

# The impact of the Coronial Communiqué on changing patient safety: a subscriber survey

Joseph E Ibrahim and Jonathon P Ehsani

## Abstract

To determine whether the Coronial Communiqué prompted subscribers to initiate changes to clinical practice for patient safety an anonymous, online cross-sectional population survey questionnaire was provided to all registered subscribers to the Communiqué. The main outcome measure was self-reported review and change to practice. From 1325 subscribers invited to participate, 697 complete and valid responses were received (52.6%). Most of the respondents (588; 84.4%) reported the Communiqué provided ideas for improving patient safety, 429 (61.5%) reviewed their practice, and 290 (41.6%) changed their practice. The characteristic most associated with a change in practice was if the subscriber was in clinical practice. This association was evident for ideas (odds ratio [OR], 3.42; 95% CI, 2.24–5.23), review (OR, 2.63; 95% CI, 1.91–3.61) and change to improve practice (OR, 2.40; 95% CI, 1.73–3.32).

**Aust Health Rev 2009; 33(4): 583–591**

GREATER KNOWLEDGE and effort is required to better understand and motivate health professionals towards changing their clinical practice for safer patient care.<sup>1</sup> At present, preventable adverse events in health care settings remain a significant cause of patient harm. Throughout the developed world, about 10% of hospital admissions are associated with an adverse event.<sup>2–5</sup> In Australia,

## What is known about the topic?

Communicating lessons learned from analysis of incidents that cause preventable patient harm is considered an important step to changing clinician practice and improving patient safety. In 2003, the Clinical Liaison Service established a subscriber based, "Coronial Communiqué" — an electronic newsletter published quarterly of narrative with case studies describing the lessons from health care-related deaths investigated by the Coroner's Office.

## What does this paper add?

This study demonstrates that the Communiqué prompted a significant proportion of subscribers to initiate changes to clinical practice.

## What are the implications for practitioners?

A newsletter of narrative case studies about preventable deaths is an effective medium for communicating lessons and stimulating clinicians to improve patient safety.

16.6% of hospital admissions are associated with an adverse event, 4.9% of which result in death,<sup>6</sup> costing about \$2 billion dollars annually.<sup>7</sup>

In any health system, a measure of the success of information systems is their ability to influence and improve clinical practice.<sup>8</sup> Improving patient safety requires the optimal use and dissemination of information obtained from investigations of preventable patient deaths.<sup>9</sup> A broad array of publicly available documents that may include analyses of cases of preventable clinical harm are published in medical scientific literature,<sup>10</sup> by medical indemnity groups,<sup>11</sup> health care organisations,<sup>12</sup> health departments,<sup>13</sup> statutory and regulatory bodies,<sup>14–17</sup> specially commissioned statutory investigations into health care failures,<sup>18–20</sup> and general media.<sup>21–23</sup> The publication of these documents often serves the dual role of public disclosure and general education. An implicit aim of these publications is communicating lessons learned from cases of preventable clinical harm.

**Joseph E Ibrahim**, MBBS, PhD, MRACMA FAFPHM, FRACP, Consultant Physician, Centre for Research Excellence in Patient Safety

**Jonathon P Ehsani**, BMedSci, MPH, MHSci, Research Officer, Clinical Liaison Service  
Victorian Institute of Forensic Medicine, Department Forensic Medicine, Monash University, Melbourne, VIC.

Correspondence: Professor Joseph E Ibrahim, Victorian Institute of Forensic Medicine, Department Forensic Medicine, Monash University, 57-83 Kavanagh Street, Southbank, Melbourne, VIC 3006. [josephi@vifm.org](mailto:josephi@vifm.org)

The Coroner investigates deaths that result from accident, injury or unexpected circumstances in healthcare settings.<sup>24</sup> The results of death investigations in healthcare settings by the Coroner's Office are a valuable source of information for improving patient safety. In 2003, the Clinical Liaison Service<sup>25</sup> successfully established the first electronic publication of narrative case reports about clinical lessons learned from patient deaths investigated by the Coroner's Office, the "Coronial Communiqué".<sup>26</sup> This study addresses the question of whether and to what extent these reports motivate health professionals to change clinical practice.

## Methods

A cross-sectional population study design was employed using an electronic survey questionnaire of all registered subscribers to the Communiqué in 2007. The project was supervised and managed by a team from the Victorian Institute of Forensic Medicine, in Melbourne, Australia.

### Coronial Communiqué

The Communiqué is characterised by: narrative reports of closed cases of health care-related deaths reported to and investigated by the Coroner's Office; three detailed case reports per issue, selected and written by clinicians;<sup>27</sup> free subscription; four A4 pages; electronic distribution; and quarterly publication.

### Survey instrument

The survey instrument was developed from frameworks of three existing readership surveys for general communication<sup>28-30</sup> and externally reviewed for face validity.

The final instrument was designed using the open source hypertext preprocessor (PHP) web application, PHPSurveyor.<sup>31</sup> The survey consisted of 26 questions, of which 14 were closed ended questions with the option of an additional written response. Evaluation of content and influence of the Communiqué on subscriber's practice was determined using a five-point Likert scale that ranged from 5 (strongly agree) to 1 (strongly disagree).

### Study population

The survey was emailed to all current active registered subscribers of the Communiqué (1325). The subscribers mailing list was checked and updated for syntax, appropriate email address, and excluded email addresses that indicated that the subscriber was no longer current. Subscription to the Communiqué is voluntary.

A modified Dillman<sup>32</sup> protocol was used to guide subscriber participation. Subscribers were contacted directly and asked to respond to the survey. Two weeks after the initial invitation, a reminder email was sent to subscribers who had not returned the survey, and a final follow-up reminder email was sent after a further 2 weeks. The responses were anonymous and submitted to an external group, ensuring researchers were blinded to the respondents.

### Data analysis

Survey responses were downloaded and analysed using Stata version 8.0<sup>33</sup> and SPSS version 15.0.<sup>34</sup> Descriptive statistics were used to summarise the information about (a) subscribers, (b) their preferences and reading behaviour and (c) evaluation of the value and impact of the Communiqué. Subscriber descriptors included age, gender, professional role, years of experience, practice setting, and level of contact with the State Coroner's Office. Subscriber preferences and reading behaviour included information about duration of subscription, whether they read every issue, amount of an issue that is read and the format read. Subscribers' evaluation of the value and impact of the Communiqué included ratings of individual subsections and an overall assessment of the readability, ease of understanding, usefulness of the publication and whether it had a direct impact on practice.

Responses to questions answered along an ordinal five point Likert scale are reported using the median and interquartile range and are also described in dichotomous categories. The categories are determined using a conservative approach, "yes" consisted of 5 (strongly agree) or 4 (agree), while "no" was 3 (undecided), 2 (disagree) or 1 (strongly disagree).

## I Description of Coronial Communiqué subscribers

	No. (%)
<b>Total no. subscribers</b>	697 (100)
<b>Age (years)</b>	
≤ 34	108 (15.5)
35–44	235 (33.7)
45–54	280 (40.2)
≥ 55	74 (10.6)
<b>Sex</b>	
Female	467 (67.0)
<b>Professional role</b>	
Nursing	204 (29.3)
Medicine	112 (16.1)
Other health professional	69 (9.9)
Patient safety management	101 (14.5)
Management	87 (12.5)
Legal	33 (4.7)
Education	38 (5.5)
Other	53 (7.6)
<b>Experience in current professional role (years)</b>	
≤ 10	302 (43.3)
11–20	200 (28.7)
≥ 21	195 (28.0)
<b>Practice setting</b>	
Clinical (ie, direct patient contact at least once each week)	431 (61.8)
Public sector	560 (80.3)
Hospital	489 (70.2)
<b>Level of contact with the State Coroner's Office</b>	
High intensity (involved in an Inquest)	79 (11.3)
Moderate intensity (involved in reporting, provision of a statement, expert opinion)	129 (18.5)
Low intensity (contact not related to investigation of a death)	219 (31.4)
No contact	270 (38.7)
<b>Subscriber behaviour</b>	
Subscriber for more than 2 years	180 (25.8)
Read every issue received	591 (84.8)
Read soft copy (ie, electronic version)	385 (55.2)
Read all or almost all of the content in an issue	625 (89.7)
<b>I regularly read the following sub-sections always or most of the time*</b>	
Case summaries (500 words per case; 3 cases per issue)	689 (98.9)
Short report of recently closed cases (50 words/case; approx. 10 cases/issue)	673 (96.6)
Editorial	618 (88.7)
Additional information	598 (85.8)

\*5-point Likert scale: sum of responses that stated "always" and "most of the time".

Bivariate analysis was used to compare the characteristics of subscribers who self-reported a change in practice with those who did not change. The characteristics included respondents' age and sex, professional discipline, years of experience, work setting, exposure to the Coroner's Office and subscriber reading behaviour. The variables were assessed using chi-squared analysis and calculating odds ratios and 95% confidence intervals.

## Ethics

Ethics approval for the study was obtained from the Victorian Institute of Forensic Medicine Research and Ethics Committee as a quality improvement activity. Participants were deemed to have given informed consent if they completed the survey.

## Results

The survey period was 23 February to 5 April 2007. Of 1325 subscribers invited, 711 (53.6%) responded to the survey; of these, 697 (52.6%) were valid and included in the analysis.

The respondents' demographic and other characteristics are described in Box 1. The majority of respondents were between 35 and 54 years old (515; 73.9%), female (467; 67%); in professional roles of nursing (204; 29.3%) and medicine (112; 16.1%). Their workplace setting was primarily public sector, hospital-based, clinical practice. The surprising result was that the majority of respondents (427; 61.2%) had some interaction with the State Coroner's Office.

Most respondents were recent subscribers, with only a quarter (180; 25.8%) subscribing to the Communiqué for over 2 years. Most subscribers read every issue they receive and usually read the entire content in each issue.

The respondents' evaluation of the value and impact of the Communiqué are described in Box 2. There was almost universal agreement that the Communiqué was easy to understand and clearly written using plain language, with the most useful subsec-

**2 Subscriber evaluation of value and impact of the Coronial Communiqué (N = 697)**

Item	Always/most of the time		
	No. (%)	Median*†	25th–75th percentile*†
<b>Information given in the Communiqué is</b>			
Clearly written using plain language	687 (98.6)	5	(5–5)
Easy to understand	689 (98.9)	5	(5–5)
Timely	586 (84.1)	4	(4–5)
Reliable	685 (98.3)	5	(4–5)
Useful	663 (95.1)	5	(4–5)
<b>The following sections of the Communiqué are useful</b>			
Case summaries	679 (97.4)	5	(5–5)
Short reports of recently closed cases	625 (89.7)	5	(4–5)
Editorial	574 (82.4)	4	(4–5)
Additional information	558 (80.1)	4	(4–5)
<b>Reading the Communiqué had the following impact</b>			
Resulted in changing my practice	290 (41.6)	3	(3–4)
Resulted in reviewing my practice	429 (61.5)	4	(3–4)
Provides ideas for improving patient safety and clinical care	588 (84.4)	4	(4–5)
<b>The Communiqué</b>			
Will have an impact on my practice in the future	480 (68.9)	4	(3–4)
Reading the Communiqué is a valuable use of my time	673 (96.6)	5	(4–5)
Recommend the Communiqué to colleagues	686 (98.4)	4	(4–5)

\* Five point Likert scale: 5 = always; 1 = never. † Five point Likert scale: 5 = strongly agree; 1 = strongly disagree.

tion being the case summaries. Exactly one third of respondents (232) preferred the Communiqué to continue as a quarterly publication, while the majority (447; 64.1%) stated they would prefer the Communiqué to be published more frequently, either monthly or bi-monthly.

Overall, the Communiqué is highly regarded, with most respondents agreeing or strongly agreeing that the information provided is reliable (98.3%), useful (95.1%) and timely (84.1%). This is corroborated by the fact that almost all respondents (673; 96.6%) agreed that reading the Communiqué was a valuable use of their time and would recommend the Communiqué to colleagues (686; 98.4%) (Box 2). Over half of respondents (370; 53.1%) stated they had heard

about the Communiqué from a colleague. The majority of subscribers (464; 66.4%) forward their copy of the Communiqué to other colleagues, with 196 (28.1%) sending it to at least another 11 people. In some instances, subscribers reported a secondary distribution exceeding 500. Using this information we extrapolated a readership of 10 readers for every subscriber.

The value subscribers place on the Communiqué was evidenced by 294 respondents (42.2%) stating they would actively seek a copy if the Communiqué failed to arrive. In relation to the outcome of interest, the actual impact of the Communiqué on the respondents' practice, 84.4% reported the Communiqué provided ideas for improving patient safety and clinical care,

### 3 Characteristics of subscribers who reported a change in their practice

Characteristic	Changed practice, no. (%)		Total, no. (%)	Odds ratio (95% CI)
	Yes	No		
<b>Total</b>	290 (41.6)	407 (58.4)	697 (100)	
<b>Age</b>				
<i>All respondents excluding the group of interest</i>				1.00
≤34 years	40 (37.0)	68 (63.0)	108	0.80 (0.52–1.22)
35 to 44 years	99 (42.1)	136 (57.9)	235	1.03 (0.75–1.42)
45 to 54 years	121 (43.2)	159 (56.8)	280	1.12 (0.82–1.52)
≥55 years	30 (40.5)	44 (59.5)	74	0.95 (0.58–1.55)
<b>Sex</b>				
Male	90 (39.1)	140 (60.9)	230	1.00
Female	200 (42.8)	267 (57.2)	467	1.17 (0.84–1.61)
<b>Professional role</b>				
<i>All respondents excluding the group of interest</i>				1.00
Nurse	109 (53.4)	95 (46.6)	204	1.98 (1.42–2.75)**
Medical	39 (34.8)	73 (65.2)	112	0.71 (0.47–1.08)
Other health professional	30 (43.5)	39 (56.5)	69	1.09 (0.66–1.79)
Safety manager	39 (38.6)	62 (61.4)	101	0.86 (0.56–1.33)
Management	45 (51.7)	42 (48.3)	87	1.60 (1.02–2.50)*
Legal	4 (12.1)	29 (87.9)	33	0.18 (0.07–0.50)**
Education	11 (28.9)	27 (71.1)	38	0.55 (0.27–1.12)
Other	13 (24.5)	40 (75.5)	53	0.43 (0.23–0.81)*
<b>Clinical setting</b>				
No-patient contact	77 (28.9)	189 (71.1)	266	1.00
Patient contact (minimum once a week)	213 (49.4)	218 (50.6)	431	2.40 (1.73–3.32)**
Private or other sector	56 (40.9)	81 (59.1)	137	1.00
Public Sector	234 (41.8)	326 (58.2)	560	1.04 (0.71–1.52)
Other setting	63 (30.3)	145 (69.7)	208	1.00
Hospital setting	227 (46.4)	262 (53.6)	489	1.99 (1.41–2.81)**
<b>Experience</b>				
<i>All respondents excluding the group of interest</i>				1.00
≤10 years	120 (39.7)	182 (60.3)	302	0.87 (0.64–1.18)
11 to 20 years	90 (45.0)	110 (55.0)	200	1.22 (0.87–1.69)
≥21 years	80 (41.0)	115 (59.0)	195	0.97 (0.69–1.35)
<b>Level of contact with State Coroner's Office</b>				
No contact	196 (40.1)	293 (59.9)	489	1.00
Involved in a death investigation	94 (45.2)	114 (54.8)	208	1.23 (0.89–1.71)
<b>Subscriber characteristics</b>				
<2 years subscriber	197 (39.6)	301 (60.4)	498	1.00
>2 years subscriber	88 (48.9)	92 (51.1)	180	1.46 (1.04–2.06)*
Do not read every issue	6 (27.3)	16 (72.7)	22	1.00
Read every issue received	284 (42.1)	391 (57.9)	675	1.94 (0.77–4.86)
Do not read all/almost all of issue	17 (23.6)	55 (76.4)	72	1.00
Read all/almost all of issue	273 (43.7)	352 (56.3)	625	2.51 (1.43–4.39)*
Read hard copy	143 (46.1)	167 (53.9)	310	1.00
Read electronic copy	147 (38.2)	238 (61.8)	385	0.72 (0.53–0.98)*

\*P ≤ 0.05 \*\*P ≤ 0.0005.

61.5% reported reviewing their practice and 41.6% reported changing their practice (Box 2).

Factors that may be associated with respondents changing practice are described in Box 3. The factor most highly associated with a change in practice was being in clinical practice (OR, 2.40; 95% CI, 1.73–3.32). This relationship was tested by comparing those in clinical practice and those not in clinical practice for the gradient of change; that is, reading the Coronial Communiqué provided ideas, resulted in reviewing practice or changed practice. Being in clinical practice (defined as having direct patient contact at least once a week) was significantly associated with the Coronial Communiqué providing ideas (OR, 3.42; 95% CI, 2.24–5.23), resulting in review (OR, 2.63; 95% CI, 1.91–3.61) and change to improve practice (OR, 2.40; 95% CI, 1.73–3.32). There was also a statistically significant difference observed in respondents within the professional roles of nursing and general management. Respondents in the role of patient safety officers appeared not to be associated with change in practice. Age, sex, experience and contact with the State Coroner's Office were not associated with likelihood of change.

The validity of the results is supported by a significant proportion of respondents who described a change in practice being willing to participate in an interview 63/290 (21.7%) compared with 42/407 (10.3%) of those who did not report change. Second, detailed free text responses about the changes in practice were provided by about a third of those who reported change in practice. Examples included, "Drawing up Syntocinon only immediately before use", "Altering fluid balance charts and management of transurethral resection of the prostate patients", "Insisting on medications being double checked by surgeons before administration" and "Reviewed paediatric obesity paracetamol dosing". Third, the frequency of responses to nature of impact (ie, provision of ideas [84%], to review practice [61.5%], to change practice [41%]) is internally consistent, reflecting the stages of behaviour change.<sup>35</sup> Fourth, a dose response to the Communiqué and impact is evident in that long-

term subscribers (OR, 1.46; 95% CI, 1.04–2.06) and subscribers who read the entire issue are more likely to change (OR, 2.51; 95% CI, 1.43–4.39). Finally, the correlation between the key outcome questions and sub-items (ie, the internal reliability of the survey) was moderate, with Spearman correlations ranging from 0.31 to 0.58 on selected key questions.

## Discussion

This cross-sectional survey of subscribers to the Communiqué observed that 41.6% of respondents had a self-reported change in clinical practice. This is significantly greater than expected as research studies into the use of education and feedback report the effects on change are generally small to moderate.<sup>36</sup>

One of the challenges to improving patient care is changing physician behaviour, which is reported to require a combination of provision of salient evidence from credible sources, feedback, participation in the change process and financial incentives.<sup>37</sup> Strategies most likely to succeed also involve enlisting the support of local medical opinion leaders.<sup>38</sup> The Communiqué is considered both useful and valuable and so fulfils the first steps required for changing behaviour. One of our postulated motivating factors for change is that the Communiqué is auspiced by the Victorian Institute of Forensic Medicine and the State Coroner's Office, creating awareness of the legal and regulatory environment for clinical practice.

Other postulated mechanisms for change not tested in the survey include that the Communiqué assisted in engaging staff or initiating action because of: the authority of the publication; the presence of suggested improvement strategies; the local relevance; and use of narrative rather than statistical information.

Interestingly, the study did not identify age, sex, level of experience in current role or the degree of contact with the State Coroner's Office as factors associated with changing practice.

To our knowledge, this study provides the first empirical evidence from a subscriber survey that publication of narrative case studies on deaths to

improve patient safety leads to self-reported changes in practice in Australia. The response rate of just over 50% and the broad distribution across the professional disciplines suggests the survey respondents are generally representative of the health care workforce. Compared with the Australian health care workforce in 2005, our survey respondents are slightly older (43.1% v 50.8% aged 45 years and older),<sup>39</sup> under-represented by females (67% v 73.3%), under-represented by nurses (29.3% v 50.3%),<sup>40</sup> over-represented by doctors (16.1% v 10.5%) and over-represented by managers (14.5% v 1.5%). Our survey included the categories of patient safety manager, legal and education, which are not included in the AIHW health professions classification, which makes comparisons difficult.

The results of this study are important because the ease with which an individual or an organisation is able to write, produce and distribute publications leads to a surfeit of information. Our ability to rationalise resources and justify one publication type over another requires evidence of achievement of the outcome of interest.

The limitations of the study are that the changes to practice are self-reported and the free-text narratives provided by respondents about changes to practice are highly variable in form and content. This study provides only suggestive evidence of effectiveness. More definitive evidence requires actual demonstration that the self-reported changes in patient care lead to improved patient safety. However, the willingness of respondents to participate in an interview suggests the changes are real and significant. As with all surveys, the potential for response<sup>41</sup> and recall bias<sup>42</sup> is present. Response bias may overestimate the impact on self-reported change to practice. However, recall bias may underestimate the effect, as respondents are less likely to remember changes.

One of the challenges with a subscriber survey is determining whether the readers have similar characteristics. We estimate that for every one subscriber there are another ten readers. It could be argued that subscribers are more active and interested in reflective practice and therefore the

impact of the Communiqué reported here is an overestimate.

However, the sub-analysis assuming a dose response to the intervention demonstrates that the rate of change in subscribers who read the entire issue and have subscribed the longest have a higher rate of change.

The existing format and content of the Communiqué meets the expectations of the subscribers with the vast majority of subscribers very satisfied with the format and style for conveying information. The subscribers indicated a strong preference for a short format, focusing on case studies and bi-monthly publication. This information may guide future efforts to optimise the use of resources in health care to strengthen communication and education for prevention of patient harm.

Further research is required to determine whether the observed effect is actually present in readers and whether the changes are directly attributable to the Communiqué. Communicating lessons learned about improving patient safety should focus on publishing clinical case studies, while limiting the number of studies presented to three per issue, and publishing either bi-monthly or quarterly. The use of a succinct, focused electronic publication is a simple and economical approach to improving patient safety.

## Competing interests

The authors declare that they have no competing interests.

## References

- 1 Kohn L, Corrigan JM, Donaldson MS. To err is human: building a safer health system. Washington, DC: National Academy Press, 1999.
- 2 Baker GR, Norton PG, Flintoft V, et al. The Canadian Adverse Events Study: the incidence of adverse events among hospital patients in Canada. *CMAJ* 2004; 170: 1678-86.
- 3 Brennan TA, Leape LL, Laird NM, et al. Incidence of adverse events and negligence in hospitalized patients. Results of the Harvard Medical Practice Study I. *N Engl J Med* 1991; 324: 370-6.
- 4 Davis P, Lay-Yee R, Schug S, et al. Adverse events regional feasibility study: indicative findings. *N Z Med J* 2001; 114: 203-5.

- 5 Vincent C, Neale G, Woloshynowych M. Adverse events in British hospitals: preliminary retrospective record review. *BMJ* 2001; 322: 517-9.
- 6 Wilson RM, Runciman WB, Gibberd RW, et al. The Quality in Australian Health Care Study. *Med J Aust* 1995; 163: 458-71.
- 7 Ehsani JP, Jackson T, Duckett S. The incidence and cost of adverse events in Victorian hospitals 2003-04. *Med J Aust* 2006; 184: 551-5.
- 8 Weightman AL, Williamson J. The value and impact of information provided through library services for patient care: a systematic review. *Health Info Libr J* 2005; 22: 4-25.
- 9 Agency for Healthcare Research and Quality. Chapter 3: AHRQ's patient safety initiative: breadth and depth for sustainable improvements. In: AHRQ's patient safety initiative: building foundations, reducing risk. Interim Report to the Senate Committee on Appropriations. Rockville, MD: AHRQ, 2003. (AHRQ Publication No. 04-RG005.) Available at: <http://www.ahrq.gov/qual/pscongrrpt/> (accessed Sep 2009).
- 10 Jones TF, Feler CA, Simmons BP, et al. Neurologic complications including paralysis after a medication error involving implanted intrathecal catheters. *Am J Med* 2002; 112: 31-6.
- 11 MDA National. Defence update [website]. Available at: <http://www.mdanational.com.au/publications/publications.aspx> (accessed Sep 2009).
- 12 The Royal Children's Hospital, Melbourne. The Royal Children's Hospital quality of care reports. Melbourne: RCH. Available at: [http://www.rch.org.au/quality\\_report\\_rch/index.cfm?doc\\_id=4420](http://www.rch.org.au/quality_report_rch/index.cfm?doc_id=4420) (accessed Sep 2009).
- 13 Department of Human Services. Risk watch newsletter. Available at: <http://www.health.vic.gov.au/clin-risk/publications/riskwatch.htm> (accessed Sep 2009).
- 14 Office of the Health Services Commissioner. Office of the Health Services Commissioner annual reports. Available at: <http://www.health.vic.gov.au/hsc/resources/annualrep.htm#annual> (accessed Sep 2009).
- 15 Adverse Drug Reactions Advisory Committee. Australian Adverse Drug Reactions Bulletin. Available at: <http://www.tga.gov.au/adraadr.htm> (accessed Sep 2009).
- 16 Australian Institute of Health and Welfare, Australian Commission for Safety and Quality in Health Care. Sentinel events in Australian public hospitals 2004-2005. Canberra: AIHW, 2007. (AIHW Cat. No. HSE 51.)
- 17 Medical Practitioners Board of Victoria. Bulletin. Available at: <http://medicalboardvic.org.au/content.php?sec=66> (accessed Sep 2009).
- 18 The Bristol Royal Infirmary Inquiry. The Inquiry into the management of care of children receiving complex heart surgery at the Bristol Royal Infirmary. Crown copyright, 2001. Available at: <http://www.bristol-inquiry.org.uk/> (accessed Sep 2009).
- 19 Government of Western Australia, Department of Health. The KEMH Douglas Inquiry. Available at: [http://www.kemh.health.wa.gov.au/general/KEMH\\_Inquiry/](http://www.kemh.health.wa.gov.au/general/KEMH_Inquiry/) (accessed Sep 2009).
- 20 Davies G. Queensland Public Hospitals Commission of Inquiry report. 2005. Available at: <http://www.qphci.qld.gov.au/> (accessed Sep 2009).
- 21 Pollard R. Critical condition. *Sydney Morning Herald* 2004; Jun 7.
- 22 ABC News (online). Hospital errors killed golf ball teen: coroner. 2008; Jan 24.
- 23 Mancuso R. Queensland's "Dr Death" linked to 80 deaths. *The Age* (Melbourne) 2005; May 25.
- 24 Department of Justice. State Coroner's Office of Victoria. 2007. Available at: <http://www.justice.vic.gov.au/wps/wcm/connect/DOJ+Internet/Home/About+Us/Our+Organisation/Justice+Agencies/JUSTICE++State+Coroners+Office+of+Victoria> (accessed Feb 2008).
- 25 Bohensky M, Ibrahim JE, O'Brien AJ, et al. World without borders: integrating clinical perspectives into the coronial jurisdiction in Victoria, Australia. *Med Law* 2006; 25: 13-29.
- 26 Victorian Institute of Forensic Medicine and State Coroner's Office. Coronial Communiqué. Available at: <http://www.vifm.org/communique.html> (accessed Sep 2009).
- 27 Ibrahim JE, O'Brien A, Emmett S, et al. The Coronial Communiqué: Helping clinicians understand the safety and quality lessons form Coroner's findings and recommendations [abstract]. Second Australian Conference on Safety and Quality in Health Care. National Convention Centre, Canberra; 2004 August. Available at: [http://www.aaghc.org.au/pdf/conf2004\\_abstracts.pdf](http://www.aaghc.org.au/pdf/conf2004_abstracts.pdf) (accessed Sep 2009).
- 28 US Department of Health and Human Services, Agency for Healthcare Research and Quality. Patient safety culture surveys. Available at: <http://www.ahrq.gov/qual/hospculture/> (accessed Jan 2008).
- 29 Blue water: boats and sportsfishing [magazine]. Reader survey. 2006.
- 30 Zimmer BP, Shriner JA, Scheer SD. Use and evaluation of a statewide 4-H volunteer newsletter. *Journal of Extension* 2006; 44 (1).
- 31 Open source. PHPsurveyor [online survey tool]. 2007.
- 32 Dillman DA. Mail and telephone surveys: the total design method. New York: J Wiley, 1999.



- 33 Stata Corporation. Stata 8.0 for Windows. College Station, Tex: 2003.
  - 34 Leadtools. SPSS 15.0 for Windows. Chicago, Ill: 2006.
  - 35 Prochaska J, DiClemente C. Stages and processes of self-change in smoking: toward an integrative model of change. *J Consult Clin Psychol* 1983; 51: 390-5.
  - 36 Jamtvedt G, Young JG, Kristoffersen DT, et al. Audit and feedback: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev* 2006; (2): CD000259.
  - 37 Greco PJ, Eisenberg JM. Changing physicians' practices. *N Engl J Med* 1993; 329: 1271-3.
  - 38 Soumerai SB, McLaughlin TJ, Gurwitz JH, et al. Effect of local medical opinion leaders on quality of care for acute myocardial infarction: a randomized controlled trial. *JAMA* 1998; 279: 1358-63.
  - 39 Australian Institute of Health and Welfare. Australia's health 2006. Canberra: AIHW, 2006. (AIHW Cat. No. AUS 73.)
  - 40 Australian Bureau of Statistics. Health care delivery and financing. In: Year book Australia, 2007. Canberra: ABS, 2007. (ABS Cat. No. 1301.0.)
  - 41 Kim K, Hagedorn M, Williamson J, Chapman C. Participation in adult education and lifelong learning: 2000-01. Washington: US Department of Education, National Center for Educational Statistics, 2004.
  - 42 Coughlin SS. Recall bias in epidemiologic studies. *J Clin Epidemiol* 1990; 43: 87-91.
- (Received 26/07/08, revised 24/09/08, accepted 10/12/08) □