Productivity Commission- comments on Discussion Draft of October 2009

The Commissioner and the staff of the Hospitals team of the Productivity Commission (PC) are to be congratulated on their great achievements in analysing, interpreting and understanding the dynamics and problems of the Australian hospitals system. A very perceptive view of the health system has been created from the valuable perspective of a well informed outsider. As the October Draft Discussion (DD) Paper observes several times, hospitals are complex organisations. The DD poses questions and outlines the thinking behind draft conclusions. I would like to comment on a few matters arising from these. The first and perhaps most important is data. The quality and timeliness of data is vital to the multivariate analysis, conclusions the PC will draw and the recommendations that will be made from this study. The second is directed to the question of how to accurately establish the cost of capital and the third relates to the future environment for healthcare which the commission addresses under section (e) of the Terms of Reference

Data

The DD draws attention to the inadequacy of data collections in health care and specifically to the lack of access to timely information on the performance inputs and outputs of hospitals. The first draft finding of the DD is highly appropriate. Access to timely information on the performance of hospital services and departments can drive improvements in service delivery, public access to services and in particular public scrutiny of enterprises which consume significant portions of State Budgets. Taxpayers should be confident that health services provide an efficient and effective response to the community in healthcare. Staff working with patients in the hospitals should have access to the information they need to make the best decisions.

Backgrounding the DD Draft finding 1.1, the Productivity Commission (PC) has referred to past studies and past reports which illuminate the absence of useful data. I would urge the Commission to look more deeply at this problem. We are at a technological point where access to information in our society and economy are unparalleled. In the past 30 years our management and transmission of information has been revolutionised. It is unusual to see in a government agency of any level a desk not furnished with contemporary computer, internet, software and communications equipment. The cabling and infrastructure needed to support the desk sits invisibly behind. Our hospital treatment units which are tasked with the 24/7 complex analysis of inpatient pathology, imaging, bedside, pharmacy and sometimes surgical do not always have access to similar quality of information management tools. Some hospitals and health services have quite limited computer facilities in the patient treatment areas and clinical staff, who could make good use of comparative data, do not always have access to computers. This is of concern in the context of the past reports the Commission refers to, is alarming for contemporary ward and patient management and would seem unsupportable for the type of health care the PC expects in the future.

In the preparation of the DD the PC team has undertaken extensive consultation. It is hoped that this consultation has been balanced with visits to health facilities in outer metropolitan areas and some country areas to see and understand how services are provided. The size of the health sector and its

organisations and the animosity between patient care and funding services can mean that the voice of clinical experience is not clearly heard. If members of the Commission team have not already sat in an outpatients clinic or walked a medical ward or sat with a mental health team or been in a rehabilitation facility for at least an hour, I respectfully recommend that this would be time well spent. It is in the detail of operation of these facilities (which is multiplied many times over the day the year and the nation) that the Commission can gain insight into the differences in productivity and the impact of a number of factors, including capital, on operational activity.

The PC refers to NH&HRC recommendations for Government initiatives for electronic medical records and nationally consistent activity based funding which will address significant areas of need and will enhance patients outcomes, safety and healthcare efficiency in the public sector. However if these initiative do not include an appropriately calculated allowance for capital infrastructure for information and communications systems and the structures which support them, the problem will not be addressed. The challenge for enhanced effectiveness in hospitals is not to address the problems of today but those of tomorrow. There is an opportunity in framing activity based funding components to assist the communications and IT capacity to enhance efficiency.

Healthcare is likely to be the area of our economy in which the technologies push the boundaries at the fastest rates. The brightest and the best of each country are passionately engaged in research to improve diagnoses and treatments and there are a range of enterprises which endeavour to bring these advances to the bedside at the earliest opportunity. Patients, their families, clinicians, and politicians encourage the earliest possible adoption of the benefits of research. The question is how do we fit the machines and technologies into hospitals built 30 or even 60 years ago without some recognition of Capital for Best Practice now and in the short to medium term future?

Our diverse public hospitals system requires access to communications technologies which will permit the benefits of research and innovation to be available to the patients who have a clinical requirement to access them. We know that new technologies supporting better patient care by fewer clinical staff are available. They include :

- Information based medicine with electronic medical records and web based medical records
- networked standard patient monitors which can be supervised from the bedside, or remotely
- electronic pathology and imaging reports
- integrated medical data bases and medical libraries
- remote consultation- telemedicine
- merged imaging and surgical intervention equipment to minimise the invasiveness of procedures and therefore length of patients stay
- hand held laboratory analysers for rapid information and diagnosis (so the patient does not have to be patient for so long)
- genetic medicine
- patient telemetry and monitoring
- at home monitoring- potentially preventing admissions ad ED presentations
- high speed 3D imaging which is replacing invasive diagnostic procedures in the US especially in angiography and catheritisation
- advances in MRI technology to use more powerful magnets

- enhanced PET scanners (PET CT,PET SPECT CT)using shorter life span isotopes replacing some or most nuclear medicine gamma camera investigations
- faster platform CT scanning providing an almost infinite range of slice images permitting less invasive surgeries in complex areas
- open heart surgery changing to beating heart surgery
- integrated surgical video using less invasive surgery
- hybrid imaging and angiography labs
- stereotaxis
- inter-operative MRI and CT
- video endoscopy
- virtual surgery and surgical robotics permitting surgical interventions in places where hands are too large
- Physician Order Entry systems where wireless hand held tools can from the bedside order tests pharmaceuticals, treatment protocols, therapies etc working within a clinical decision supported environment.
- And many other modalities in use or in development in Australia and elsewhere.

These provide wealth of useful information which can improve the health of patients and permit them shorter hospital visits with better outcomes. However each of these and the other emerging modalities for nursing and allied health have outputs which are information in one form or another. For these modalities and enhanced techniques to be effective the information has to be available on time and in a useful form. It is therefore necessary to have an environment which supports the information and an information management architecture which enhances and does not inhibit clinical improvements.

The PC rightly observed that in the development of the Draft Discussion paper it was impeded in gaining good quality appropriate and timely data. For many clinicians this is a daily problem which inhibits their ability to provide timely services. Failure to invest in networked and appropriate systems in the patient care areas demoralises clinical staff and inhibits their effectiveness. Ask the people who deal with the patients.

As the DD noted effective information collection, analysis, timely distribution and management are not an embedded quality endemic to our health sector. For our system to survive the imminent future and to make progress in bridging the productivity gap we as a nation need to invest in information and communication in the hospitals and between them.

The Commission observe that there has been a culture of ‘data custodians’ in some jurisdictions in health. Annual reports on hospitals, plans for clinical services, plans for hospitals, communications with clinical areas, even access to the Health Library has, in some jurisdictions, been restricted and protected, often for decades. It may not seem appropriate to the Commission that the scrutiny of information on the performance of publicly funded hospitals should be restricted to the officials of that system.

Information flows within hospitals, between clinicians and between health services and funders need to be accessible, timely and directly comparable. Funding for IT and communications technology, maintenance and replacement should be included in activity based funding for inpatient

and ambulatory services in the public sector and support the costs of reporting for the private sector.

Multivariate analysis

The Commissions concerns about the quality, consistency, range and timeliness of the available data, particularly in the area of capital, makes the outcomes of a multivariate analysis less trustworthy. It is to the Commissions credit that it acknowledges these concerns about the data.

Section 8 of the DD refers to factors to be considered in the multivariate analysis and inputs including beds (page 165). Health care is provided from a bed but not by a bed. The success or otherwise of an inpatient service relates to the full range of capital- physical rooms, therapy areas, operating theatres and diagnostics amongst others. Capital would be a better input for the analysis as it covers the full range of physical and equipment infrastructure and is in the form of dollars which are comparable with the other measures in the NHCDC. Similarly in section 8.2 inputs should include capital in both the production function and the cost function to be meaningful. Doctors and nurses do not provide their acute care in any setting, it is always in a specific environment governed by State building guidelines for hospitals. Meeting these guidelines involves a significant cost which should be reflected in the comparative cost analysis. Not all capital costs are equal and there is considerable evidence available internationally on the impact of capital investment on patient outcomes, patient safety and staff retention and efficiency.

The quality of health capital investment is more than simply the provision of beds. The UK hospital systemover the past decade has undergone extensive investment to improve the effectiveness of the bed stock by maximising the number of single patient rooms. An analysis that simply counted beds and not investment would miss this qualitative difference. Since evidence has emerged to confirm that the spread of MRSA can be prevented by building single patient rooms and improving infection control, patients and their families have undertaken successful Litigation with avoidable MRSA in the UK. Patients admitted to multi-bed wards who contract an avoidable life threatening infection have successfully sued the health system in the UK and this has been especially damaging to health systems in Wales were there is an older bed stock.

Similarly Ontario has experienced avoidable C.difficile outbreaks this year which have resulted in a powerful clinical and public push for the introduction of extensive new building guidelines to provide for patient safety. Because of the public pressure for safer hospitals it is likely that the Government of Ontario will announce new guidelines in November which will provide leadership for the Canadian health building revolution.

The PC might like to consider work that is being undertaken currently in Denmark to reform the health system. Clinical and administrative staff are developing new roles and relationships, there is organisational rationalisation and reshaping and there is a significant level of investment to support efficiency improvements through amongst other things a new infrastructure for health delivery.

Capital investment rather than beds is an appropriate measure for the multivariate analysis.

Capital

Using the National Hospital Costs Data Collection (NHCDC) series and building the quality and consistency of the data is an excellent method to progress the ability to effectively compare Diagnosis Related Group (DRG) costs from different settings. The proposals to make the data classifications more consistent across jurisdictions will greatly improve the effectiveness of the NHCDC and its use for evaluation and improvement of health services. Separately identifying overhead costs associated with regional or State health administrative functions would also be useful in identifying the true cost of a service. Adding similarly configured data on hospital-in-the home, Chronic Disease Management programs, outpatients and ambulatory care would be beneficial in ensuring that savings are realised from the transfer of patient groups to these modalities of care.

As the Commission observed capital costs are not captured well in our systems. In other segments of the economy capital and labour are seen as regular components of the production function and are accounted for in that way. In health however capital has been seen as something of a gift, an occasional contribution to the operation of a health service. The irregular nature of capital funding arguably has contributed to lower levels of productivity for some of the most expensive labour in our economy.

The DD proposes to provide a surrogate for capital in the NHCDC by including depreciation and the user cost of capital. Both of these measures assume a number of things which impact on their reliability as a proxy for capital.

The first assumption is that the jurisdictions know the value of their capital assets. The Commission will make a judgement on this but after 30 years working in health service evaluation and capital development, I would not be at all confident that was true. The potential margins for error in these figures is quite large and may disturb the calculations which are more soundly based.

The second large assumption is that the value of the assets of the jurisdictions reflects an appropriate capital component for that service. For example a woman might give birth without complications in a hospital in a rural area where facilities are unchanged from the middle of last centaury with common bathrooms and toilet facilities and shared wards or she may give birth in a new metropolitan hospital were a single room has been provided to reduce the risk of infections. She may live near a specialist women's hospital and give birth there with a full range of specialist services available for herself and her baby. Which of these values for capital in the DRG would be the appropriate one to represent the depreciated value? The older hospital capital would have long ago been depreciated to zero. The most recently built facility with the most recently acquired equipment would be the most expensive. In the same way the value of the rural asset would be significantly lower than the metropolitan asset. The UCC would therefore also value the capital for the rural hospital as negligible or very low.

The outcome might be that the cost of capital for a rural birth compared to a city birth using both depreciation and UCC would be unrealistically low due to the absence of investment over the past 20 years. Alternatively the Commission might choose to take a weighted average of the capital costs in this DRG so that if 10% of births were in older hospitals and 40% were in hospitals built 20-30 years ago and the remainder in modern facilities, an average could be achieved. The result would be to have around 40% of the capital judged as free thus diminishing the figure. When compared to a

contemporary private hospital the capital cost of the rural birth would provide an unrealistic figure and would distort the other calculations made in the multivariate analysis.

The third assumption is that the conventional depreciation assessment is appropriate for hospital assets. Hospital buildings were regarded as like other buildings with a life span of 15-20 years and of service for up to 50 years. Little changed in the arrangement or intensity of use of hospital wards and clinical spaces between WWII and the early 1990s'. However since that time facilities as the Commission points out are used more intensively. Technological changes have made some components of hospital buildings redundant more quickly. Areas such as operating theatres, diagnostic imaging suites, procedure rooms, intensive care units and intensive rehabilitation units have life spans of 7 years on average, some less. Wards have changed in response to an ageing nursing workforce, antibiotic resistant infections, changed work practices, technological change, patients of higher acuity levels and shorter lengths of stay. Research has been undertaken at Bouw College in Holland, through the European Health Property Network and at the University of NSW Centre for Health Assets Australasia into the actual viable life span of hospital units. The depreciation schedules used for hospitals need to reflect the actual life span of the units and the patients use or need to access those units rather than the more traditional 20 year depreciation. The capital figure should reflect viable and useable capital.

The fourth inherent assumption relates to major capital equipment. Are both buildings and equipment to be included in the definition of capital? Again an older rural hospital would have a different equipment asset base for capital to a city hospital. It is not unknown within the health system for x-ray machines, theatre tables and other relatively expensive pieces of equipment to be used long after their conventionally supported life span. It would be inappropriate to include an amount for capital which included redundant or unsafe equipment management practices.

The fifth assumption inherent in the proposed method is that there is a lack of specificity in the use of capital- equipment and buildings in a DRG. If for the public sector a State wide figure is taken for capital and pro-rated against DRGs it would blend significant differences and undervalue the buildings and equipment. As with medical, nursing and imaging services there are different capital needs for each group of patients. Some DRGs relate to patients who will use a variety of hospital services with very different capital costs. A hip replacement patient might require time in the ICU and extensive diagnostic imaging and pathology support followed by outpatients and rehabilitation. A stroke patient might use ICU or not, medical ward, Emergency Department, ward, therapies, diagnostics, outpatients and rehabilitation. A women giving birth is unlikely to need many of the same services. An averaging of capital over all DRGs' will distort the cost comparators with the private sector and the production functions.

The sixth assumption is one the Commission has already alluded to with respect to bed occupancy being maintained at no more than 85% on average. For higher tech areas such as ICU and operating theatres there is a level of readiness which falls below 85%. Similarly with burns units, diagnostic imaging, dedicated trauma operating theatres, neurosurgical and neurology units, procedure rooms

and other areas including those for disaster preparedness there is a level of availability which we should pay to maintain. This needs to be factored into the calculations of the comparisons.

The question with respect to capital estimation should not be what has been tolerable in the past but what is necessary to afford safe accessible and appropriate health care. In earlier times the interests of patients were not as sensitively appreciated as they are now.

The Commission has observed that the cost component for capital in public hospitals was higher in public hospitals than in private hospitals. In my experience over 30 years in health service and facility planning this is an unusual conclusion. I have asked a number of highly experienced colleagues who also are surprised at the statement. It may be that on average if free standing day surgeries and mostly surgical private hospitals were included and compared with a larger public hospital that this would be possible. But it is unlikely. The detail of what is being built, if equipment is included and which services are provided needs to carefully teased out to make sure comparisons are appropriate. The Commission may wish to approach some of the leading national Quantity Surveying firms specialising in health work to validate the observation. These firms have costs per square metre for recent public and private hospital developments.

Similarly in Table 4 the cost per case-mix adjusted separation the amounts for capital seemed lower than they should be. Colleagues I have shared the material with also thought that the capital component looked lower than they would have expected. Again it is difficult to know the constituent elements of the capital estimate and if equipment, buildings, IT and communications are included or if overheads from regional and state health administration are included.

On a separate matter it is understood that transport costs for public and private patients are not part of the terms of reference of this review. However for rural and remote patients these are significant in determining their health outcomes due to the restricted access to services. It may be possible in another review to consider the role of transport and accommodation costs in relation to equity of access as most specialist services are increasingly being provided from major cities and the range of locally available healthcare is reducing.

Conclusion

An important part of the PC review of hospitals is to provide guidance on how to enhance the effectiveness and efficiency of the Australian hospitals sector and in particular to outline how the publicly funded hospitals can provide economically sustainable care. This review and the NH&HRC reviews have come at a time when there is an appetite for improvement in health services and an escalation of demand. The Productivity Commission has the opportunity to change the view of capital in health care from one of an occasional gift to a more rationally based component of everyday healthcare. It is time to include capital funding within each DRG at a level which relates to the actual capital requirements for the treatment of patients across the range of building, equipment, IT and communications necessary for best practice care.

The Australian system of capital funding has had tight capital decision making within State Budgets of what can be spent on new or replacement capital, usually set independently of health service operations. Hospitals and health services then compete for the allocation of available capital funds.

Health and hospitals in Australia require a more rational patient focussed allocation if we are to achieve an efficient healthcare delivery platform suitable for the short and medium term future. Our capital invested in health needs to facilitate the innovations and practice changes which are necessary and support safer more efficient service delivery. Health care capital needs to be an reliable and accountable input. Put another way, we do not want to build a new system to fail because it is simply investing to recreate the system we are trying to escape.