
**Managing Costs & Risks In A
Dynamic Health Care Environment**

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1 INTRODUCTION & SUMMARY

- 1.1 The health model of many OECD countries is undergoing a paradigm shift from a hospital centred model to an individual centred model. This change is being brought about by the new medical technologies that are rapidly changing hospitals from places where patients are lodged until they get well (or die) to places where patients are treated and then sent home to convalesce.
- 1.2 Medical researchers are continually showing the benefits of not smoking, taking regular exercise and not being obese. Also medical researchers are showing that light to moderate alcohol intake is beneficial. There is now so much accumulated knowledge about health risk factors that risk reduction and elimination techniques used in other forms of insurance can also be applied to health insurance schemes. Health insurance business has to be viewed as long term business for insurers to want to do this.
- 1.3 Many Governments are becoming more health outcome focussed and are setting health goals and targets which can only be reached by reducing health risks. Increasing individuals' inputs into population health outcomes will be, by far, the least costly and most effective way of reaching government targets for population health outcomes in the longer term.
- 1.4 Risk management techniques involve using incentives and/or laws structured to encourage and/or force preventive behaviours. They also involve knowledge transfers to the appropriate parties so that they can

undertake or encourage the appropriate preventive behaviours. Risk management processes also involve the transfer of risk from financiers who cannot appropriately manage the risks to parties who can better manage the risks being undertaken.

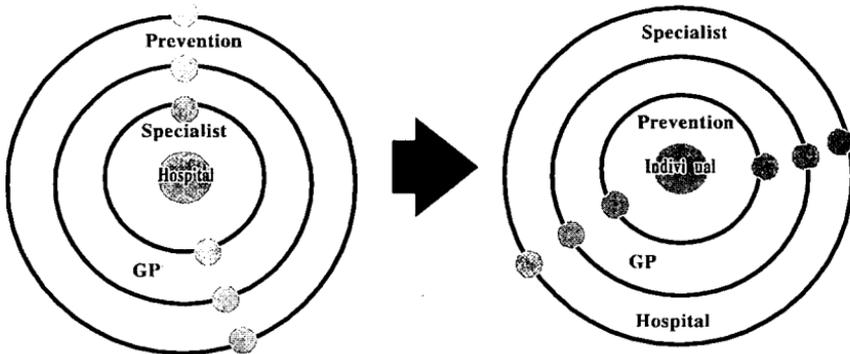
- 1.5 Much of the health and moral hazard risks taken on by health insurers (or governments in national health schemes) cannot be appropriately managed by the insurer or government and as a result cause a rapid growth in health bureaucracy in an attempt to better manage these risks. Health insurance programs of the future will have to use risk management techniques that put at risk individuals and their primary care physicians (family general practitioners). Many forms of managed care are already putting primary health care practitioners at risk but few attempts have been made to put individuals at risk. Lifestyle rating of individual contributions to their health insurance programs should commence the process of transferring to individuals part of their own health risks. Lifestyle rating can, however, only be credible when individual's future health risks are assessed from their current behaviour patterns. This necessitates a long term view of health financing.
- 1.6 A major health financing problem is developing in many OECD countries that have declining fertility rates and mortality rates. To date accounting bodies have been introducing standards, such as the international standard IAS19, from which FAS106 (US) and AAS(30) Australia have been developed to force employers who provide post retirement health benefits to accrue the cost of these benefits during the working life of their employees. Accounting bodies are therefore looking on this aspect of health insurance as long term business as indeed these liabilities taken on by employers are very long term.

- 1.7 Once individuals are properly put at risk for part of their own current health costs they should also be encouraged to fund for their post retirement health and aged care costs during their own working life. Alternatively national schemes should be developed to enable governments to pick up the majority of the health and aged care costs of retired individuals on the basis that the government explicitly recovers these costs from the estate of the individual (or the individual's surviving spouse). Such a scheme would necessarily inject a sufficient element of personal financial responsibility for post retirement health and aged care as to put strong community wide incentives to reduce the long term growth in the costs of these services.

2 THE PARADIGM SHIFT IN MEDICAL CARE

- 2.1 The health care reform processes that are underway in the US and many other OECD countries are occurring because of some fundamental changes in medicine and the way societies view health. There is a paradigm shift occurring in medical practice which is principally resulting out of the recent major advances in medical and micro-biological technology as well as the advances in information technology.
- 2.2 This paradigm shift is being likened to the paradigm shift in astronomy which occurred in the 17th Century. The Ptolemaic view of the universe, from 2nd Century AD, was that the earth was the centre of the universe and the sun and planets revolved around the earth. A paradigm shift occurred with the Copernican view, from the 17th century, that the sun is the centre of the universe and the earth and the other planets revolved around the sun.
- 2.3 Similarly the "Ptolemaic" view of the medical care is that the hospital is the centre of medical care and holds all the power. Around the hospital in decreasing order of power circulate the specialists, then the GPs and public health and preventative care providers. The new, Copernican view, is that the individual is moving to the centre and will have the most power (through the funders) and round him would circulate, firstly the GPs and preventative medicine providers, the specialists and finally on the outer, and least powerful ring, the hospital. See Figure 1.

Figure 1
The "Paradigm Shift" in Medical Care



2.4 This paradigm shift in the view of medical care and the reform process which it is spawning in the US have massive implications for existing health care structures. In the US this is causing GP practice structures to change, (more group practices often with specialists), specialists' practice structures to change (again more group practices but also closer alignment with hospitals), structural linkages of specialists with hospitals and the development of regional networks of GPs, specialists and hospitals. What is becoming patently clear in the US, is that unaligned specialists and hospitals are being put at risk in the process.

2.5 The paradigm shift is therefore causing the relationships between patient, general practitioners, specialists and hospitals to be redeveloped with much more emphasis being placed on patient management than ever before. As a corollary of this relationship redevelopment process, the funding process is also being redeveloped. This is, in a fundamental sense, the underlying philosophical basis for the development of managed care. Paradoxically, as was noted earlier, it is the new medical technologies that have played a large part in initiating this shift.

3 AUSTRALIA AND NEW ZEALAND - ARE THEY DIFFERENT?

- 3.1 Are Australia and New Zealand different? Are they isolated from these changes. The short answer to this question is no! Australians and New Zealanders are both experiencing the paradigm shift in their view of medical care. Both countries are experiencing the managed care reform processes this shift is spawning, although, in both countries it is not employers who are forcing the pace, as in the US, but Governments, because Governments are by far the biggest stake-holders (funders) of Australian and New Zealand medical care systems.
- 3.2 The implications for Australian and New Zealand providers is virtually the same as the implications for the US providers, although it is doubtful whether either country has too many specialists. Peter Baume, Professor of Community Medicine of NSW University and retired Federal Senator suggested in his "Report of the Inquiry into the Supply of, and Requirements for, Medical Specialist Services in Australia" that significant shortages of surgeons occur in nearly all sub specialties in Australia. Because standards required by Royal Australasian College of Surgery (RACS) are so high in Australia, the qualification of RACS is held in high regard throughout the world. This coupled with the very low relative health insurance benefits provided for surgery in Australia will put severe pressure on Australian surgeons to provide some of their services in relatively high fee areas such as Singapore and Hong Kong. Table 1 below provides in Singapore dollars the fees for a number of reasonably common operations, recommended in Singapore by the Singapore Medical Association, recommended in Hong Kong by the Hong Kong Medical Insurance Association and in Australia the fees

recommended by the Australian Medical Association. The Medicare Schedule Fee is also shown.

Table 1

	Recommended Fees for Operations					
	Singapore		Hong Kong		AMA	Medicare
	High	Low	High	Low	Schedule Fee	Schedule Fee
	\$	\$	\$	\$	\$	\$
Rhinoplasty	2,229	1,338	5,880	4,811	665	369
Craniotomy for Glioma	4,459	2,675	13,363	10,993	2,800	2,067
Anterior Cervical Decompression & fusion	4,459	2,675	9,621	7,872	2,540	575
Septoplasty	2,229	1,338	2,673	2,187	555	349
Stapedectomy	3,567	2,140	6,949	5,685	1,225	786
Squint Correction	2,229	1,338	3,584	2,932	755	423
Cystoscopy	624	357	1,123	284	196	120
Trans Urethral Prostatectomy	2,229	1,338	6,147	5,029	1,355	835
Radical Mastectomy	3,567	2,140	8,819	5,248	1,030	622
Laparoscopic Cholecystectomy	3,567	2,140	6,949	3,586	1,040	587
Bimaxillary Osteotomy	7,134	4,459	6,414	5,248	5,655	998
Coronary Artery Bypass 2+	7,134	4,459	21,347	7,838	2,435	1,477
Valve Replacement	7,134	4,459	21,347	7,837	2,195	1,377
Total Hip Replacement	5,350	3,567	11,225	7,387	1,810	951
Arthroscopic Meniscectomy	2,229	1,338	2,138	1,749	840	441
Vaginal Hysterectomy	2,229	1,338	5,345	4,373	910	487
Dilation & Curettage	624	357	1,443	1,181	255	132

3.3 What are the issues for providers in Australia and New Zealand as the result of the paradigm shift in their view of medical care and the reform processes sweeping both countries? Figure 2 indicates the key issues.

Figure 2

**Future Issues For Providers in
the Emerging Environment**



Increased Competition
More risks to Manage
General Practitioner Power
Value and Accountability (Outcomes)
Regional Funding
Mergers and Consolidations
Quality
Medical Education
Patient Education
Development of Niche Markets



3.4 The shift of hospitals from the centre of the medical universe to the outer planets is well under way in Australia and New Zealand. In the course of this shift government policies are forcing hospitals to carry greater and greater amounts of risk. Some public hospitals have not survived. More will follow. Governments intend for this to happen, although the political fallout will be worrying for them. Some private hospitals will also not survive as health insurers adopt similar practices. How will hospitals, in particular, cope with these changes? The main method that hospitals will use is to take more control over process and outcome through management changes. Governments and insurers are already forcing that on hospitals. "Outcomes measurement" have become the buzz words of the new order.

3.5 In the US hospitals and their specialists are increasingly realising that the paradigm shift in the way medical care is viewed is irreversible. The smart ones are already forming appropriate organisations that have a better chance of survival and success in the new order. These new organisations primarily involve the hospitals and specialists jointly taking power over the processes

within the hospital. The new US organisations are loosely called, Physician Hospital Organisations (PHOs). They involve the specialists and the hospital forming an over-arching organisation which takes control of the contracting processes with care and medical education funders. It then contracts with the hospital and its specialists to provide the required services. In effect the new organisations assume the risks and more appropriately, with actuarial assistance, apportion those risks to the hospital, its specialists and, in some cases general practitioners. They do this in a way that ensures these risks can be best managed.

- 3.6 These new PHOs are, however, much more than contracting organisations. They become the entity that takes over credentialing and develops the practice standards for the whole organisation. They also take over the utilisation review and quality assurance programs of the hospital and hospital staff. They become the ultimate risk managers and, with actuarial assistance, define the various risk management programs of the new entity. No longer, in the new order, are the specialists only employees or consultants to the hospital, they become partners with hospital in the business of providing the highest quality, most efficient patient care and, in some cases, medical (and nursing, etc), education.
- 3.7 Often these new organisations are incorporated bodies with both the hospital and specialists putting up the necessary capital. The profits of their activities are usually split on some basis which could be in direct proportion to the capital subscribed but may often be on a formula basis that includes a component that is proportional to the risks being borne. As a result hospital specialists are now deriving part of their income from the profits of their PHO. This enables them to cap their fees to their patients -a feature which should be of considerable interest to Australians, New Zealanders as well as those living in Singapore and Hong Kong.

- 3.8 The incentives unleashed by these new arrangements seem to be enabling US hospitals to implement the micro-economic reforms that will enable them to survive in the new order. The development of these new organisations is accelerating because hospitals that previously haven't felt threatened by the changes are seeing their competitors, who they thought unlikely to survive, suddenly develop into efficient providers that are outbidding them in price and quality for the various contracts that are being offered. The big and powerful hospitals are therefore having to restructure in a similar way, just to survive.
- 3.9 In Australia hospitals and their medical staff are beginning to change their structures. This is being forced on them through changes to the private health insurance arrangements (the purchaser/provider hospital and medical agreements) and the implementation of casemix (Diagnosis Related Group) payment arrangements to public hospitals by State Governments and area health services. These moves will, or already have, transferred huge amounts of risk from health insurers and state governments to hospitals and through them to doctors. Although the hospitals and doctors are currently ill equipped to handle these new risks they will either adapt or as has been the case already in the state of Victoria - several hospitals have closed. Many more will follow throughout Australia.
- 3.10 In New Zealand the government moved quickly to what is euphemistically called a purchaser/provider split. This involved the setting up of four Regional Health Authorities (RHAs) which contract with the twenty seven Crown Health Enterprises (CHEs) to supply the required services. The emphasis of the New Zealand reforms is "contestability" rather than "competition". This involves CHEs being able to demonstrate service outputs, outcomes, cost efficiency and quality. Because there is now strong emphasis given to purchasing and managing care for individual patients across the full network of services, reorganisation of

service delivery and management is occurring across the full spectrum of state subsidised services. This had led, for example, in Christchurch to the development of a primary care health maintenance organisation by virtually all of the Christchurch based general practitioners.

- 3.11 High tech medicine is rapidly becoming a global commodity. The fact the graduates from Australian and U.S. medical schools and colleges already work in many hospitals in Asia suggests that the paradigm shift in medical care that is occurring in the U.S., Australia and New Zealand will also be eventually felt around the world. These changes will occur right throughout the Asian-Pacific region even though many of our neighbouring countries currently seem sheltered from the changes due to the lack of widespread access to high-tech medicine in those countries.

4 INDIVIDUALS ARE IMPORTANT

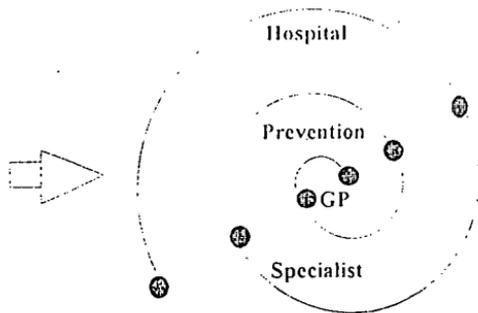
- 4.1 As the paradigm shift in medical practice occurs the individual becomes central to the new order. The individual will mainly gain power from the funder. If the individual doesn't have access to a funder, or has several funders each one funding different aspects of his health care then the individual cannot be appropriately empowered. Turning again to the Copernican theory, if we do not give the individual the power then a vacuum is left at the centre of the medical universe and a Copernican Black Hole will form. The planets will spin faster and faster around the centre in every decreasing circles and eventually disappear.
- 4.2 In health terms a Copernican Black Hole (Figure 3) will cause costs to rise faster and faster but outcome improvements will be negligible and eventually disappear.

Figure 3

COPERNICAN



COPERNICAN BLACK HOLE



4.3 As the medical model changes from a hospital centred model to an individual centred model, health outcomes become all important. Health outcomes can be related to a particular health service, regime or treatment, or they can be related to populations. For a particular health service or treatment regime input there are only four possible outcomes:

- The patient gets better;
- The patient stays the same;
- The patient gets worse; and
- The patient dies.

The first and third patients outcomes can be measured in degrees but it is very difficult to get objectivity into the measurement. The second and fourth patient outcomes are absolutes although there usually has to be some subjectivity associated with the second outcome.

4.4 Turning to population outcomes. To get population health outcomes you have to have health inputs. The health inputs come from three generic sources. These sources are:

- the Medical Health sector;
- the Public Health sector; and
- the *Individual*.

One simple way of viewing population health outcomes is to consider the health outcomes as the triangular area abounded by these 3 input lines. The area of a triangle is maximised when the length of each side is equal. The typical Western model of population health outlines has a huge input from the medical sector and usually a very large input from the public health sector but very little emphasis is

given to the input of individuals. Hence the Western Model population health triangle looks like Figure 4.

Figure 4
The Western Model

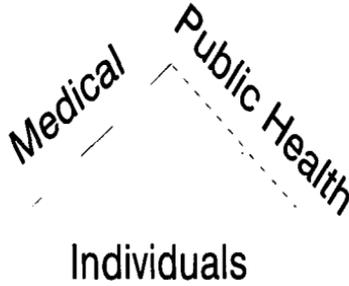
Population health outcomes can be viewed as the area enclosed by the three sides of the health input triangle.



- 4.5 So called undeveloped countries often have a very small input from the Medical System and often low input from their public health sectors. Hence population health outcome triangles of these countries tend to be smaller in area but have relatively much greater input from individuals, see Figure 5.

Figure 5
The Undeveloped Country Model

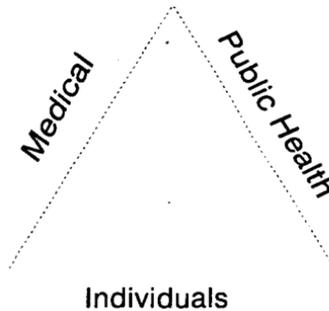
Population health outcomes can be viewed as the area enclosed by the three sides of the health input triangle.



- 4.6 In the longer term population health outcomes will tend to be maximised when the effectiveness of the inputs of the medical system, the public health system and individuals are equal. The ideal population health outcome triangle will look like Figure 6.

Figure 6
The Balanced Model

Population health outcomes can be viewed as the area enclosed by the three sides of the health input triangle.



4.7 Individuals must contribute effectively if outcomes are going to be significantly improved. Individuals can contribute most by maintaining good health habits in relation to eating, drinking, sleeping, exercising, sex and not smoking or taking drugs. Under the Ptolemaic model the accent is so heavily on the gee-wizardry of medicine particularly in the hospital setting that little emphasis has been given to the real improvements in population health outcomes that could be obtained by educating and providing incentives for individuals to improve their lifestyles. Fortunately medical research is now proving how much various aspects of healthy lifestyles contribute to health outcomes and it is often doing this at a very detailed disease specific level.

4.8 Improved health outcomes from better individual health practices was

demonstratively shown in a longitudinal (5½ year) study of nearly 7000 adults undertaken by the Human Population Laboratory, State Department of Health, Berkeley California in the 1960's and early 1970's. The health habits that were found to be most positively related to good health and longevity were:

- Not smoking.
- Alcoholic intake of less than 5 drinks at a time.
- Less than 20% overweight.
- A good level of physical activity (running, swimming, playing sport).
- Usually sleeping 7-8 hours in each 24.
- Eating breakfast.
- Not generally eating between meals.

The more good health habits a person had the better health status that person generally had and the lower mortality and morbidity experience (age for age). Maximum health status and minimum mortality and morbidity experience was obtained by persons practising all seven good health practices identified above.

4.9 Looking at each of the health habits in turn, the medical evidence linking tobacco smoking to cardiovascular disease, pulmonary diseases and some cancers is overwhelming. Marijuana smoking also appears significantly linked to the above diseases and it is also being implicated in accidents and psychological disorders. Governments are starting to react. Australia's first national health goals and targets for example, has set a target of reducing smoking in Australia by 20% by the year 2000.

4.10 There is much medical and scientific evidence about the effects of excessive alcohol consumption. However there is also a growing body of evidence that suggests moderate alcohol consumption is not harmful and even lowers the risk

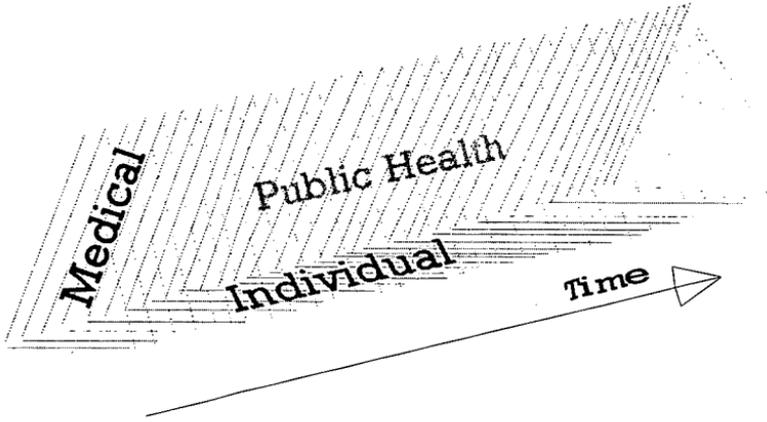
of heart disease. A study reported in the Journal of the American Medical Association (28 September 1994) suggests that individuals who drink moderately also produce more tissue - type plasminogen activator (t-PA) with its protective effect against the formation of thrombosis. This association is independent of the association between moderate levels of alcohol consumption and increased levels of HDL cholesterol. Dr Ridher and his colleagues at the Harvard Medical School at Boston concluded : -"This study strongly supports the hypothesis that improved antithrombotic and fibrinolytic profiles derived from alcohol intake may explain part of the cardio-protective effect of moderate alcohol consumption."

- 4.11 Obesity is linked a wide range of expensive illnesses. Although some forms of obesity are genetically linked many people are obese because they eat too much of the wrong food and don't partake in sufficient exercise. Even genetically linked obesity will be curable probably within the next decade. Then there will be no excuse that individuals will be able to give to justify their obesity - other than their own indulgence.
- 4.12 Many medical researches around the world are determining the benefits of regular exercise. For example, in one recent edition of the Australian Medical Observer magazine, a magazine sent free to virtually every general practitioner in Australia, there was an article on a medical research project that showed regular exercise cuts breast cancer risk. Four hours per week reduces risk by 60% compared with inactive women. Also in the same edition was an article indicating that a medical research program showed that weight training for post menopause women increases bone density - hence reduces risk of hip and other fractures in old age. Also included were articles on how the risk of morbidity disability increases when ones body mass index is high - i.e. one is over weight, and how breast cancer mortality is reduced by reducing fat intake.

- 4.13 There is also plenty psychological and psychiatric evidence of the benefits of getting a regular amount of sleep. Whether this is one spell of 7-8 hours or two lesser spells a day is not so clear and one has to remember that climate and work patterns often determine how sleep is taken. The Human Population Laboratory study was undertaken in Southern California. If the question had been asked in Greece, or Italy, or the Caribbean (for example) the question may have been framed differently.
- 4.14 Epidemiologists suggest that there is little evidence to support the theory that eating breakfast and not eating between meals actually contribute to better health outcomes despite the Human Population Laboratory's findings. It could be that these two health habits assist individuals to stay less than 20% overweight. Even so they seem sensible health habits and should not be discarded as being irrelevant.
- 4.15 The most important point about health habits and practices is that good health habits only provide good health outcomes in the longer term. An individual with poor health habits can have good health for many years but the risk of his or her health becoming poor will gradually increase. Societies will have to encourage individuals to take a long term view about their own health if population health outcomes are going to achieve their potential.
- 4.16 The two dimensional models of health outcomes is therefore too simple to explain the relationship between health inputs and health outputs. hence the model has been expanded to the three dimensional one shown in Figure 7. In this model population health outcomes at any point in time are dependent on inputs over very many previous years as well as current inputs.

Figure 7

**A THREE DIMENSIONAL MODEL OF
POPULATION HEALTH OUTCOMES**

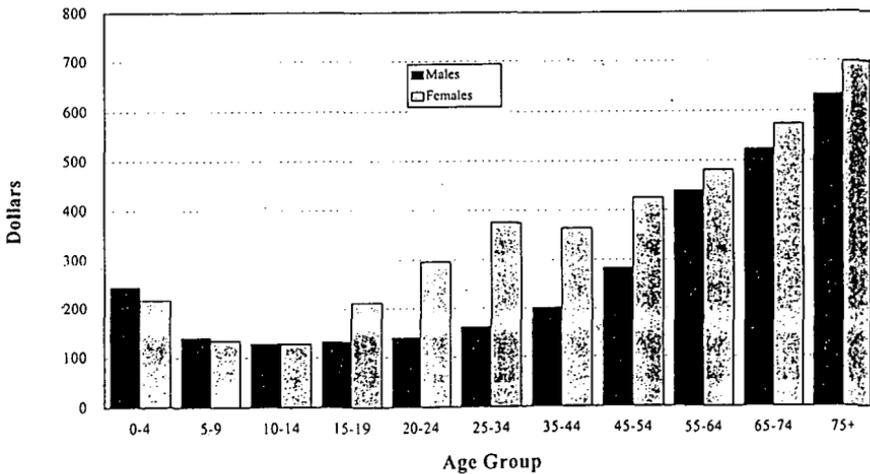


5 HEALTH RISKS

5.1 There is always the danger when one looks at averages of activities of human populations that one believes they apply to the common man. In health nothing could be further from the truth.

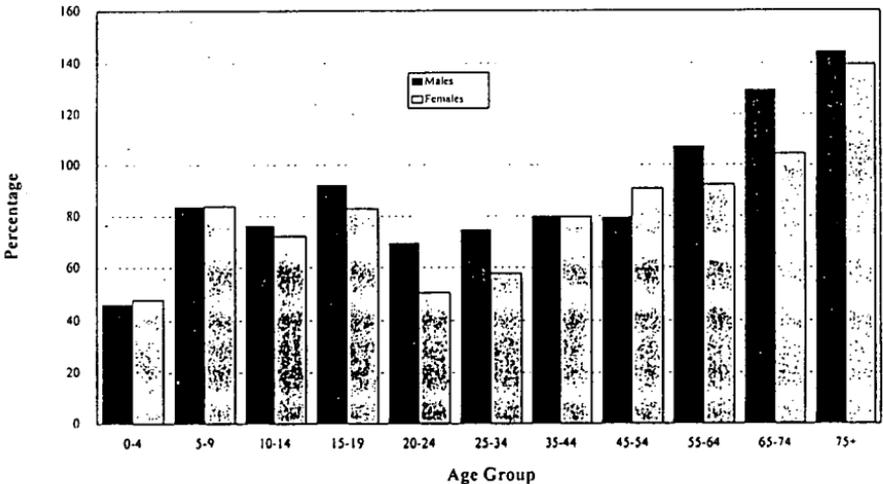
5.2 Figure 8.1 is a graph of the average cost of Medicare medical benefits paid by the Health Insurance Commission in 1993 - 1994. Unfortunately this is not the same as the average cost of medical services in Australia in 1993 -1994 because Medicare only records the services for which a Medicare benefit is paid. The medical services provided to Medicare inpatients and all outpatients of public hospitals are not recorded on any accessible database. Therefore this graph does not tell us what the average cost of medical treatment in Australia is.

Figure 8
Medicare: Average costs
of benefits 1993/1994



5.3 Figure 9 is a graph of the average cost increases of Medicare benefits paid by the Health Insurance Commission from 1985 - 1986 to 1993 - 1994 as taken from the Health Insurance Commission's annual reports. One can see that there is a definite trend to greater cost increases at the older ages than that at the younger ages. Unfortunately the data used to compile this graph is distorted by the changing numbers privately insured for hospital treatment down from 47.6% at June 1985 to 37.2% at June 1993. This movement was not uniform across all ages.

Figure 9
Medicare: Average cost increases
from 1985/86 to 1993/94



5.4 Figures 10 and 10A are graphs of the bed day utilisation and hospital discharge rates of NSW residents in 1991 - 1992 from the 1991 - 1992 NSW State Dept. of Health Files. Bed day utilisation is no longer a good proxy for hospital costs because many high tech treatments require minimal hospitalisation but are very

expensive to provide. Discharge rates also are not a good proxy for costs. Australia does not have a reliable data base of hospital costs that have been recorded by age of patient. The health insurers do have this information but their figures are distorted by public hospital charges being artificially determined from the maximum public hospital benefits that are prescribed by the Commonwealth. Currently these are prescribed on a per diem basis at between 40% and 50% of the average bed day cost in a private hospital.

Figure 10

Hospital Utilisation Rates 1991/1992 -
Bed Days

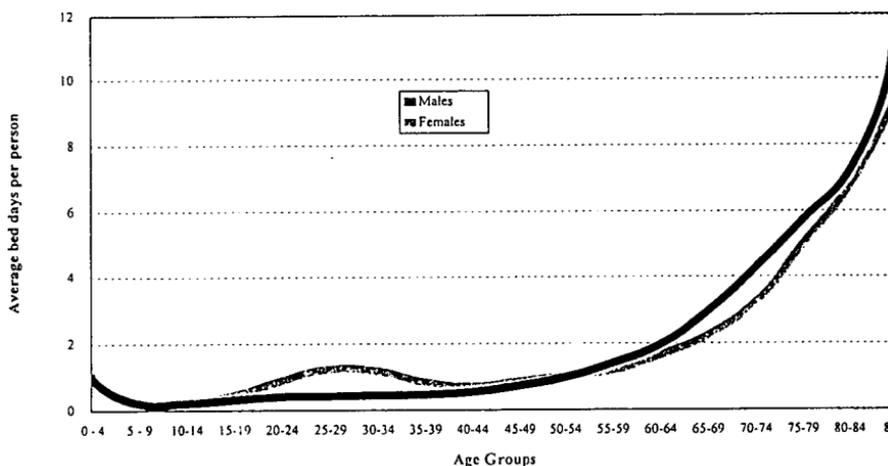
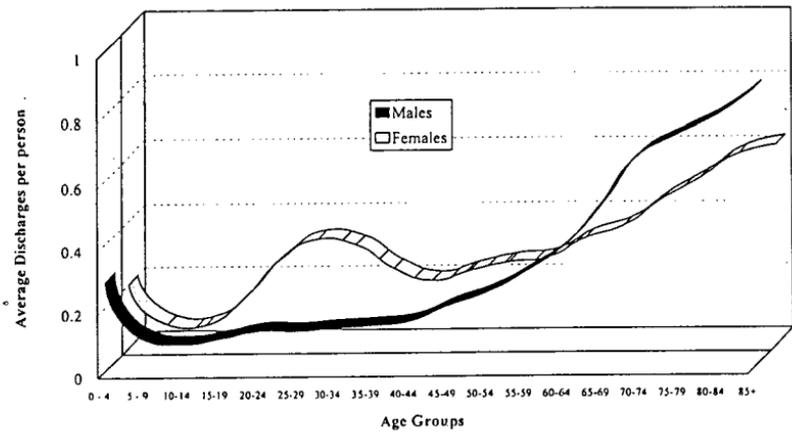


Figure 10A

Hospital Utilisation Rates 1991/1992 - Discharges



5.5 Figures 11 and 11A are graphs showing the change in average inpatient bed day utilisation and discharge rates for NSW from the 1985 to 1991/92. Although inpatient bed day utilisation is reducing at all ages admission rates are growing in the older ages. This data strongly suggests hospital costs are increasing faster on average for older people than young and middle aged persons.

Figure 11
 Percentage Change in Hospital Utilisation Rates
 from 1986 to 1991/92 - Bed Days

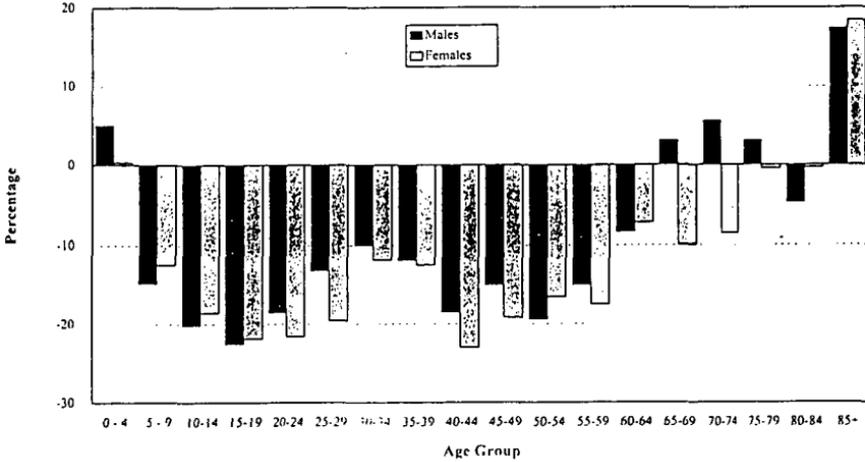
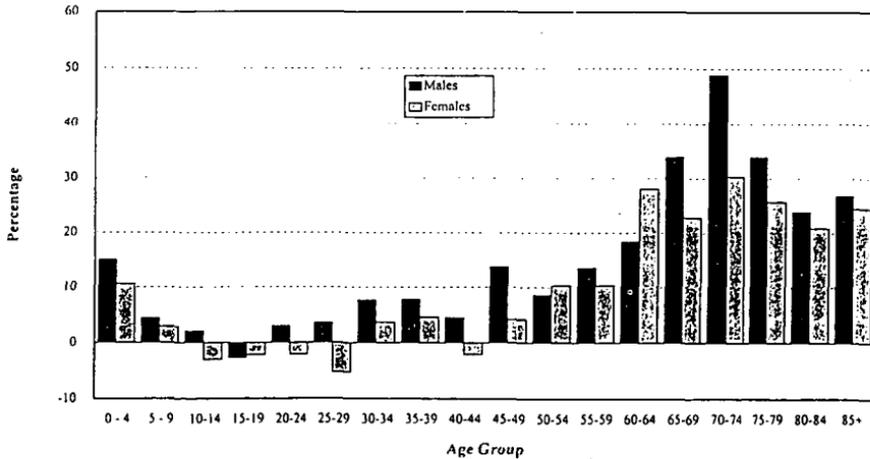


Figure 11A

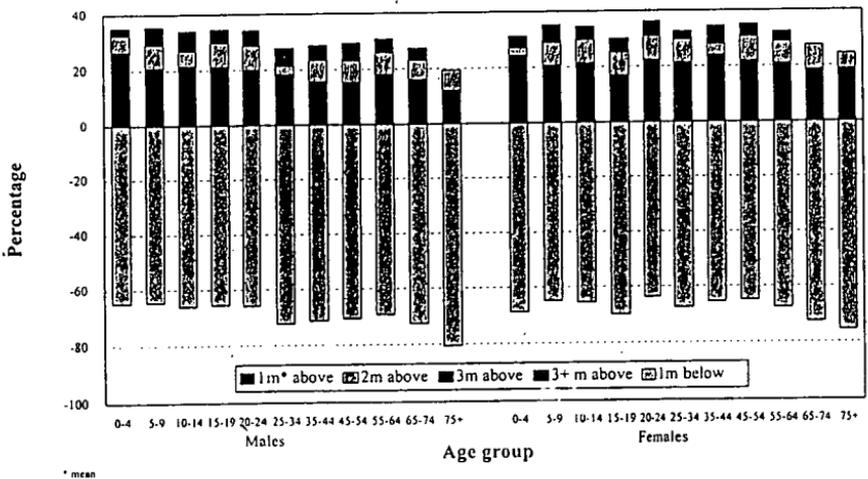
Percentage Change in Hospital Utilisation Rates
 from 1986 to 1991/92 - Discharges



Details of major changes in discharges.

5.6 Turning to the spread of hospital and medical costs. The Health Insurance Commission provides age/sex data of percentage claiming various levels of services. See Figure 12. This shows that the "average" person is not a high user of medical services, 45% of all medical services for which a benefit is claimed on the Health Insurance Commission is a consultation and 23.8% are pathology services but these make up 33.8% and 13.1% of the total Medicare benefit costs respectively.

Figure 12
Percentage of enrolled persons having average medical costs above/below the average



5.7 Turning to hospital services, no recent data is available but information obtained from one large insurers records some ten years ago is partly reproduced in Figure 13. This shows that clearly the vast majority of single insureds do not get admitted into hospital each year although the small proportion that do tends to rise with age. Also of those that do get admitted the distribution of costs of those admitted is very skew. See Figures 14 and 15.

Figure 13
Percentage of single individuals
not claiming hospital benefits

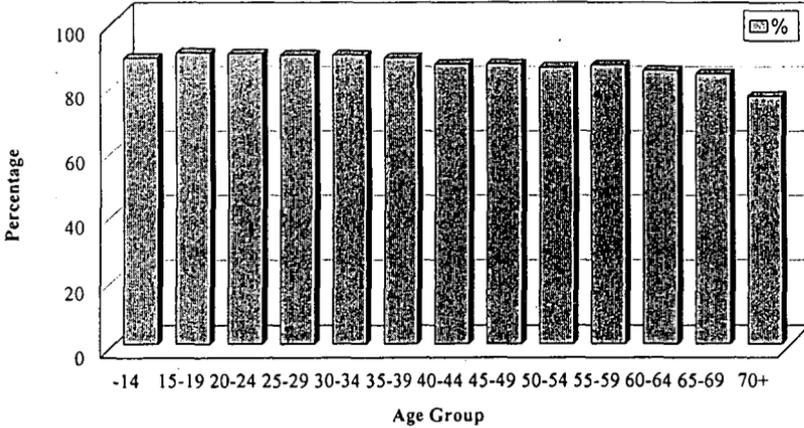


Figure 14

Percentage of single individuals claiming hospital
benefits below the given dollar amounts

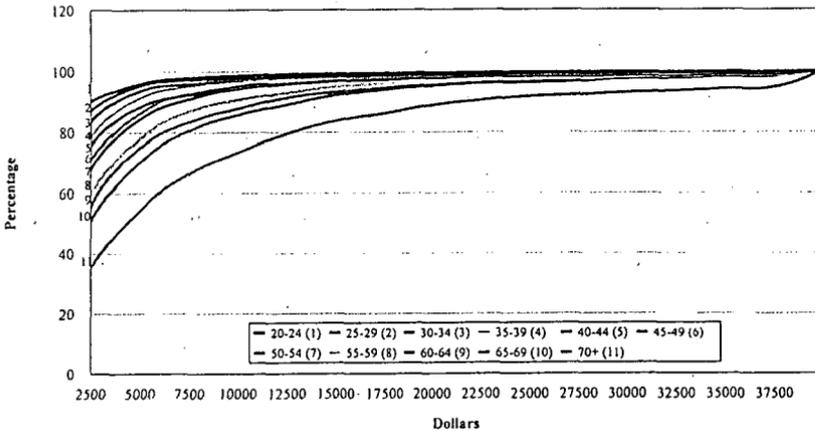
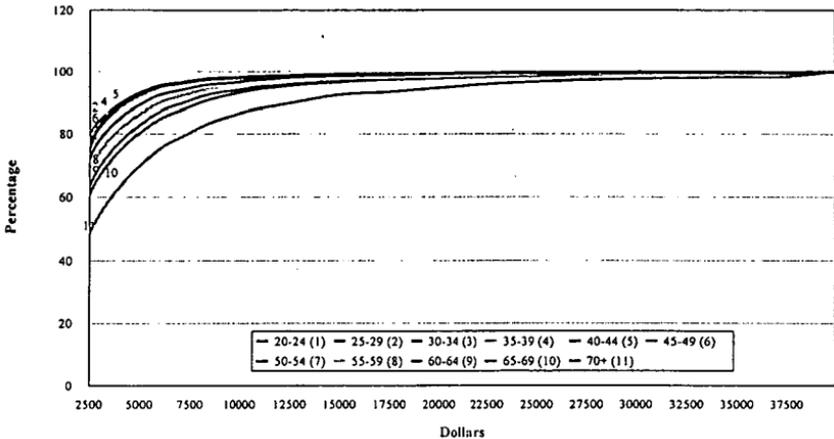


Figure 15

Percentage of families claiming hospital benefits below the given dollar amounts



5.8 In conclusion it is very clear that in any year a very high proportion of total health costs are incurred by relatively few individuals. The "average" individual incurs relatively low health costs overall and is not admitted to hospital. One further question must be asked. Is the distribution of an individuals health costs random over time? One would need to do extensive longitudinal studies to determine the answer to this. One of Australia's large health insurers has taken on the task of determining the proportion of its insured members at each age group that makes a claim for inpatient hospital treatment above a certain size over an extended period. The answer is most likely to be that most individuals do not claim in five years and possibly even ten (excluding obstetric claims). Certainly there is anecdotal evidence that some individuals do not receive hospital inpatient care over periods of 50 or more years. Are such individuals really the "average" or should we strive to make them so?

6 **MANAGING HEALTH RISKS**

- 6.1 What are the basic risks that third party health payment systems finance? They are predominantly the insurance risk and the business risk for pay-as-you-go insurance schemes. Where health is financed on a long term actuarially funded basis there are also substantial asset default risks and the interest rate risks that the insurer has to account for. Proven techniques are available to insurers to manage the last two risks but the insurance and business risks of health insurers are usually very difficult to manage because of the dynamism of the health care environment and the political factors which intrude on the business.
- 6.2 Turning to the insurance risks, what are these risks and how can they be managed? Basically, the insurance risk is the risk that the insured will use a health service which is funded by the insurance program. Most, but not all, of the health services that are funded are only used when the insured is "sick" or has had a "health event". Some are utilised when the insured is well but worried that he or she might be sick, or is well and wishes to stay well. So the "health event" or "sickness" is not necessarily the underlying risk that is being covered by 3rd party payment mechanisms. Also there are the moral hazard risks that the insured will utilise costly health services when he or she is well or only think that they are sick. But the moral hazard risk does not stop with the insured. There is also substantial moral hazard risks associated with the providers of health services. These moral hazard risks include the risk of services being provided which are not necessary or provide no useful outcome or even a negative outcome.
- 6.3 What are the traditional ways of managing the various risks and what are the outcomes from such management. Turning to the risk of the insured becoming sick. Firstly the practice in many health insurance schemes is for the insurer to

underwrite to eliminate the entry into cover those who are already sick or about to get sick. This creates a pool of people who become uninsurable many of whom are sick and many of whom are effectively denied access to appropriate health care because of the cost. Often the underwriting is done by proxy - if you are employed by an organisation of a reasonable size than you are insurable. If you are self employed or unemployed then your prospects of obtaining insurance are very limited.

- 6.4 The alternative to this form of selection is to require that all insurers accept all applicants irrespective of their health status. This approach is followed in Australia and to a limited degree by HMO's in the US. In the US this is often limited to a one month open enrolment period each year. The main problem with this alternative is that the insurer becomes exposed to a moral hazard risk - that applicants will deliberately select against the insurer when they are sick or believe they are about to become substantial users of health services. To eliminate this moral hazard risk some form of compulsion to ensure is often adopted by governments - a political solution that in turn introduces a substantial business risk.
- 6.5 Sometimes the compulsion to insure is engendered by a form of financial compulsion. This may be brought about by means tests to obtain "free" access to the more expensive services, eg hospitals, or a strong personal taxation disincentive to not be covered for health insurance if your taxable income is beyond a certain level. The business risk associated with these measures will depend on society's acceptance of the form of financial compulsion coupled with acceptance of the arrangement by the various political parties, i.e. bipartisan support for these measures. This is one of the major problems with Australia's health insurance arrangements.

- 6.6 Few insurers have properly addressed the management of the risk of an insured getting sick. Many managed care organisations and HMO's appear to only give lip service to managing the risk rather than actually doing something about it. In reality the management of this risk should be bequeathed to the individual and he or she should be given strong incentives to manage their own risk to give the best possible outcome. In Australia the politically required community rating principle denies insurers the ability to provide financial incentives to insureds to reduce their health risks. Tax financed health insurance schemes also eschew such arrangements. Of course, the reason why insurers haven't tackled this issue appropriately is because they usually take a very short term view of their business and most poor health habits take very many years to cause poor health outcomes. To be fair to the insurers, however, their short term views are often caused by the inappropriate legislation under which they operate.
- 6.7 The management of the moral hazard risks associated with health care providers providing unnecessary or inappropriate services is complex. Much of what has been tried in the US and else where either doesn't work or is administratively complex and costly to implement and has doubtful value. For example second opinion requirements seemed to reduce "unnecessary" surgery initially but once the surgeons knew how to fill in the necessary forms and what key words had to be written on them - then it was business as usual. The net result is the insurer has set up an additional costly bureaucracy that has, at best, marginal utility. Pre-certification systems have the same problem. Once participants know how they work the cost savings diminish or even evaporate, again leaving a costly bureaucracy. Utilisation review systems can work but often an undesirable practice can go for months or even years without being detected. Once again insurers have very high costs in setting up these systems, the costs of which may outweigh the benefits to be gained. Unfortunately the preventive benefits that

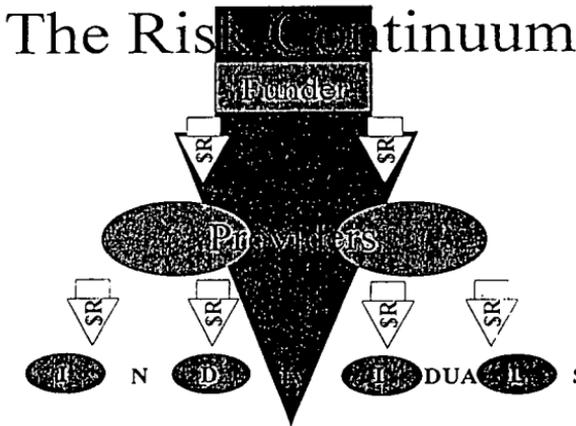
occur from having utilisation review systems in place generally cannot be meaningfully measured. However health gains from eliminating or substantially reducing personal health risks will take time to eventuate so insurers will have to view this business as much longer term business to obtain cost advantages.

- 6.8 Conceptually health care financiers should adopt the concepts of risk reduction. These concepts are used in general risk management arrangements and have been particularly used in modern workers' compensation arrangements. Societies should be looking at eliminating, or at least significantly reducing health risks. Probably the cost of eliminating or significantly reducing the risk will, in fact, be very small. The greater availability of health care information also provides the key to health risk reduction and where there are currently uncertainties about the level or quantum of various health risks, societies new abilities to research, develop and make available fuller information will reduce such uncertainties.
- 6.9 With the reduction in uncertainties about the principal health risks to be faced, the question then becomes how is the burden of risk to be distributed in society? In workers compensation laws in Australia much of the risk has been redistributed from the insurer to the employer and employees. Employers are now required by law to maintain safe workplaces. Employees are also required by law not to put their fellow workers or customers at unnecessary risk by their own actions. Employers workers' compensation premiums also have a self experience element, depending on their size. As a result of these arrangements much of the moral hazard risk associated with earlier workers compensation laws in Australia has now disappeared. As the schemes are now based on work place prevention and, when workers are injured, immediate rehabilitation, much of the cost of the earlier schemes has also gone. What has really happened is much of the risks have been eliminated by the careful design of the workers' compensation schemes because the legislative authorities have taken a longer term view of this

business.

- 6.10 Health insurance schemes need the same sort of arrangements. The political management of health risk should have both a preventive and a compensatory side. Our societies should be acting to reduce or eliminate the health risks that they can remedy, and provide, through insurance compensation, for the costs that result from the risks that can't be remedied. Where employers are principal funders of health care for their employees then they should apply the same philosophical approaches to the health risks of their employees and insurers should include an element of their experience in their premium rates.

Figure 16



The more risk is held by the funder the greater the costs and need for bureaucracy. The more it is shifted down the continuum the less risk is kept in the system, so the scheme costs less and needs less bureaucracy.

Figure 16 shows the philosophical basis for the application of risk management techniques in health financing systems. As the risks in the system are pushed downward to the providers and eventually the individuals the total amount of risk in the system is reduced. The greatest gains will be obtained by the transference of the risks to the party that can best manage those risks. These gains will also coincide with lessening bureaucracy.

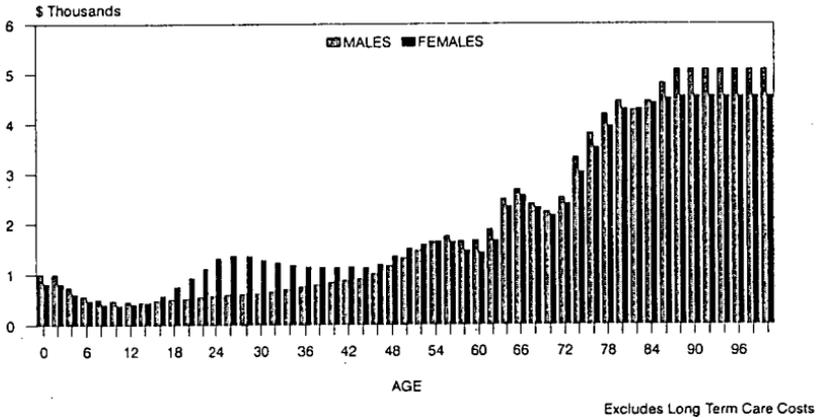
- 6.11 How can a health insurance scheme be structured to eliminate and/or reduce the health and moral hazard risks that burden it. Firstly each individual's health risks have to be managed by that individual and his family general practitioner. Individuals have to be empowered through education, information and training to manage their own health risks over the longer term. The key to such empowerment is the financial incentives that can be built into the health financing contribution each individual makes to his health care funder. For example smokers should pay a greatly increased premium. The obese should pay significantly more particularly if they make no worthwhile attempt to reduce their weight. Exercise has to be rewarded either with lower premiums or higher or extra benefits. Individuals must be educated about sensible levels of alcohol consumption, sensible sleeping, eating and sexual practices.
- 6.12 Societies have to re-engineer social values of personal responsibility. Adults and children should be educated into asking themselves each night about what positive actions have they taken that day for their own health. Primary care physicians or general practitioners have a major part to play in this environment. They will have to start asking their patients about what have they personally contributed to their own health and offer primary health risk preventive advice. General Practitioners will also become the risk managers in this new health insurance environment. It will have to be the GP that provides the assessment on

whether the insured smokes or doesn't smoke, whether the individual takes sufficient exercise and how obese the individual is. Hence it will be the GP's advice that will determine the premium rate in respect of that individual. The primary risk prevention consultation will have to occur annually or even more frequently for such a scheme to work.

- 6.13 ASB1028/AAS30, the new accounting standards for post retirement benefits, has made Australian employers account for the future costs of post retirement health care benefits over the working life of the employee. Fortunately this is not a big issue in Australia as few employers provide post retirement health benefits. However, FASB106 the equivalent US accounting standard has had a huge impact in that country. Under FASB106 (or ASB1028/AAS30 in Australia) the annual costs of these schemes often became many times more than the running costs of these schemes particularly for rapidly growing companies. One reason for this can be seen in Figure 17 which has been created from Australian health cost data for 1990. The second reason is that the health cost line is moving upward relatively quickly. It is moving faster than the CPI; and, moving upward faster at the older ages than it is at the younger ages.
- 6.14 Health economists also expect that the graphed line will shift slowly to right over time due to reducing mortality rates and the high proportion of an average individual's total health costs being incurred in the final months or years of life.

Figure 17

AVERAGE INDIVIDUAL HEALTH COSTS IN AUSTRALIA IN 1990

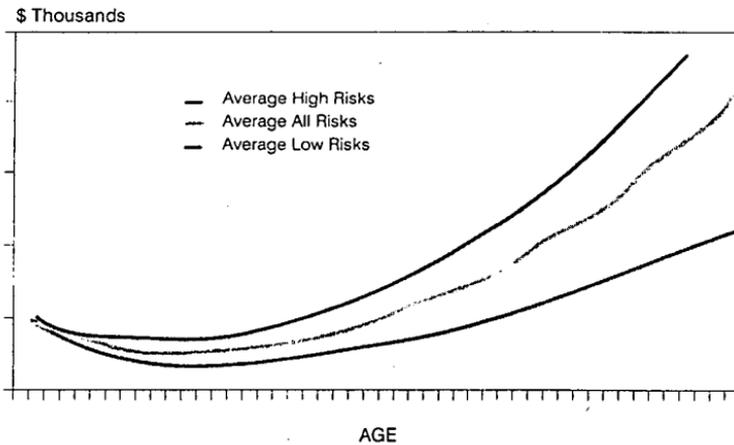


6.15 The above graph of health care costs by age is a graph of averages for the Australian population. There is a great deal of variation about the mean. Most individuals will have health care costs well below the mean at younger ages especially, and the median cost may well be between one third and one half the mean. Considerably less than one percent will have catastrophic health care costs of more than one hundred times the mean. On average, though, individuals who maintain high risk lifestyles will have health care costs above the population mean but probably not very significantly above at younger ages. Individuals who maintain low risk lifestyles will have an average health care costs below the population mean and probably very significantly below the population mean at older ages. See Figure 18.

6.16 Unfortunately, figure 18 cannot be interpreted on a two dimensional basis. Most older people tend not to live either high risk or low risk lifestyles so their health costs in respect of cardio-vascular diseases, many cancers, diabetes, arthritis and osteoporosis will be mostly determined by their earlier lifestyle (although maintenance of a low risk lifestyle in older age still confers significant benefits). Like the population health outcome model, the average health cost model should also be thought off in three dimensional terms. Time is the third dimension that should be included.

Figure 18

AVERAGE, HIGH & LOW RISK INDIVIDUAL'S HEALTH COSTS



- 6.17 The final element in the risk management process in the Copernican health model is the knowledge empowerment of the individual. The funding system can make a major contribution to this empowerment by imposing risk costs on the individual that the individual is able to manage. As stated previously, these risk costs would be determined from an annual assessment by the individual's general practitioner. But figure 18 suggests actuarial techniques are needed to produce acceptable future health risk cost loadings to health insurance contributions to be paid by individuals. To confer manageable risk on individuals the annual risk premium in respect of each individual, i.e. the community rated premium in Australia, needs to be adjusted to reflect, not just the lifestyle risk differentials for that year (which may be minimal) but, the discounted risk differentials calculated for that and all future years that it is reasonable to expect that individual will be insured with the health insurance organisation. Given that health insurance is guaranteed renewable in Australia, effectively this calculation would be done for the future lifetime of the individual. These future discounted costs would then be respread as current and future contributions assuming that the contributions escalate each year on some pre-determined basis. Clearly though, the rates so calculated would be unsaleable because the total of each individual's premium rate for all the insureds on any table of benefits would be significantly higher than the annual amount needed on a pay-as-you-go basis which is the primary funding basis used. Therefore the final step in the rating process would be to prorate the individually calculated contribution amounts down to amounts that produce in total the one year term contribution for that table.
- 6.18 To reduce the provider moral hazard risk general practitioners will have to be put at risk under these new insurance arrangements. This means GPs will have to be rewarded for their patient's good health and suffer some sort of financial penalty if their patients' collectively have health outcomes that are less than that predicted from their risk status. This will have to be a statistically valid process and groups

of general practitioners will have to form to share the risk (and rewards) from such a scheme. General practitioners will also become the gatekeepers to higher, more expensive forms of care (specialists, and hospital care) and they will have to become the risk managers of the higher levels of care. Such a scheme therefore looks therefore very much like a managed care organisation but one where individuals and their primary health care physicians (i.e. general practitioners) will bear much more of the risk and the organisation's objectives will be put in a much longer term framework.

6.19 In Australia and other OECD countries with high proportions of health costs being met through taxation and social insurance schemes there will be other complications in adopting a universal proactive long term approach to individual health risk management. However, as US employers, and governments such as the Singapore Government start to demonstrate the emerging long term benefits of empowering individuals to better manage their long term lifestyle affected health risks, other governments will become convinced of the need to provide similar incentives in their own countries. Perhaps, largely tax financed schemes like Australia's will change to social insurance schemes where the social insurers will be permitted to use individual risk management rating arrangements.

6.20 Empowerment of individuals to effectively manage their own lifestyle affected health risks will enable the paradigm shift to Copernican health model to be completed. This should provide the best chance for future widespread improvements in population health outcomes and the eventual achievement of greater control of population health costs. Only one question remains - how much does future lifestyle affected health risks have to be individualised to bring about long term individual behaviour changes? Only long term experience with individual risk management will provide the answer to this question!