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# *A Case for Reorienting Health Systems and Investing in Primary Healthcare in Australia*

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## *Context*

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In recent times, many developing countries have been going through a process of re-orienting health policy and services towards early detection and prevention, rather than solely on the treatment and on-going management, of illness and disease. For example, in the UK, the fundamental philosophy underpinning the approach to funding primary healthcare is analogous to the adage ‘prevention is better than cure’, with the NHS Improvement Plan stating that “If England is to secure world-class standards of health, the enormous human, financial and physical resources available to the NHS need to be focussed on the prevention of disease and not just its treatment”.<sup>1</sup> Within Australia, there are similar shifts in thinking and policy, with the development of the National Preventative Health Taskforce<sup>2</sup>, which has been tasked with developing a National Preventative Health Strategy.



Given this shift on emphasis, this paper has been written as a mechanism for synthesising the evidence on the benefits of investing in primary healthcare, in terms of reducing demand on hospital care, which obviously results in system reform. By primary healthcare, I do not just refer to general practitioners (GPs), but more widely to multi-professional primary healthcare teams whose roles include promoting/ maintaining health and preventing illness, in addition to the additional roles of diagnosing/treating illness and referring (where necessary) to hospital care. In addition, it is extremely important to acknowledge that primary healthcare (indeed, health care in general) cannot work alone in promoting health and preventing illness, and therefore, ultimately in reducing demand on hospital services. The evidence provided in this paper refers almost entirely to the role of illness prevention programmes/interventions in primary healthcare (and some aimed at population health interventions) in reducing demand on hospital services, although there is also a great deal of evidence on the role of interventions in many other sectors (community, education, employment, transport, welfare benefits, urban planning etc) on promoting health and reducing the burden of illness. This brings to the fore the importance of 'joined up working', 'inter-sectoral' and 'whole of Government' approaches to tackling the issues, in addition to the crucial importance of fully engaging patients, the public and communities.

### ***Background to Primary Healthcare Policy in the UK***

This literature review provides an overview of research and Government policy on the benefits (in terms of health, economic and social outcomes) of investing in primary healthcare. In addition, I look specifically at the positive impact on the reduction of demand for services in hospital care, since this type of evidence may be useful when arguing for system-based changes and re-distribution of



healthcare budgets. Given its history of investment in primary healthcare, this review focuses mainly on policy and research evidence from the UK (or in England for policy relating to the Department of Health)<sup>1</sup>.

It is important to note here the differences between the UK and Australia in terms of the structure and funding of health care, as this may have an impact on the interpretation and relevance of the evidence presented in this paper. Particularly important is that GPs are remunerated on a fee-for-service basis in Australia whereas in the UK, they are remunerated on a capitation basis. In addition, patients in the UK need to register with a specific GP practice. Both of these factors mean that patients are less able to 'doctor shop' in the UK (at least between practices – they can 'doctor shop' within practices) and that 'chronic disease registers' become more problematic in Australia given that information may be held about patients at different GP practices. The Federal/State funding of health care services also may have important implications for the interpretation of evidence in this paper. For example, the Federal government holds the budget for GP services (including prescribing) whereas the State government holds the budget for community health services and hospital services. Therefore, any economic impact that investing in primary healthcare may have will need to be set against this funding backdrop. In addition, primary healthcare in the UK is configured and funded on the basis of primary healthcare organisations which can include a wide variety of health and social care professionals and have 'patient and public involvement' as a central plank of their governance structures and performance frameworks. All of these differences may also mean that the

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<sup>1</sup> *The terms 'UK' and 'England' are both used within this paper, due to the fact that since devolution of some policy making powers, some policies relate to the whole of the UK, and some only relate to England. Also, some documents referred to in this paper were pre-devolution, and therefore relate to the UK.*



possibilities for primary healthcare practitioners to engage seriously in preventive care are also different, with the possibilities being less within Australia than the UK.

Since 1997, the Department of Health in England has published a number of policy documents and legislative mechanisms which have culminated in what has become known as the 'primary care-led NHS'.<sup>3-6</sup> More recently, policy documents are focussing on the role of patients and the public in the NHS, which has led to new terminology such as 'patient-led NHS'.<sup>1,7,8</sup> Taken together, both health policy and concomitant funding in the NHS is focussed providing services in primary healthcare and preventing illness through engaging the public in promoting health. It is envisaged that this dual-edged approach will lead to increased health (i.e. reduced illness) in the public and hence reduced demands on health care resources, particularly on expensive resources in secondary and tertiary hospital care.

### ***Importance of Promoting Health and Preventing Illness***

In the UK, given the explicit intention of re-orienting the NHS toward preventing illness and promoting health, it has been stated that there is a concomitant need to move away from a 'National Sickness Service' or 'National Illness Service' to a 'National Health Service'.<sup>9,10</sup> This is more than just semantics, it actually requires a systems-based shift in ideology and philosophy which places prevention/promotion at centre-stage, whilst not denigrating cure/management of illness to back-stage or even off stage. In other words, this is not about 'throwing the baby out with the bathwater', but rather negotiating the relative importance of different 'sectors' of healthcare.



In addition to the extra investment in primary healthcare, the NHS has also seen a shift in the balance of power and finance, away from hospital care to primary healthcare. In fact, around 80% of total NHS budget is held in primary healthcare in England (for providing and commissioning services for their registered patients).

The impact of health services in achieving positive health outcomes is being achieved through multi-professional primary healthcare teams (GPs, nurses, pharmacists, occupational therapists, social workers, dieticians etc), although these need to be contextualised within a wide range of possibilities for promoting and improving health in, for and with communities. Contemporary primary healthcare and public health interventions are aimed at improving the health of the public through creating healthy systems (i.e. joined-up approaches to healthy services, healthy cities and healthy public policies) and healthy lifestyles (e.g. increasing physical activity, eating healthier diets, attending preventive health checks, etc). For example, community health centres (multi-professional teams without GPs) and Aboriginal controlled community health centres provide a complimentary model of service provision to traditional primary healthcare, with the added emphasis on community engagement/development (in keeping with the philosophy of patient/public-led services, promoting health/wellbeing and preventing illness), and these need to be seen as an integral part of the cadre of services available to and within communities. They have been made even more prominent in South Australia with the advent of GP-plus centres. In addition, population-based approaches to promoting health have been shown to be both effective and efficient (for example, some recent evidence on population-based approaches to tackle tobacco use<sup>11-13</sup>), and should not be neglected when contextualising the evidence presented in this paper.



Alongside the plethora of policy documents and Government reports, the UK Government has invested substantial monetary sums into primary healthcare over the last 9 years. This investment can be seen as an outcome of belief that investment in prevention will lead to improved health outcomes in addition to reduced demands on primary and hospital care in the future. Indeed, the influential Wanless Report stated that “many of the benefits of engaging people in living healthier lives occur in the long term but there are also immediate and short-term benefits when demand for health services can be reduced, especially in those areas where capacity is seriously restrained”.<sup>9</sup> The Wanless Report was commissioned and published by HM Treasury in 2002 to examine future health trends and identify the factors determining the long-term financial and resource needs of the NHS to 2022. The Wanless Report states a need for larger investment of GDP in health care, particularly in preventive care, self care and health promotion (what Wanless terms a ‘fully engaged scenario’). Whilst the initial investment in health care would increase, the Wanless Report predicts a financial saving of £30 Billion per year (equivalent to AUD60 Billion) by reducing ill health and improving prevention through self-care and health promotion. This scenario has been taken on board by the Chancellor of the Exchequer who announced the largest ever sustained investment in the NHS, and particularly in primary healthcare and health promotion. The current UK Government has pledged money and support for primary healthcare although it has only been in power for a relatively short period of time, and therefore any major impacts on reductions in coronary artery bypass grafts, interventions related to diabetes or inpatient stays related to mental illness may not be expected yet. The Government has pledged support on the basis of clinical evidence that such investments will lead to better health and thus reduced use of hospital services for those particular conditions. However, we wait to see whether the changes in funding, skill mix and emphasis on primary healthcare will actually lead to improved health outcomes in the future.



***What is the evidence that investing in primary healthcare and prevention leads to reduced demand in hospital care?***

Whilst the UK Government has focussed emphasis of improving health and preventing illness through primary healthcare, there is not as much evidence as one may expect as to the impact of this policy on demand for hospital care and hence reduction in costs to the NHS. There are a plethora of studies examining the cost-effectiveness of preventive drug treatments and also of interventions aimed at preventing illness. However, the comparator in many of these studies is either another drug treatment or 'usual practice' – the studies do not tend to examine the outcome of preventive drugs or public health interventions on hospital utilisation rates, admissions to emergency departments or rates of surgical interventions (i.e. health care costs avoided).<sup>14</sup> However, if we are to develop an evidence-base on the effectiveness of primary healthcare and population based (non-pharmacological) interventions, we need to 'put our money where our mouth is' and invest research dollars in it.

The cost-effectiveness analyses tend to use outcome measures such as quality adjusted life-years – they are interested in how the drugs and interventions impact of quality of life rather than on hospital usage. Nevertheless, clinical studies show the effectiveness of investing in prevention of illness across the major chronic conditions,<sup>8</sup> in particular coronary heart disease and diabetes<sup>15</sup> and a whole range of cancers.<sup>16 17</sup> Indeed, a review of literature on the generic impact of funding primary healthcare on admissions to hospital emergency departments stated that broadening the access to primary healthcare can reduce demand for hospital care although the relative cost-effectiveness of different interventions to achieve this were unclear.<sup>18</sup> In addition, a number of US studies have found that increasing access to primary healthcare is associated with decreasing (avoidable)





hospitalisations,<sup>19-21</sup> with one study concluding that “a lack of timely and effective ambulatory care can result in a greater number of hospitalizations, especially for certain conditions and among vulnerable groups. Communities where people perceived poor access to care had higher rates of hospitalization for certain chronic conditions. Preventive care was linked to a reduced probability of avoidable hospitalization for children on Medicaid, and continuity of care with a provider decreased hospitalizations for a Medicaid population of children and adults. Also, persons living in counties designated as primary healthcare shortage areas were found to have more avoidable hospitalizations”.<sup>21</sup>

Furthermore, a review by Professor Starfield, a world-renowned primary healthcare academic, stated that in the US “areas with higher ratios of primary-care physicians to population had much lower total health-care costs than other areas, possibly because of better preventive care and lower hospitalization rates that accompany good primary healthcare”.<sup>22</sup> Starfield defends this claim in a number of other papers<sup>23 24</sup> and in a review of the evidence of the benefits of primary healthcare, she states, “Evidence of the health-promoting influence of primary healthcare has been accumulating ever since researchers have been able to distinguish primary healthcare from other aspects of health services delivery system. This evidence shows that primary healthcare helps prevent illness and death, regardless of whether the care is characterised by supply of primary healthcare physicians, relationship with a source of primary healthcare, or the receipt of important features of primary healthcare. The evidence also shows that primary healthcare (in contrast to speciality care) is associated with a more equitable distribution of health in populations, a finding that holds in both cross-national studies and within-national studies. The means by which primary healthcare improves health have been identified, thus suggesting ways to improve overall health and reduce differences to health across major population subgroups”.<sup>25</sup>



In an Australian context, a review of public health interventions (reducing tobacco consumption, reducing coronary heart disease, reducing incidence of HIV/AIDS, immunisation programs (Measles and Hepatitis B) and road safety programs) between 1970-2003 found cost-savings for the Federal Government.<sup>26</sup> Leaving aside the results for road safety programs, the study found that for a cost of AUD3.6 billion there was a range of net benefits (depending on conservatism of assumptions) of AUD57.092 billion - AUD15.716 billion. Direct net savings to government expenditure was calculated at AUD11.132 billion, findings echoed in a more recent report for the Australian Institute of Health Policy Studies.<sup>27</sup> Many of the strategies employed relied on primary health care approaches and the major cost-savings can only be achieved through comprehensive public health programmes which acknowledge the social and economic determinants of health.<sup>27</sup>

A recent Australian review of the literature on primary and community health services reiterated the importance of Starfield's work alongside the positive impacts of a primary healthcare approach on patient and community wellbeing, reduced mortality and morbidity and also on reduced healthcare expenditures "There is compelling international evidence from the work of Starfield and her colleagues that primary healthcare has an independent effect on improving health status and reducing health inequalities and that countries with well developed primary healthcare systems have healthier populations and reduced health care costs".<sup>28</sup>

In addition, the New South Wales GP Council also issued a paper examining reorienting a health system towards primary health care, in which it stated "The evidence demonstrating that effective health systems are based on strong, integrated primary health care systems continues to emerge from the international literature.... This and many other sources clearly identify the health and



health system gains, including enhanced management of chronic illness and substantial reductions in unscheduled admissions, that flow from better preventive care and co-ordinated management of chronic conditions in integrated primary health care settings. However, the Australian health care system demonstrates few of the features identified as significant in such systems, pointing to the need for major reforms if our system is to reach its potential. The Australian health system is uniquely burdened by the split in funding and functional responsibilities between Commonwealth and states: a split which places major barriers in the way of both cost effective service delivery, and rational system reform."<sup>29</sup>

Given the overarching review which provides evidence for investing in primary healthcare, I now provide a more specific, thematised review of evidence in particular clinical areas that supports the investment of resources in primary healthcare and preventive health care services. Much of the evidence cited is UK-based, although I have attempted to locate evidence elsewhere, including evidence from Australia. It should be remembered that Australian reports already exist on the economic benefits of investing in primary healthcare,<sup>26 27</sup> and therefore this review should be set alongside those (in addition to the corpus of work by academics like Professor Starfield).

It needs to be reiterated here that the evidence presented below should not be interpreted in a vacuum – there is also very good evidence on the benefits of population-based approaches to promoting health and preventing illness, which in turn, will result in reduced dependence on certain hospital services at certain stages of life (however, a review of this evidence was not part of the remit for this paper). For example, banning of tobacco advertising, more graphic anti-smoking campaigns and the creation of ‘smoke free’ environments should be seen alongside smoking cessation programmes in primary healthcare as mechanisms for reducing the incidence of lung cancer, myocardial infarctions and strokes, and hence the hospital interventions that may be avoided.



### ***Falls prevention in older people***

In response to the large number of elderly people being admitted to emergency departments as a result of falls in the UK, the Healthy Community Collaborative (HCC) attempted to implement a 'falls reduction programme'.<sup>8</sup> The HCC engaged both professionals and older people to minimise personal and environmental risk of falls in simple and practical ways. Over a one-year period, this led to a 32% reduction in the number of falls recorded by ambulance personnel as reasons for admissions to emergency departments. This pilot was found to be highly cost-beneficial, with the financial investment in the programme being outweighed by the financial savings due to avoided hospital admissions.

A community-based falls prevention programme in New South Wales (the 'Stay on Your Feet' (SOYF) programme)<sup>30</sup> aimed to provide strategies for older people at all levels of risk, and therefore the findings are not solely representative of particularly vulnerable groups of older people. The economic evaluation of the SOYF programme included the number and cost of avoided hospitalisations as one of the benefits for the State Government. The total direct costs of the programme for the State Government were AUD781,829, although the benefits in terms of avoided hospitalisations were AUD5.4 million, which results in a 7:1 benefit-cost ratio. In other words, for every AUD1 spent on the programme, the State Government avoided AUD7 being spent on falls-related hospital admissions. The benefit-cost ratio was even better for the Federal Government (14:1, which included hospitalisation and other direct costs and benefits), and the benefit to the Australian community was even better (21:1, included both Government and community costs and benefit)



### ***Reducing cholesterol to prevent cardiovascular diseases***

In terms of pharmacological reduction of cholesterol, one of the major drug groups are the statins, which are prescribed widely for the primary and secondary prevention of CHD. Primary prevention is aimed at people with no prior history of CHD and secondary prevention is aimed at people with a history of CHD (i.e. reducing the likelihood of having another myocardial infarction). Clinical studies on statins provide overwhelming evidence on the reduction in myocardial infarctions and reduction in mortality, in addition to statistically significant reduction in risk of requiring a coronary artery bypass graft (Risk Ratio 0.75, 95% CI 0.70 to 0.81).<sup>31</sup> Therefore, statin prescribing in primary healthcare has a huge impact on the costs associated with fatal and non-fatal MIs, in addition to avoiding hospital costs for a proportion of coronary artery bypass grafts.

### ***Promoting mental health and preventing mental illness***

Primary healthcare teams have been found to have an important role in the primary, secondary and tertiary prevention of mental illnesses, and particularly for problems such as anxiety, depression, alcohol and drug misuse and eating disorders.<sup>32</sup> Note the importance of the word 'teams' here, since the promotion of mental health and prevention of mental illness requires comprehensive, multi-professional and inter-sectoral engagement. Indeed, evidence suggests the need for an increased role for community nurses in the prevention and management of emotional disorders<sup>33</sup> and increased roles for a variety of health and social care professionals within primary mental health teams.<sup>34</sup> Again, the role of primary healthcare teams needs to be contextualised within a wider role for population-based strategies aimed at promoting mental health and preventing mental illness, as



has been noted elsewhere “population approaches are probably necessary to reduce significantly the burden of [such] mental health problems, but health care measures are far from negligible”.<sup>32</sup>

In the UK, around 25% of routine GP consultations are for people with a mental health problem and around 90% of mental health care is provided solely within primary healthcare (not necessarily general practice). Therefore, primary healthcare teams have a huge potential to impact on mental health, although evidence suggests that care is often sub-optimal. Hence, the National Service Framework for Mental Health was published in 1999 as a way of setting appropriate standards of care for people with mental illness and also for providing frameworks for promoting mental health and preventing mental illness.<sup>34</sup> In 2004, an update was published to provide evidence on how far the standards had been met and what work still needed to be done.<sup>35</sup> Of primary interest to this paper, the two main improvements are a slight reduction in acute hospital admissions (may be attributable in part to the standards around mental health promotion and mental illness prevention) and a reduction in suicide rates (which may or may not reflect changes to health care delivery). One of the recommendations of the update report is to further reduce emergency admissions to mental health wards through better continuing care for people with long-term mental disorders.

Increased roles for health visitors in preventing mental illness is highlighted in the National Service Frameworks for Mental Health,<sup>34</sup> both in terms of reducing the risk of pregnant women developing post-natal depression and the risk of pre-school children developing behavioural problems later in life. Interventions by health visitors (as part of primary mental health teams) may therefore not only promote good mental health but also reduce the likelihood of acute hospital admissions for problems related to mental illness.



An example of good practice in the UK is a multi-agency team located in a 'one stop shop clinic' providing primary mental health care. The team comprises approved social workers, community mental health nurses, clinical psychologists, psychiatrists, counsellors, occupational therapists and voluntary sector staff. In addition to preventing and treating mental illness, the 'one stop shop clinic' lead to a reduction in mental health hospital bed use by 40% between 1994-1999.<sup>34</sup>

There is also evidence for a specific intervention aimed at 'problem drinkers'. A randomised control trial of the cost-benefit of providing brief physician advice to problem drinkers in primary healthcare found that for every US\$10,000 invested, there was a US\$56,263 in benefit<sup>36</sup> (this equates to investing around AUD14,000 to receive a benefit of around AUD80,000). Just over half of this benefit was from reduced levels of crime and motor vehicle accidents, although 46% was attributable to savings in emergency department and hospital use. Therefore, implementing targeted brief interventions to 'problem drinkers' in primary healthcare can result in large cost savings in hospital care.

### ***Smoking cessation to prevent lung and cardiovascular diseases***

Brief advice by a primary healthcare professional to stop smoking can yield successful cessation rates. Very brief advice (3 minutes) to stop smoking by a health professional versus no advice can increase by 2% the proportion of smokers abstinent at six months.<sup>37</sup>

Naidoo et al examined the short-medium term consequences of smoking cessation in England on hospitalisation rates for acute myocardial infarction (MI) and stroke over an 11 year period.<sup>38</sup> They



use two targets – target 1 was a reduction from baseline of 28% of 35-64 year olds smoking in 1995 to 24% in 201; target 2 was a reduction to 17%. By achieving target 1 (i.e. 4% reduction in smoking rates) there would be 34,461 avoided acute MIs and 25,302 avoided strokes,<sup>14</sup> which would equate to savings of over £350 Million over the 11 year period (equivalent to AUD725 Million). If target 2 could be reached, the savings would be closer to £800 Million (equivalent to AUD1.6 Billion). The authors have used acute MI and stroke because there exists readily available data, although there would be further savings from avoiding other smoking-related diseases such as lung cancer. In addition, the benefits of smoking cessation would continue much longer than 11 years. Therefore, the modelled cost savings above are a conservative estimate.

### ***Increased physical activity***

A recent review of evidence about the health benefits of physical activity found that modest enhancements in physical activity have been associated with large improvements in health status, although more research is required to provide quantifiable evidence of this.<sup>39</sup> In England, the Chief Medical Officer estimated the costs of physical inactivity (direct costs of treatment in addition to indirect costs through sickness absence) at £8.2 Billion per year<sup>40</sup> (equivalent to AUD17 Billion). However, a 10% increase in adult activity would benefit England by around £500 Million per year (equivalent to around AUD1 Billion). Of this amount, around 17% are savings due to direct health costs, and therefore a 10% increase in physical activity could lead to health care savings of £85 Million per year (equivalent to AUD175 Million). Research is required which examines the cost-benefit of brief interventions in primary healthcare, in terms of reduced hospital admissions. There is randomised control trial evidence that frequent but brief contact with primary healthcare professionals can sustain increased physical activity in previously sedentary people,<sup>41</sup> although there is no evidence on the impact on avoidable hospital admissions as a result.





## **Summary**

This paper has presented evidence from the UK (in addition to evidence from England, Australia, the US and Canada) on the benefits of investing in primary healthcare in terms of promoting health, preventing illness and also on reducing demand for hospital services. The UK Government is committed to the centrality of primary healthcare alongside full engagement of patients and the public, part of what the Wanless Report calls the 'fully engaged scenario'. The UK Government is also fully committed to primary healthcare teams (a range of health and social care professionals rather than solely GPs) as mechanisms for generating health and reducing demand for hospital services. Whilst there are undoubtedly cost-savings to be made in certain clinical/therapeutic areas by investing in primary healthcare, this should not be seen in isolation. There is also a great deal of evidence on the beneficial impact of population-based and community-based interventions aimed at promoting and improving health. Overall, the evidence suggests that there are substantial cost-savings to be made in emergency departments and certain hospital-based clinical services by reorienting healthcare systems towards illness prevention and health promotion and therefore also making the necessary investment in primary healthcare across Australia.

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## References

1. Department of Health. The NHS Improvement Plan. Putting People at the Heart of Services. London: Department of Health, 2004.
2. National Preventative Health Taskforce. Australia: the healthiest country by 2020. A discussion paper. Canberra: Commonwealth of Australia, 2008.
3. Department of Health. The New NHS: Modern, Dependable. London: HMSO, 1998.
4. Department of Health. Primary Care Trusts, Establishing Better Services. London: NHS Executive, 1999.
5. Department of Health. Investing in Primary Care. London: Department of Health, 2006.
6. Department of Health. The NHS Plan. A Plan for Investment. A Plan for Reform. London: Department of Health, 2000.
7. Department of Health. Shifting the Balance of Power within the NHS. Securing Delivery. London: Department of Health, 2001.
8. Department of Health. Choosing Health. Making Healthy Choices Easier. London: Department of Health, 2004.
9. Wanless D. Securing our Future Health - Taking a Long Term View. London: HM Treasury, 2002.
10. Wanless D. Securing Good Health for the Whole Population. London: Department of Health, 2004.



11. Wakefield MA, Durkin S, Spittal MJ, Siahpush M, Scollo M, Simpson JA, et al. Impact of Tobacco Control Policies and Mass Media Campaigns on Monthly Adult Smoking Prevalence. *Am J Public Health* 2008;98(8):1443-1450.
12. Wilson N, Sertsoy G, Edwards R, Thomson G, Grigg M, Li J. A new national smokefree law increased calls to a national quitline. *BMC Public Health* 2007;8(7):75.
13. Bala M, Strzeszynski L, Cahill K. Mass media interventions for smoking cessation in adults. *Cochrane Database Systematic Reviews* 2008;23:CD004704.
14. National Institute for Health and Clinical Excellence. Brief Interventions and Referral for Smoking Cessation in Primary Care and Other Settings. Costing Report. London: NICE, 2006.
15. Department of Health. National Service Frameworks for Coronary Heart Disease. London: Stationary Office, 2000.
16. Department of Health. The NHS Cancer Plan. London: DH, 2000.
17. Department of Health and Ageing. National Bowel Cancer Screening Program.  
<http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/bowel-1lp>, 2006.
18. Roberts E, Mays N. Can primary care and community-based models of emergency care substitute for the hospital accident and emergency (A&E) department? *Health Policy* 1998;44:191-214.
19. Parchman ML, Culler S. Primary care physicians and avoidable hospitalizations. *Journal of Family Practice* 1994;39:186-7.
20. Parchman ML, Culler SD. Preventable hospitalizations in primary care shortage areas. *Archives of Family Medicine* 1999;8:487-491.



21. Kozak LJ, Hall MJ, Owings MF. Trends in avoidable hospitalizations, 1980-1998. *Health Affairs* 2001;20:225-232.
22. Starfield B. The Primary Solution. Put doctors where they count. *Boston Review. A Political and Literary Forum* 2005;November.
23. Macinko JA, Starfield B. Annotated bibliography on equity in health, 1980-2001. *International Journal for Equity in Health* 2002;1(1):[www.equityhealthj.com/content/1/1/1](http://www.equityhealthj.com/content/1/1/1).
24. Starfield B. State of the art in research on equity in health. *Journal of Health Politics, Policy & Law* 2006;31:11-32.
25. Starfield B, Shi L, Macinko JA. Contribution of primary care to health systems and health. *Milbank Quarterly* 2005;83:457-502.
26. Abelson P. Returns on Investment in Public Health. An Epidemiological and Economic Analysis Prepared for the Department of Health and Ageing. Canberra: Department of Health and Ageing, 2003.
27. Wilcox S. Purchasing Prevention: Making Every Cent Count. Background Paper: Health Policy Solutions, for the Australian Institute of Health Policy Studies, 2006.
28. McDonald J, Hare L. The Contribution of Primary and Community Health Services. Sydney: The Centre for Health Equity, Training, Research and Evaluation, University of New South Wales, 2004.
29. NSW General Practice Council. Primary Health Care: Changing Systems and New Models. New South Wales: NSW General Practice Council, 2004.



30. Beard J, Rowell D, Scott D, van Beurden E, Barnett L, Hughes K, et al. Economic analysis of a community-based falls prevention program. *Public Health* 2006;120:742-751.
31. National Institute for Health and Clinical Excellence. *Statins for the Prevention of Cardiovascular Events*. London: NICE, 2006.
32. Kendrick T. Primary care options to prevent mental illness. *Annals of Medicine* 1999;31:359-363.
33. Mead N, Bower P, Gask L. Emotional problems in primary care: what is the potential for increasing the role of nurses? *Journal of Advanced Nursing* 1997;26:879-890.
34. Department of Health. *National Service Frameworks for Mental Health. Modern Standards and Service Models*. London: Department of Health, 1999.
35. Department of Health. *The National Service Framework for Mental Health - Five Years On*. London: Department of Health, 2004.
36. Fleming MF, Mundt M, French MT, Manwell MB, Stauffacher EA, Barry KL. Benefit-cost analysis of brief physician advice with problem drinkers in primary care settings. *Medical Care* 2000;38:7-18.
37. Parrott S. Guidance for commissioners on the cost-effectiveness of smoking cessation interventions. *Thorax* 1998;53:S11-S16.
38. Naidoo B, Stevens W, McPherson K. Modelling short term consequences of smoking cessation in England on the hospitalisation rates for acute myocardial infarction and stroke. *Tobacco Control* 2000;9:397-400.
39. Warburton D.E, Nicol C.W, S.S B. Health benefits of physical activity: the evidence. *Canadian Medical Association Journal* 2006;174:801-809.



40. National Institute for Health and Clinical Excellence. Four Commonly Used Methods to Increase Physical Activity. Costing Report. London: NICE, 2006.
  
41. Hillsdon M. The Effectiveness of Public Health Interventions for Increasing Physical Activity among Adults: a Review of the Reviews. London: Health Development Agency, 2004.