Submission to the Productivity Commission Study into the Implications of the Ageing of Australia's Population

GlaxoSmithKline

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INTRODUCTION

Population ageing has recently become a major cause of public and policy concern in Australia. In 2002, more than a decade of meticulous academic debate was crystallised and brought to wider attention through the publication of the Treasury's Intergenerational Report (IGR) in 2002.

The IGR's projections on the implications of ageing for Australia were startling. Not surprisingly, they generated significant public debate – some aspects of which were excessively pessimistic. While this was positive in drawing greater attention to the challenges associated with ageing, there is now a clear need for a more balanced approach to the issue.

The Productivity Commission has played a leading role in the ageing debate for many years, particularly through its role in 1999 conference on the Policy Implications of the Ageing of Australia's Population. The current inquiry into the Implications of the Ageing of Australia's Population provides a further opportunity for examination of the issues and challenges of the ageing phenomenon.

GlaxoSmithKline Australia welcomes the opportunity to contribute to this study. Our submission focuses on three key areas of particular importance when considering the impact of an ageing population and the increasing importance of funding and delivering healthcare and medicines to the Australian community:

1. An analysis of some key implications relating to the ageing of the population, including an analysis of key issues and assumptions contained in the Intergenerational Report (IGR).
2. Research outlining the value of medicines and the benefits of their utilisation in terms of reduced healthcare costs, improved productivity and participation and other health outcomes.
3. A consideration of some of the financing options for further analysis to assist with meeting the increasing demand for medicines.

The appendices outline some case studies regarding the value of medicines and the impact of their use in treatment in major disease areas, drawn from both Australian and international research.

Our analysis indicates that while the Australian community does face challenges arising from an ageing population, and specifically from increasing medicine and healthcare costs, these are not necessarily of the same nature or extent as those outlined in the Intergenerational Report.

The value provided my medicine use (particularly around improved health outcomes and impact on workforce participation) has not been fully captured in past work. While we agree that there are some financing challenges presented by increasing demand for medicines, these are not insurmountable and should be considered in light of the benefits that medicines deliver to determine an appropriate policy response.

GLAXOSMITHKLINE - BACKGROUND

GlaxoSmithKline (GSK) is a world leading, research-based pharmaceutical company with a powerful combination of skills and resources to meet the healthcare needs of people around the world, helping them do more, feel better and live longer.

GSK is a global leader in the research, development, manufacturing and supply of prescription medicines, vaccines, over the counter medicines, oral care products and nutritional healthcare drinks.

At the forefront of the rapid progress in science and technology that will transform medical practice over the next 20 years, GSK is committed to sustain its current R&D intensity and investment. GSK's global R&D budget is approximately £2.8 billion (A$7.79 billion) annually.

As a research based company, GSK has a significant R&D product pipeline, with many new chemical entities (NCEs) and vaccines in clinical development.

Our corporate headquarters is in the UK; we operate in more than 100 countries and employ over 100,000 people worldwide.

GSK Australia is a major contributor to the health and economic wellbeing of all Australians. It has two operating groups - GSK Australia Pharmaceuticals and GSK Australia Consumer Healthcare. GSK Australia Pharmaceuticals head office is in Boronia, Victoria, manufacturing and supplying prescription pharmaceuticals and vaccines to Australia and export markets. GSK Australia Consumer Healthcare headquarters is in Ermington, New South Wales, manufacturing and supplying OTC medicines, oral care products and nutritional beverages to Australia and export markets.

GSK employs approximately 1500 staff and its contribution to Australia's export revenue through pharmaceutical and consumer healthcare exports totalled $346 million in 2003. Our manufacturing operations perform a key role as a global supplier of medicines, exporting 65% of pharmaceutical production to more than 80 countries throughout Europe, Canada, South America, Africa, Asia, the Middle East and the Pacific Region.

GSK's prescription medicines, vaccines and consumer healthcare products help treat and prevent disease in millions of Australians and our product portfolio and focus is closely aligned with the challenges highlighted by the Australian Government. GSK Australia produces products closely associated with the National Health Priorities - asthma, immunisation, depression, diabetes and smoking cessation.

In addition to this, GSK's investment in research and development in Australia is over $30 million per annum and the company is ranked in the top 20 industrial contributors to R&D.[1] This investment bears testimony, not only to the quality of Australian science, but to the company's commitment to supporting the advancement of Australian R&D excellence.

1 R&D and Intellectual Property Scoreboard 2001

Furthermore, GSK is involved in a whole range of R&D activities. We currently support more than a dozen R&D discovery projects and over 60 clinical trials are on-going at any one time.

The discovery research collaborations cover a broad range of areas and include the increasingly important area of genetic research. Some of the areas covered by our discovery research collaboration include Alzheimer's disease, cardiovascular disease, diabetes, hepatitis B, immunology, migraine, metabolic pharmacology, respiratory medicine and rheumatology.

GSK is also a major participant in phase I studies and international multi-centre phase II, III and IV clinical trials. The company's clinical trials involve clinicians and research centres around Australia in areas such as infection control, depression, cardiovascular disease, diabetes, cancer, asthma, rheumatology and tropical diseases.

One of our major research investments is the James Lance GlaxoSmithKline Medicines Research Unit at the Prince of Wales Hospital in Sydney. This unit, one of only three facilities supported by GSK worldwide, carries out phase I clinical trials, a crucial step in developing effective new medicines.

This submission is being made on behalf of GSK Australia Pharmaceuticals.

1. IMPLICATIONS OF AUSTRALIA'S AGEING POPULATION

THE AGEING PHENOMENON

Population ageing, as it is occurring in Australia, is essentially a three-dimensional phenomenon:

- The leading edge of the historically large "baby boom" generation is approaching retirement age. The ABS has estimated that 2031, there will be 5.4 million Australians aged 65 and over, while by 2051 this figure will be 6.6 million[2].
- Life expectancy, and specifically life expectancy for those aged over 65, is continuously increasing. The Commonwealth Actuary recently estimated that a 65 year old man can now expect to live another 17.7 years, up 1.5 years from the mid 1990s[3].
- Australia's fertility rate is in the midst of a long-term decline, which began in the 1960s. At 1.7 babies per woman, it is below the 'replacement rate'. The fertility rate recorded for 2000 was the lowest on record and is expected to fall further[4].

The interaction of these three factors, over the next 15-25 years, is almost certain to lead to a significant increase the so-called "dependency ratio" – the proportion of the population of non-working age to that of working age. This increasing dependency ratio is the crux of the ageing phenomenon and poses specific challenges for the funding of public health and community services.

The challenges of ageing can be viewed from three linked perspectives:

- Implications for government budgets
- Implications for national welfare
- Implications for inter-generational equity

AGEING AND THE GOVERNMENT FINANCING CHALLENGE

From the perspective of government financing, it is easy to understand why ageing has become of such concern. With a greater number of retirees becoming eligible for Age and Service Pensions, the call on government transfer payments is likely to increase. Further, the larger proportion of older people, commonly more intensive users of government funded health services, will likely increase the demands on public health budgets whilst,, given a proportionately smaller workforce, both the income tax base and productive capacity of the economy are likely to be constrained, impacting on revenue flows to support these greater expenditures.

The IGR, which modelled these various impacts into the future, concluded that, in the absence of policy change, by 2042 a funding gap equivalent to 5% of GDP will have opened up in the Commonwealth Government Budget[5]. A similar exercise, conducted by the Victorian Department of Treasury and Finance in 2003, estimated that on a no-policy-change basis, the funding gap in the state budget would be around 4% of Gross State Product by 2042[6]. Moreover, as highlighted in a recent working paper from the University of New England:

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2 Australian Bureau of Statistics. Population Projections, Australia, 1999-2101. ABS Cat. No. 3222.0.

3 Murray, Lisa. "Living Longer but it Costs More" Australian Financial Review. 11 August 2004. p.51.

4 Australian Bureau of Statistics. Australian Social Trends 2002 - Population Projections: Fertility Futures. 9 May, 2002.

5 Commonwealth of Australia. "Intergenerational Report 2002-03". Budget Paper No. 5. Canberra, 2002.

6 Victorian Department of Treasury and Finance. "Shaping a Prosperous Future: Prospects, Issues and Choices." Discussion Paper. April, 2003.

"A striking feature of future pressures is not the amplitude of the deficits, but rather their duration. The projected deficits are continuous and indeed become a permanent feature well beyond 2040."[7]

It should be noted, however, that long-term projections such as these are, by their very nature, fraught with difficulty. The history of Commonwealth Budgets demonstrates how difficult it is to forecast into the near future, let alone four decades. While historically this has proved a problem in constraining deficits, in recent years this has proved similarly difficult, but produced under-estimates of Commonwealth revenues.

The IGR, in particular, recognises this inherent uncertainty and presents a range of alternative projections, albeit within relatively narrow bounds. Subsequent debate, however, has drawn attention to two relatively important assumptions and considerations that directly impact upon the degree of the government financing challenge posed by population ageing.

PRODUCTIVITY AND PARTICIPATION RATES

In reviewing the IGR, several commentators have commented on the report's conservative assumptions surrounding workforce participation and labour productivity.

A Treasury Working Paper tested a number of alternative, more optimistic, scenarios for both participation and productivity which significantly narrow the funding gap identified by the IGR[8]. Another paper from the Australian National University argued *"that the report is extremely conservative in regard to future levels of labour force participation."*[9]

What these papers highlight is both the high level of uncertainty around future trends in productivity and participation and the sensitivity of long term financial projections to relatively small changes in either variable.

Should ageing be accompanied by highly plausible changes in workforce trends – for example a reversal of the trend towards early retirement among older males, for which there is some evidence already emerging[10], or significantly higher female participation across all age groups, which is a likely outcome of higher female educational attainment and lower fertility rates[11] – then participation rates in the future could be higher than those predicted by the IGR.

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7 Coombs, Greg and Dollery, Brian. "The Ageing of Australia: Fiscal Sustainability, Intergenerational Equity and Inter-Temporal Fiscal Balance. Working Paper Series in Economics. University of New England School of Economics. No. 2004-1. p.10.

8 Gruen, David and Garbutt, Matthew. "The Long Term Fiscal Implications of Raising Australian Labour Force Participation or Productivity Growth." Treasury Working Paper 2004-1. April, 2004.

9 Dowrick, Steve and McDonald, Peter. "Comments on the Intergenerational Report 2002-03. Australian National University. 21 June, 2002. p.8.

10 Fitzgerald, Dr V.W. and Haebich, Dr W. "The Future Costs of Health and Aged Care in Australia". The Australian Health Care System: Directions for Reform. Melbourne Business School. 19 September 2002. p.14.

11 Dowrick & McDonald op cit. p.6.

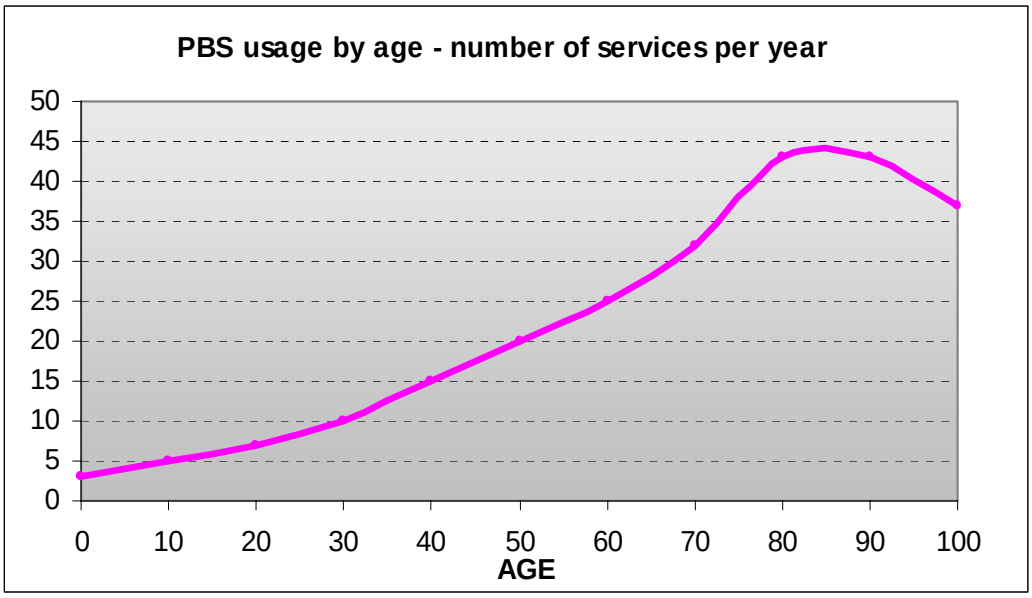
Similarly, reflecting the pace of technological innovation and increasingly capital intensive production, labour productivity may well continue to grow well above its long-term average, as it did through much of the 1990s.

As productivity and participation are major determinants of future government revenues, they will have an influence on the degree of any future funding gap. Moreover, as the key measure of any future funding gap is not its absolute size, but its proportion of GDP – which is itself highly sensitive to productivity and participation – the severity of the government financing challenge may not necessarily be as great as the IGR predicts.

PROJECTIONS OF FUTURE HEALTH CARE EXPENDITURE

The relationship between population ageing and health care expenditure has spawned a rich body of literature, both in Australia and internationally over the past 20 years. Early work analysing aggregate health care expenditure by age and sex indicated potentially massive implications for health budgets.

This is consistent with our current experience. There is, for example, a clear link between age and levels of PBS utilisation today:



Adapted from: The Ageing Australian population and Australian HealthCare costs. 1996-2051
A Department of Health and Aged care occasional paper (Aug 1999)

However, these initially pessimistic scenarios were tempered by studies suggesting it is proximity to death, rather than years since birth, which has the greatest effect on health care expenditure[12]. Assumptions regarding this key question (which are partly dependent on the development of new treatments and technologies) will have a significant impact on projected future costs.

12 See for example: Serup-Hansen, Niels et. al. "Future Health Care Costs – Do Health Care Costs During the Last Year of Life Matter?" Health Policy 62 (2002) 161-172. Zwiefel, Peter et. al. "Ageing of Population and Health Care Expenditure: A Red Herring?" Health Economics 8 (2002) 485-496.

Other studies isolated the underlying causes of rising expenditure within different parts of the health system, identifying the interaction between increases in GDP per capita and the introduction of new medical technologies as the key driver of increasing health care costs[13].

Against the background of this body of literature, the IGR's projection of future Commonwealth health care expenditure, using long-term trends in cost per head of population by age and gender, combined with projected population changes, appears somewhat rudimentary:

- In de-linking growth in health expenditure from growth in GDP per capita, which is widely recognised as a key determinant of health care expenditure, it potentially overestimates future health care funding requirements by a considerable margin;
- In adopting a general age and gender cohort-based approach to estimating future expenditure trends, it overlooks potentially important evidence relating health care expenditure to years of remaining life rather than age *per se* ;
- By considering only Commonwealth health expenditure, it ignores possible interactions between State and Federal health care systems – for example between the benefits of spending on medicines via the Pharmaceutical Benefits Scheme and the potential impact this may have on state-managed public hospitals;
- By using a long term average growth rate, it takes insufficient account of year-to-year fluctuations in spending, or of the long-term impact of recent policy changes; and
- Its acceptance of historical growth rates makes no allowance for emerging trends in which *"the growing importance of economic considerations in hospital purchasing and clinical adoption decisions is influencing technological change in the direction of developing explicitly cost-reducing technology"*[14]

Moreover, as highlighted in a recent paper by the Chairman of the Productivity Commission, the IGR approach to future health expenditures has highly unrealistic long-run consequences, particularly when applied to the Pharmaceutical Benefits Scheme.[15]

Given that projected growth in health expenditures accounts for the majority of the funding gap in the IGR model, these issues should not be ignored – especially when considering possible policy solutions. While the IGR's projections of future government financing challenges should be seen through the prism of these limitations, it is clear that there is a need for further detailed and sophisticated work estimating both future trends in productivity and participation, the expected future growth of health care expenditure and the interaction between these.

THE NATIONAL WELFARE CHALLENGE

A slightly broader approach to the challenge of population ageing considers its potential impact on Australian living standards. The central concerns are that ageing will lead to:

- Lower or negative rates of labour force growth as larger cohorts of older workers reach retirement age; and,

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13 Castles, Francis. "Population Ageing and the Public Purse: Australia in Comparative Perspective." The Australian Journal of Social Issues. 35:4 (2000) p.301

14 Gelijns, Annetine and Rosenberg, Nathan. "The Dynamics of Technological Change in Medicine". Health Affairs. Summer 1994. p.36.

15 Banks, G, "An ageing Australia: small beer or big bucks," Presentation to the South Australian Centre for Economic Studies Economic Briefing, Adelaide, 29 April 2004.

- A decline in private savings, as a greater proportion of the population retires and begins drawing down accumulated assets.

These two effects are commonly believed to be both likely and liable to reduce Australia's rate of economic growth over the next half century, with significant implications for Australian living standards. Such an argument, however, is far from decisive or universal.

It has been argued that adopting even very conservative assumptions about future economic growth, the most common measure of economic welfare - real GDP per capita – may be significantly higher in the future than it is today[16].

At a more technical level, there is also considerable debate about the magnitude of any effect ageing may have on the rate of growth in the labour force. Population ageing in Australia is being driven by a combination of increasing longevity and declining fertility. Certainly, in the absence of social changes such as later retirement, increasing longevity will tend to increase the dependency ratio. However, declining fertility, by virtue of generating less young dependents and removing an important barrier to participation among working age women in particular, will tend to decrease it[17]. While it is true that the impact of fertility on the dependency ratio is limited (as children soon mature and enter the workforce themselves), the impact of this on public budgets should be taken into account.

A related argument has been advanced regarding the role of education:

> *"As the relatively small current cohorts replace the older cohorts in the workforce, so the working age population shrinks relative to the retired population. But these younger cohorts are, on average, much better educated than those that they are replacing…The level of education of the workforce is an important facilitator of economic growth. It is a direct input into the domestic R&D effort and it enables the efficient adoption of innovations sourced either domestically or from overseas. Relative to the aged population the workforce may be getting smaller, but it is also becoming smarter."*[18]

The picture with respect to the anticipated effect of ageing on private savings is equally uncertain. International econometric studies have estimated that a rise in the dependency ratio will lead to a small but important decline in private savings[19]. However, some cross-sectional studies have shown that *"in fact the retired save as high a proportion of their income as the rest of the population."*[20]"

A final consideration to be taken into account here is the limitation of GDP per capita as a measure of national welfare when assessing the possible impact of ageing. On the one hand, significant benefits of ageing will be underestimated, for example the potential increase in time for unpaid caring and voluntary

16 Guest, Ross. "Australia's Older and Wealthier Future" Policy Vol.2. No.20. Winter 2004. p.5.

17 Dowrick, Steve. "Demographic Change and Australian Economic Growth to 2020" Policy Implications of the Ageing of Australia's Population. Productivity Commission. March 1999.

18 Dowrick, Steve and Day, Creina. "Australian Economic Growth: Why Bill Gates and the Ageing Pessimists are Wrong" National Institute of Economics and Business Public Lecture. 14 May 2003.

19 Masson, P. Et al. "International Evidence in the Determinants of Private Saving. IMF Working Paper 95/51. May 1995.

20 Bacon, Bruce. "Ageing in Australia: Some Modelling Results and Research Issues" Policy Implications of the Ageing of Australia's Population. Productivity Commission. March 1999. p.96.

work in the community, which is not captured in formal statistics. Such work is believed to amount to a significant proportion of GDP[21].

Further, as pointed out by one of Australia's most active writers on ageing:

> *"Economic growth, as currently measured, will record a decline when the life expectancy of the elderly increases. But from the perspective of welfare economics, an expansion in the technological opportunities (including medical opportunities which can prolong live) should tend to increase welfare... Of course, such measurement problems will always be with us. It is particularly important to bear them in mind in the context of enhanced life expectancy which is in danger of being bean counted as a negative."*[22]

THE ***THREE P'S***

It is widely agreed that the ageing of the population presents a number of important social, economic and policy challenges to the Australian community over the coming decades. Whilst there is some disagreement as to whether these trends represent opportunities or threats to our national economic welfare, there does appear to be an increasing consensus around the basis for our potential response:

- *Participation* – enabling and encouraging entry to and retention in the workforce;
- *Productivity* – constantly improving the mix of capital, knowledge, skills and people to increase labour productivity; and,
- *Prudent financial administration* – improved management of key public programs and services to ensure value for money spent and to support the above two approaches.

The role of medicines is particularly important in addressing health, which has a significant impact on both participation and productivity. The Commonwealth Treasury paper *Australia's Demographic Challenges* identifies one of the drivers of lower than optimal workforce participation as poor health:

> *"Poor health often leads to early retirement, spells out of work, and lost productivity through sickness or injury"*[23]

Improved health states will facilitate (potentially on conjunction with other policy settings) greater participation in the workforce and the productivity of those already in it.

As medicines play an increasing role in our healthcare system, their capacity to prevent and treat disease and maintain health will become increasingly important in facilitating greater workforce participation by and productivity of older workers. By increasing participation and productivity, increasing medicine use may well be of benefit, even though also a rising cost.

Chapter 2 outlines some of the key research into the value of medicines – in terms of workforce participation and productivity as well as the impacts on other areas of health spending.

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21 Healy, Judith. "The Benefits of an Ageing Population" Discussion Paper No. 63. The Australia Institute. March 2004.

22 Dowrick, Steve. Op cit. p.43-44.

23 "Australia's Demographic Challenges", Commonwealth Treasury, 2004, p.6

2. THE ROLE AND VALUE OF MEDICINES

Medicines have played an increasingly important role in the prevention and treatment of diseases over the course of the last century - particularly since major public health challenges were initially addressed through major public works such as sewerage and sanitation.

Mass vaccination has effectively eliminated the risk of many diseases (eg polio) that previously caused substantial rates of disability or premature death in Australia only decades ago. The introduction of modern medicines is continually reducing the burden of disease and changing the way that particular diseases are treated. As new treatments are invented and diffused, the means by which we address healthcare needs will continue to evolve.

Medicines save lives, relieve pain, cure and prevent disease. They help keep families together longer and improve the quality of life for patients and caregivers. Medicines enable employees to stay on the job and remain economically productive in the community. They also help people – and the health care system – avoid disability, surgery, hospitalization and nursing home care, often decreasing the total cost of caring for an illness.

However, medicines should not simply be viewed through the prism of reducing other healthcare costs – and this is particularly the case when solely viewing public healthcare costs. New medicines can also address currently unmet medical needs – treating conditions for which there is no current treatment and improving the health state and life expectancy of patients for whom current treatment and improving the healthcare of patients for which there is no current treatment – or substantially improving the health state and life expectancy of patients for whom current treatment is inadequate or is associated with substantial side effects.

The following discussion outlines the value of medicines in terms of their ability to reduce health care expenditure, reduce mortality, raise life expectancy and increase productivity.

It is important to note that while much of the data below is based on overseas research, and the application of the financial details would need to be translated to Australia's unique financing and delivery arrangements, the principle that medicines deliver cost-effective and beneficial outcomes in terms of economic welfare remains. As Professor Jeff Richardson noted in his submission to this study[24], a particular challenge in Australia is the collection and analysis of data of this type. We concur with this view.

REDUCED HEALTH CARE EXPENDITURE

Research undertaken for the National Bureau of Economic Research (NBER) in the United States has shown that the use of newer drugs tends to lower all types of non-medicine medical spending, consequently reducing the total cost of treating a condition. Findings suggest that an $18 increase in spending on new prescription drugs reduces non-drug expenditure by $71.09, resulting in a net saving of $53.09[25]. This lower non-drug expenditure is due in large part to reduced hospital expenses. Another study has shown that every US$1 increase in drug expenditure is associated with a US$3.65 reduction

24 Richardson, J "Submission to the enquiry into the Implications of the Ageing of Australia's Population", 20 Setember 2004

25 Lichtenberg F, "Are the Benefits of Newer Drugs Worth their Cost?" Health Affairs 2001; 20(5): 241-251.

in hospital expenditure[26]. And a review of nearly one hundred published studies showed that a medicinal intervention was usually a cost-effective measure[27] creating savings within the health care system.

Similar research in the UK has also demonstrated the cost-effectiveness of medicines, finding that since the 1950s, medicines have helped halve the number of hospital beds used in 12 major disease areas and reduce the average hospital stay from 45 days to eight. The savings that result from such reductions were reported as being in the vicinity of £10 billion a year[28].

The medicine simvastatin, used to lower cholesterol, provides a practical example of how the use of pharmaceuticals can reduce overall hospital expenditure. The use of this medication reduced hospital admissions by a third during five years of treatment, reduced the number of days patients stayed in hospital when they were admitted and reduced the need for bypass surgery and angioplasty. Overall, this equates to a significant reduction in hospital expenditure[29].

REDUCED MORTALITY AND INCREASED LIFE EXPECTANCY

Reduced Mortality

The value of benefits such as reduced mortality and increased quality of life that stem from pharmaceutical innovation are hard to quantify, and inevitably involve a consideration of non-economic values.

However, the general positive effects of medicine on mortality and quality of life are clear. Effective use of medications has eliminated or controlled many diseases and conditions with traditionally high mortality rates. Over 45% of the variation in mortality across diseases between 1970 and 1991 is explained by the extent new drugs were used to treat the disease[30].

Some specific examples of the reduced mortality associated with certain pharmaceuticals are shown in the following chart:

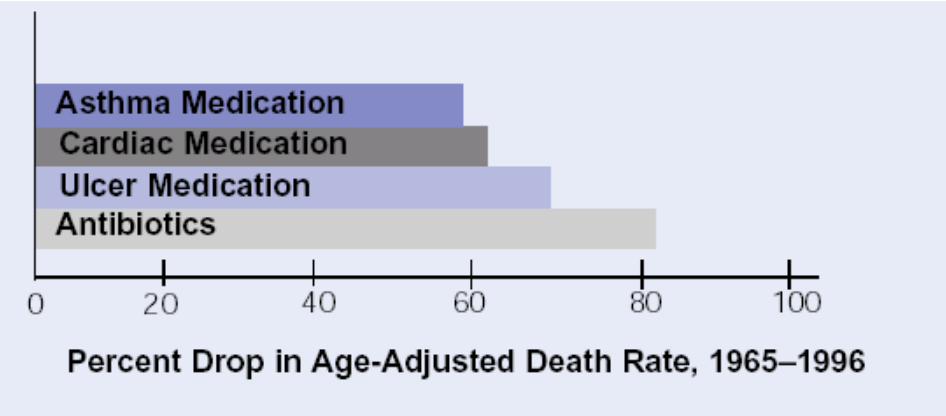
26 Lichtenberg F, "Do (more and better) drugs keep people out of hospitals" American Economic Review 1996; 86: 384-388.

27 Coyle D, Drummond M 'Does expenditure on pharmaceuticals give good value for money?: current evidence and policy implications' Health Policy 1993 Nov; 26(1):55-75.

28 http://www.abpi.org.uk/press/press_releases_97/971210.asp

29 "Cholesterol Pill Linked to Lower Hospital Costs," The New York Times, March 7, 1995.

30 Lichtenberg F, "Pharmaceutical innovation, Mortality Reduction and Economic Growth, " Presented at the Conference on the Economic Value of Medical Research, December 1999.



Source: PhRMA (1998) & National Centre for Health Statistics (1998).

Studies by the Battelle Institute suggest pharmaceutical innovation will continue to be a major factor contributing to mortality reductions into the future, accounting for:

- 19-40% of the projected reduction in coronary heart disease by 2015;
- 28-65% of the projected reduction in breast cancer by 2015; and
- 15-40% of the projected reduction in cerebrovascular disease by 2015. [31]

The benefit of reducing disease-related mortality may be difficult to quantify in monetary terms but should not be undervalued.

Increased Life Expectancy

Disease-related mortality is closely linked to average life expectancy which has been steadily increasing in Australia over past decades.

Average life expectancy (yrs) in Australia

	1960	1970	1980	1990	1995	2000	2001	2002
Males	67.9	67.4	71	73.9	75	76.6	77	77.4
Females	73.9	74.2	78.1	80.1	80.8	82	82.4	82.6

Source: OECD Health Statistics 2002

While a number of factors contribute to increases in average life expectancy, such as improvements in nutrition, increased health awareness and public health awareness campaigns and better health services, the value of pharmaceutical innovation needs to be appreciated.

In a study which measured the relationship between new drug launches and life expectancy in 52 nations over the period between 1982 and 2001, average life expectancy was demonstrated to have increased by 1.96 years over this period with 40% of that gain attributed to the impact of new medicines[32]. Older medicines were accredited little impact in this regard.

31 Hall M, "The Impact of Behavioural and Biomedical Advance on Health Trends Over the Next 25 years," London, UK: Office of Health Economics; Office of Health Economics Briefing No 31, Nov 1994.

32 Lichtenberg F, 'The impact of new drug launches on longevity' NBER Working Paper 9754

A wider study involving 21 OECD countries also investigated the link between pharmaceutical expenditure and life expectancy. The study estimated that doubling pharmaceutical consumption would raise remaining life-expectancy by 2% for the average 40-year old and 4% for the average 60-year old[33].

Resultant impact on economic growth

Decreases in mortality and increases in life expectancy become cost-effective outcomes partly through their impact on economic growth – primarily driven the increases in the workforce participation rate and productivity. If people live longer and in better health, they will have a greater opportunity to work longer, generate additional tax revenue, spend more on goods and services whilst at the same time demanding fewer health care services.

Economic research has indeed linked longer life expectancy with economic growth. In a study comparing two nations, identical except for one having a 5 year longer life expectancy, it was found that the healthier nation experienced economic growth at a 0.3-0.5% faster rate. Another study using international data relating to the period between 1960 and 1990 found improved health was to have a substantial impact on economic growth. Ultimately, the study concluded that *"…a one year improvement in a population's life expectancy contributes to a 4% increase in output"*[34].

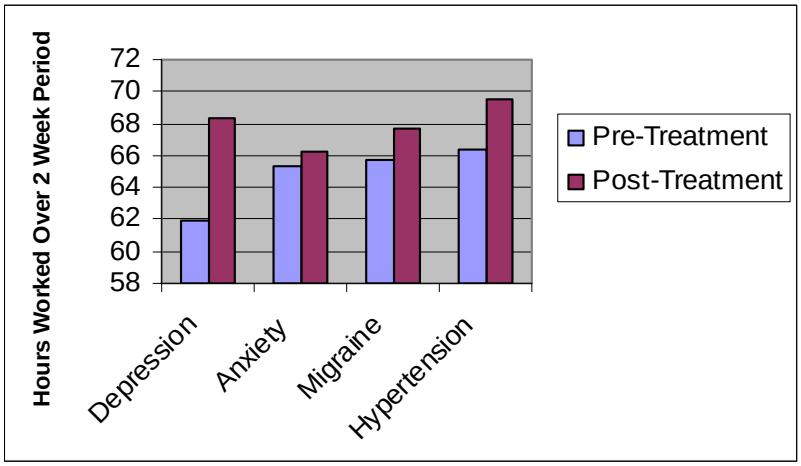
INCREASED PRODUCTIVITY

Part of the value of medicines can be seen in increased workforce productivity through reduced absenteeism and overall improvements in worker health. This increased productivity is another driver of economic growth.

In 1997, researchers at the Massachusetts Institute of Technology showed significant increases in the hours worked over a two-week period by employees with four common conditions after receiving treatment with pharmaceuticals. The results of this study are illustrated in the chart below:

33 Frech, H., Miller, D. The Productivity of Health Care and Pharmaceuticals: An International Comparison. Washington, D.C.: AEI Press, 1999.

34 Bloom D, Canning D, Sevilla J. The Effect Of Health On Economic Growth: Theory And Evidence. Working Paper 8587. 2001. Cambridge, MA, National Bureau of Economic Research. NBER Working Paper Series.



Source: Berndt *et al*, "Illness and Productivity: Objective Workplace Evidence," Working Paper #42-97, Massachusetts Institute of Technology, May 1997.

It has also been argued that patients on newer medicines are significantly less likely to miss workdays than those on older medications[35]. These findings suggest that treatment of common conditions with newer medicines can be of significant value, despite their potentially higher upfront cost, through enhanced worker productivity.

ACCESSING THE VALUE OF MEDICINES

As total expenditure on health continues to rise in Australia, it is important not to consider expenditure on pharmaceuticals purely an additional cost burden, but also as an investment in improved health – and thereby potential improvements in productivity and participation. The value of medicines can be seen in terms of improved quality of life for sufferers and reduced mortality and morbidity, and also in reduced health care expenditure, increased ability to participate in the labour force, increased productivity and therefore higher economic growth.

Consequently, viewing increased expenditure on medicines as merely an increasing burden on the Commonwealth Budget (as most Australians access medicines is via the Pharmaceutical Benefits Scheme) that simply needs to be curtailed may in fact lead to suboptimal allocation of health resources and broader economic outcomes. It is important that, merely because it is growing, PBS expenditure not be considered in light of the value of medicine use, or that non-government/patient contributions to medicine use are artificially higher than in substitutable but less efficient areas of health spending.

However, even once the value that medicines provide to the healthcare system and the broader community through improved economic outcomes is accepted, there remains a financing challenge posed by increasing medicine demand utilisation.

Chapter 3 considers some of the elements of this challenge as well as proposing areas that warrant further research to enable their more detailed consideration as means to address this.

35 Lichtenberg F, "Are the benefits of newer drugs worth their cost? Evidence" Health Affairs; 20(5): 2001.

3. ADDRESSING THE FINANCING CHALLENGE

While there has been debate around the projections of the Intergenerational Report regarding future healthcare costs, particularly with respect to pharmaceuticals, there is a broad consensus that without policy change, there will be increasing financial demands on the Commonwealth Budget through growing healthcare costs, particularly on the Pharmaceutical Benefits Scheme.

DECISION-MAKING TODAY

Firstly, it is important to consider the means by which medicines are currently subsidised via the Pharmaceutical Benefits Scheme (PBS).

No medicine can currently be listed on the PBS without a positive recommendation from the Pharmaceutical Benefits Advisory Committee (PBAC) and then, in the case of medicines with budgetary implications of more than $10 million annually, with the specific endorsement of Cabinet.

New and more expensive medicines are generally only made available on the PBS following an extremely rigorous economic cost-effectiveness analysis. While significant debate continues to occur about the application of this methodology, it is broadly agreed that medicines are only listed on the PBS if they have been shown to be cost-effective. This methodology ensures that decisions regarding the allocation of funds for new medications are taken within a broader economic and healthcare context.

However, while this process endeavours to ensure that publicly subsidised medicines deliver 'value for money', it does not entirely remove the fiscal challenge. As an ageing population increasingly utilises pharmaceuticals and the industry develops new and more effective treatments, demands on the PBS budget will increase.

It does, however, indicate that a potential 'feedback loop', whereby increased pharmaceutical expenditure reduces costs elsewhere in the health system, should be further considered when analysing future PBS costs.

A SIGNIFICANT CHALLENGE?

The IGR projections indicate that the majority of the increase in Commonwealth healthcare expenditure is derived from growth in the cost of the PBS.

Table 8: Projected Commonwealth health and aged care spending, by components (per cent of GDP)

	2001-02	2006-07	2011-12	2021-22	2031-32	2041-42
MBS subsidy	1.09	1.10	1.15	1.33	1.56	1.78
PBS subsidy	0.60	0.63	0.79	1.31	2.15	3.35
Hospital and health services	1.16	1.16	1.20	1.34	1.51	1.63
Other	1.12	1.14	1.16	1.22	1.29	1.37
All health	**3.96**	**4.02**	**4.30**	**5.20**	**6.51**	**8.13**
Residential aged care	0.58	0.59	0.65	0.81	1.10	1.45
Community care	0.14	0.16	0.17	0.21	0.27	0.32
All aged care	**0.72**	**0.75**	**0.82**	**1.01**	**1.37**	**1.77**

Source: Treasury projections.

Source: Intergenerational Report 2002-03, p.39

This is not surprising. Driven by demand for new medicines with large target populations that have become available over the past decade, the PBS has been the fastest growing component of the Commonwealth health budget in recent years.

The IGR accepts that the majority of the projected increase in PBS costs is similarly driven by technological drivers (ie new medicines) rather than simply population ageing:

> *"Most of the projected growth in health spending reflects the increasing cost and availability of new high technology procedures and medicines, and an increase in the use and cost of existing services…*
>
> *"The ageing of the population also is projected to require increased health spending, as older people tend to have a greater need for health services. However, this is projected to have a much smaller effect on spending than the growing cost of new health care technology, increasing use of services and strong consumer demand and expectations."*[36]

However, the degree of the fiscal challenge represented by growth in demand for medicines is still a matter of debate.[37] Just as the growth in PBS expenditure in recent years has delivered substantial benefits to the health system, it is important that such savings or improved health outcomes be considered when projecting future PBS costs.

Despite considerable debate over the likely future trends of the PBS and appropriate responses, the fiscal impact of growing PBS costs do pose a policy challenge.

This is true even if we only consider that, as the fastest rising component of the Commonwealth health budget, it may increasingly become subject to short-term cost containment measures that have negative effects on the health budget and economic welfare over the longer term.

Moving the debate beyond a cost-containment focus should be an objective of a considered analysis of these issues. As has been outlined above (and in the attached case studies), to see rising demand for medicines purely as an additional public cost that needs to be constrained is to only consider one side of the equation. It is therefore important that the debate around increasing PBS costs also consider the impact of policy responses on medicine access and utilisation.

PRINCIPLES UNDERPINNING REFORM

Before considering the design and impact of measures to address this challenge, there must be agreement on the key principles expected of our healthcare system and, specifically, the PBS. As a core part of Australia's universal public healthcare system (indeed being several decades older than Medicare), the PBS enjoys broad support in providing affordable access to safe and effective medicines for all Australians.

Agreement on the following principles should underpin any consideration of measures to address the fiscal challenge:

- Timely access to safe and clinically and cost-effective medicines

[36] Commonwealth of Australia, "Intergenerational Report 2002-03". Budget Paper No. 5. Canberra, 2002, p.38

[37] Banks, G, Op Cit, p.24.

Access to medicines that have been demonstrated as safe and clinically and cost effective should be timely and not delayed or denied purely because of increases in the cost of medicines, or overall PBS costs.

- Access based on medical need, not ability to pay
  This is a long-standing goal of the PBS and is consistent with the aims of the broader Australian healthcare system.
- Patient contributions are appropriate
  Similarly, patient contributions have long been a key component of the PBS, and are not inconsistent with the above aim provided they are designed appropriately.
- Efficient allocation of healthcare resources
  Funding access to medicines should be viewed as part of the broader healthcare system, and not simply through a prism of increasing PBS cost to Government.
- Clinical freedom and patient choice
  Doctors and patients should be free to determine the most appropriate course of treatment, and this should be determined by patient need rather than individual financial means or restrictions imposed by a cost minimisation mentality.

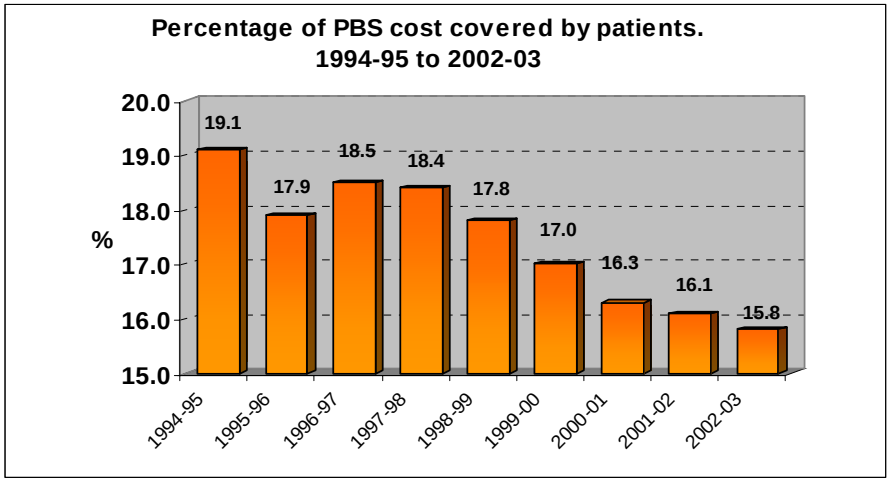
ADDRESSING RISING PBS COSTS

Rising medicine costs do not in themselves necessarily represent a problem. However, it is clear that there is a degree of concern about the rising cost of the PBS to the Commonwealth Budget. The challenge of meeting rising demand for medicines in publicly-funded health systems is not peculiar to Australia – it is a common challenge across virtually every advanced economy.

GSK believes that it is possible to address this while still achieving the broad goals and principles of the PBS. These measures focus on directing greater private funds and resources to meet envisaged rising demand.

Patient contributions

Total patient contributions represent just under 20% of the PBS cost to Government – slightly more when the PBS items not processed by the HIC[38] are considered.



Source: HIC data

38 Prescriptions for general patients that are below the general copayment level are not captured by HIC data, as no reimbursement to pharmacy is required.

Over the past decade, this has tended to drift downwards, increasing when the Government has increased the patient copayment levels. The level is projected to again rise to around 18% when the recently-legislated copayment increase takes effect in 2005.

The current patient contribution system has been in place for many years. Being based on essentially two categories with safety nets (general and concessional) it is a relatively blunt welfare mechanism.

There is the potential for the copayment system to be redesigned to require a greater patient contribution to medicine cost. Such a contribution could be based on various mechanisms, and deliver greater equity (requiring a greater contribution from those with economic means) greater efficiency (in appropriate medicine use) and savings to the Commonwealth Budget. Some proposals which could be considered include a copayment system based on:

- Means testing
- The balance of 'public' or 'private' benefit
- Categorisation of medicines
- National priority areas
- A fixed proportion of PBS costs

While the role played by price signals and their impact on PBS utilisation has only recently become the subject of detailed research, the impact that changing copayment structures would have on patient behaviour is crucial when analysing the impact of any proposed change to patient contributions.

While GSK does not endorse any particular approach, we do support further analysis of the impact of patient contributions and copayments. Such research would better inform the debate around medicine use and the appropriate level of patient contributions.

Private Insurance mechanisms

Private Health Insurance has long played an important role in the broader healthcare system, particularly with respect to in-hospital services. However, the role of patient-funded private health insurance has been relatively insignificant in the provision of medicines. This can partly be attributed to:

- The universal coverage of the PBS;
- The lack of strong price signals for the largest PBS users; and,
- The strong monopsonist purchasing position of the Commonwealth.

However, there is potential for the use of private health insurance mechanisms to address rising health costs, particularly if they were shown to reduce the demand for hospital services funded by insurers.

Similarly, when considering potential shortages in skilled labour as the participation rate declines, there is also potential to provide incentives for employers to support medical treatments that will assist retaining employees and limit early retirement due to preventable health conditions.

The current insurance funding and regulatory framework around private health insurance has been seen to limit these opportunities, and there has been little interest from the private health insurance sector in entering these markets at the moment.

Again, while not proposing any particular course of action, GSK supports the notion that this subject would benefit from further research, specifically investigating:

- The potential for private insurance mechanisms to fund growing medicine costs, and thereby attract larger amounts of private funding;
- Existing regulatory and market barriers to a greater role for private insurance mechanisms; and,
- The potential for non-patient funded insurance mechanisms to enter the market.

Accessing private savings

While the ageing of the 'baby-boomer' generation represents a demographic and fiscal challenge, it is also true to say that this generation possesses significant financial wealth. As much of this is linked to home and property values, this has seen a significant increase over the past two decades. This generation also possesses higher levels of private savings than previous ageing generations via superannuation funds. Similarly, younger Australians currently in the workforce have a compulsory savings system to help support their retirement through the superannuation system.

While these higher levels of savings are partly necessary to support both longer post-working lives and higher expectations of standards of living in retirement, this also presents an opportunity to design mechanisms to access some of this capital to fund increasing demands for health services.

Other nations, notably Singapore and the United States, have established mechanisms to support increased healthcare costs in later years by designing tax-advantaged and/or compulsory savings mechanisms to augment this savings pool and reduce the call on public funds.

While Australia's health system has traditionally relied on public or private insurance mechanisms, the creation of 'health savings accounts' could provide a further pool of savings that may reduce the call on increased public expenditures, whether for all Australians or particular groups. Another potential benefit of such a system would be that, as it involved personal accounts, it would potentially reduce the moral hazard inherent in insurance mechanisms.

Again, while GSK endorses no particular policy in this regard, further research into the potential for such accounts to augment the universal nature of the PBS would be worthwhile.

CONCLUDING COMMENTS

While the ageing of Australia's population does present several important policy challenges, these challenges are not necessarily of the magnitude or nature as those outlined in the Intergenerational Report. And while this does represent a particular challenge with respect to funding future healthcare costs – particularly as the majority of healthcare in Australia is publicly funded – the PBS cost growth scenario outlined in the Intergenerational Report is also open to question.

While it is also clear that demand for medicines will likely increase as an ageing population will utilise more medicines more often, it is also true that the most significant driver of increased medicine and health costs remains improvements in technology and the development of new treatments.

However, increasing use of medicines is not, in itself, a problem. Indeed, medicine use usually represents an efficient allocation of health resources. Improved health outcomes provided by future medicine use is likely to have positive economic implications (a healthier community, with the potential to reduce early retirement caused by poor health and thereby improve general economic welfare) and positive fiscal implications (as medicines are a cost-effective treatment, reducing demand for alternative treatments elsewhere in the health system). Furthermore, there are also the non-measured and non-economic benefits of a healthier community.

Finally, while funding future PBS growth represents a fiscal challenge, this concern should not be overstated. Just as there are varying analyses of the extent of the challenge presented by an ageing population, so there are alternative means of addressing it. Any analysis of future medicine use and costs should also take into account the health outcomes that their use will deliver.

Further research and analysis of the financing challenge and the impacts of various options to address it represent the best opportunity to ensure that an ageing Australia maintains its ability to access high quality and innovative healthcare via equitable means.

Appendices – Case Studies

APPENDIX 1 - ASTHMA

New and innovative medicines are enhancing the length and quality of life experienced by many asthma patients while ongoing pharmaceutical research promises to continue the impressive progress made against asthma in the past decade.

Australia

In Australia, asthma has been designated a National Health Priority Area since 1999 - a clear result of the fact that over 11% of Australians suffer from asthma.[39] The disease effects 14.7% of the Australian population, carrying considerable costs to the economy via direct costs such as hospitalisation and indirect costs such as time lost from work and premature death[40].

Asthma can seriously impact on a patient's physical wellbeing, general health, vitality, social functioning and mental health and, on all these scores, people with asthma record lower scores than people without. Problems range from limited ability by children to play sport with their friends to the fact that 80% of adults with persistent asthma have abnormal lung function.[41]

New and innovative medications for asthma have resulted in a 28% decline in mortality from the condition in the past decade. Despite this, however, asthma was responsible for the deaths of 685 Australians in 1998.[42] Australia still has the highest death rate for asthma among young people compared to other developed countries.

Internationally

Asthma is one of the most common chronic diseases in world. It is currently estimated to affect 300 million people, and likely to impact an additional 100 million by 2025.

International research into the cost-effectiveness of asthma medicines has been centred around the relationship between their use and changes in overall health care costs. A study involving asthma patients in North Carolina (USA) found that inhaled corticosteroid therapy resulted in a 50% decrease in hospitalisation and a 26% decrease in outpatient visits. This was in comparison to the group of patients *not* given such medication in which there was a 23% *increase* in hospitalisation and a 36% *increase* in outpatient visits. Overall, it was concluded that effective inhaled corticosteroid therapy reduced total monthly health care costs by 24% per patient[43].

Similar findings came out of a demonstration program in Virginia (USA) which found that proper management and use of asthma medication reduced by emergency room visits by 42%. It quantified

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39 ABS, National Health Survey: Asthma and other respiratory conditions, 1995, p.3

Australian Institute of Health, Australia's Health 2000, 2000, p.90

40 "Global Burden of Asthma Report" compiled by Matthew Masoli, Denise Fabian, Shaun Holt, Richard Beasley, Medical Institute of New Zealand and University of Southampton (UK), developed for the Global Initiative for Asthma, 2003.

41 Woolcock, A.J., et al, The Burden of Asthma in Australia, Medical Journal of Australia, 2001; 175:141-145

42 Woolcock et al, ibid

43 Balkrishnan et al, "Outcomes and cost benefits associated with the introduction of inhaled corticosteroid therapy in a Medicaid population of asthmatic patients" Clinical Therapeutics 20(3), 1998.

this by concluding that every $3 spent on asthma medicines saved $17 in emergency room costs[44]. Other studies specifically targeting children have shown comparable reductions in hospitalisations[45].

44 The Williamsburg Institute of Virginia Commonwealth University and the National Pharmaceutical Council: The Virginia Health Outcome Project — A Demonstration Project, 1997.

45 Faiqa Qureshi, M.D., et al., "Effect of Nebulized Apratropium on the Hospitalization of Children with Asthma," The New England Journal of Medicine, Vol. 339, No. 15, October 8, 1998.

APPENDIX 2 – VACCINES

Vaccination helps saves more lives and prevents more substantial illness and disability (particularly those of children through vaccination programs) than any other medical intervention. Vaccination programs are also relatively inexpensive to administer, making them one of the most cost-effective public health strategies available.[46]

In the last 30-50 years, vaccination has meant that many common vaccine-preventable diseases have been controlled and/or and many have been eliminated from the developed world.

With the arrival of new technologies in vaccine development, new preventative and therapeutic vaccines have been made possible, providing the potential to extend these successes into new disease areas.

Australia
In Australia, widespread vaccination led to significant decreases in death from common preventable diseases during the last century. In the period 1926-1935, over 4,000 Australians died annually from diphtheria whereas by 1986-1995, this had fallen to only two deaths per year.

Likewise, as a result of the introduction of community vaccinations for polio, annual deaths in Australia fell from over 1,000 annually to zero.

Whooping cough, or pertussis, is an epidemic bacterial respiratory infection that is highly contagious, spreading to 70-100% of household contacts. In 1926-35, nearly 3,000 Australians a year died as a result of contracting pertussis.

Pertussis remains a serious and costly disease in Australia, resulting in prolonged and significant disruption to working and social life in adults. In 1998, the 2260 pertussis notifications in people aged 20 years and over were associated with over 15,000 lost working days, 8,400 GP visits and 4,300 prescriptions. About one third of working adults who contracted the disease lost more than 5 working days due to the illness, and 10% lost more than a month.[47] The recent availability of new innovative adult vaccinations against pertussis can help prevent its impact in the adult population.

Approximately 90% of the Australian population will contract chickenpox by the age of 15 with more than 240,000 cases being reported annually. There are more than 1,200 hospitalisations associated with these cases and more than four fatalities each year. The average annual cost of varicella (chickenpox) infection to Australians is around $3 million, including the value of over 57,000 GP visits. Pharmaceutical companies' research has led to the invention of vaccines which protect children and adults from contracting this virus.

Internationally
The Centre for Disease Control estimates that every $1 spent on vaccines for measles-mumps-rubella saves the health care system $21.

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46 National Health & Medical Research Council, National Immunisation Strategy, Canberra, 1993

47 Thomas et al, MJA, vol.173, 2000, p.74-76

Similarly, every $1 spent on oral polio vaccine saves $6, and every $1 spent on diphtheria-tetanus-pertussis vaccine saves $30.90[48].

48 "Vaccines for Children: Bad Policy or Start-up Glitches?", Medicine and Health, August 15, 1994.

APPENDIX 3 - DIABETES

Australia

A recent study funded by the Commonwealth Government found the prevalence of Type II diabetes to be 7.4% amongst the Australia community, with half of those cases remaining undiagnosed[49].

This poses significant economic costs for Australia as recent studies have determined the average healthcare cost incurred by someone with diabetes is $5,360 per year. This equates to an annual cost of $2.2 billion, which rises to over $6 billion when the indirect costs associated with carers and the additional Commonwealth benefits supplied to sufferers are taken into account[50].

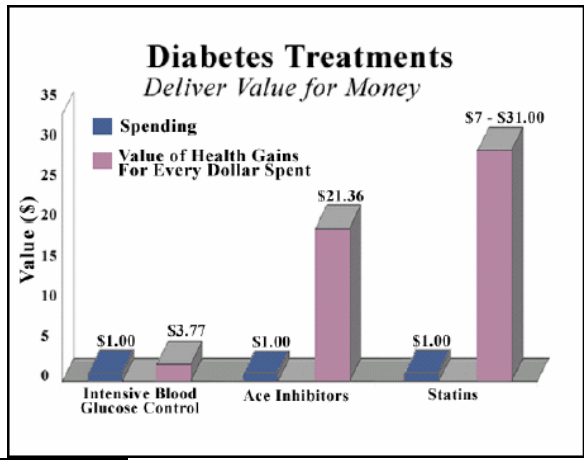
Therefore, effective treatment can have an enormous impact on the costs associated with this condition, as some international research has indicated.

Internationally

A report by MEDTAP International in the United States found that each additional dollar spent on diabetes in the last 20 years has saved $1.49 in other costs in the health care system, by reducing the length of hospital stays and the risk of complications developing such as stroke, heart failure or amputation[51].

The report also showed continuing health gains in this area as a result of effective treatment of diabetes. The chart included illustrates the value of the health gains that result from additional spending on medicines commonly used to treat diabetes:

- Treatment with drugs for glucose control yielded $3.77 per dollar invested;
- Treatment with ACE inhibitors to control blood pressure yielded $21.36 per dollar invested; and,
- Treatment with statins to lower patient cholesterol levels yielded returns of between $7.00 to $31.00 per dollar invested[52].



49 Dunstan D et al 'The rising prevalence of diabetes and impaired glucose tolerance: The Australian Diabetes, Obesity and Lifestyle Study' Diabetes Care; 25: 829-834, 2002.

50 Colagiuri S, Colagiuri R, Conway B, Grainger D, Davey P, DiabCo$t Australia: Assessing the burden of Type 2 Diabetes in Australia, Diabetes Australia, Canberra, December, 2003.

51 MEDTAP International, "The Value of Investment in Health Care: Better Care, Better Lives," (Bethesda, MD: MEDTAP, 2003).

52 Ibid.

Another recent study found that effective treatment of diabetes with medicines and other therapy yields annual health care savings of $685 - $950 per patient within one to two years[53]. Other studies have supported these results, finding that use of a disease management program to control diabetes with medicines and patient education generated savings of $747 per patient per year[54].

In relation to other economic costs, research has again indicated that the use of medicines treating diabetes brings substantial benefits.

A UK report found that Type II diabetes resulted in average lost earnings of £14,000 per person per year, and carried direct costs to employers of £418 million per year due to replacement costs, lost services and increased production time[55]. Research has indicated that effective treatment of diabetes has been shown to reduce this employment impact with, for example, 97% of diabetics on medication being employed compared to 85% of those not receiving pharmaceutical treatment. Those on medication also showed a higher number of workdays[56].

A 1996 US study estimated that prescription medicines for Type II diabetes also resulted in savings for employers of $1,475 per employee per year due substantially to reduced absenteeism[57].

Although specific economic impacts are difficult to precisely quantify, it is clear that reductions in mortality, hospital stays and the complications associated with diabetes that result from treatment with pharmaceuticals may have a significant impact on absenteeism and productivity, and carry substantial economic benefits. They should also lead to a great ability for sufferers of diabetes to remain participants in the labour force.

53 E.H. Wagner et al, "Effect of Improved Glycemic Control on Health Care Costs and Utilization," Journal of the American Medical Association 2001; 285(2): 182-189.

54 J. Berger, et al., "Economic Impact of a Diabetes Disease Management Program in a Self-Insured Health Plan: Early Results," Disease Management; 2001: 4(2), 65-73.

55 NERA Report, "The Human and Economic Value of Pharmaceutical Innovation and Opportunities for the NHS" May 2004, UK.

56 Ibid.

57 Rizzo J et al, "Labor productivity effects of prescribed medicines for chronically ill workers," Health Economics, Vol 5: 249-265

APPENDIX 4 – STOMACH ULCERS

In Canada, before the introduction of stomach-acid-blocking H2 antagonist drugs, 97000 surgeries were performed annually to treat stomach ulcers.

However, 10 years after their introduction, the number of surgeries per year had dropped to fewer than 19,000, and in the early 1990s, the annual cost of drug therapy per person was about $900, compared to about $28,000 for surgery[58].

58 Pharmaceutical Researchers and Manufacturers of American, "The Value of Medicines", Washington, 2001

APPENDIX 5 – HIV/AIDS

HIV has infected more than 30 million people worldwide, and those affected tend to be young, highly productive and at the peak of their potential economic output. Effective treatment can therefore present significant economic benefits.

Notable improvements have been made in recent years regarding the treatment of HIV leading to large reductions in mortality, hospital stays, outpatient visits and other medications used for AIDS-related illnesses.

For example, combination drug therapy reduced AIDS mortality in the United States by more than 70 percent from 1994-1997. Thousands of patients were able to remain at work and stay out of hospitals. This has resulted in savings in the range $15,000 annually[59].

One study conducted in Florida in the late 1990s found that *"for each 10 [percent] increase in protease inhibitor use, per-member per-month, oral medication increased by $86, however, overall health care costs decreased by $135."*[60]

Similarly, a study published in The New England Journal of Medicine showed that in the 16 months following the introduction of antiretroviral therapy for HIV, there was a 43% decrease in hospital inpatient care. Although pharmaceutical expenditure increased by 33%, overall health care expenditure dropped by 16%[61].

Samuel Bozzette, a physician with the Veterans Affairs San Diego Health Care System, who headed the New England Journal of Medicine study stated: *"[HIV] drugs are almost a perfect substitute for hospital care. We can afford them because, in fact, we are already spending the money on HIV care, in the form of hospitalization."*[62]

59 HIV Outpatient Study Investigators, "Declining Morbidity and Mortality among Patients with Advanced HIV Infection," New England Journal of Medicine, March 26, 1998 (Volt 338, No 13).

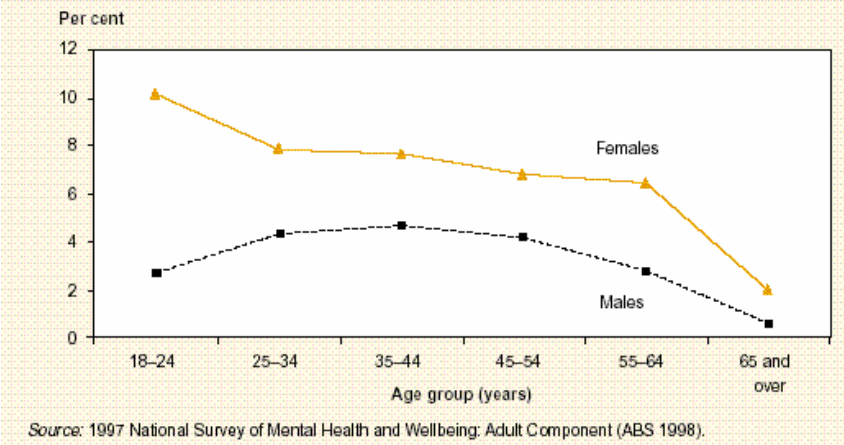
60 Peterson C, "HMOs Get What They Pay For With HIV Treatment," Managed Health care, November 1999, p. 42

61 Bozzette S et al, "Expenditures For the Care of HIV-infected Patients In the Era of Highly Active Antiretroviral Therapy," New England Journal of Medicine 344 (2001): 817–823.

62 Ibid.

APPENDIX 6 – DEPRESSION

Depression is a leading cause of illness and disability within Australia. Its prevalence in Australia as a percentage of the population is shown in the chart below[63]:-



Source: 1997 National Survey of Mental Health and Wellbeing: Adult Component (ABS 1998).

Some of the outcomes associated with clinical depression include diminished work productivity, absenteeism, educational failure, increased risk of suicide and heavy utilisation of medical services.

In direct monetary terms, it is estimated that in 1993–94, $521m was spent in Australia on health system costs associated with depression[64]. However, that figure does not include the substantial additional costs associated with depression through other factors such as self-harm, poor health status and decreased productivity. Studies in the US concluded that such factors were costing employers in the US $33 billion in reduced productivity and work time missed.

Therefore, proper treatment of depression clearly carries the potential of large cost-savings for both employers and the overall health care system. This was illustrated by a study published in Health Economics which concluded that medical costs declined by $822 per treated employee per year and absenteeism dropped by nine days when depressed workers were treated with prescription medicines. The cost of the medicine was found to be far outweighed by savings from improved productivity and the reduction in work loss[65].

In 1983-84, Bank One of Chicago spent 14% of its total health care dollars on depression, much of it for hospitalization. However, in the mid-1980s it began to emphasize identification and coverage of appropriate therapy for depression, and by 1996, although the number of diagnosed cases of depression had increased substantially, the cost of treatment had dropped to 6% of the bank's total

63 NHPA Report on Mental Health, "A Report Focusing on Depression 1998", Ch 2.

64 Mathers C, "Burden of disease and health system costs of heart disease depression and back problems in Australia". Paper presented at NHMRC National Forum, Canberra 1998.

65 Rizzo J et al, "Labor productivity effects of prescribed medicines for chronically ill workers," Health Economics, Vol 5: 249-265.

health care expenditures[66]. A major factor in this program was the usage of selective serotonin reuptake inhibitors (SSRIs).

According to work done by the National Bureau of Economic Research, due to such advances in anti-depressant medicines the price of treating acute major depression fell by 25% between 1991-1995[67].

66 The Value of Pharmaceuticals and Managed Pharmaceutical Care, Foundation for Managed Care Pharmacy 2001.

67 "Measuring the Prices of Medical Treatments," National Bureau of Economic Research, December 1997.