THE MCKELL INSTITUTE

PICKING THE LOW-HANGING FRUIT

ACHIEVING A MORE EQUITABLE AND SUSTAINABLE HEALTH CARE SYSTEM

OCTOBER 2017

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THE AUTHOR

Equity Economics is an economic and social policy consultancy firm based in Sydney. Equity Economics provides research, analysis and policy advice to a range of clients including major not for profit organisations, peak bodies, and corporates. Equity Economics draws on the skills of experienced economists and policy advisers with significant experience in the Federal Treasury and government. Particular areas of expertise include microeconomic reform, health and social policy.

EQUITY ECONOMICS

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FOREWORD

Australia has one of the world's leading healthcare systems, with the highest quality care accessible to all Australians irrespective of income or other circumstances. But while Australia's health system is something all Australians should be proud of, constant vigilance is required by policy makers to ensure it retains its high standard, and continues to be affordable for future generations.

In 2014, Australia spent 10 per cent of annual GDP on healthcare for the first time. This unprecedented expenditure rightfully caused alarm bells for many health policy makers, because as our population continues to age, this upward pressure on healthcare expenditure will only continue to grow.

Accordingly, health policy makers need to think creatively about achieving cost savings across the health system, while at the same time ensuring equal or better health outcomes for all Australians.

This report explores once such area in which policy makers can achieve notable costs savings while ensuring the quality of care is maintained. Through the strategic and selective uptake of complementary medicines, this report identifies significant cost savings that could be achieved across Australia's healthcare system.

For example, this report finds that the uptake of vitamin D and calcium supplementation could save around $142 million. Not only will the extension of these health services result in better health outcomes and cost savings, but they will also help Australia's health system become even more equitable than it is today.

It is essential that Australia's healthcare system remains among the world's best for generations to come. But to ensure this, targeted cost savings need to be achieved. This report provides an important evidence base, and offers actionable recommendations, to help government achieve this vital aim.

The Hon John Watkins
CHAIR,
MCKELL INSTITUTE

Sam Crosby
EXECUTIVE DIRECTOR,
MCKELL INSTITUTE

EXECUTIVE SUMMARY

Australia's mixed private and public health care system was recently ranked second in the world by the Commonwealth Fund, ahead of nine other countries including Sweden, Germany and the United States (Commonwealth Fund, 2017). While Australia ranked first for health care outcomes, it was ranked seventh for equity. This poor result effectively cost our health system top spot to the United Kingdom (AIHWa, 2016). For a country that has long prided itself on an egalitarianism separating it from its old colonial ruler, the reality that the United Kingdom has a more equitable health system is an important wake up call.

Budget pressures

In 2014 Australia's health care costs reached 10 per cent of GDP for the first time (AIHWa, 2016). While the growth in Government spending has slowed in recent years due to a number of policy initiatives, addressing the long-term budget pressures costs will require ongoing vigilance from policy makers.

We argue that a focus on prevention and evidence based medical interventions will ensure that efforts to reduce costs do not adversely impact the quality of health care enjoyed by Australians nor make existing health inequalities worse.

Health inequality

Babies born to low socio-economic mothers are 60 per cent more likely to be born with a low birth weight (AIHW, 2017), and suffer long term health impacts as a result. People in the lowest socio-economic areas are twice as likely to have diabetes than those in the highest socio-economic areas (AIHWa, 2016). In almost every area of health being from a low socio-economic area in Australia equates with having poorer outcomes.

Australian policy makers have recognised the importance of targeted interventions for indigenous Australians in an effort to close unacceptable gaps in health outcomes. A similar approach has not been taken to reduce the significant gaps in health outcomes for low socio-economic groups. There is an over reliance on Australia's universal health system to deliver equitable outcomes which ignores the access barriers and the role of the social determinants of health. This report argues for a greater focus on prevention activities aimed at addressing the social determinants of health to address health inequalities across the Australian community.

The importance of evidence and prevention

As Australia continues to grapple with rising health care costs and addressing health inequalities, it makes sense to look at the experience in a system performing better than our own.

One of the most notable differences between the United Kingdom and Australian health care systems is the role that evidence plays in the formation of public health policies through the National Institute of Clinical Excellence (NICE).

The closest Australia has had to such a body was the short-lived Australian National Preventive Health Agency which was established in 2011 and then abolished three years later.

By highlighting the role of evidence and prevention in tackling rising health care costs and health inequalities, this paper recommends establishment of a NICE equivalent in Australia to drive new evidence based interventions at a system wide level.

A greater role for complementary therapies

Complementary therapies include a number of non-medical treatments and products such as meditation, physical therapy and dietary supplements. Through addressing some of the social determinants of health such as poor nutrition and lifestyle choices, complementary therapies have a role in addressing health inequalities and long-term budget pressures.

Drawing on guidance from the NICE in the United Kingdom, this report explores the possible impact on budget pressures and health inequalities in Australia of:

- Increasing the use of vitamin D and calcium supplementation by at risk groups – saving up to $142 million*; and
- Increasing the uptake of pregnancy vitamins by low income mothers – cost of up to $46 million per year.

These interventions represent low hanging fruit in efforts to address budget pressures and health inequalities.

* Saving based on assumptions that results from overseas clinical trials would be replicated in the Australian setting.

RECOMMENDATIONS

RECOMMENDATION 1

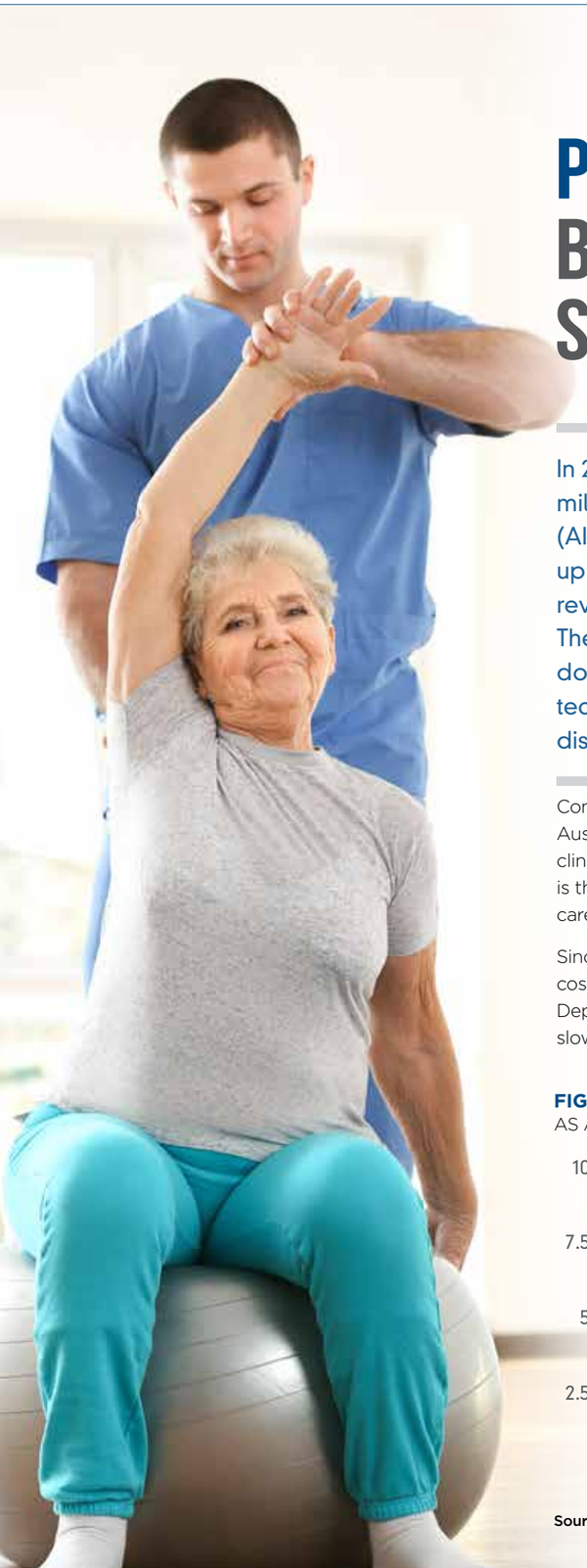
Australia should re-establish a National Preventative Health body to evaluate the evidence of the cost effectiveness of new health interventions, in particular population wide preventative health interventions to drive a greater focus on prevention policies that better reflect the social determinants of health.

RECOMMENDATION 2

The Australian Government should develop a strategy in consultation with physician groups to increase the uptake of vitamin D supplementation amongst at risk groups.

RECOMMENDATION 3

The Australian Government should introduce a scheme to provide free vitamins during pregnancy through medical practitioners for pregnant women that hold concession cards.



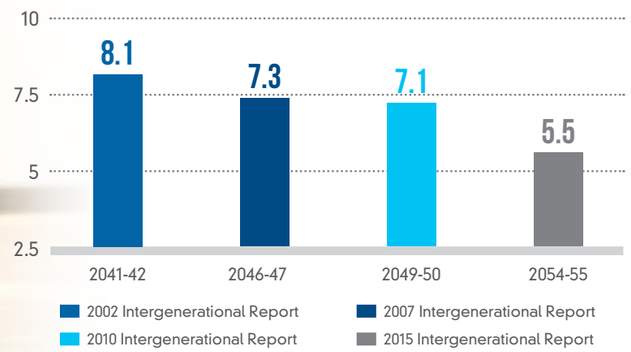
PART 1: BUDGET SUSTAINABILITY

In 2014-15 Australian health care expenditure hit a milestone – reaching 10 per cent of GDP for the first time (AIHWa, 2016). Expenditure on health currently takes up around 25 per cent of State and Commonwealth revenue (Grattan Institute, 2014), with the trend rising. The drivers of rising health care costs are well documented as an ageing population, the cost of new technology, an increase in the prevalence of chronic diseases and growing preferences for good health.

Containing rising health care costs while continuing to deliver Australians high quality health care is a constant struggle faced by clinicians, administrators, researchers and policy makers. The reality is that there is no single panacea and delivering a sustainable health care system will require an ongoing and sustained effort.

Since the bell was first rung on the challenge of rising health care costs in the 2002 Intergenerational Report (Australian Government Department of Treasury, 2002) Government policy has focused on slowing this growth with some success across a range of areas.

FIGURE 1.1 FORECAST HEALTHCARE EXPENDITURE AS A PERCENTAGE OF GDP 2041-2055

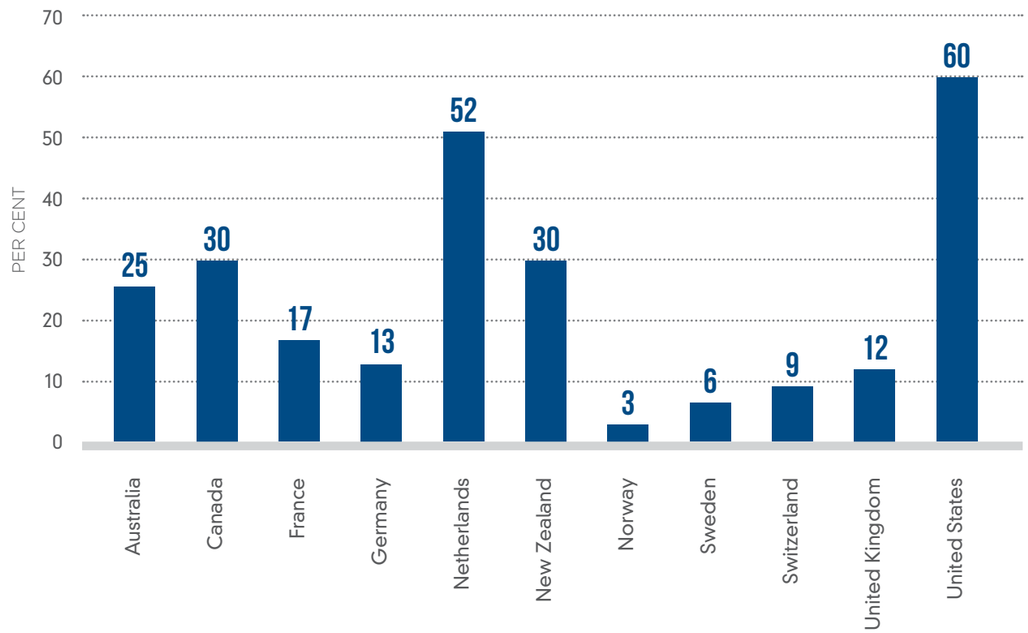


Source: Commonwealth Department of Treasury 2002, 2007, 2010 and 2015.

In the 2002 Intergenerational Report health care expenditure was forecast to peak at 8.1 per cent of GDP (Australian Government Department of Treasury, 2002) in 2041-42. In the 2015 Intergenerational Report this projection had fallen to 5.5 per cent of GDP (Australian Government Department of Treasury, 2015).

However, there has been a tendency for Government policy to focus on reducing the Government share of health care spending through a shift to private spending. The recently ended Medicare freeze in one such example, where costs were directly passed on to consumers through higher co-payments. Australians already pay above the OECD average in out of pocket health care costs (OECD, 2015), and 25 per cent of doctors report that their patients struggle to afford medications (Commonwealth Fund, 2017).

FIGURE 1.2 PERCENTAGE OF DOCTORS THAT REPORT PATIENTS OFTEN HAVING DIFFICULTY PAYING FOR MEDICATIONS OR OUT OF POCKET COSTS.



Source: Commonwealth Fund, 2017.

Notwithstanding the equity concerns, this policy of cost shifting is short sighted as it leads to a reduction in preventative health care and a rise in overall costs (Gillespie, 2013). Instead delivery budget sustainability should focus on measures to reduce the overall burden of health care spending, of which Government spending is one component.

Improving the efficiency of our hospital system, driving reforms in primary care, the better use of big data, reducing the level of unnecessary care across the system, tackling the risk factors that drive the rise in chronic conditions and ensuring that our health dollars are spent in a way that maximises the level of good health generated – all have a role to play in slowing the rise in health care costs. At times the gains may seem small, but every initiative contributes to delivering a more sustainable system.

The challenge for Government is to ensure that quality does not suffer in a quest for budget sustainability. Australia's lack of central body to assess the cost effectiveness of interventions significantly hinders Government efforts to meet this challenge.

PART 2: HEALTH INEQUALITIES

The cost of health care is only one part of the equation. Our health plays a vital role in our lives. Without it we cannot fully participate in the labour market, in our family life or in our community. Our health system should aim to produce the maximum level of good health in the community for a given set of inputs. But we are also interested in how that health is distributed across the community.

While our universal health care system is rightly celebrated, we are a long way from delivering equitable health outcomes to all Australians. Currently good health is not equally distributed in Australia (Godding, 2014). Health status generally follows a gradient, with overall health improving with socio-economic position (Marmot, 2005).

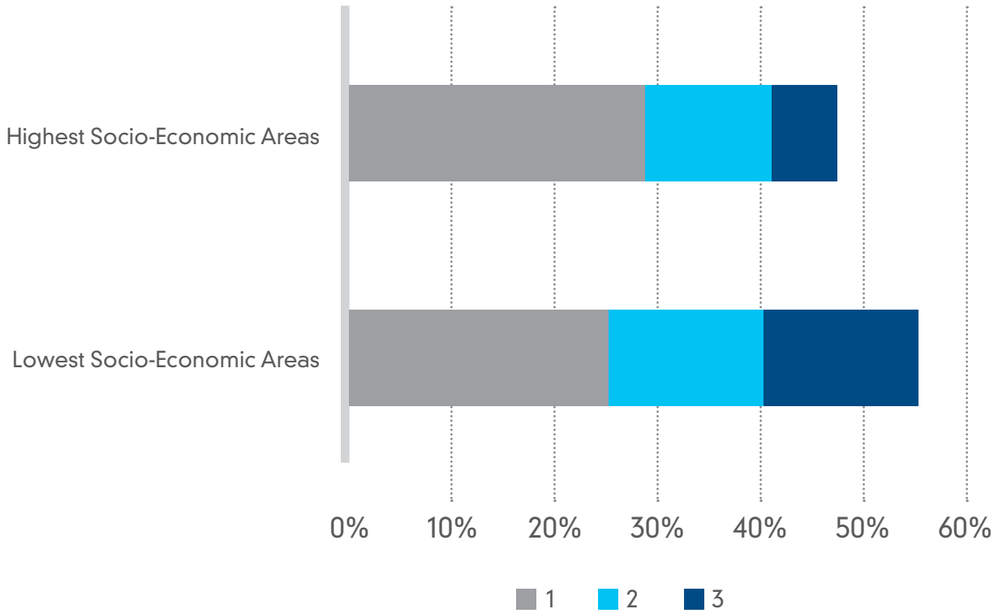
The Commonwealth Fund recently scored Australia's system below the average of 11 countries for equity, reflecting the large disparity between access and outcomes for those in the lowest and highest quintiles (Commonwealth Fund, 2017).

Health inequalities between indigenous and non-indigenous Australians are well documented (Gracey & King, 2009). From child mortality, to life expectancy and the prevalence of preventable diseases our indigenous population experiences large differences in health care outcomes (Vos, Barker, Begg, Stanley, & Lopez, 2009).

In 2008 the Australian Government committed to closing the gap between indigenous and non-indigenous Australians on a number of health outcomes including child mortality and life expectancy (Australian Government Department of the Prime Minister and Cabinet, 2017). What has followed is a range of strategies, policies and programmes, which have had limited success. There continues to an urgent need for strong focus on reducing these health inequalities going forward.

Notwithstanding the need to focus on the large and gaps between indigenous and non-indigenous Australians, this should not preclude a focus on the large differences in health outcomes between low and high socio-economic groups.

FIGURE 2.1
RATE OF CHRONIC CONDITIONS IN HIGH AND LOW SOCIO-ECONOMIC AREAS



Source: AIHWa, 2016.

Across a wide range of metrics, Australia's health system is not producing equitable outcomes:

- The number of Australians suffering three or more chronic conditions is two and half times higher in low socio economic versus high socio-economic areas (Australian Bureau of Statistics, 2015).
- Australians living in the lowest socio-economic areas can expect to live three years less than Australians living in the highest socio-economic areas (AIHWa, 2016).
- Children in the highest risk group for social exclusion have twice the rate of avoidable deaths than children in the lowest risk of social exclusion (AIHWa, 2016).
- Men aged over 50 from the lowest socio economic group have six times the likelihood of fracture than men from the highest socio economic groups (Brennan et al., 2015).
- Individuals in the lowest income quintile have over twice the incidence of diabetes than people in the highest income quintile (AIHWa, 2016).
- Mothers in the lowest socioeconomic areas are 60 per cent more likely to have a low birth weight baby than mothers in the highest socio-economic areas in 2013 (AIHW, 2017).
- Individuals living in the lowest socio-economic area have almost 20 per cent higher incidence of chronic back problems than individuals in higher socio economic areas (Australian Bureau of Statistics, 2015). However, despite this and the access high income earners have to physiotherapy services through PHI, GPs are 25 per cent more likely to refer a high socio-economic patient to a physiotherapist than low socio-economic patients.

Tackling health inequalities

While our health is influenced by the choices we make – whether we smoke, how much alcohol we consume, our diet and exercise regime – it is also heavily influenced by our socio-economic status – or the social determinants of health (WHO Commission on Social Determinants of Health, 2008).

The social determinants of health are defined by the WHO as the conditions in which people are born, grow, work, live, and age, along with the wider set of forces and systems shaping the conditions of daily life.

Social determinants of health

TABLE 2.1 SOCIAL DETERMINANTS OF HEALTH

Economic Stability	Neighbourhood and Physical Environment	Education	Food	Community and Social Context	Early Life	Health Care System
Employment	Housing	Literacy	Access to healthy options	Social integration	In-utero environment	Health insurance
Income	Transportation	Language	Hunger	Support systems	Physical development	Provider access
Expenses	Safety	Early childhood education		Community engagement	Social and emotional support	Quality of care
Debt	Parks	Vocational training		Discrimination		
	Walkability	Higher education				

Addressing health inequalities requires tackling these social determinants of health (WHO Commission on Social Determinants of Health, 2008).

In its 2008 Report, Closing the Gap in a Generation the WHO made a number of recommendations on addressing the social determinants of health in order to reduce health inequalities across and within countries. Below we highlight some of these recommendations, and the actions or lack thereof taken by the Australian Government.

TABLE 2.2
WORLD HEALTH ORGANISATION RECOMMENDATIONS VERSES AUSTRALIAN GOVERNMENT RESPONSES

WHO Recommendation	Australia's Response
Build health-care systems based on principles of equity, disease prevention, and health promotion.	**Abolished Health Prevention Agency in 2014**
Strengthen public sector leadership in equitable healthcare systems financing, ensuring universal access to care regardless of ability to pay.	**Froze Medicare Rebates from 2013 to 2017**
Build and strengthen the health workforce, and expand capabilities to act on the social determinants of health.	**Abolished Health Workforce Australia in 2014**
Place responsibility for action on health and health equity at the highest level of government, and ensure its coherent consideration across all policies.	**None**
Assess the impact of all policies and programmes on health and health equity, building towards coherence in all government action.	**None**

As the experience in improving health outcomes amongst indigenous Australians has demonstrated, no single policy will fix the problem of health inequalities. What is clear is that Australia policy makers need to consider how policies impact on health and health inequalities, and begin to more systematically develop strategies on how to address the social determinants of health.

PART 3: THE ROLE OF EVIDENCE AND PREVENTION

Australia's health care system is fractured, between public and private, state and federal. Individual doctors, hospitals and health service providers have significant autonomy in the health care that they deliver, and while this insures that individual patients and communities get tailored care, it also results in inefficient and in some case unacceptable differences in health care outcomes.

In 2006 the Productivity Commission estimated that efficiency in Australia's health care system could be improved by 20 per cent by aligning performance with best practice across a range of areas (Productivity Commission, 2006).

This aligns with estimates from the United States that low value care accounts for 20 per cent of all health expenditure (Duckett, 2015). There are significant cost savings from reducing such care through better use of evidence.

A better use of evidence can reduce health costs

Australia is a world leader in health technology assessment, with its model of assessing new medicines through PBAC imitated around the world. However, unlike some of our counterparts including the United Kingdom we have not extended this rigour to other areas of clinical practice.

In the United Kingdom the body that assesses new medicines, the National Institute of Clinical Excellence (NICE), also assesses and provides guidance on treatment pathways across a range of diseases for health practitioners and providers. NICE takes a preventative and treatment approach meaning there is clear guidance on the optimal management at both a population and individual level.

National Institute for Clinical Excellence

NICE's role is to improve outcomes for people by providing health practitioners, managers and providers with:

- Evidence based guidance and advice
- Quality standards and performance metrics
- A range of information services

This has the impact of holding both practitioners but also administrators to account.

In comparison, Australia tends to rely on a competing number of clinical guidelines from central Government, state Government's, and professional bodies.

Per capita investment in preventative medicine has been declining

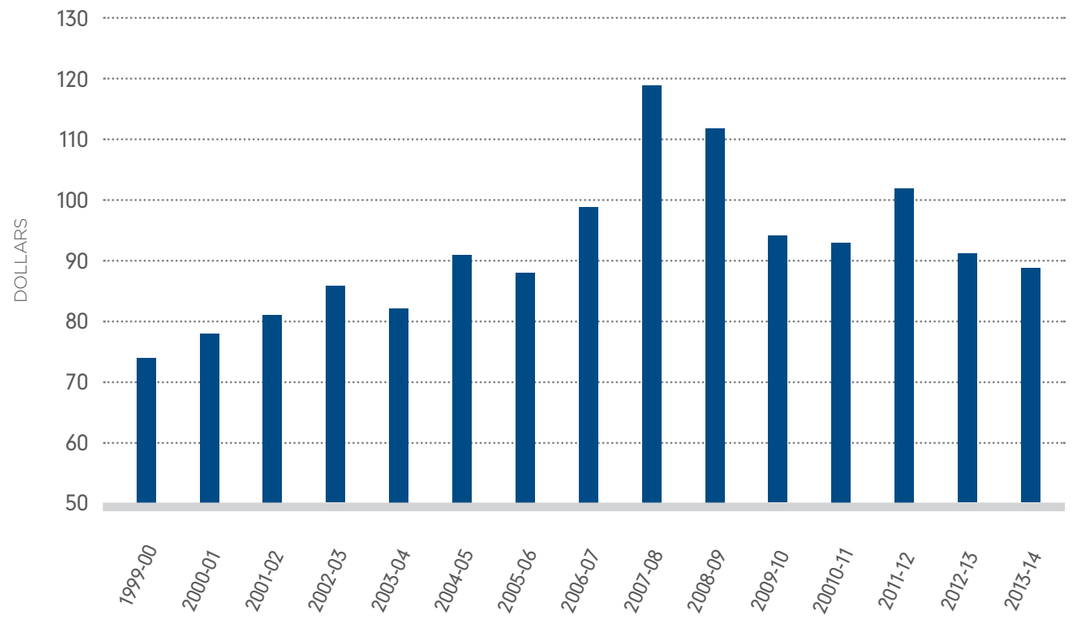
Policy makers, health care practitioners and the public often overlook the important role of preventative health care, instead focusing on the delivery of reactive health services in both the primary and acute settings.

Health prevention involves interventions that occur at all levels of society that aim to reduce the risk and burden of disease in individuals and populations through the interruption or delay of the disease process or reducing disability.

Preventative health care currently only makes up 1.4 per cent of health expenditure, yet almost a third of Australia's total burden of disease is linked to modifiable risk factors such as smoking, poor dietary nutrition and obesity (AIHWa, 2016).

Since 2007-08 when it peaked, the proportion of health expenditure allocated to public health has been declining (AIHWa, 2016). This is at the same time that the cost of chronic disease in Australia has been rising.

FIGURE 3.1
EXPENDITURE ON PREVENTIVE HEALTH PER PERSON IN AUSTRALIA



Source: Commonwealth Fund, 2017.

Alongside an ageing population and technology change, the rising prevalence of chronic conditions is the main driver of rising health care costs. In the 2014 National Health Survey almost a quarter of Australians reported having two or more chronic conditions (Australian Bureau of Statistics, 2015). Chronic disease accounts for 66 per cent of the burden of disease, making it our biggest and costliest health challenge.

Chronic diseases are often preventable through addressing the social determinants of health. There is strong evidence that preventative health care is cost-effective, and would help reduce budget pressures. A 2010 study evaluated over 120 preventative interventions in the Australian context and found many of the policy actions cost saving.

In addition to having a potential significant impact on the total burden of disease, preventative health care has a significant role in addressing inequalities in health outcomes through addressing the social determinants of poor health.

In terms of health care use, some of the biggest differences in preventative health care between high and low income earners (Cookson, Propper, Asaria, & Raine, 2016). Tackling the inequality of access and use in preventative health care between high and low socio-economic groups is critical in addressing ongoing health inequalities in Australia.

The government must re-invest in the National Preventive Health Agency, which was abolished in 2014

Instilling the systematic use of evidence and a greater focus on preventative health care go hand in hand. The Australian National Preventive Health Agency was established on 1 January 2011 and aimed to provide national leadership on preventative health. It would have provided the type of national leadership that Australia drastically needs to tackle long term health care costs and inequalities. However, it was abolished by the Australian Government in 2014.

Government has funded the Choosing Wisely initiative from 2015 which delivers guidance for clinicians and consumers based on best available evidence in a user friendly and collaborative approach. However, it is not, as it is in the UK, underpinned by an evaluation of the cost-effectiveness of different treatments. Nor does it provide advice at the system level, to hospitals or primary health networks for example.

This is critical for containing long term costs – not just in terms of reducing the use of cost ineffective treatments but promoting and funding the use of new cost effective treatments or clinical practices.

RECOMMENDATION 1

Australia should re-establish a National Preventative Health body to evaluate the evidence of the cost effectiveness of new health interventions, in particular population wide preventative health interventions to drive a greater focus on prevention policies that better reflect the social determinants of health.

PART 4: USE OF COMPLEMENTARY THERAPIES

Increasing the use of complementary therapies represent potential easy gains for health care sustainability and equity. Complementary therapies are used alongside conventional medical treatments, and include nutritional supplements, meditation and physiotherapy (Zollman & Vickers, 1999). While complementary therapies often augment traditional medical treatment, they are also often preventative in nature.

While there are areas of ongoing contention regarding efficacy, there is robust evidence in a number of areas that complementary medicines are a cost-effective way to improve outcomes. Nutritionally deficiencies are linked to increased risks of a number of conditions, from osteoporosis, neural tube defects and even depression (Nieves, 2005; Pitkin, 2007; Sarris et al., 2015; Stover, Berry, & Field, 2016). In many cases good diet and lifestyle changes alone are not adequate to address deficiencies and the extent to which poor nutrition reflects a social determinate of health there is a case for targeted interventions.

Australians are enthusiastic consumers of complementary therapies with 29 per cent of all Australians reported to be taking some form of supplement (Australian Bureau of Statistics, 2014).

The question is whether those that would benefit most from complementary therapies are receiving the benefits, or whether the lack of targeted programmes is undermining potential efficiency and equity gains across the system.

Increasing access to complementary therapies has the potential to address social determinants of health such as dietary deficiencies, the in-utero environment and physical development. Through pursuing more effective policies Australia has the opportunity to improve the sustainability of our health systems and also address underlying inequities.

Below we focus on two areas of potential policy action, drawing on guidance form the National Institute for Clinical Excellence (NICE) in UK.

First, we look at how the NICE guidance for increasing supplement use for groups at risk of vitamin D deficiency could impact health inequalities and costs in Australia. Second, we examine UK evidence on the use of pregnancy vitamins and the important impact these have on health inequalities.

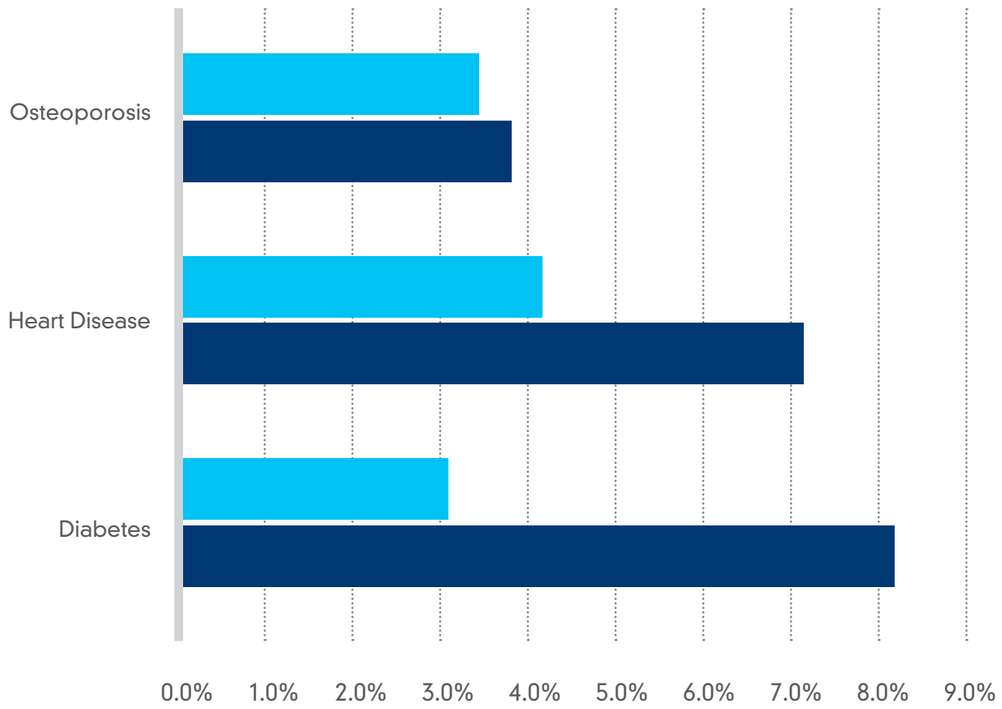
VITAMIN D

Approximately 30 per cent of Australians are suffering vitamin D deficiency (Daly et al., 2012). This is despite the fortification of many foods with vitamin D. vitamin D deficiency has been linked to an increase prevalence of a number of chronic diseases:

- Osteoporosis (Brincat, Gambin, Brincat, & Calleja-Agius, 2015)
- Diabetes (Talaei, Mohamadi, & Adgi, 2013)
- Heart Disease (Pilz, Tomaschitz, Drechsler, & de Boer, 2011)

Specific population groups including infants and children aged under 4, pregnant and breastfeeding women, teenagers and young women, people over 65, people who have low or no exposure to the sun and people with darker skin are at greater risk from vitamin D deficiency. For this reason, NICE has issued guidance to increase supplementation use amongst at risk groups.

FIGURE 4.1
PREVALENCE OF CHRONIC HEALTH CONDITIONS AMONGST DIFFERENT INCOME QUINTILES



Source: Commonwealth Fund, 2017.

Reducing health inequities

The incidence of each of conditions linked to vitamin D deficiency is significantly higher in low income areas compared to high income areas ((AIHWa, 2016)).

The use of vitamin D supplements in Australia has also been found in to be lower in low income versus high income groups (Black, Jacoby, Nowson, Daly, & Lucas, 2016). Using data from the 2011-13 Australian Health Survey, they found that individuals in the lowest socio-economic areas were up to 60 per cent less likely to be taking vitamin D supplements than individuals in higher income areas (Black et al., 2016). While this is explained in part by the relationship between education and vitamin D deficiency, the gap still points to a significant equity issues.

Complementary medicines can reduce the cost of osteoporosis

Osteoporosis affects over 60 per cent of people over the age of 50 in Australia and is estimated to cost $2.75 billion million per year (Osteoporosis Australia, 2014).

The majority of the cost is due to osteoporosis related fractures that often require lengthy hospital stays and rehabilitation costs.

Vitamin D supplementation alongside adequate calcium intake has been found to significantly reduce the probability of fractures in individuals with osteoporosis (Avenell, Mak, & O'Connell, 2014).

Amongst high risk groups in Australia, currently only 39 per cent take calcium and vitamin D supplements (Osteoporosis Australia, 2014). Based on published systematic reviews of the evidence supplementation for at risk groups can reduce the number of hip fractures by up to 15 per cent and the rate of other fractures by up to least 5 per cent (Avenell et al., 2014).

Analysis undertaken for this report (see Appendix A for full details), estimates that up to 8895 fractures annually could be avoided in Australia with increased uptake of vitamin D and Calcium, saving the Government up to $142.37 million in direct health costs. These significant annual savings translate into more resources for other services and better health outcomes for affected Australians.

Despite these potential savings and health improvements, there is no strategy in place to increase the use of supplements amongst at risk groups.

This reflects a general lack of coordination of population wide policies to prevent the onset of disease. Even in the absence of a national preventative health body the Australian Government could implement policies to encourage greater use of vitamin D supplements by at risk groups, through education campaigns for examples or setting targets for primary health care networks.

RECOMMENDATION 2

The Australian Government should develop a strategy in consultation with physician groups to increase the uptake of vitamin D supplementation amongst at risk groups.

PRENATAL VITAMINS

The optimal nutritional status of mothers has been identified as the most important non genetic factor for the healthy development of foetuses (A. Imdad, 2017).

Maternal malnutrition leads to adverse pregnancy outcomes and can have a long term negative effect on growth and development during childhood and increases the risks of developing chronic diseases later in life (A. Imdad, 2017). The task of addressing health inequalities and the rise in chronic diseases therefore starts before birth.

Current Australian guidelines recommend routine supplementation of folate and iodine, with vitamin D and iron supplementation for pregnant women with identified deficiencies. In 2009 Australia introduced fortification of folate and iodine, and while early data indicates improvements in health outcomes there is a need to evaluate this programme over a longer time frame.

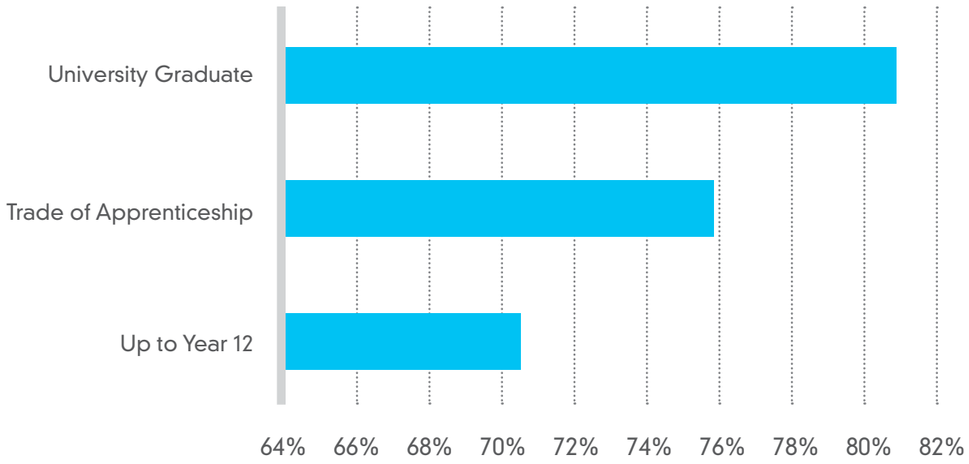
Of concern a recent study has shown that only 23 per cent of Australian women adhere fully with the iodine supplementation (Malek et al,2016). Separate data from the Australian Bureau of Statistics indicates that iodine levels for women of child bearing age are not meeting the recommended thresholds during pregnancy, breastfeeding or consideration of pregnancy.

The 2011–12 National Health Measures Survey found that nearly two thirds of women of child bearing age had iodine levels less than 150g/L, which is the recommended level for all women who are pregnant, breastfeeding or considering pregnancy. The ABS concludes that these results suggest that mandatory fortification may not be enough to meet the additional iodine requirements of these women.

The 2011–12 National Health Measures Survey also found that 24.9 per cent of women of child bearing age are deficient in vitamin D.

To manage the risk of these deficiencies, 54 per cent of Australian women report being advised by a medical practitioner to take a general pregnancy multivitamin, which ideally include recommended dosages of the folate and iodine alongside vitamin D and iron supplementation (Malek et al,2016). The quality of pregnancy multivitamins does however vary, with questions raised about the usefulness of some brands of supplements.

FIGURE 4.2
RATES OF VITAMIN USE VARY DEPENDING ON THE LEVEL OF EDUCATION ATTAINED



Source: Shand et al, 2016.

Reducing health inequalities

There is strong evidence internationally and in Australia that the use of pregnancy vitamins, including folate and iodine, differs across income and education levels (Malek, Umberger, Makrides, & J. Zhou, 2016; Shand, Walls, Chatterjee, Nassar, & Khambalia, 2016)

Price is a factor in uptake, with pregnancy multivitamins alone costing around $310 over the NICE recommended 12 months period of consumption (3 months prior to conception and 9 months during pregnancy). We know from research in other areas that lower income groups are more sensitive to price on preventative health care (Schoen et al., 2010).

The UK NHS has addressed this issue with free vitamins provided to pregnant women on benefits, and those under the age of 18 through its Healthy Start Programme.

UK Health Start Vitamin Programme

Healthy Start is a UK wide, government scheme that provides 'a nutritional safety net' for pregnant women and families on qualifying benefits and tax credits. Women who are at least 10 weeks pregnant and families with children under 4 years old qualify if the family receives the relevant benefits.

Pregnant women under 18 are also eligible, regardless of whether they receive benefits. The scheme includes food vouchers and vitamin supplements.

The Healthy Start supplements for women contain vitamins C and D and folic acid.

The Healthy Start children's supplement contains vitamins A, C and D.

The Healthy Start programme has had mixed success with low take up, illustrating that education and delivery design is an issue. For example, rather than receiving the vitamins from medical practitioners directly participants have to go to pharmacy with a voucher that may reduce the salience of the programme.

Notwithstanding this, NICE recently recommended that the provision of free pregnancy vitamins should be extended to all women considering pregnancy up to when their child is 12 months old (NICE, 2015).

A similar programme in Australia would cost up to an estimated $200 million per year. However, a more targeted programme for indigenous women and women with health care cards, covering both general multivitamins and iron and vitamin D supplements for those with identified deficiencies, would cost between $26 million and $46 million per year depending on uptake. This is a small cost given the potential benefits to health equity and long term savings from stemming the rise in prevalence of chronic diseases.

Such a targeted programme would imitate Australia's great success at targeting income support based on need.

RECOMMENDATION 3

The Australian Government should introduce a scheme to provide free pregnancy vitamins through medical practitioners for pregnant women that hold concession cards. Medical practitioners would be able to provide free pregnancy multivitamins to all pregnant women and women considering pregnancy with a health care card and to pregnant women and women considering pregnancy with identified vitamin D and iron deficiencies.

CONCLUSION

In addressing the rising cost of health care and existing health inequalities we have to be careful to rush to quick fixes. The path to budget sustainability and health equality is a long one, which will require ongoing innovation and adaptation.

In order to guide Australia on that path we recommend that the Government establish a new body to evaluate the evidence of the cost effectiveness of new health interventions.

There are some existing evidenced based interventions that, consistent with the United Kingdom, could be implemented today. Increased uptake of vitamin D and access to prenatal vitamin supplements, for instance, can alleviate some of the pressures on the health budget and address health inequalities today.

We should be aiming for Australia to be the best health system it can be, and take our rightful spot at the top of international health system rankings from the United Kingdom.

APPENDIX A: SAVINGS FROM INCREASING UPTAKE OF VITAMIN D AND CALCIUM

Methodology

International evidence on the impact of calcium and vitamin D on bone fractures in populations aged over 50 is applied to Australian figures on the incidence and cost of osteoporosis.

We utilised two primary data sources:

- International evidence from a Cochran Systematic Review on the impact of calcium and vitamin D supplementation on the rates of bone fracture.
- The 2012 burden of disease report, updated with the latest population estimates from the ABS and cost estimates from the Australian Government.

Evidence of effectiveness

The Cochrane Systematic Review of vitamin D and vitamin D Analogues for preventing fractures in post-menopausal women and older men provides an authoritative source of evidence on the impact of vitamin D and calcium on osteoporotic fractures in older people.

Undertaken by the Cochrane Bone, Joint and Muscle Trauma Group it represents an unbiased review of the evidence across numerous clinical trials and studies.

The review covers 31 trials examining vitamin D with and without calcium in the prevention of fractures in the community, nursing home or hospital inpatient populations.

The review concludes that there is high quality evidence that vitamin D plus calcium results in a 16 per cent small reduction in hip fracture risk (nine trials, 49,853 participants). Further there is high quality evidence that vitamin D plus calcium is associated with a 5 per cent reduction in any type of fracture (10 trials, 49,976 participants).

Costs of fractures

Osteoporosis costing all Australians: A New Burden of Disease Analysis – 2012 to 2022 estimated that in 2012 the total costs of osteoporosis, osteopenia and fractures in Australians over 50 years of age were $2.75 billion. These included both direct health care costs and indirect community care costs.

For the savings analysis only direct health care costs are included.

Total direct health care costs including rehabilitation costs for hip and other fractures were updated using latest data from the IHPA, and we show the costs calculated for women aged 70 plus in table 3 below. Other costs available on request from authors.

TABLE 3:
DIRECT HEALTH COSTS OF FRACTURES

Women (70 plus)	2017-18 ($)
Hip Fracture	**$30,968**
Vertebral Fracture	**$7,850**
Wrist Fracture	**$7,809**
Other Fracture	**$12,230**

A thorough literature and data search was undertaken for more up to date figures on the prevalence of osteoporosis and osteopenia but none were found. However, population estimates for female and male populations aged 50-69 years and 70 plus years were sourced from the ABS and updated to undertake the costing.

Current use of vitamin D and calcium

The benefits of increasing uptake of vitamin D and calcium will only accrue to those at risk (ie with osteoporosis or osteopenia) not currently taking supplements.

Various figures were available. The Osteoporosis costing all Australians: A New Burden of Disease Analysis – 2012 to 2022 reported that 39 per cent of AusICUROS were on calcium or vitamin D prior to their fracture.

Approximately 19 per cent of women aged over 50 and older are regular users of vitamin D and calcium (Osteoporosis Australia, Brownie 2005).

We undertake sensitivity analysis between these two figures, with lower estimates indicating 6,753 fractures could be avoided annually and upper estimates indicating 8,895 fractures could be avoided annually.

Number of fractures and impact of vitamin D and calcium

The Osteoporosis costing all Australians: A New Burden of Disease Analysis – 2012 to 2022 reports 140,000 annual fractures from osteoporosis and osteopenia in 2012. Updating for the larger population group we estimate that there will be 158,000 fractures in 2017-18 with current vitamin D and calcium supplementation rates.

Increasing rates of supplementation could avoid between 6700-8800 fractures per year.

	Current Uptake 39 per cent	Current Uptake 19 per cent
Number of Fractures Avoided	6753	8895
Percentage Reduction	4.5 per cent	6.0 per cent

Total savings

Savings are calculated based on current and projected incidence of each individual type of fracture, multiplied by the current cost estimates of treating each type of fracture.

Total saving estimates are provided below for each group based on different fracture rates and costs of treatment.

	Lower Estimate ($)	Upper Estimate ($)
Women Aged 59-69	$15.4 million	$20.4 million
Women Aged 70 plus	$61.5 million	$81.5 million
Men Aged 50-69	$8.1 million	$10.8 million
Men Aged 70 plus	$22.8 million	$29.5 million
TOTAL SAVINGS	**$107 million**	**$142 million**

APPENDIX B: COSTING FOR PROVISION OF FREE PRE-NATAL VITAMINS

POLICY COSTED: Provision of free pre-natal vitamins to all pregnant women and women considering pregnancy at regular GP or health practitioner visits that hold a health care card.

POPULATION GROUP: Our target group is women in the lowest SES group that are pregnant.

For multivitamins we assume uptake of between 50 and 100 per cent based on recorded advice from GPs to pregnant women (Shand et al., 2016).

The population groups for vitamin D and iron supplementation depend on identified deficiencies by GPs and other health practitioners. We use data on current supplementation rates to estimate likely uptake at the low end. Our high-end estimate assumes a 25 per cent increase on this figure under the programme.

For vitamin D supplementation we use a current uptake 22.9 per cent based on a study of vitamin D supplementation during pregnancy (Shand et al., 2016). We assume up to 12 months supply, which is conservative as vitamin D deficiency will often be identified during and not before pregnancy.

For iron supplementation we assume uptake of 30.4 per cent based on reported studies of iron supplementation during pregnancy (Shand et al., 2016). We assume up to 12 months supply, which is conservative as iron deficiency will often be identified during and not before pregnancy.

Based on 2013 and 2014 AIHW figures we estimate that approximately 80,000 women from the lowest SES group gave birth in 2014. Due to a lack of data on health care cards, we assume all these women qualify for health care cards. In addition, it is estimated that approximately 1 in 4 pregnancy end in miscarriage and that these women would receive assistance for 6 months under the scheme.

COSTS: We conservatively assume that a Government programme would not be able to negotiate a price discount for the supply of vitamins, and cost the programme based on current recommended retail prices.

The cost of pregnancy multivitamins which includes iodine taken over a 12-month period is approximately $310 per woman[1].

Vitamin D supplements cost approximately $65 over 12 months[2].

Iron supplements cost approximately $230 over 12 months[3].

TOTAL COSTS: We estimate an upper and lower cost range based on uptake over between 50 and 100 per cent, reflecting current evidence on women recommended multivitamins by their GPs and other health professionals. On costs of 20 per cent for distribution are added to these cost estimates.

	Low Estimate	High Estimate
COST OF MULTIVITAMIN SUPPLEMENTATION	$13.4 million	$34.78 million
COST OF IRON SUPPLEMENTATION	$7.85 million	$9.8 million
COST OF VITAMIN D SUPPLEMENTATION	$1.7 million	$2.1 million
COST ($M)	$26.9 million	$46.7 million

1. Price of Elevit, $85 per 100 tablets
2. Price of Ostelin Vitamin D, $10.95 per 60 tablets
3. Ferro-Gradumet Iron & Vitamin C 30 Tablets, $18.95 per 30 tablets.

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