



Mr David Kalisch
Commissioner
Productivity Commission
LB 2 Collins Street East
MELBOURNE VIC 3000

Dear Mr Kalisch

On behalf of the Australian Private Hospitals Association (APHA), I attach a response to the Productivity Commission's Draft Report on its Research Study into the Performance of Public and Private Hospitals.

As you know, APHA is the peak national body representing the interests of the private hospital sector, with a diverse membership that includes large and small hospitals and day surgeries, for profit and not for profit hospitals, groups as well as independent facilities, located in both metropolitan and rural areas throughout Australia.

APHA appreciates the opportunity to comment on the Draft Report. Our comments and observations are directed towards not only clarifying some of the areas that are important to our members, but also to provide further information that we believe will assist the Commission in completing its complex task.

We look forward to the Commission's Final Report and the opportunity to contribute to the multivariate analysis phase of the Study.

Please contact Dr Barbara Carney, APHA's Director Policy and Research, on 02 62739000 with any queries, or if APHA can further assist.

Yours sincerely

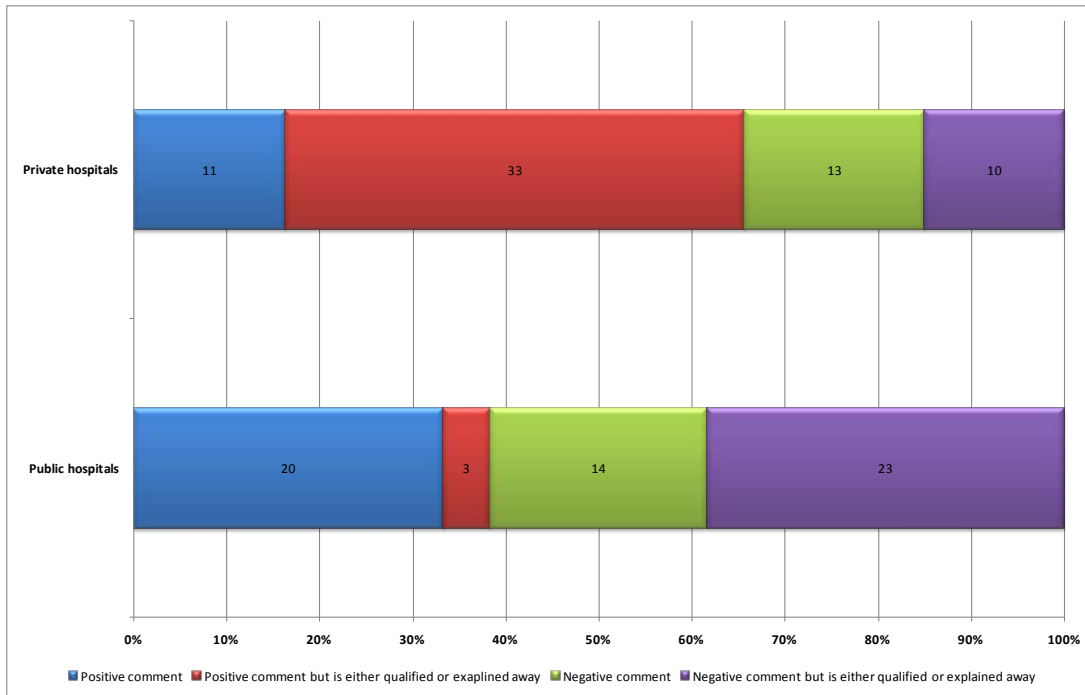
Michael Roff
CHIEF EXECUTIVE OFFICER
9 November 2009

Response to Productivity Commission Draft Report on the Performance of Public and Private Hospitals

The Australian Private Hospitals Association (APHA) acknowledges the difficulty and complexity of the reference given to the Commission for this Research Study. The Draft Report (“the Report”) makes it very clear that the data available, whilst apparently voluminous, is not in a form that enables a “straight line” comparison between the two sectors. In addition, the Commission experienced delays in accessing data held by the States and Territories, even if, in some cases, the data is normally made public.

Not only is the main topic of the study a difficult one, it is also one which can provoke strong opinions and arguments, explicitly or implicitly predicated on assumptions about the superiority of one sector over the other. As APHA observed in its original submission, these assumptions, sometimes based on no more than prejudice, can obscure or impede valid comparisons. An added complication is the prevalence of media reports on hospital issues to focus on negative and/or sensationalist aspects. This creates a climate of reluctance to share information that might be subject to negative interpretation, taken out of context or over-simplified to make a “good story”. Whilst this might be understandable, it can mean that some published data is partial, and some data not made public.

APHA does not consider that the Report makes assumptions as referred to above. However, in what could be perceived as an attempt to “err on the side of generosity” to the public sector, there is a tendency throughout the Report to qualify – sometimes without objective evidence – results unfavourable to public hospitals, and to downplay results favourable to private hospitals. APHA’s analysis has tabulated this as follows:



Statements not supported by the evidence

APHA is disappointed that the Report makes a number of important statements that do not seem to be backed up by evidence. Qualification of the findings in this manner has the potential to lead to perceptions of bias by the Commission. APHA recommends that the Commission takes care to ensure any comment on its findings is treated in an even-handed manner to prevent such perceptions. APHA can provide details of the relevant statements in the Draft Report if this would assist the Commission.

On page xxxviii of the Report there is an attempt to explain why there are differences in cost per casemix-adjusted separation by jurisdiction and sector for 2007-08 (as displayed in Table 4 of the Report). Specifically, it is noted that private hospitals have a lower cost per casemix-adjusted separation than public hospitals in Western Australia. The Report then notes that this is “possibly reflecting the community-service obligation to provide hospitals in remote regions of that state”¹. This supposition is made with no reference to any evidence that might demonstrate this point, or any data regarding the extent to which such community service obligations (which other States also incur) may be causing this. In fact, it is impossible to say whether such obligations are in fact making any difference to the overall figures presented in Table 4. APHA **recommends** that the statement be removed or evidence supplied that supports the point made.

On page 24 the Report states that "Patients treated in public hospitals are likely to be characterised by a relatively poor pre-existing health status". Again, there is no evidence

¹ Productivity Commission (2009) Public and Private Hospitals, Page XXXVIII

given to support this statement. Instead there is an opinion from a third party (in this instance the Australian Nursing Federation). The ANF's submission does not contain any evidence to support this contention, and it cannot be proved on the basis of an unsupported statement. APHA believes it would be more useful to look at the actual patient mix encountered in public and private hospitals. Contrary to the statement which the Report relies upon to make this point, private hospitals actually treat more older patients than public hospitals do as a *proportion of their total patient intake*². As this is the case, APHA **recommends** that the Commission recognises this point on page 24 and at other relevant places within the report, such as page 116. It is important to further acknowledge that a greater proportion of older patients is likely to lead to higher costs for private hospitals than public hospitals. Furthermore, we would request that the Commission removes the references to the characterisation of public hospital patients on page 24 of the report. The characterisation of public hospital patients should only be made with reference to verifiable evidence.

On page 94 it is noted that there is a sizeable difference in the average cost of critical care in public and private hospitals. In attempting to explain this cost the Report states that this could be being caused by the fact that *most* intensive care and coronary-care units are based in public hospitals. There are no comparative figures given. APHA **recommends** that this statement be substantiated and details given on the proportion of both public and private hospitals that have intensive care and coronary-care units. Furthermore, we **recommend** that evidence be provided to demonstrate that a greater number of intensive and coronary-care units does result in a greater average cost of critical care. If the statement cannot be quantified, we would recommend that it is removed from the Final Report.

APHA believes that the overview of private hospitals in the Report is flawed. Similarly there is an imprecise conclusion about infection rates. Whilst agreeing that there are indeed differences in the casemix between public and private hospitals, APHA does not accept that this is a causal factor of infection rates, as stated on page 116. No scientific or medical evidence is presented within the Report to back up such a significant claim. Instead, the Report instead relies upon a completely unsubstantiated statement in the submission made by the Australian Healthcare and Hospitals Association. We believe that it is unhelpful and potentially misleading. This reference ought to be removed in the Final Report.

APHA also urges that the statement given by the WA Department of Health, quoted on page 119, be verified if it is to be included the Final Report. Evidence should be presented to show that a relationship between the use of "less-experienced operators" in public hospitals and a greater SSI risk. Furthermore, APHA believes that the Final Report should present data on the comparative surgical procedures performed in both sectors. If it can be objectively

² AIHW (2009) Australian Hospital Statistics, 2007- 2008

demonstrated that private hospitals in Australia carry out a narrower spectrum of surgical procedures than public hospitals, then the next piece of work to be done is to show that such specialisation does impact upon the risk of SSIs. If national, or State by State, data is not available, or not readily available, then the Commission should say so. The study quoted in the WA submission is useful, and it would be preferable to quote it in the Report in more detail, with a caveat about the scope of the study.

Inference of obstruction by private hospitals

APHA is disappointed that whilst the Report is very accommodating of any public hospital system' deficiencies through the use of unsubstantiated qualifying statements, that the Commission did not extend such qualification to private hospitals. This is particularly disappointing when the Report identifies issues and problems which are outside of the control of private hospitals. For example on page XLIII the Report discusses data reporting and states that: "It would be desirable for private hospitals to report costs data using the same methodology [as public hospitals] to ensure data consistency". As currently presented this statement could be incorrectly interpreted to mean that private hospitals are either unwilling to provide data or are deliberately obstructing the collection of data by jurisdictions. Private hospitals report data under whatever methodology they are required to use by State and Commonwealth governments. They have no or little control over this. APHA has been in the forefront of pushing for consistent data collection efforts across the public and private hospital sector: the same data, reported to a single national authority, once.

In a similar vein, APHA notes that in paragraph 3 on page 42 the Report discusses the billing of doctors' costs in the private sector. There is an unfair implication that the lack of information about doctors' costs is being caused by a lack of data collection by private hospitals. Whilst acknowledging that the Report does state that doctor costs are usually billed directly to the patient, APHA believes that the drafting of this section implies that it is a deficiency of the private hospital sector for not collecting such information. The financial relationship between the doctor and the patient does not include the hospital. Private hospitals do not record these costs as they do not control them and are therefore not aware of what they are. The Final Report should clearly that this information is not available to private hospitals.

APHA was also disappointed that the Report ignores the willingness of private hospitals to engage in medical training. The statement from the South Australian Department of Health on page 43 of the report implies that the private hospital sector does not engage in medical training. The paragraph, in contrast to criticism of public hospitals, is left unqualified. The Final Report should explicitly acknowledge that private hospitals are not unwilling partners in the education of the health workforce. It is primarily the State and Territory governments

that decide where education and training money are spent, and where training places are allocated. This should be recognised when making statements about medical training in private hospitals. We would request that the Commission notes that where medical training budgets are not entirely determined by the States (such as through the Commonwealth EMEAC programme) private hospitals have successfully competed for training places and delivered high quality medical training. Moreover, the Commission should recognise that some States, such as Victoria, have taken a progressive approach towards medical training, including involving the private sector, and where this is happening the private sector has proved to be a committed high quality partner.

Mistakes and inaccuracies

APHA again draws the Commission's attention to the submission from the South Australian Department of Health as quoted at page 43 of the Report. The SA Health Department makes the statement: "Private hospitals have primarily fee-for-service staff". The Commission has chosen to rely on this statement. It is grossly inaccurate and misrepresents the private hospital sector. It alarms us that after all of the work the Commission has done, this statement, which fails to understand the employment structure of private hospitals, is used in the Report. The fact is that the majority of private hospital staff are *not* fee-for-service staff. They are salaried nurses. Doctors providing services in private hospitals on a fee-for-service basis do so as independent practitioners. Their relationship with the hospital is governed by credentialling and clinical privileging processes. It is not an employee/employer relationship. APHA has made this point repeatedly. It is of considerable concern to APHA that the Draft Report relies on a statement from a State Health Department that clearly has no understanding of the private hospital sector.

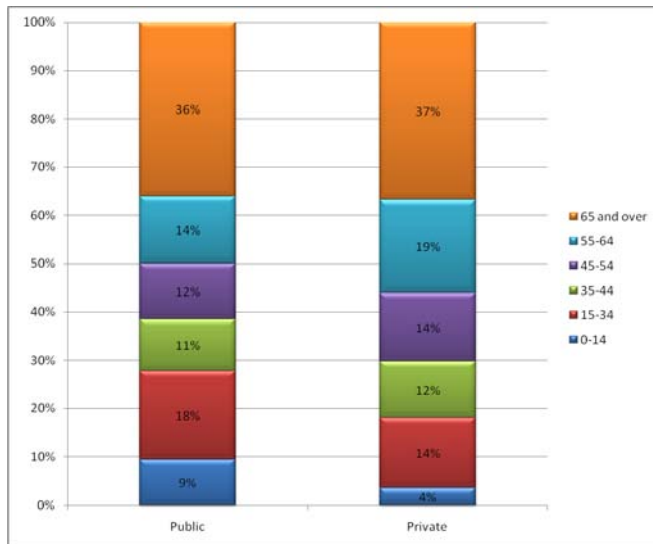
The Report states on page 13 that State and Territory governments have a responsibility to provide hospital services free of charge within their respective jurisdictions. This is incorrect as such services are never free of charge and are funded through taxation. Neither are State and Territory governments obliged to provide such services directly; they can choose to contract procedures and treatment for public patients to the private sector. Some States already do this. APHA **recommends** that this statement should be corrected to read that State and Territory Governments have a responsibility to provide hospital services free of charge *at the point of use*.

Detailed commentary

Age profile of patients

APHA draws the Commission's attention to Figure 4.1 on page 73 of the Report. This chart is misleading and is not helpful in terms of representing the age profile of patients seen within

public and private hospitals. As the public sector has the majority share (60%) of all patients, it could be expected that the majority share of any particular cohort would be treated in public hospitals. Therefore reliance on “patient share” is misleading and presents a biased picture in favour of public hospitals. A more relevant comparison would be the proportion of age cohorts treated in each sector as represented below.



Source: AIHW (2009) Australian Hospital Statistics, 2007- 2008

As can be seen from this chart the private sector treats a greater proportion of older patients and bears the associated risks and costs in doing so. APHA **recommends** that Figure 4.1 on page 73 of the Report be replaced with a chart similar to the above, and that the commentary surrounding this chart also be amended to acknowledge that, at the least, both private and public hospitals encounter similar risks in regard to the age of their patient cohort.

Also on page 73 of the Report it is stated that “Private hospitals treated around 60 percent of Department of Veterans’ Affairs patients in 2007-08”. In fact, they treated 200, 000 DVA patients, or 61.5 % of all DVA patients (AIHW 2009). APHA questions why this figure is rounded down by 1.5%, when in the preceding sentence the Report states the exact percentage of private patients treated in public hospitals. As the Commission is not rounding down or broadly approximating other figures in this section of the Report APHA urges that the usage be consistent to avoid any implication that the role of private hospitals is, for some reason, being downplayed.

Numbers of accredited hospitals and beds

In table 7.13 on page 154 the Report outlines the number of accredited hospitals and beds. The figures used for private hospitals are one year older than the figures used for public hospitals, but this is only acknowledged in a footnote to the table. APHA does not understand why the up to date data on accreditation held by the Department of Health and

Ageing (DOHA) was not used. All private hospitals must be accredited if they are to be eligible for reimbursement from private health insurers. This is an important safety and quality issue. We would therefore urge the Commission to obtain the current data from DOHA. If for some reason this cannot be done, APHA **recommends** that the Final Report places the year of the figures for private hospitals in the row directly above the private hospital data to avoid a misinterpretation of the figures. In fact if the current data cannot be used, the Commission should consider removing any reference to this accreditation data as it is now so far out of date.

Casemix-adjusted cost components

APHA has commented above on the inaccuracies in regard to the relationship between private hospitals and medical specialists. These arrangements are covered in more detail on page 54 of the Report. This section is confusing for any reader, as implies that medical specialists are *employed* by private hospitals. The Report specifically makes reference to medical specialist's "employment arrangements" whereas nearly all medical specialists treating patients in private hospitals are not employed by private hospitals. The only monetary relationship that exists here is directly between the patient and the treating medical specialist. APHA recommends that the Commission correct this section and make clear the relationship between private hospitals, medical specialists and patients. See also the comments on page 4 of this response.

APHA emphasises this point as it has an important bearing on medical, diagnostic and prostheses costs in the private sector and the Report's treatment of these.

Table 5.2 on page 93 compares these costs between public and private hospitals on a case-mix adjusted basis. However, there is little in the way of commentary that explains this table. As stated above, private medical fees are a matter between doctor and patient. The private hospital is not a participant, directly or indirectly, in this discussion. In a public hospital, medical costs for public patients are a direct cost to that hospital. Therefore, any section of the Report that encourages a false comparison that private hospitals "pay" doctors more than public hospitals should be deleted.

Exactly the same situation holds true for diagnostic costs. Privately hospital patients have diagnostic tests either outside the hospital setting or, if in the hospital, in rooms leased by a private provider. The cost is a matter for the provider and the patient. The hospital is not involved.

There is a similar potential confusion in regard to the cost of prostheses in the two sectors. Private hospitals do not choose or pay for prostheses. These are chosen by the treating doctor in consultation with the patient. For privately insured patients, the cost is reimbursed by the private health fund, at a rate that is agreed between funds and manufacturers. Private hospitals cannot control the cost of prostheses. For this reason,

prostheses should not be included in the comparison of public and private hospital costs without commentary that explains the true situation.

The Commission acknowledges on page 96 that different prostheses costs between the two sectors may have been influenced by higher-priced products being available in the private sector. However we recommend that this acknowledgement be further extended to state that the difference in cost between the two sectors is about patient choice. The extent that prostheses costs are higher for private hospital patients may reflect that a premium is payable for choice. Public hospitals generally restrict the available selection of prostheses; however, private sector patients have a choice of the full range of available prosthetic items.

In addition, as the health insurance sector has pointed out in submissions to the Commissions' study, prostheses are, on an item for item basis, more expensive in the private than in the public sector. However, no data has been adduced to support this contention, and APHA believes that it would be useful for the health insurance sector to provide aggregate data on the cost of a selected list of commonly used prostheses that could be compared with a directly similar data set from the States. Private hospitals would also be able to contribute data to this work. However, this may well be beyond the capacity of the Commission given the time constraints it is under. If that is the case, APHA recommends that the Final Report presents Table 5.2 in a way that compares only direct hospital costs and provides commentary on medical, diagnostic and prostheses costs that accurately depicts the difference in payment structures between public and private sectors.

In regard to other costs, it is shown in Table 5.2 and elsewhere in the report that private hospitals are less expensive for general hospital, pharmacy and emergency, and capital costs. The Final Report should expand on the reasons for this where possible, and the multivariate analysis should also address these factors. Another area of costs that must be included for the purposes of accuracy and clarity are "head office" costs. APHA is encouraged that the Commission intends to include these costs in the multivariate analysis phase of the study, and will be able to provide information on these, as well as details of the government-initiated committees, taskforces and other bodies that many private hospital staff are members of, which is an additional cost.

Numbers of emergency procedures/departments

In recognising that public hospitals have a responsibility to provide emergency service departments on page 13 of the report, the Report does not accurately represent the resource burden that this can cause the sector. The second paragraph on page 13 implies that *all* public hospitals have an emergency department and that the provision of this service is responsible for a resource burden across the entire public sector. In fact, not all public hospitals have emergency departments, and therefore not all of them are impacted

by the cost of providing these services. According to the Australian Institute of Health and Welfare³ just 21% of public hospitals reported as treating presentations of emergency episodes. APHA notes that the Report includes a section on emergency departments within the private hospital overview chapter (pages 51-52), but a similar section is not presented within the public hospital overview chapter. In the interests of fairness it would be prudent to do so and this would allow the Commission to rectify this misrepresentation. In the interests of clarity, APHA **recommends** that the Final Report gives the actual number and proportion of public hospitals that have genuine emergency departments and publish this within the public hospital overview chapter.

Allowances for emergency departments - separation of elective and unplanned procedures

The Commission was asked by the Government to “...examine and report on the relative performance of the public and private hospital systems...”⁴ APHA considers that there is a high risk of actual or implied bias if any allowances are made in the treatment of data, either the existing data calculations in the Draft Report, or within the forthcoming multivariate analysis for the Final Report, that could tend to present either sector as more cost-effective and efficient than it actually is. Similarly, any qualifying statement about performance should only be made when there is data to support it. For example, it is essential to distinguish when a sector is subject to uncontrollable variables that impact performance, and when performance variations are the result of organisational or sector-wide deficiencies that have not been addressed.

APHA is encouraged by the discussion at the Roundtable held on 22 October of the range of factors that the Commission is seeking to include in the multivariate analysis phase, and believe that many of these issues can be picked up there.

However, the Draft Report falls quite a way from this standard. It refers to the impact of public hospital emergency departments on other non-emergency areas of treatment, for example, elective surgery. The Report also states that private hospitals have a more predictable patient flow-through than public hospitals, in part because they treat fewer emergency admitted patients. APHA acknowledges the second point, but the two issues are not linked in the way the Report suggests. Both private and public hospitals have the ability to organise and separate different medical procedures to create an efficient healthcare system. Combining emergency and elective surgery on the same site simply because that is the way public hospitals have always been organised is not a sufficient excuse for poor performance. Public hospitals have, and always have had, the ability to separate elective

³ AIHW (2009) Australian hospital statistics 2007-08 Health services series no. 33. Canberra: AIHW – Table 5.1

⁴ Productivity Commission (2009) Public and Private Hospitals, Page IV

surgery and other areas of healthcare away from emergency departments. Larger hospitals have always had the option of separating elective and emergency surgery. Public hospitals of any size can purchase elective surgery from private hospitals. However, State Governments have chosen not to do the first, and very few choose to do the second. Individual public hospitals appear to be powerless to introduce this kind of reform at a campus level. APHA believes that, in the interests of accuracy and clarity, all qualifying comments in regard to the efficiency of public hospitals being undermined by the community service obligation to provide emergency treatment, should be removed in the Final Report. The reality is that the efficiency of public hospitals is undermined by the rigid way in which they are organised.

APHA **recommends** that the separation of emergency departments and emergency surgery from other areas of treatment should be recognised as a positive and efficient way to organise non-emergency hospital services.

The Report does recognise (pages 51-52) that an increasing number of private hospitals now have emergency departments, and quotes the submission from the Australian College of Emergency Medicine that posits a number of reasons for this development. APHA suggests that the fact that some private hospitals operate emergency departments alongside their other activities weakens the argument in regard to public hospitals' community service obligation to operate emergency departments being a mitigating factor for under-performance. In the instances where private hospitals are operating emergency departments they are doing so more efficiently than public hospitals, as demonstrated by the waiting times data given in the report, and are doing so without negatively impacting upon the other services of the hospital.

Subsidised medical workforce

On pages 76 and 77 of the Report reference is made to doctors who work in both public and private hospitals. The Report states that doctors earn more money whilst working in the private sector and provide their labour to the public sector at a lower cost to fulfil their "professional duties". The Report notes (footnote one, page 77) that doctors may choose to carry out some of their work in the public sector for less remuneration than they can achieve in the private sector because they wish to help those who are unable to afford private treatment. APHA welcomes the Commission's recognition of the benevolent attitude of many doctors working in Australia's healthcare system. However, we would also ask the Commission to take this into account when assessing the relative efficiency of public and private hospitals. Many doctors are providing their services to public hospitals for less than market value. They are doing so based on their own good will. They are only able to do so because the private sector is rewarding them at or above the true market rate. If the Final Report is to be as fair and balanced an analysis as possible of the efficiencies and costs of

the two sectors, then APHA contends that the subsidisation of doctors within the public sector by private patients (in and out of private hospitals) must be both explicitly acknowledged and incorporated into the data analysis. The Commission has already noted the cross-subsidisation effect of the FBT-free status of public hospitals and not-for-profit hospitals, and should do the same with regards to doctors' costs.

Quality of the product offering

On page 81, the Report states that the high rate of 45% of persons holding health insurance in Australia when compared to other OECD countries is in part attributed to three policy measures: the Medicare Levy Surcharge, the Private Health Insurance Rebate and Lifetime Health Cover. Whilst APHA does not dispute that these measures have helped raise the number of persons insured, it is also important to acknowledge that health insurance rates were at 30% before the introduction of these measures. This was also high in relation to other OECD countries. This fact is often neglected in the frequently overheated public debate about private health insurance. It indicates that there are other drivers for private health insurance cover than these policy measures. One of these is the quality product to which private health insurance provides access.

According to the Australian Bureau of Statistics⁵ gaining government benefits (such as through the rebate), avoiding the Medicare Levy Surcharge, and joining for lifetime cover or to avoid an age surcharge only ranked as the seventh and eighth most important reasons for holding private health insurance in 2007-2008. Less than 12% took out private health insurance for these reasons. The most important reasons for taking out private health insurance related to peace of mind (54%), allowing treatment in a private hospital (30%), having a choice of doctor (29%), and avoiding public hospital waiting lists (28%). These statistics show that people hold private health insurance because they value choice and want access to a high quality product - private hospitals - rather than primarily as a result of government initiatives, as stated in the Report.

Quality and safety

APHA has long argued that a fundamental reform needed in Australia's health system is a meaningful and relevant quality and safety data collection. In our original submission, we said:

Currently, private hospitals report to a variety of entities on the safety and quality of their services. This is an ad hoc and wasteful series of multiple processes that have no capacity neither to either systematically monitor nor improve the safety and quality of private hospital services. In APHA's view, the reporting of data to a single national entity is the only

⁵ ABS (2009) National Health Survey 2007-08: Summary of Results

means by which each of the purposes listed above for measuring and reporting on the safety and quality of private hospital services can be achieved.

APHA has embarked on a pilot project that is collecting data on key indicators from private hospitals, both members and non-members. These indicators have been previously provided to the Commission. If successful, it is intended to roll out the indicator collection to all APHA members. Reports will be sent to hospitals to allow them to compare their performance with others in their peer group and to drive improvements in safety and quality by sharing information and learning from it. APHA believes that the issue of national indicators is an urgent one, and by, embarking on its own collection, aims to provide further impetus to the work being undertaken at the national level.

APHA reiterates this call for reform so that data can be meaningful to consumers, hospitals and policy-makers alike.

Obstetric indicators

On page 161 of the Report, the Commission notes that it approached the States and Territories but was unable to obtain unpublished data on certain indicators on first births that would contribute to its study. This is disappointing. The Commission points to published data (by the Australian Council on Healthcare Safety) that “indicates that there is no consistent evidence to suggest a statistically significant difference between public and private hospitals” in regard to safety and quality for first births. APHA has provided separately to the Commission, and appends here as Attachment A, a study published on 16 February 2009 by the Medical Journal of Australia. The study, which compared adverse outcomes of labour in public and private hospitals in Australia on a population basis for the period 2001-2004, found that, after adjusting for age, indigenous status, smoking during pregnancy status, co-morbidities, remoteness of usual residence and method of birth, that the “rates of serious adverse outcome were at a population level lower overall” in the private than in the public sector. This finding surprised the study’s authors. They noted that, as the private sector has a higher rate of interventions in labour, the risk of adverse outcomes would be expected to be higher.⁶

Multivariate analysis

APHA supports this phase of the study and is looking forward to the opportunity to be involved in the Roundtable on it scheduled for 23 November and to contributing to this work. We have noted some areas for inclusion above.

⁶ Stephen J Robson, Paula Laws and Elizabeth A Sullivan, *Adverse outcomes of labour in public and private hospitals in Australia: a population-based study*, EMJA 16 February 2009.

Day hospitals

APHA was disappointed that the Commission decided to exclude day hospitals from its examination of hospital and medical costs. We suggest that to exclude nearly half of the total number of private hospitals, and 14% of privately insured episodes, on the basis that the place of treatment is a day hospital potentially distorts the picture of hospital costs. The private day hospital sector is growing within Australia. In the second quarter of 1999 there were 38,066 privately insured episodes in private day hospitals. In the second quarter of 2009 this had risen to 108,913 privately insured episodes.

According to the Report, private day hospitals are too different from acute hospitals to allow valid comparison. APHA contests this. Private day hospitals are not fundamentally different from other hospitals. They are the very much part of the private hospital system. The reason for the growth in private day hospital numbers is because they are an efficient way of organising hospital services. As the Report acknowledges on page 55, an increasing number of surgical procedures can now be provided on a day only basis. This is likely to continue and so private day hospitals will experience further growth. APHA believes that this is another example of adaptation and flexibility in hospital care, where it is more efficient and cost-effective to separate certain types of procedures from others to reduce overall costs, and make the best use of technology. It would aid the understanding of the Final Report if the basis for the exclusion of day hospitals could be considerably expanded upon.

Private health insurance issues

According to the Report, the predominance of medical cases within public hospitals can be largely attributed to the high number of same-day renal dialysis admissions handled by the public hospital sector. This is outlined in Figures 2.4 and 2.5 of the Report (pages 26 -27). Some health insurance funds cap the amount of benefits payable for renal dialysis, which is why the public hospitals treat a disproportionate number and proportion of these cases. It would be useful if this was acknowledged on page 27 of the Report, and elsewhere as appropriate, to help explain the higher number of medical cases in the public sector. APHA would be happy to provide further assistance in this area.

The Report states on page 34 and in Figure 3.4 that private hospitals treat a greater proportion of patients from more advantaged socioeconomic quintiles. However, data from the Australian Health Insurance Association (AHIA) indicates that there are one 1 million people with private health cover living in households with an annual income of less than \$26,000 (AHIA website, 2009). In addition, government policy, through the introduction of the Medicare Levy Surcharge, is explicitly designed to encourage those who earn more to take out private health insurance to help alleviate the burden on public hospitals. Therefore, it is more likely that those with health insurance, and as a result those receiving treatment in private hospitals, will be from the higher socio-economic quintiles. APHA recommends

that, in discussing and comparing the socioeconomic status of private hospital patients to public hospital patients, the Final Report makes reference to these points

APHA points out another fact. Those who pay for their own hospital treatment (either through private health insurance or by self-insuring) in effect cross-subsidise those who cannot afford to pay for their own treatment. Those who are privately insured, or who self-insure, pay tax. These taxes fund the public system. Private hospital patients effectively forgo their right of access to a public hospital bed while maintaining their responsibility to fund that bed through the tax system. This fact should be included when the socioeconomic status of private hospital patients is discussed and compared to public hospital patients in the Final Report.

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RESEARCH

Adverse outcomes of labour in public and private hospitals in Australia: a population-based descriptive study

Stephen J Robson, Paula Laws and Elizabeth A Sullivan

The birth rate in Australia is increasing, with more births in 2006 than any year since the early 1970s. This trend has coincided with an increase in the number of births occurring in private maternity hospitals, which now comprise 31% of all deliveries.¹ The reasons for a trend towards private hospital maternity care are likely to be complex, but government financial support for private health insurance premiums might partly explain this phenomenon.²

Almost all women in Australia have free access to public hospitals, where intrapartum care is usually provided by a mixture of midwives, junior medical officers, specialist trainees, and specialist obstetricians. In contrast, women choosing to deliver in private hospitals have their care directly managed by specialist obstetricians. Compared with public hospitals, birth in Australian private hospitals is characterised by a higher rate of obstetric interventions such as induction of labour, episiotomy, instrumental delivery, and caesarean section,^{3,4} and this has attracted criticism as being unnecessary.^{5,6} In view of the government financial support available to women who take out private health insurance, it would be an obvious concern if the private hospital, obstetrician-led model of care, with its increased rates of medical intervention, did not provide measurable benefits for women and their babies when compared with the public hospital mixture of "all" models of care.

Studies published to date have emphasised the difference in intervention rates between private and public hospitals, yet maternal and neonatal outcomes have received little attention.^{3,4} An assumption has been made that "in these low risk populations there are no differences in perinatal mortality or morbidity associated with these practices [obstetric interventions]."⁵ However, such an assumption may not necessarily be valid. A comparison of intervention rates without reference to maternal and neonatal outcomes might mask information that would be of great interest to pregnant women making a choice between private and public hospitals as places to give birth. For example, a recent population-based study in Western Australia found that patients treated for colorectal cancer in private hospitals had significantly improved sur-

ABSTRACT

Objective: To compare the rate of serious adverse perinatal outcomes of term labour between private and public maternity hospitals in Australia.

Design, setting and participants: A population-based study of 789 240 term singleton births in public and private hospitals in 2001–2004, using data from the National Perinatal Data Collection.

Main outcome measures: Third- and fourth-degree perineal injury, requirement for high level of neonatal resuscitation, Apgar score < 7 at 5 minutes, admission to neonatal intensive care unit or special care nursery, and perinatal death.

Results: 31.4% of the term singleton births occurred in private hospitals. After adjusting for maternal age, Indigenous status, parity, smoking status, diabetes, hypertension, remoteness of usual residence, and method of birth, the rates of all adverse outcomes studied were higher for public hospital births. For women, the adjusted odds ratio (AOR) for third- or fourth-degree perineal injury was 2.28 (95% CI, 2.16–2.40). For babies, the odds of a high level of resuscitation (AOR, 2.37; 95% CI, 2.17–2.59), low Apgar score (AOR, 1.75; 95% CI, 1.65–1.84), intensive care requirement (AOR, 1.48; 95% CI, 1.45–1.51) and perinatal death (AOR, 2.02; 95% CI, 1.78–2.29) were all higher in public hospitals.

Conclusion: For women delivering a single baby at term in Australia, the prevalence of adverse perinatal outcomes is higher in public hospitals than in private hospitals.

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vival outcomes compared with those treated in public hospitals.⁷ With this in mind, we aimed to compare the rates of serious adverse birth outcomes between private and public hospitals for women delivering at term.

METHODS

Data were extracted from the National Perinatal Data Collection (NPDC), a population-based cross-sectional pregnancy and child-birth data collection. Information is included in the NPDC for all babies born in Australia, both live and stillborn, of at least 400 g birthweight or at least 20 weeks' gestation.

Our study included women who gave birth in hospital during the 4-year period from 1 January 2001 to 31 December 2004, and their babies. As pregnancies complicated by multiple gestation or prematurity have greatly increased rates of adverse outcomes, only singleton births occurring between 37 and 41 completed weeks' gestation (the definition of "term" for the purposes of the NPDC) were included.

A number of births occurred in public hospitals to women who had private health insurance, and in private hospitals to women who were uninsured. There are likely to be many reasons for this crossover, including women using their private insurance to secure a single room and women whose insurance only covered private specialist care in public hospitals. To exclude cases where women who were anticipated to have serious adverse birth outcomes were booked to deliver in public hospitals by their private obstetricians, we excluded all cases where women reported as "private" delivered in public hospitals (44 937 births, 4.8%), as well as uninsured women who delivered in private hospitals (10 417 births, 1.1%). We also excluded cases where the hospital sector was not stated. Thus, "public" here represents all women who gave birth in a public hospital as a public patient, and "private" represents all women who gave birth in a private hospital as a private patient. Two smaller jurisdictions were excluded from analyses because of incomplete data for some of the key variables. In total, 14.3% of women who gave birth in

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1 Demographic characteristics of women who gave birth in private versus public hospitals, 2001–2004

Maternal characteristic	Private (n = 247 489)	Public (n = 541 751)
Mean maternal age (years)	32.0	28.2
Indigenous	0.2%	4.2%
Area of usual residence		
Major cities	82.2%	64.6%
Regional	16.6%	32.4%
Remote	1.2%	2.9%
Born in Australia	68.1%	61.6%
Parity		
None	44.2%	39.5%
One	38.3%	33.0%
Two	13.3%	16.4%
Three	3.1%	6.5%
Four or more	1.1%	4.5%
Previous caesarean section*	30.1%	19.8%

* Reported by multiparous women.

hospital to a term singleton baby during 2001–2004 were excluded.

Maternal demographic characteristics were compared for public and private patients, including age, Indigenous status, parity, smoking during pregnancy status, any reported pre-existing or pregnancy-related diabetes or hypertension, remoteness of usual residence (assessed with the Accessibility/Remoteness Index of Australia⁸), and method of birth. Third- or fourth-degree perineal tear was the only maternal outcome with data available for study. Differential data quality, including missing data, precluded assessment of postpartum haemorrhage. For babies, the severe adverse perinatal outcomes examined were: low Apgar score (defined as an Apgar score < 7 at 5 minutes); admission to a neonatal intensive care unit or special care nursery, requirement for high level of resuscitation (defined as endotracheal intubation and/or use of external cardiac massage and ventilation); and perinatal mortality.

Descriptive and logistic regression analyses were conducted. Crude and adjusted odds ratios and 95% confidence intervals were calculated using SPSS, version 15.0 (SPSS Inc, Chicago, Ill, USA).

Ethics approval was granted from the Australian National University (LESC-CMHS 2007/0035), the University of New

2 Comparison of characteristics of women who gave birth in private versus public hospitals, 2001–2004

Maternal characteristic	Private (n = 247 489)		Public (n = 541 751)		
	No.	(%)	No.	(%)	
Maternal age					
25–29 years	57 695	(23.3%)	168 842	(31.2%)	1.00
< 20 years	965	(0.4%)	35 486	(6.6%)	12.57 (11.78–13.41)*
20–24 years	8 619	(3.5%)	111 164	(20.5%)	4.41 (4.30–4.51)*
30–34 years	114 219	(46.2%)	149 703	(27.6%)	0.45 (0.44–0.45)*
35–39 years	55 999	(22.6%)	63 572	(11.7%)	0.39 (0.38–0.39)*
≥ 40 years	9 968	(4.0%)	12 977	(2.4%)	0.45 (0.43–0.46)*
Not stated	26	(0.0%)	10	(0.0%)	—
Indigenous status					
Non-Indigenous	246 820	(99.7%)	518 933	(95.8%)	1.00
Indigenous	543	(0.2%)	22 738	(4.2%)	19.92 (18.29–21.69)*
Not stated	126	(0.1%)	80	(0.0%)	—
Parity					
Multiparous	137 978	(55.8%)	327 487	(60.4%)	1.00
Primiparous	109 371	(44.2%)	214 155	(39.5%)	0.83 (0.82–0.83)*
Not stated	140	(0.1%)	109	(0.0%)	—
Smoking status					
Did not smoke	115 641	(46.7%)	216 755	(40.0%)	1.00
Smoked	5 819	(2.4%)	66 503	(12.3%)	6.10 (5.93–6.27)*
Not stated	126 029	(50.9%)	258 493	(47.7%)	—
Medical conditions/complications					
No diabetes/hypertension	222 103	(89.7%)	478 719	(88.4%)	1.00
Diabetes/hypertension	22 514	(9.1%)	58 112	(10.7%)	1.20 (1.18–1.22)*
Not stated	2 872	(1.2%)	4 920	(0.9%)	—
Method of birth					
Spontaneous vaginal	119 764	(48.4%)	374 023	(69.0%)	1.00
Assisted vaginal	39 523	(16.0%)	49 030	(9.1%)	0.40 (0.39–0.40)*
Caesarean section	88 160	(35.6%)	118 656	(21.9%)	0.43 (0.43–0.44)*
Not stated	42	(0.0%)	42	(0.0%)	—

OR = odds ratio. * $P < 0.05$.

South Wales (HREA ref 9_03_91) and the Australian Institute of Health and Welfare Ethics Committee.

RESULTS

During the 4-year study period, 789 240 term singleton births were recorded in Australia, of which 247 489 (31.4%) occurred in private maternity hospitals. Demographic differences between the groups of women delivering in public and private hospitals are shown in Box 1. Women delivering in private hospitals had a higher mean age and were more likely to be having their first baby. A much greater proportion of multi-

parous women delivering in private hospitals reported a previous caesarean section. Larger proportions of Indigenous women and those who lived outside major cities delivered in public hospitals.

To allow adjustment for potentially influential variables, these demographic differences were compared (Box 2). The proportion of teenage women giving birth was much higher in the public hospital group, whereas private hospitals had about twice the proportion of women aged ≥ 40 years as public hospitals. Self-reported smoking was much higher in the public hospital population, and medical complications of pregnancy (diabetes and/or hyper-

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3 Perinatal outcomes for babies of women who gave birth in private hospitals compared with women who gave birth in public hospitals, 2001-2004

Perinatal outcome	Private		Public	
	No. (%)	No. (%)	OR (95% CI)	AOR* (95% CI)
High level of resuscitation ^{††}	685 (0.3%)	2886 (0.5%)	1.99 (1.82-2.16) [‡]	2.37 (2.17-2.59) [§]
Apgar score < 7 at 5 minutes [†]	1914 (0.8%)	6686 (1.2%)	1.59 (1.51-1.68) [‡]	1.75 (1.65-1.84) [§]
Admitted to NICU/SCN [†]	21 114 (8.5%)	58 152 (10.7%)	1.29 (1.27-1.31) [‡]	1.48 (1.45-1.51) [§]
Perinatal death	243 (0.1%)	1377 (0.3%)	1.84 (1.63-2.07) [‡]	2.02 (1.78-2.29) [§]

OR = odds ratio; AOR = adjusted odds ratio; NICU = neonatal intensive care unit; SCN = special care nursery.
* Adjusted for maternal age, Indigenous status, parity, smoking during pregnancy status, reported diabetes/hypertension, remoteness of usual residence, and method of birth. † Endotracheal intubation and/or external cardiac massage and ventilation. ‡ Includes live births only. § $P < 0.05$.

tension) were also more common. The rates of induced labour (30.7% v 24.0%), instrumental vaginal birth (16.0% v 9.1%) and caesarean birth (35.6% v 21.9%) were all higher in the private hospital group.

The rate of third- or fourth-degree perineal injury was higher in public hospitals (0.8% v 1.4%; OR, 1.81; 95% CI, 1.72-1.91). After adjusting for maternal age, Indigenous status, parity, smoking during pregnancy status, reported diabetes or hypertension, remoteness of usual residence, and method of birth, the adjusted odds ratio (AOR) for perineal injury also favoured private hospitals (AOR, 2.28; 95% CI, 2.16-2.40). To confirm that this difference was not an artefact of the adjustment for method of birth, resulting from the lower proportion of vaginal births in the private hospitals group, we directly compared the rates of third- and fourth-degree tears by individual method of birth: the rates for spontaneous vaginal birth (0.6% v 1.3%), ventouse delivery (2.3% v 4.7%) and forceps delivery (3.7% v 7.9%) were all lower in private hospitals.

After adjusting for the same maternal variables, serious adverse neonatal outcomes showed similar differences between the two hospital groups. Term babies born in public hospitals were more likely to require high levels of resuscitation, to have an Apgar score < 7 at 5 minutes, and to require admission to a neonatal intensive care facility or special care nursery (Box 3). Perinatal death was twice as likely for babies born in public hospitals. Even using a composite for adverse perinatal outcome (patients with at least one adverse outcome), the unadjusted OR was 1.30 (95% CI, 1.28-1.33) for public hospital deliveries.

When the adverse perinatal outcomes were compared individually by method of birth, the differences between public and private hospital sectors persisted for all the

adverse outcomes studied (data not shown). For example, for spontaneous vaginal births, the rate of Apgar score < 7 at 5 minutes was 0.9% in the public group compared with 0.6% in the private group. The differences for forceps deliveries (1.6% v 1.1%), ventouse deliveries (2.1% v 1.4%), and caesarean sections (1.3% v 0.5%) showed a similar pattern. The rates of perinatal death were similarly lower in private hospitals for each method of birth: spontaneous vaginal birth (0.2% v 0.1%); forceps delivery (0.5% v 0.2%); ventouse delivery (0.2% v 0.1%); and caesarean section (0.3% v 0.1%).

DISCUSSION

This study of term singleton births in Australian public and private hospitals over a recent 4-year period found that women giving birth in public hospitals were younger, with a greater proportion admitting to smoking tobacco during pregnancy. Public hospitals also had a higher proportion of first births, Indigenous women giving birth, women who lived outside major cities, and women with medical conditions such as hypertension or diabetes. However, after adjusting for the potentially confounding variables available in the NPDC, we found that, in comparison with public hospitals, delivery of a singleton baby at term in an Australian private hospital is associated with a significant reduction in the rate of important adverse outcomes for babies. This finding was noted for all of the adverse outcomes studied, including a composite measure of perinatal health, with no adverse outcome less common in public hospitals.

There are obviously potential limitations imposed by the data available in a national population-based study of this nature. It is not possible to identify the proportion of women delivering in each group with important comorbidities such as obesity,

which increases the risk of adverse outcomes⁹ and is common in Australia.¹⁶ However, obesity is associated with diabetes and hypertension,⁹ so our adjustment for these comorbidities might have partially addressed the clinical effect of obesity on pregnancy outcome.

Similarly, women at social disadvantage will be over-represented in the public hospital population.¹ Social disadvantage and socioeconomic status are clearly important influences on pregnancy outcome, and individual assessment of this effect for women was beyond the scope of this study. The major adverse outcome associated with social disadvantage is low birthweight,¹¹ and there were more babies with a birthweight < 2500 g delivered in public hospitals (2.1% v 1.1%, $P < 0.05$), but the absolute numbers were small. Other surrogate markers of social disadvantage such as tobacco smoking,¹² teenage pregnancy,¹³ and Indigenous status¹⁴ were controlled for in the analysis. The quality of self-reported data regarding smoking status during pregnancy is open to question, but has been previously addressed in detail.¹⁵ It should be noted that after adjustment for the variables available in the Australian national dataset, the differences in adverse outcome rates not only persisted, but actually increased.

Another potential confounding influence is that obstetricians may have transferred women with an expectation of complications to public hospitals, whereas no transfer was possible from the public hospital sector. However, the commonest circumstance for such transfer is likely to be prematurity, and these births were excluded from the study.

A number of important birth outcomes were not available for analysis in this dataset, including rates of breastfeeding, postpartum depression, maternal satisfaction, and measures of severe maternal morbidity. Previous studies have suggested that breastfeeding rates are lower in public hospital populations.¹⁶ Furthermore, it is not possible for a study such as this to provide a cost-benefit analysis in terms of the interventions.

The differences in the rates of intervention between the two hospital settings confirms findings of previous studies from NSW in the 1990s.^{3,4} In our study, birth in a private hospital was associated with increased rates of induced labour, instrumental delivery, and caesarean section. This is an important consideration, as each of these interventions

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should increase the risk of adverse outcomes for either mother or baby. For example, induction of labour has been associated with increased rates of epidural anaesthesia, emergency caesarean delivery, and adverse neonatal events such as requirement for resuscitation and admission to a special care nursery.^{17,18} Similarly, instrumental delivery is a strong independent risk factor for third- and fourth-degree perineal injuries.¹⁹⁻²¹ Caesarean delivery itself is associated with an increased risk of respiratory morbidity in babies, even after 37 weeks' gestation.²² Importantly, we found that a much greater proportion of women delivering in private hospitals had a history of previous caesarean section, which alone increases the risk of adverse maternal outcomes in subsequent pregnancies.²³⁻²⁵ It is thus a notable and unexpected finding that in private hospitals with higher rates of interventions, each of which would be predicted to increase the risk of adverse outcomes, the rates of serious adverse outcome were, at a population level, lower overall than those in public hospitals. Although it remains possible that there were confounding factors that were not accounted for, the results were robust after adjustment for all variables known to influence obstetric outcome available in the national dataset.

It is a long-held orthodoxy that increased rates of obstetric intervention are "bad" for women and their babies. Our results show that although the model of obstetrician-led care is characterised by increased rates of intervention, outcomes for women with a single baby delivered at term are no worse, and further studies may determine there are benefits for women and their babies. This is consistent with findings from both the United Kingdom²⁶ and developing countries²⁷ that increases in the rate of caesarean section are associated with a reduction in the rate of perinatal mortality.

Previous smaller studies comparing obstetrician-led intrapartum care with other models have focused on rates of intervention, with no reference to outcomes.³⁻⁶ The strengths of our study are that it used data from a large and comprehensive cohort of births, and that well defined objective outcomes (perinatal death and third- or fourth-degree perineal injury in particular) were used. The weaknesses relate to the subjective nature of some of the data available for study, and the nature of some of the exclusion criteria. For example, there is a possibility that avoiding a potential bias introduced by women transferred from pri-

vate hospitals to public hospitals for care by excluding them might introduce another bias. As there is no way of knowing the individual circumstances of women with private insurance who delivered in public hospitals, the effects could only be resolved by detailed prospective study.

Despite these caveats, adjustment during analysis actually increased the ORs, and all the differences favoured obstetrician-led care. We hope that the results of this population-based study will stimulate further research into the effect of different models of intrapartum care on pregnancy outcome.

COMPETING INTERESTS

None identified.

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REFERENCES

- 1 Laws P, Abeywardana S, Walker J, Sullivan EA. Australia's mothers and babies 2005. Perinatal Statistics Series No. 20. Sydney: Australian Institute of Health and Welfare National Perinatal Statistics Unit, 2007. (AIHW Cat. No. PER 40.)
- 2 Shorten B, Shorten A. Impact of private health insurance incentives on obstetric outcomes in NSW hospitals. *Aust Health Rev* 2004; 27: 27-38.
- 3 Roberts CL, Tracy S, Peat B. Rates for obstetric intervention among private and public patients in Australia: population based descriptive study. *BMJ* 2000; 321: 137-141.
- 4 Roberts CL, Aigen CS, Douglas I, et al. Trends in labour and birth interventions among low-risk women in New South Wales. *Aust N Z J Obstet Gynaecol* 2002; 42: 176-181.
- 5 King JF. Obstetric interventions among private and public patients [editorial]. *BMJ* 2000; 321: 125-126.
- 6 Shorten A, Shorten B. Perinatal outcomes in NSW public and private hospitals: analysing recent trends. *Aust J Midwifery* 2002; 15: 5-10.
- 7 Morris M, Iacopetta B, Platell C. Comparing survival outcomes for patients with colorectal cancer treated in public and private hospitals. *Med J Aust* 2007; 186: 296-300.
- 8 Commonwealth Department of Health and Aged Care. Measuring remoteness: Accessibility/Remoteness Index of Australia (ARIA). Revised edition. Canberra: Department of Health and

Aged Care, 2001. (Occasional Papers: New Series No. 14.)

- 9 Mighty HE, Fahay AJ. Obesity and pregnancy complications. *Curr Diab Rep* 2007; 7: 289-294.
- 10 Callaway LK, Prins JB, Chang AM, McIntyre HD. The prevalence and impact of overweight and obesity in an Australian obstetric population. *Med J Aust* 2006; 184: 56-59.
- 11 Hodnett ED, Fredericks S. Support during pregnancy for women at increased risk of low birth-weight babies. *Cochrane Database Syst Rev* 2003, (3): CD000198.
- 12 Andres RL, Day MC. Perinatal complications associated with maternal tobacco use. *Semin Neonatol* 2000; 5: 231-241.
- 13 Fraser AM, Brockert JE, Ward RH. Association of young maternal age with adverse reproductive outcomes. *N Engl J Med* 1995; 332: 1113-1117.
- 14 Humphrey M, Holzheiner D. A prospective study of gestation and birthweight in Aboriginal pregnancies in far north Queensland. *Aust N Z J Obstet Gynaecol* 2000; 40: 326-330.
- 15 Laws P, Grayson M, Sullivan EA. Smoking and pregnancy. Sydney: Australian Institute of Health and Welfare National Perinatal Statistics Unit, 2006. (AIHW Cat. No. PER 33.)
- 16 Yeoh BH, Eastwood J, Phung H, Woolfenden S. Factors influencing breastfeeding rates in south-western Sydney. *J Paediatr Child Health* 2007; 43: 249-255.
- 17 Bouvain M, Marcoux S, Bureau M, et al. Risks of induction of labour in uncomplicated term pregnancies. *Paediatr Perinat Epidemiol* 2001; 15: 131-138.
- 18 Gulmezoglu AM, Crowther CA, Middleton P. Induction of labour for improving birth outcomes for women at or beyond term. *Cochrane Database Syst Rev* 2006; (4): CD004945.
- 19 Handa VL, Danielson BH, Gilbert WM. Obstetric anal sphincter lacerations. *Obstet Gynecol* 2001; 98: 225-230.
- 20 Christianson LM, Bovbjerg VE, McDavit EC, Hullfish KL. Risk factors for perineal injury during delivery. *Am J Obstet Gynecol* 2003; 189: 255-260.
- 21 Dandolu V, Chaturani A, Harmani O, et al. Risk factors for obstetrical anal sphincter lacerations. *Int Urogynecol J Pelvic Floor Dysfunct* 2005; 16: 304-307.
- 22 Hansen AK, Wisborg K, Uldbjerg N, Henriksen TB. Risk of respiratory morbidity in term infants delivered by elective caesarean section: cohort study. *BMJ* 2008; 336: 85-87.
- 23 Liu S, Linton RM, Joseph KS, et al. Maternal mortality and severe morbidity associated with low-risk planned caesarean delivery versus planned vaginal delivery at term. *CMAJ* 2007; 176: 455-460.
- 24 Silver RM, Landau MB, Rouse DJ, et al. Maternal morbidity associated with multiple repeat caesarean deliveries. *Obstet Gynecol* 2006; 107: 1226-1232.
- 25 Villar J, Carroli G, Zavoleta N, et al. Maternal and neonatal individual risks and benefits associated with caesarean delivery: multicentre prospective study. *BMJ* 2007; 335: 1025.
- 26 Matthews TG, Crowley P, Chong A, et al. Rising caesarean section rates: a cause for concern? *BJOG* 2003; 110: 346-349.
- 27 McClure EM, Goldenberg RL, Bann CM. Maternal mortality, stillbirth and measures of obstetric care in developing and developed countries. *Int J Gynaecol Obstet* 2007; 96: 139-146.

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