

## What makes a hospital manager competent at the middle and senior levels?

Zhanming Liang<sup>1,2</sup> MBBS, MSc, PhD, Senior Lecturer

Sandra G. Leggat<sup>1</sup> BA, MBA, PhD, Professor and Head of School

Peter F. Howard<sup>1</sup> MBBS, MSc, Adjunct Associate Professor

Lee Koh<sup>1</sup> BA, Research Assistant and Publication Officer

<sup>1</sup>School of Public Health and Human Biosciences, La Trobe University, Kingsbury Drive, Bundoora, Vic. 3086, Australia. Email: s.leggat@latrobe.edu.au, pfh.php@bigpond.net.au, l.koh@latrobe.edu.au

<sup>2</sup>Corresponding author. Email: z.liang@latrobe.edu.au

### Abstract

**Objective.** The purpose of this paper is to confirm the core competencies required for middle to senior level managers in Victorian public hospitals in both metropolitan and regional/rural areas.

**Methods.** This exploratory mixed-methods study used a three-step approach which included position description content analysis, focus group discussions and online competency verification and identification survey.

**Results.** The study validated a number of key tasks required for senior and middle level hospital managers (levels II, III and IV) and identified and confirmed the essential competencies for completing these key tasks effectively. As a result, six core competencies have been confirmed as common to the II, III and IV management levels in both the Melbourne metropolitan and regional/rural areas.

**Conclusions.** Six core competencies are required for middle to senior level managers in public hospitals which provide guidance to the further development of the competency-based educational approach for training the current management workforce and preparing future health service managers. With the detailed descriptions of the six core competencies, healthcare organisations and training institutions will be able to assess the competency gaps and managerial training needs of current health service managers and develop training programs accordingly.

**What is known about the topic?** A competent health service management workforce is critical to the effective functioning of the healthcare system. Consequently, a competency-based educational approach has been proposed to prepare current and future health professionals including health service managers. Although the literature has suggested that core competencies exist for different management levels in different healthcare settings, there has been no study which has provided valuable data to indicate what the core competencies are for hospitals managers in Australian public hospitals.

**What does this paper add?** This paper identified and confirmed that six core competencies are common to middle to senior level managers (levels II-IV) in Victorian public hospitals in both Melbourne metropolitan and regional/rural areas.

**What are the implications for practitioners?** The findings of the study is the first step towards supporting the competency-based educational approach for training and preparing current and future health service managers for their roles. The six identified core competencies provide a very useful guide to the identification of competency gaps and managerial training needs, and the further development of the health service management training curriculum.

Received 4 April 2012, accepted 6 December 2012, published online 22 April 2013

### Introduction

Since the early 1980s<sup>1,2</sup> increasing financial pressure in health-care systems has led to cost cutting, restructuring and reforms, to improve performance and demonstrate greater transparency and accountability.<sup>3</sup> The reforms in Australia since the late 1980s have been to consolidate the principles guiding funding and management, with repeated organisational change and

restructuring.<sup>4</sup> Victoria has seen substantial changes in the public hospital sector with the establishment and subsequent disbanding of metropolitan hospitals planning boards (MHPB), the creation of health care networks in 1995 and the restructuring of these networks into health services in the early 2000s. Victoria was an early adopter of case-mix funding in 1993<sup>5</sup> and was one of the states most strongly influenced by the trend of privatisation,

characterised by outsourcing and less focus on structures and central planning,<sup>6</sup> in the 1990s.

Despite these changes, there is evidence that Victorian hospitals have not achieved acknowledged best practice in healthcare delivery,<sup>7,8</sup> with limitations identified in human resource management systems and processes,<sup>9–12</sup> and lack of expertise in designing and implementing large-scale change initiatives.<sup>13</sup> These acknowledged limitations imply that healthcare managers have not been effective and managerial challenges are even greater in regional and rural areas.<sup>14</sup> Alarming, the National Health and Hospital Commission final report suggested that our healthcare system is at risk of ill-informed and inadequate, or possibly even dangerous, management practices.<sup>15</sup>

A competent health services management workforce is critical to the effective functioning of the healthcare system. The Australian Health Ministers' Conference (AHMC 2004) recognised the importance of healthcare management, stating in their National Health Workforce Strategic Framework that: '... leadership, strategic thinking and management ability will be key issues required from all stakeholders.'<sup>16</sup>(p12) Several factors preclude the effectiveness of the current healthcare management workforce.

First, health reforms have resulted in high workload demands and risk taking, less employment security, higher turnover and changes in career paths.<sup>17</sup> Although health professionals are required to demonstrate competence, this is often overlooked for managers within the system, despite ongoing reforms leading to new tasks being introduced, which may require different competencies to perform them effectively.<sup>13,18</sup> For example, a systematic literature review on healthcare management competency included in Liang's 2008 study suggested that 15 key competencies (Appendix One) were important for senior healthcare managers.<sup>17</sup> However, when interviewed, the managers only identified five of these 15 (with two additional competencies) as being essential (Appendix One) in the NSW health context.<sup>18</sup>

Second, the aging of the Australian health workforce will exacerbate the problems in healthcare management. Service providers will soon need to replace large numbers of retiring staff, and secure additional labour to meet accelerating demand as labour supply is expected to be slower than population growth.<sup>19,20</sup> It is crucial to develop a competent and skilled health workforce for the present and future.

Third, health systems are facing constant challenges in providing effective, responsive and accessible health services to meet the changing and growing needs and demands of communities. This task is more difficult in rural/regional areas because of smaller populations and community sizes, and their substantial distance from a metropolis. Furthermore, hospitals in rural/regional areas are more likely to face financial constraints, which may discourage senior health professionals (including managers) from seeking employment in these areas, further contributing to their shortage.<sup>21</sup> In Victoria, several rural and regional hospitals have experienced high profile adverse events and several have failed the Australian Council on Health Standard (ACHS) accreditation since the 1990s.<sup>22</sup> Arguably, it is as essential for public healthcare facilities to be managed by competent managers in these smaller communities, as in the cities.

'Competence is viewed as a person's ability to perform, and their competencies as their total capability - what they can do, not

necessarily what they do'.<sup>23</sup>(p12) Competency consists of skills, knowledge and attitudes required to perform a task or job<sup>18</sup>. 'Competence is context dependent... and it is a statement of relationship between an ability (in the person), a task (in the world), and the ecology and the health systems and clinical contexts in which those tasks occur'.<sup>24</sup>(p228) The recent National Health and Hospital Reform Commission report<sup>15</sup> proposed that a competency-based education and training framework be adopted for health professionals, including health services managers. However, few studies have examined the required managerial competencies for middle and senior hospital managers in Australia, especially in rural/regional areas. Consequently, it is essential to identify and validate the key managerial competencies of metropolitan and rural/regional public hospitals managers which will be used not only to guide educational and training curriculum development, but also to select and recruit candidates appropriate to the management positions. This paper aims to confirm the core competencies required for middle to senior level managers in metropolitan and rural/regional Victorian public hospitals.

## Methods

This exploratory mixed-methods study used a three-step approach. The first step was a position description (PD) content analysis to identify the tasks common to a specific management level. The resulting data were used to guide the competency identification process in the next two steps. The second step was focus group discussions (FGD) with middle- and senior-level public hospital managers to confirm the key tasks for each level, and the essential competencies required to perform them effectively. Preliminary results of the FGD were sent to all participants for verification and comment. The third step was an online survey to allow managers who were non-FGD participants to contribute to the study. Survey Monkey software was used to administer the survey.

The specific study process was guided by the understanding of the relationship between tasks and competencies (Fig. 1), as detailed in Liang's NSW study between 2003 and 2006.<sup>17</sup>

In practice, findings identified from the upper level of the pyramid will guide the identification of the content at the lower levels. The first step is to identify the major tasks on which health managers spend most of their working hours. Subsequently, the most important competencies (knowledge, skills and attitudes) required, and the corresponding benchmark to perform each task, will be determined. The competency list developed will be used to



Fig. 1. The pyramidal relationship between tasks, roles and competencies.

group the knowledge, skills and attitudes that are essential for performing each task satisfactorily.

#### Target population

The target population was senior- and middle-level metropolitan and rural/regional Victorian public hospital managers, as defined in Table 1 below. Participating hospitals were selected from members of the Victorian Healthcare Association (VHA) or the 11 Victorian Health Services who provided financial sponsorship to the project.

#### Sampling methods, data collection and analysis

##### Document analysis

PDs for the four management levels were provided voluntarily by one large healthcare provider (including one large and one small hospital) and individual members of the Australasian College of Health Service Management (ACHSM), Victorian Branch. The PD content analysis was conducted by two researchers. The list of tasks and job requirements as detailed in each of the PD were entered into an Excel spreadsheet and grouped by management levels. Content analysis was conducted to identify similarities and differences in tasks and job requirements among management levels.

##### Focus group discussions (FGD)

Managers of three large and three small public hospitals across four management levels were invited to participate in the FGD. Initial invitations were emailed to the liaison persons of the hospitals to be forwarded to eligible managers within their organisations. At the FGD, which were managed by independent facilitators, managerial tasks and key competencies required for each of the tasks were discussed. The key points were recorded on a whiteboard. After the FGD, all data were entered electronically into a word document format, subjected to content analysis, and grouped according to themes, similarities and differences. These data were shown to the participants for confirmation and comment. No names or personal details were collected or recorded during the data collection process.

##### Online competency identification and verification survey

Managers from the participating public hospitals who did not attend the FGD were invited to complete the online survey. The application of question logic in Survey Monkey enabled the collection of data from levels II, III and IV managers in the same survey. The survey used the same competency identification process as did the FGD to allow for comparison of findings. The questions were constructed based on the key tasks that were

identified as important for each level by the managers at the FGD. Survey participants were asked to identify the three most essential competencies for effectively performing the tasks. Quantitative data were analysed using standard frequencies and distributions. Qualitative data were grouped according to themes and a content analysis completed.

Ethics approval was granted by La Trobe University Human Research Ethics Committee before the commencement of the study.

## Results

### Document analysis

One hundred and twenty-three PDs for senior- and middle-level hospital management positions (96 from two hospitals and 27 from members of ACHSM Victorian Branch) were collected and analysed, which resulted in the identification of 9–10 key tasks for each of the four management levels.

### Focus group discussion

Sixteen public hospital managers (Table 2) from the Melbourne metropolitan area participated in the FGD. There was no FGD for rural/regional public hospital managers due to insufficient interest. Guided by the hospital versus management level definition (as detailed in Table 1), Table 2 explains that level II managers only referred to level II managers from large hospitals; level III managers were a combination of level III managers from large and level II managers from small hospitals, and level IV managers comprised level IV managers from large and level III managers from small hospitals.

During the FGD, participants from each level agreed on three to five essential tasks that they had to perform, and identified the three most essential competencies needed to perform each task. Appendix 2 details the identified tasks and associated competencies and the number of times they were listed as important to a task at the same management level. Several competencies were viewed as important for more than one task at different levels. As a result, essential competencies for each management level were identified, as detailed in Appendix 3.

Overall, four competencies are common to two to three management levels: evidence-informed decision making; interpersonal, communication qualities and relationship management; knowledge of healthcare environment and the organisation; and operations, administration and resource management. The preliminary results of the FGD were sent to all participants for validation and comment 3 weeks after the discussion. Eight responses supporting the findings were received, with no further changes or comments made.

**Table 1. Differentiation of hospital management levels**

Large and small hospitals are those with annual budgets respectively of >\$80 million and <\$30 million

Management level	Responsibilities	Settings	Specification
Senior	Strategic direction of organisation	Large hospitals Small hospitals	Level I - CEO Level II (report to CEO) Level III (report to level II) Level I - CEO Level II (report to CEO)
Middle	Day-to-day operations	Large hospitals Small hospitals	Level IV (report to level III) Level III (report to level II)

**Table 2. FGD Participants**

Organisation Size	A	B	C	D	E	F	Total
	Small	Large	Large	Large	Small	Small	
Level II	1	1	0	0	0	0	2
Level III	0	1	2	1	1	1	6
Level IV	0	2	5	1	0	0	8

### Online competency identification and verification survey

To gather data from rural/regional hospitals, an invitation to participate in the online survey was sent to four metropolitan and two regional hospitals 1 month after the FGD. This was followed by an email reminder and a hard copy attachment of the survey 2 weeks later. Seventy-four hospital managers (Table 3) completed the survey online within the deadline. No hard copy of the survey was received.

The essential competencies identified by survey respondents for each of the management levels are detailed in Appendix 4.

Due to the low number of level II participants from both metro and regional hospitals, results generated for this management level may not be reliable. Respondents from both metropolitan and regional hospitals identified largely the same essential competencies although they differed in their perception of the degree of importance of these competencies. Overall, five competencies are common to the three management levels in both metro and rural/regional areas: evidence-informed decision making; interpersonal, communication qualities and relationship management; knowledge of healthcare environment and the organisation; operations, administration and resource management, and; leading and managing change and leadership. These findings are largely consistent with findings from the FGD, with leading and managing change and leadership being added as essential competencies in the online survey.

### Discussion

Based on the results of the PD analysis, the study confirmed three to five key tasks for three hospital management levels, and the essential competencies required to perform these tasks effectively. The essential tasks listed in Appendix 2 show the diversity amongst different management levels, and how they vary in nature and scope. For level II (senior) hospital managers, the emphasis is more on providing leadership and developing the organisation strategically on a wide scale. For level III (middle level) hospital managers, the foci are on managing and developing staff and service quality assurance. For level IV (middle level) hospital managers, the focus is more operational.

**Table 3. Description of respondents to online survey by location and management level**

Management level	Number of Participants	
	Metro	Regional
Level II	1	2
Level III	20	5
Level IV	40	6

### Core competencies shared among management levels

Despite the diversity and scope of tasks required of managers from different levels, shared core competencies exist across all three levels. The results of the focus group and online survey led to the identification of six core competencies: leadership; leading and managing change; operations, administration and resource management; evidence-informed decision making; knowledge of healthcare environment and the organisation; interpersonal, communication qualities and relationship management. The concept of having core competencies across various levels of healthcare management has been confirmed by international studies,<sup>25–28</sup> with managers at different levels demonstrating different required levels of competence. Calhoun<sup>26</sup> further suggested that five levels of behaviour are embedded in each leadership competency, with levels III, IV and V being compatible respectively with outstanding early-, mid- and advanced-level managers. The current study confirmed shared competencies among different management levels.

There have been speculations that requirements for managers in metropolitan and rural/regional areas are different,<sup>14</sup> thus requiring different health workforce strategies.<sup>29</sup> Our study contradicted the speculations by confirming that similar core competencies exist for hospital managers in both metropolitan and rural/regional areas. However, we may argue that although core competencies do exist, which reflects the essential job requirements at a specific management level, the ways these competencies are demonstrated in real practice may vary according to geographic locations. These different practice requirements have significant implications for health management workforce strategy development. Epstein and Hundert<sup>24</sup> argued that competence is context dependent and developmental, such that the required competency levels and the ideal or optimum competent level may vary. Therefore, a generic competency-based education and training curriculum may be developed whilst special consideration and modification are required to develop specific strategies in assisting managers to translate the knowledge into practice in different geographical contexts. To achieve that, flexible and innovative learning and training approaches should be adopted, for example, a problem-based enquiries approach in training and higher education and coaching and mentoring in the workplace etc.

### The six identified core competencies

Of the six core competencies identified, operations, administration and resource management; knowledge of healthcare environment and the organisation; interpersonal, communication qualities and relationship management have been widely identified in previous studies,<sup>18,25,27,30</sup> while leading and managing change and evidence-informed decision making have not been as clearly recognised. As mentioned in the introduction, healthcare has undergone significant changes since the early 1980s. The introduction, implementation, monitoring and evaluation of large-scale changes, including major restructuring and adoption of innovative service delivery models or implementation of quality frameworks are the key responsibilities of healthcare managers. Leading and managing large scale changes are critical for senior managers, who are responsible for setting strategic directions and provision of overall leadership, and for middle

level managers, who are responsible for implementing change initiatives. Change is critical to success in the challenging healthcare environment. However, despite the best efforts of health managers, major change initiatives often fail.<sup>31</sup> Many factors, such as inadequate planning and preparation for the change,<sup>13,32</sup> different perceptions of managers and staff towards benefits and necessity of change<sup>33</sup> and lack of skills and experience in designing and implementing the change process<sup>13,34</sup> have been attributed to the failures. These highlight the importance of health managers developing competence in leading and managing the change process<sup>31</sup> as an integral process of successful change management.

The importance of using evidence to guide management decision making has emerged in the health literature since the early 1990s. This is reflected in its inclusion in the managerial competency frameworks of both the Healthcare Leadership Alliance in the US and the Australasian College of Health Service Management (ACHSM). It has been suggested that evidence-informed decision making can improve the quality and outcome of management decisions, which is a vital strategy in improving the effectiveness and efficiency of healthcare delivery.<sup>35,36</sup> Although managers lack skills in sourcing, critically appraising and applying evidence to guide decision making,<sup>37</sup> the importance of using evidence to inform decision making among healthcare managers has been widely recognised in the literature<sup>35,36,38,39</sup> and by managers themselves.<sup>40</sup> The generation of leading and managing change and evidence-informed decision making as new core competencies may be a reflection of the recent but rapid changes in the healthcare environment and the ongoing challenges that face healthcare organisations.

### Limitations

Although both qualitative and quantitative approaches were used in the study with relatively large coverage in terms of participating organisations and individual managers, certain limitations need to be considered in interpreting the study findings. First, this study focuses on Victorian hospital managers, which may limit its implications for the wider Australian context. Second, the lack of study participants from the rural and remote settings limits its implications for rural public hospitals management. Third, the lack of CEO participation limited the applicability of the findings to only management levels II, III and IV. Further study should replicate the same process in other Australian states for comparison so that core competencies can be confirmed to guide large-scale management workforce development for the Australian context.

### Conclusions

The findings of the study support the use of a competency-based educational approach to train and prepare current and future healthcare managers for their roles. The study confirmed earlier work showing that core competencies exist across various healthcare management levels. The six core competencies identified for middle- to senior-level public hospitals managers provide a very useful guide for revising and developing the current healthcare management training curriculum and to select and recruit candidates appropriate to different management roles. The research team is in the process of finalising detailed descriptions

comprising skills, knowledge and attitude for each core competency, which will form part of a future publication. With the detailed descriptions of these six core competencies, healthcare organisations and training institutions will be able to assess the competency gaps and managerial training needs of current healthcare managers and develop training programs accordingly.

### Competing interests

Authors declare there are no competing interests.

### Acknowledgements

We thank all the participants of the focus group discussions and online survey and the support and funding from the project partners – Victorian Healthcare Association, The Australian College of Health Services Management, and the Sector Workforce Planning, Victorian Department of Health. We also thank members of the project Advisory Committee who have provided invaluable contribution to the project, in particular, Mr. Alan Lilly, Ms. Amanda Molyneux, Mr. David Webb, Ms. Jane Sheats, Mr. John Rasa, Ms. Kathy Phythian, A/Prof. Mary Harris and Ms. Vivienne Hadj. We are also grateful for the financial contribution from 14 Victorian Health Services.

### References

- Higgins I. Benchmarking in healthcare: a review of literature. *Aust Health Rev* 1997; 20(4): 60–9. doi:10.1071/AH970060
- Sen K, editor. Restructuring health services: changing contexts and comparative perspectives. London: Zed Books; 2003.
- Brown K, Waterhouse J, Flynn C. Change management practices: is a hybrid model a better alternative for public sector agencies? *Int J Public Sector Management* 2003; 16(3): 230–41. doi:10.1108/09513550310472311
- Stoelwinder J, Viney R. A tale of two states: New South Wales and Victoria. In: Bloom, AL, editor. Health reform in Australia and New Zealand. New York: Oxford University Press; 2000.
- Young K, Harris A. Efficiency of hospitals in Victoria under Casemix Funding: a stochastic frontier approach. Working paper 92. Centre for Health Program Evaluation: West Heidelberg; 1999.
- Dwyer J. Australian health system restructuring – what problem is being solved? *Aust New Zealand Health Policy* 2004; Nov1–6. www.anzhealthpolicy.com/content/1/1/6
- Dwyer J, Leggat SG. Innovation in hospital care. *Aust Health Rev* 2002; 25(5): 19–31. doi:10.1071/AH020019b
- Ibrahim J, Majoor J. Corruption in the health care system: the circumstantial evidence. *Aust Health Rev* 2002; 25(2): 20–6. doi:10.1071/AH020020
- Leggat SG, Bartram T, Stanton P. Exploring the lack of progress in improving patient safety in Australian hospitals. *Health Serv Manage Res* 2008; 21: 32–9. doi:10.1258/hsmr.2007.007012
- Leggat SG, Dwyer J. Improving hospital performance: culture change is not the answer. *Healthc Q* 2005; 8(2): 60–6.
- Leggat SG, Bartram T, Stanton P. Performance monitoring in the Victorian health care system: an exploratory study. *Aust Health Rev* 2005; 29(1): 17–24. doi:10.1071/AH050017
- Young S, Bartram T, Stanton P, Leggat SG. High performance work systems and employee well-being: a two stage study of a rural Australian hospital. *Journal of Health Organization and Management* 2010; 24(2): 182–199.
- Liang Z, Short SD, Lawrence B. Healthcare reform in New South Wales 1986–1999: using the literature to predict the impact on senior health executives. *Aust Health Rev* 2005; 29(3): 285–91. doi:10.1071/AH050285
- Robertson R, Cockley D. Competencies for rural health administrators *J Health Adm Educ* 2004; 21(3): 329–41.

- 15 National Health and Hospital Reform Commissions (NHHRC). A healthier future for all Australians: final report of the NHHRC. Canberra: Commonwealth of Australia; 2009.
- 16 Australian Bureau of Statistics. 2005 Labour Force Survey. Canberra: ABS; ; 2005.
- 17 Liang Z. Health reforms and Australian senior health executive workforce: characteristics, competencies and challenges. Saarbruecken: VDM; 2008.
- 18 Liang Z, Howard PF. Competencies required by senior Health Executives in NSW, 1990 -1999. *Aust Health Rev* 2010; 34: 52–8. doi:10.1071/AH09571
- 19 Australian Government Productivity Commission. Australia's Health Workforce: productivity, research report. Canberra: ...; 2005.
- 20 Duckett SJ. The Australian Health Care System. Melbourne: Oxford University Press; 2007.
- 21 Halton J. Improving the health of rural Australians. *Rural Remote Health* 2005; 5(487): 1–3.
- 22 The Australian Council on Healthcare Standards. The ACHS EQUiP5 Guide Accreditation, Standards and Guidelines. Ultimo: The Australian Council on Healthcare Standards; 2010.
- 23 Boyatzis RE. The competent manager: a model for effective performance. New York: Wiley; 1982.
- 24 Epstein RM, Hundert EM. Defining and assessing professional competence. *JAMA* 2002; 287(2): 226–35. doi:10.1001/jama.287.2.226
- 25 Garman AN, Tyler L, Darnall JS, Lerner W. Development and validation of a 360-degree instrument for healthcare administrators. *J Healthc Manag* 2004; 49(5): 307–27.
- 26 Calhoun JG, Dollett L, Sinioris ME, Wainio JA, *et al*. Development of an interprofessional competency model for healthcare leadership. *J Healthc Manag* 2008; 53(5): 375–91.
- 27 Stefl ME. Common competencies for all healthcare managers: the healthcare leadership alliance model. *J Healthc Manag* 2008; 53(6): 360–73.
- 28 McCarthy G, Fitzpatrick JJ. Development of competency framework for nurse managers in Ireland. *J Contin Educ Nurs* 2009; 40(8): 346–50. doi:10.3928/00220124-20090723-01
- 29 Millar S. Rural and remote health workforce innovation and reform strategy: draft background paper. Canberra: Health Workforce Australia; 2011.
- 30 Calhoun JG, Vincent ET, Baker GR, Butler PW, Sinioris ME, Chen SL. Competency identification and modeling in healthcare leadership. *J Health Adm Educ* 2004; 21(4): 419–40.
- 31 Appelbaum SH, Wohl L. Transformation or change: some prescriptions for health care organizations. *Manag Serv Qual* 2000; 10(5): 279–98. doi:10.1108/09604520010345768
- 32 Heifetz M, Halle S. Leading change, overcoming chaos – making change succeed in your 32 organization. *Hosp Mater Manage Q* 1996; 18(1): 17–27.
- 33 Strebler P. Why do employees resist change? *Harv Bus Rev* 1996; 74(3): 86–92.
- 34 Martin V. Leading change in health and social care. London: Routledge; 2003.
- 35 Walshe K, Randall TG. Evidence-based management: from theory to practice in healthcare. *Milbank Q* 2001; 79(3): 429–57. doi:10.1111/1468-0009.00214
- 36 Muir Gray JA. Evidence-based and value-based healthcare. *Evidence-Based Healthcare and Public Health* 2005; 9: 317–8. doi:10.1016/j.ehbc.2005.08.004
- 37 Howard PF, Liang Z, Fitzgerald L. The practice of evidence-based management decision making among middle level and senior healthcare managers in Victoria, Australia. Saarbruecken: VDM; 2009.
- 38 Kovner A, Rundall TG. Evidence-based management reconsidered. *Front Health Serv Manage* 2006; 22(3): 3–22.
- 39 Shortell SM. Promoting evidence-based management. *Front Health Serv Manage* 2006; 22(3): 23–9.
- 40 Liang Z, Howard PF, Rasa J. Evidence-informed managerial decision-making – what evidence counts? *Asia Pacific Journal of Health Management* 2011; 6(1): 23–9.

**Appendix 1. Key Competencies for Senior Health Managers<sup>18</sup>**

Key competencies (results of systematic literature review)	Key competencies identified by senior health executives in the NSW
1. Decision making	1. Leadership
2. Providing leadership	2. Political skills and awareness
3. Planning and evaluation	3. Personal and interpersonal quality
4. Marketing and promoting	4. Background knowledge and capability
5. Information management	5. Organisation and service planning and evaluation
6. Responding to clients' needs	6. Acceptability, adaptability and survival skills
7. Human resource management	7. Public and industrial relations and networking
8. Negotiation and conflict resolution	
9. Personal and interpersonal qualities	
10. Background knowledge and capability	
11. Coaching, mentoring and team building	
12. Evidence-based health care management	
13. Managing change and future development	
14. Financial management and resource allocation	
15. Public and industrial relations, liaising and networking	

**Appendix 2. Key tasks and expressed essential competencies by management level**

	Tasks	Competencies <sup>A</sup>
Level II managers	<ul style="list-style-type: none"> <li>■ Organisation performance and management</li> <li>■ Provision of leadership to staff and key stakeholders</li> <li>■ Maintenance and improvement of quality and safety of service provision</li> <li>■ Development of organisational vision, strategic direction and policies</li> <li>■ Promotion and development of organisational image and public relations</li> </ul>	<ul style="list-style-type: none"> <li>■ Evidence-informed decision making (3)</li> <li>■ Political awareness (2)</li> <li>■ Leading and managing change (2)</li> <li>■ Public and industrial relations and networking (2)</li> <li>■ Knowledge of healthcare environment and the organisation (2)</li> <li>■ Interpersonal communication qualities and relationship management (2)</li> <li>■ Operations, administration &amp; resource management; (1)</li> <li>■ Leadership (1)</li> </ul>
Level III managers	<ul style="list-style-type: none"> <li>■ Staff management and development</li> <li>■ Networking and liaison with key stakeholders (internal and external)</li> <li>■ Ensure continuous improvement of service provision in a safe environment</li> </ul>	<ul style="list-style-type: none"> <li>■ Self-management and resilience (3)</li> <li>■ Interpersonal communication qualities and relationship management (3)</li> <li>■ Operations, administration &amp; resource management (1)</li> <li>■ Knowledge of healthcare environment and the organisation (1)</li> <li>■ Leadership (1)</li> </ul>
Level IV managers	<ul style="list-style-type: none"> <li>■ Contribute to a safe work environment;</li> <li>■ Contribute to staff development;</li> <li>■ Establish quality systems and processes;</li> <li>■ Change management;</li> <li>■ Recruitment, retention, succession planning and skill mix base</li> </ul>	<ul style="list-style-type: none"> <li>■ Evidence-informed decision making (4)</li> <li>■ Operations, administration &amp; resource management (3)</li> <li>■ Knowledge of healthcare environment and the organisation (3)</li> <li>■ Interpersonal communication qualities and relationship management (3)</li> <li>■ Public and industrial relations and networking (1)</li> <li>■ Professionalism (1)</li> <li>■ Self-management and resilience (1)</li> </ul>

<sup>A</sup>Number of times identified as important for that task.

**Appendix 3. Essential competencies common to three management levels from focus group discussions**

Level II	Level III	Level IV
Evidence-informed decision making Interpersonal communication qualities and relationship management Knowledge of healthcare environment and the organisation	Evidence-informed decision making Interpersonal communication qualities and relationship management Knowledge of healthcare environment and the organisation Operations, administration & resource management	Evidence-informed decision making Interpersonal communication qualities and relationship management Knowledge of healthcare environment and the organisation Operations, administration & resource management;
Public and industrial relations and networking Leading and managing change Political awareness	Leadership Self-management and resilience	

**Appendix 4. Essential competencies by management level and location from online survey**

Area	Level II	Level III	Level IV
Metropolitan	Interpersonal communication qualities and relationship management Knowledge of healthcare environment and the organisation Leading and managing change Evidence-informed decision making Self-management and resilience Public and industrial relations and networking	Interpersonal communication qualities and relationship management Knowledge of healthcare environment and the organisation Leading and managing change Leadership Operations, administration and resource management	Interpersonal communication qualities and relationship management Knowledge of healthcare environment and the organisation Leadership Evidence-informed decision making Operations, administration and resource management
Regional	Interpersonal communication qualities and relationship management Leading and managing change Knowledge of healthcare environment and the organisation Public and industrial relations and networking Operations, administration and resource management Political awareness	Interpersonal communication qualities and relationship management Leading and managing change Evidence-informed decision making Leadership Self-management and resilience	Interpersonal communication qualities and relationship management Leading and managing change Evidence-informed decision making Leadership Knowledge of healthcare environment and the organisation Professionalism