a theme we return to later. Others have stressed the need for economic evaluation to include consideration of the costs of conditions unrelated to people's initial diagnoses and care, which people may experience as a result of enjoying greater LE because of the care they receive. This would ensure that economic evaluation would give a more accurate picture of the longer term resource implications and opportunity costs of care, both preventative and curative.[35]

Regardless, the key point is that the evidence base has improved substantially, although it is not yet applied systematically to inform policy, and there is a tendency towards 'lifestyle drift'. That is, despite the long-standing recognition in official publications of the importance of the social and economic determinants of health,[4] prevention efforts in practice tend to focus on individuals' behaviours.[36] Evidence suggests that the latter have the potential to widen inequalities.[37]

Discussion

Central to current discussions regarding pressures on health and social care is the question of whether and how prevention might affect demand and spending growth by influencing trends and inequalities in population health. Other drivers of spend include the development of new technologies, input prices and rising expectations as incomes rise. Many analyses suggest that these are more powerful drivers than the ageing or the health of the population.[38] However, we focus on health and its link with ageing because they drive underlying needs, albeit in complex ways, and because they are amenable to change through effective prevention.

The scope of a healthier population to reduce cost growth is crucial. However, the impacts of improvements in population health on the demand for health and social care are ambiguous. Overall, the impact of prevention will reflect the balance of opposing forces: reduced needs for health and social care because of improving health and increased needs associated with increasing LE and the diseases of old age mediated by how the system manages the resulting pressures. Projections of the implications of demographic change often apply current rates of service use by age group to future population structures. Because spending rises steeply with age, driven by the increasing prevalence of multimorbidity, such analyses suggest that population ageing will lead to rising health and social care expenditure. However, the extent of this effect depends on whether and how the health of the population improves and on the quality and efficiency of service delivery.[39] Current rates of service use are not fixed. They can be changed to manage the future growth in demand arising from demographic change, although further work is required to better understand this relationship.[38]

There are examples, such as alcohol, where, in recent years, rates of alcohol-related hospital admissions have fallen alongside alcohol-related death rates,[20] but more generally and in the longer term, falling death rates are not necessarily associated with increasing HLE. Likewise, falling incidence of a disease does not necessarily equate to fewer people with the

disease: over the 10 years to 2016, age-adjusted incidence rates for cancer decreased by 2.6% yet the numbers of people diagnosed with cancer increased, in large part owing to the increase in the number of older people in the population.[40] The recent Scottish Burden of Disease Study also underlines why the ageing of the population is central to understanding demand on health and social care. Many of the biggest 'burdens' are for preventable, non-fatal conditions that increase in prevalence with age.[41]

A distinction needs to be drawn here between slowing demand growth and making financial savings. Savings are often held up as a potential dividend from an emphasis on prevention, but they depend on resources being released from their current use if and when demand falls because of effective prevention. If not, higher quality services may be provided, or other people may be treated to address current levels of unmet need. Both are clearly good things for patients and staff, but they limit the scope to make savings that can be reinvested elsewhere in the health or social care systems.[42] Changing how resources are used also poses technical challenges because of the specialist nature of many capital and human resources in health care and political challenges because of popular commitment to local services. In addition, other areas of health care are not required to demonstrate savings and, as noted already, the long-term cost implications of prevention are unclear.

In terms of improving health, despite notable progress in some areas, overall progress has been variable, across risk factors and across socio-economic groups. The persistence of health inequalities contributes to what the Christie Commission called 'failure demand', that is, demand for public services that could have been avoided by earlier preventative measures.[2] To the extent that reduced absolute inequalities reflect a falling disease burden at a population level, they may be associated with reducing need for health and care, but the scale of the inequalities that remain suggests that inequalities will continue to be an important driver of demand for health and social care, reinforced by the social patterning of many risk factors.

The key policy question is what forms of prevention offer the best investments as a way of improving public health whilst reducing these inequalities. A good economic case can be made for prevention in general, albeit that the evidence needs to be considered on a case by case basis as preventative measures are not necessarily cost-effective.[27,42] However, an increasing part of the evidence base relates to interventions tackling the socio-economic determinants of health, with much of the evidence suggesting very high returns for the investments made and a greater potential to reduce health inequalities than interventions reducing behavioural risk factors.[26,43] There is a growing consensus that in principle, 'upstream' prevention is a good buy, but this is also where the evidence base remains most patchy, both in terms of coverage and in terms of methodological rigour and consistency.[43,44]

Encouragingly, the importance of health inequalities and of addressing them through the social determinants of health is recognised in current policy discourse[45] and in the key role for local government in public health reform in Scotland.[46,47] Future resource requirements will also be driven in part by how we choose to meet care needs. Integration of health and social care bodies has the potential to accelerate the process of shifting health care into the community, avoiding the hospital-based treatment of health and social care needs best met in the community. However, integration of services on the ground has started slowly because of the complexity of the change and the challenging workforce and governance issues involved.[48]

The relationship between need and demand has been addressed by the Chief Medical Officer in Scotland in recent annual reports promoting 'Realistic Medicine'. The most recent report highlights the need to involve patients and their families in decisions about their care, based on realistic expectations about the scope of health care to add value to people's lives. As more people and less severely ill people are treated, health gains might diminish whilst the risks associated with treatment persist. At some point, patients and their families may decide that these risks outweigh the potential benefits and opt for more conservative management of poor health, preventing demand for care of limited value to patients. 'Realistic Medicine', by involving patients and their families more in their care decisions, has the potential to ensure that services are shaped more closely to patients' and their families' preferences. Evidence suggests that, for some, this will mean doing less or no treatment is the best option.[45]

This article highlights two necessary preconditions for moving towards a more preventative approach to improving health and reducing health inequalities. First, we need to make better use of the growing evidence base on the cost-effectiveness of preventative interventions for improving health and reducing health inequalities. The evidence base remains patchy, but it is large, it is growing and it is consistent in demonstrating the cost-effectiveness of many preventative interventions. Second, we need to harness the political will to move towards a more preventative approach with the determination and skills required to use the available evidence in a complex policy environment shaped by competing interests. There are seeds of hope in the growing recognition of the importance of social determinants of health, the integration of health and social care and 'Realistic Medicine'. These need to be nurtured using what we know about the cost-effectiveness of prevention and by engaging all stakeholders in the technical and political challenges it poses. Otherwise, there is a risk that 'yet another opportunity to act will have been missed and healthcare services will continue to run faster and faster to stand still.'[4]

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