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Incorporating Evidence in Clinical Education; Barriers and Opportunities in Allied Health

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ABSTRACT

Clinical education is a key component of health professional education. Clinical educators, like clinicians, are increasingly expected to access and apply evidence from clinical education theories to inform their teaching methods and approaches. Purpose: This study evaluated personal and organizational factors that influenced the ability to access and apply clinical education research evidence into clinical teaching in a group of allied health practitioners at one large metropolitan hospital in Melbourne, Australia. Method: A Cross-sectional survey based on a previously published survey of clinical physiotherapists was custom-designed to examine the factors that influence evidence based practices (EBP) of a range of allied health clinicians working as clinical educators in the hospital setting. Results: The majority of respondents were aware of the importance of evidence-based practice to their work as clinical educators. However, their positive beliefs about the value of EBP were moderated by four inhibiting factors: moderate levels of self-efficacy in accessing and applying clinical education evidence; low levels of self-efficacy in interpreting research data; uncertainty with respect to who is responsible for searching, and critically appraising research evidence; and lack of time and organisational priority for such activities. Conclusions: These results highlight a combination of factors, both intrinsic (skills of the educator) and extrinsic (organisational), that impact on the effective application and integration of evidence from the literature to inform clinical education practices. They also provide directions for increasing the use of EBP for clinical educators, including creating clinical education and workplace cultures that value and promote critical appraisal of EBP in everyday clinical education practice and the need for ongoing professional development opportunities in EBP.

INTRODUCTION

Clinical education is a key component of health professional education.^{1,2} It has evolved from a simple apprenticeship model, where students learned by observation and supervision from master clinicians. Recently, more complex models of clinical education have been adopted, which facilitate students to become interactional, reflective and client-centred practitioners.³ There is a growing body of evidence which underpins the models of clinical education, adult learning and teaching methods.⁴⁻⁷ With this growing body of evidence, educational institutions and students now expect supervising clinicians to demonstrate expertise as educators.⁸ An integral component of this expertise is the ability to access and apply evidence from clinical education theories and teaching methods.

The ability to access and apply evidence to inform clinical decision-making is accepted as a standard component of clinical practice.⁹⁻¹¹ Evidence based practice (EBP) encompasses knowledge of evidence including interpretation of its' strength or quality, and skills in interpreting such evidence into clinical decision-making.¹² It has two components. The visible one is a type of professional practice (clinical and/or supervision of students) that is objectively based on relevant and appropriate empirical evidence. The underlying and less visible component comprises a set of skills, knowledge and attitudes of individual practitioners

that are necessary for evidence in its different forms to be actively sought and integrated into everyday professional practice. This paper focuses on the second component. Research about EBP in clinical practice has similarly focused on this second component, examining how clinicians understand and incorporate research evidence into patient management.^{5,10,13-16} Factors such as clinicians' awareness of the need to use evidence in clinical decision-making, knowledge of how to access the evidence, attitudes towards and self-efficacy in finding and using evidence have been found to impact on the application of evidence into clinical practice.^{5, 17, 11} These characteristics, termed 'EBP self-efficacy', are the perceived ability to undertake activities required to implement EBP.^{10,p 1285} In addition, organisational resources, such as the presence of a library, a resource person, internet access, and managerial and peer support, impact on the implementation of EBP.^{10,18}

In contrast to EBP in the clinical setting, there is a paucity of research that has examined how clinical education research is accessed, retrieved and applied by clinical educators in their work environment. In particular, there is a lack of evidence regarding factors that impact on clinical educators' capacity to apply evidence-based clinical education literature into their day to day clinical education practices. In clinical education, principles of EBP require clinical educators to pose questions about their teaching practices, to acquire and appraise relevant literature and then to apply it to their practices.¹⁹

The primary objective of this study was to evaluate personal and organizational factors that influence the ability to access and apply clinical education research evidence into clinical teaching in a group of allied health practitioners at one large metropolitan hospital in Melbourne, Australia. We hypothesised that clinical educators' self-efficacy in evidence based clinical education (i.e. their ability to use evidence from clinical education literature), would be influenced by similar types of organizational and personal factors that have been shown to be important in clinical practice.

METHOD

Ethical approval for this cross-sectional survey was gained from the Human Research Ethics Committee at The University of Melbourne (HREC 0824407). Data collection took place on a single day (31.1.08). Consent to participate in this study was implied by return of the survey.

Participants and Survey Procedure

All Allied Health clinical educators from a large metropolitan public hospital in Melbourne, Australia, who attended a series of four clinical education workshops, were invited to participate in this study. Three days prior to the first workshop, the enrolled educators were emailed a plain language statement which informed them of the nature of the study. At the end of the first workshop, one researcher (CD) explained the purpose of this study to the educators and invited them to complete a custom-designed survey. Educators were encouraged to complete this survey during the workshop and to submit it in a labelled box outside the seminar room. Participants submitted their surveys as they left the seminar. This procedure ensured that the researcher was blinded to the study participants as well as assuring participant anonymity and confidentiality.

The Survey

The survey was custom-designed to examine the factors that influence EBP practices of a range of allied health clinicians working as clinical educators in the hospital setting. Survey items were informed by the work of Salbach et al., who examined physical therapy practitioner and organizational barriers to EBP for the treatment of people with stroke.¹⁰ The Salbach et al survey was developed from previous surveys that examined EBP beliefs, attitudes, knowledge and behaviours of physical therapists and prior to that, perceptions of general practitioners to EBP.^{16,20} The focus and questions developed for these surveys were highly relevant to EBP research but needed to specifically focus on evidence-based clinical education. Therefore the items from the survey used by Salbach et al., were reviewed by the researchers and were modified, where appropriate, to ensure that each item focused on EBP in the context of clinical education.¹⁰ The draft survey was then piloted on three clinical educators who provided feedback on the content, clarity and relevance of the survey items. This informed minor modifications to the survey and provided some evidence that the survey has face validity. This procedure has been used in a previous publication.²¹

The final survey comprised 37 questions that addressed EBP beliefs, personal skills and resources of current clinical educators (clinical educators who had supervised at least one student in the last six months) (Appendix 1). Items were divided into five sections:

1. Clinical supervision of undergraduate students during the last six months (1 question)
2. Personal attitudes towards the use and perceived benefits and limitations of evidence-based practice in clinical education (12 questions)
3. Educational level and self-efficacy in EBP (3 questions)
4. EBP resources including barriers to EBP (10 questions)
5. Demographic characteristics of the clinical educator and clinical education experience (11 questions)

The majority of the questions required respondents to indicate their level of agreement with a statement on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree." Other questions, particularly those in Section 4, required respondents to select the most appropriate response from "yes", "no" or "do not know".

Statistical Analysis

All data were entered into MICROSOFT Excel 2003. The response rate was calculated as the number of completed surveys returned divided by the number of participants enrolled in workshop. Descriptive statistics were used to summarise the data gained from all sections of the questionnaire. The barriers and opportunities to using EBP in the clinical educators' work were identified by calculating percentages for the responses on items (Questions) 14-26. Percentage estimations were calculated by collapsing the "agree" and "strongly agree" categories for positive responses and the "disagree" and "strongly disagree" for negative responses.

RESULTS

Respondent Characteristics, Demographics and Experience (11 questions)

From a total of 73 seminar attendees, 66 returned the survey (91% response rate). Of the 66 returned surveys, 13 indicated that they had not supervised students in the past 6 months. Therefore, data analysis were based on a total number of 53 respondents. The average age of respondents was 32 years (SD = 8.5), and 93% (n = 49) of the sample were female. Table 1 summarises the demographic data and characteristics of survey respondents. The largest respondent group were physiotherapists. This reflects the allied health composition in the hospital.

Table 1: Respondent Characteristics

Characteristic	Mean	SD
Age (years)		
Average age	32	8.5
Years practiced (years)		
Clinical practice	8	6
Clinical education	5	5
Division of activities/roles within respondents' work time (%)		
Patient care	65	17
Clinical education	15	14
Administration	12	7
Service improvement	6	5
Research	2	3
Gender	n	%
Female	49	93
Male	4	7
Allied Health Discipline	n	%
Dietetics	6	11
Occupational Therapy	6	11
Physiotherapy	30	57
Social Work	3	6
Speech Pathology	8	15
Highest degree gained	n	%
Undergraduate/Bachelor	40	76
Entry level Masters	6	11
Masters	4	8
Graduate Certificate	1	2
Graduate Diploma	1	2
Hours of work per week	n	%
< 20	0	0
20-30	4	8
31-40	26	50
> 40	22	42

N number; SD standard deviation

Personal Attitudes towards the Use and Perceived Benefits and Limitations of Evidence-Based Practice in Clinical Education (12 questions)

All respondents indicated that evidence-based clinical education literature was necessary in their education of students and that they were interested in learning or improving their skills in accessing and applying EBP literature to their work. Seventy-four percent of the respondents (n = 39) indicated that literature about clinical education was broadly useful in their day-to-day supervision and education practice although less (64%, n = 34), indicated that the literature more specifically assisted them in their role and decision making as educators. Eighty-five percent (n = 45) believed that evidence-based clinical education literature improved the quality of clinical education processes and acknowledged the need to increase their use of EBP clinical education literature in the future.

These responses suggest that clinical education literature was potentially useful to their practice as clinical educators. However, only 32 % of the sample (n = 17) thought that they should be responsible for conducting their own literature reviews and less than half of respondents (49%, n = 26) indicated that they should be responsible for critically evaluating the quality of literature. A higher number of respondents (66%, n = 35) indicated that it was their responsibility to interpret the applicability of the findings from the literature to their student needs.

Skills in Practicing EBP (3 questions)

Twenty-one percent (n = 11) of participants indicated that they had received formal training in how to search the literature and 55% (n = 29) had received training in how to critically evaluate research literature. Where previous formal training had been undertaken, it had occurred on average more than three years prior to the survey.

Table 2 summarises respondents' perceived levels of self-efficacy in undertaking EBP activities. One hundred percent confidence in an EBP activity equated to 'certainly can do' and 0% represented 'cannot do at all'. There were moderate to fair (57-65%) levels in almost all aspects of EBP self-efficacy. However, on average, a lower self-efficacy was reported for interpreting the results of statistical tests (45%) (Table 2). It must be noted that the standard deviations for the self-efficacy items are relatively large, which indicates that there was considerable variability in self-efficacy in the sample.

Table 2: Self-efficacy in EBP skills of allied health clinical educators

	How confident are you in your ability to:	Mean % (SD)
a.	Identify an issue in your clinical education practice that requires further knowledge or research?	65 (18)
b.	Effectively search the relevant literature to address a specific clinical education question?	59 (21)
c.	Critically appraise the literature for quality and relevance?	57 (19)
d.	Interpret results of statistical tests?	45 (22)
e.	Appropriately apply evidence from the literature to your needs as a clinical educator?	63 (16)
f.	Continually evaluate the effect of your clinical education practice?	63 (18)

Access to EBP Resources (10 questions)

Respondents indicated they had a moderately high level of access to evidence-based clinical education material. Fifty-one percent (n = 27) reported that they had access to current research journals; 32% (n = 17) said they did not and 17% (n = 9) did not know. Ninety-three percent (n = 49) of respondents had access at work to research databases which could be searched to identify relevant research evidence. Eighty-one percent (n = 43) had this access at home whereas 67% (n = 36) accessed this through a resource person in their department.

Figure 1 illustrates the top three barriers that affected respondents' abilities to update their clinical education knowledge and practices. The most frequently reported barrier was lack of time (33%, n = 50), followed by lack of priority from the organisation in which they were employed (21%, n = 31), and an insufficient understanding of, and ability to interpret statistics (13%, n = 20). Other barriers to accessing and applying evidence to clinical education teaching included lack of resources; lack of research skills; poor appraisal skills; inability to apply findings; lack of support from colleagues or a personal lack of interest. In the category of 'other' barriers, respondents listed a lack of experienced educators/researchers on staff; clinical education to be only a small aspect of their job; not a personal priority and not actively encouraged. Seventy-seven percent (n = 41) of respondents indicated that their department supports the use of current research in clinical education practice and 11% (n = 6) reported that they obtained financial support from their department to attend clinical education meetings.

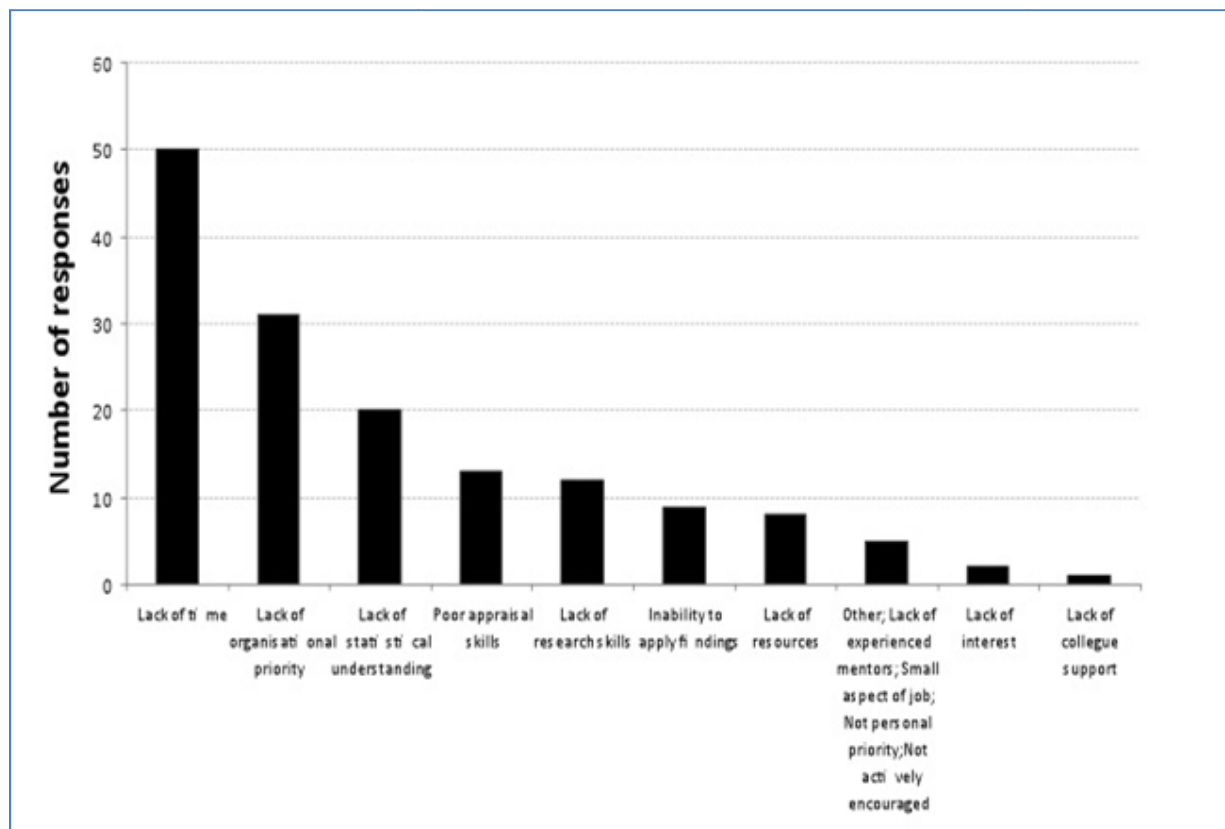


Figure 1: Barriers to updating respondents' clinical education knowledge

Discussion

This study is in part a replication of the study by Salbach et al., which examined practitioner and organisational barriers to the implementation of EBP by physical therapists who treated people with stroke.¹⁰ We similarly examined barriers to EBP, but in the context of clinical education delivered by a range of allied health practitioners in one hospital setting. A key finding in this research was that the majority of respondents were aware of the importance of EBP to their work as clinical educators. However, the positive beliefs about the value of EBP were moderated by four inhibiting factors:

1. Moderate levels of self-efficacy in accessing and applying clinical education evidence;
2. Low levels of self-efficacy in interpreting research data
3. Uncertainty with respect to who is responsible for searching, and critically appraising research evidence; and
4. Lack of time and organisational priority for such activities.

Factors 1 to 3 can be classified as intrinsic barriers (i.e. barriers that are directly attributable to the clinical educator) whereas Factor 4 is an extrinsic barrier (i.e. one that is imposed by the organisation in which the clinical educators work).

Table 3 provides a comparison between the results of this study and other similar findings in allied health clinical contexts. Our findings highlight the importance of self efficacy as a factor that impacts on clinical educators' willingness to access and apply clinical education evidence, There is evidence in the psychology and education literature which similarly identifies an association between levels of self-efficacy and willingness to perform an activity.^{22,23} In higher education, teachers' understanding of and self-efficacy in various aspects of their professional teaching activities have been shown to shape the specific meanings or purposes they attach to their teaching roles.^{9,24-26} When these findings are applied to the clinical education context, lack of self-efficacy may influence the priority, and therefore, time, that clinical educators devote to EBP. This includes the time required to develop skills in this area and the ability to apply these skills into their everyday teaching role.

Table 3: Barriers to Evidence Based Practice

Barriers to EBP identified in this study	Physiotherapy Clinical Practice	Occupational Therapy Clinical Practice	Speech Clinical Practice	Dietetics Clinical Practice	Social Work Clinical Practice
Lack of time	*Grimmer-Somers et al. (2007) ⁵ *Iles and Davidson (2006) ¹⁵ *Jette et al. (2003) ¹⁶ *Palfreyman et al. (2003) ²⁸ *Salbach et al. (2007) ¹⁰ *Schreiber and Stern (2005) ¹¹ *Upton and Upton (2006) ³³	*Curtin and Jaramazovic (2001) ³¹ *McCluskey (2003) ³² *Upton and Upton (2006) ³³	*Upton and Upton (2006) ³³	*Metcalfe et al. (2001) ³⁴ *Upton and Upton (2006) ³³ *Thomas et al. (2003) ³⁵	
Lack of organisational priority					
Lack of statistical understanding	*Schreiber and Stern (2005) ¹¹			*Metcalfe et al. (2001) ³³	
Poor appraisal skills	*Barnard and Wiles (2001) ³⁶ *Iles and Davidson (2006) ¹⁵ *Schreiber and Stern (2005) ¹¹	*McClusky (2003) ³²	*Barratt (2003) ³⁷	*Metcalfe et al. (2001) ³³ *Thomas et al. (2003) ³⁴	
Lack of research skills	*Grimmer-Somers et al. (2007) ⁵ *Stevenson et al. (2004) ³⁸ *Schreiber and Stern (2004) ¹¹	*McClusky (2003) ³²			*Mullen et al. (2005) ³⁹
Inability of apply findings	*Grimmer-Somers et al. (2007) ⁵ *Schreiber and Stern (2005) ¹¹		*Barratt (2003) ³⁷	*Metcalfe et al. (2001) ³⁴	*Mullen et al. (2005) ³⁹
Lack of resources	*Grimmer-Somers et al. (2007) ⁵ *Iles and Davidson (2006) ¹⁵ *Schreiber and Stern (2005) ¹¹ *Upton and Upton (2006) ³³	*McClusky (2003) ³¹ *Upton and Upton (2006) ³³	*Upton and Upton (2006) ³³	*Metcalfe et al. (2001) ³⁴ *Upton and Upton (2006) ³³	
Lack of interest	*Schreiber and Stern (2005) ¹¹				
Lack of colleague support	*Grimmer-Somers et al. (2007) ⁵ *Stevenson et al. (2004) ³⁸				
Lack of easily understood evidence summaries	*Iles and Davidson (2006) ¹⁵				
Staff shortage		*Curtin and Jaramazovic (2001) ³¹			

In our study, there were low levels of acceptance of responsibility to access and interpret clinical education literature. Only 32% (n = 17) of respondents in this study believed it was their responsibility to conduct their own literature reviews and less than half (49%, n = 26) believed they should be required to critically evaluate the quality of the literature. This dysjunction between clinical educators' acknowledgement of the importance of EBP in their teaching roles and their reluctance to take on responsibility to actively incorporate EBP into their teaching, could be explained by a lack of time to incorporate educational responsibilities and/or a lack of acceptance of the clinical educator role or professional identity as an educator. Clinical educators largely describe their role as a clinical one. This is unsurprising, as the clinical educators surveyed in this study spend on average 65% of their time on patient care activities (and only 15% of their time on clinical education activities). As such, clinical educators are more likely to focus their time and energy on responsibilities associated with increasing their competence and ongoing professional learning in the clinical aspect of their work.⁸ These results need to be interpreted with consideration to the range of allied health disciplines represented in this study and the potentially different clinical education models between the disciplines.²⁷ The number of participants in each allied health disciplines precluded analyses to determine whether the professional discipline affected the ability to access and apply clinical education research evidence into clinical teaching. Therefore, there is a need for more research that examines how clinical educators in different disciplines perceive their roles and responsibilities and how this perception is influenced by factors such as time, experience and perceptions of professional identity.

Lack of time and organizational priority for EBP activities were identified as barriers in this study. These factors have been similarly identified in clinical studies of physiotherapists and occupational therapists (Table 3). Several research groups have

shown that external factors, such as lack of time and lack of organisational / work place support, influence both ability and individual self-efficacy to apply EBP in clinical practice.^{5,10,11,15,16,28} It is plausible that this association between intrinsic and extrinsic barriers could exist for clinical educators. For example a lack of time related to clinical educators' multiple roles as teachers, clinicians and administrators impacts on their ability to develop high level skills in finding, and critically appraising relevant evidence, then identifying how this evidence could be applied to their clinical education practices. Examination of the links between intrinsic and extrinsic factors was not the focus of this study, and it requires further investigation in the future.

Our research also examined the impact of prior training in EBP on clinical educator's ability to integrate EBP into their teaching practices. It has been hypothesised that different health disciplines may possess differing levels of evidence-based clinical education within their discipline training.¹³ This means that skills in accessing and applying evidence about clinical education may be variable both within and between different allied health professions. This is important in the context of providing common resources for a range of different health professions and implementing multi-disciplinary education strategies. In our sample, we were not able to investigate whether differences existed between the different allied health professions due to the small number of participants in some of the disciplines, in particular Speech Pathology (n=8), Dietetics (n=6), and Social Work (n = 2).

This study is limited by the specific sample of allied health professions who participated, including the uneven representation of disciplines. The survey instrument was developed and modified from previous surveys and lacked systematic testing of its psychometric properties. Further research is needed to validate an appropriate survey tool and to examine and compare evidence-based clinical education practices in specific discipline groups.

Our results highlight a combination of factors, both intrinsic and extrinsic, that impact on the effective application and integration of evidence from the literature to inform clinical education practices. These factors also highlight opportunities to improve the use of EBP by clinical educators. These include creating a clinical education and workplace culture that recognises clinical education as a distinct professional identity,⁸ and that values and promotes critical appraisal of EBP in everyday clinical education practice. Early preparation and training of clinicians in their academic careers and studies means they may be more likely to implement evidence-based clinical education once they graduate.^{5,11} There is evidence which suggests that clinical educators benefit from professional development opportunities.^{29,30} Therefore, clinician training in the finer skills and understandings of research evidence, e.g. statistical interpretation, may be beneficial as we identified that self-efficacy in these skills to be only moderate to fair. Practical strategies to integrate EBP in clinical education practice may include regular education sessions in searching and accessing clinical education evidence; forming journal clubs to raise the profile of relevant clinical education literature; scheduling journal discussions in staff meetings and developing a web based structure on hospital or workplace intranet sites for the dissemination of relevant literature. These external supports need to be integrated with more explicit role definitions and descriptions for clinical educators to encourage their development and professional identity as educators in addition to their more established clinical practice role. Promoting professional identities as a clinical educator and fostering associated responsibilities are important to ensure that both barriers and opportunities for increasing skill and self-efficacy levels in EBP are recognised.

Schreiber and Stern argue for and aspire to a 'culture' in clinical practice that 'understands research, values the evidence generated by that research, and demands to be informed.'¹¹ We contend that the same argument should also be made for clinical educators. This research has begun the process of identifying factors that are important to address in order to achieve these aspirations.

REFERENCES

1. Kilminster S, Jolly B. Effective supervision in clinical practice settings: a literature review. *Medical Education*. 2000;34:827-40.
2. Spencer J. ABC of learning and teaching in medicine: learning and teaching in the clinical environment. *British Medical Journal*. 2003;326:591-4.
3. Higgs J. *Ways of knowing for clinical practice*. In Clinical Education in the Health Professions. Delany C, Molloy E (Eds). Sydney: Elsevier. 2009.
4. Hobbs C, Henley E, Higgs J, Williams V. Clinical education program strategies for challenging times. *Focus on health professional education: a multi-disciplinary journal*. 2000;2:1-17.
5. Grimmer-Somers K, Lekkas P, Nyland L, Young A, Kumar S. Perspectives on research evidence and clinical practice: a survey of Australian physiotherapists. *Physiotherapy Research International*. 2007;12(3):147-61.
6. Joffe B. *Models of Clinical Education*. In Transforming Practice through Clinical Education, Professional Supervision and Mentoring. Rose M, Best D (Eds). Edinburgh: Elsevier. 2005.
7. Lekkas P, Larsen T, Kumar S, Grimmer K, Nyland L, Chipchase L, Jull G, Buttrum P, Carr L, Finch J. No model of clinical

- education for physiotherapy students is superior to another: a systematic review. *Australian Journal of Physiotherapy*. 2007;53(1):19-28.
8. Higgs J, McAlister L. Being a clinical educator. *Advances in Health Sciences Education*. 2007;12:187-99.
 9. Kamwendo K, Tornquist K. Do occupational therapy and physiotherapy students care about research? A survey of perceptions and attitudes to research. *Scandinavian Journal of Caring Sciences*. 2001;15(4):295-302.
 10. Salbach NM, Korner-Bitensky N, Rappolt S, Davis D. Practitioner and organizational barriers to evidence-based practice of physical therapists practice for people with stroke. *Physical Therapy*. 2007;87(10):1284-1303.
 11. Schreiber J, Stern P. A review of the literature on evidence-based practice in physical therapy. *The Internet Journal of Allied Health Sciences and Practice*. 2005;3(4).
 12. Eddy D. Evidence-based medicine: A unified approach. *Health Affairs*. 2005;(24):9-17.
 13. Cochrane LJ, Olson CA, Murray S, Dupuis M, Tooman T, Hayes S. Gaps between knowing and doing: Understanding and assessing the barriers to optimal health care. *Journal of Continuing Education in the Health Professions*. 2007;27(2):94-102.
 14. Haynes B, Haines A. Getting research findings into practice: barriers and bridges to evidence based clinical practice. *British Medical Journal*. 1998;317:273-6.
 15. Iles R, Davidson M. Evidence based practice: a survey of physiotherapists' current practice. *Physiotherapy Research International*. 2006;11(2):93-103.
 16. Jette DU, Bacon K, Batty C, Carlson M, Ferland A, Hemingway RD, Hill JC, Ogilvie L, Vold D. Evidence-based practice: Beliefs, attitudes, knowledge and behaviours of physical therapists. *Physical Therapy*. 2003;83(9):786-805.
 17. Grol R, Wensing M. What drives change? Barriers to and incentives for achieving evidence-based practice. *Medical Journal of Australia*. 2004;180:S57-S60.
 18. Johnston JM, Leung GM, Fielding R, Tin KYK, Ho LM. The development and validation of a knowledge, attitude and behaviour questionnaire to assess undergraduate evidence-based practice teaching and learning. *Medical Education*. 2003;37:992-1000.
 19. Wyer P, Naqvi Z, Dayan P, Celentano J, Eskin B, Graham M. Do workshops in evidence-based practice equip participants to identify and answer questions requiring consideration of clinical research? A diagnostic skill assessment. *Advances in Health Sciences Education*. 2009;14:515-33.
 20. McColl A, Smith H, White P, Field J. General Practitioners' perceptions of the route to evidence-based medicine: a questionnaire survey. *BMJ*. 1998; 316:361-5.
 21. Bragge P, Bialocerkowski A, McMeeken J. A survey of Playing-Related Musculoskeletal Disorder (PRMD) prevalence and associated risk factors in elite pianists. *Australian Journal of Music Education*. 2008;1:18-32.
 22. Bandura A. Social cognitive theory: An agentic perspective. *Annual Review of Psychology*. 2001;52:1-26.
 23. Allinder R. The relationship between efficacy and the instructional practices of special education teachers and consultants. *Teacher Education and Special Education*. 1994;17:86-95.
 24. Triggwell K, Prosser M. Congruence between intention and strategy in university science teachers' approaches to teaching. *Higher Education*. 1996;32:77-87.
 25. Richardson B, Higgs J and Dahlgren M. *Recognising practice epistemology in the health professions*. In Developing practice knowledge for health professionals. Higgs J, Richardson B, Dahlgren M (Eds). Edinburgh: Butterworth Heinemann. (2004).
 26. Kell C, Jones L. Mapping placement educators' conceptions of teaching. *Physiotherapy*. 2007;93:273-82.
 27. Pollock AS, Legg L, Langhorne P, Sellars C. Barriers to achieving evidence-based stroke rehabilitation. *Clinical Rehabilitation*. 2000;14(6):611-7.
 28. Palfreyman S, Tod A, Doyle J. Comparing evidence-based practice of nurses and physiotherapists. *British Journal of Nursing*. 2003;12(4):246-53.
 29. Notzer N, Abramovitz R. Can brief workshops improve clinical instruction? *Medical Education*. 2008;42:152-6.
 30. Kilminster S, Hale C, Lascelles M, Morris P, Roberts T, Stark P, Sowter J, Thistlethwaite J. Learning for real life: patient-focused interprofessional workshops offer added value. *Medical Education*. 2004;38:717-26.
 31. Curtin M, Jaramazovic E. Occupational therapists' views and perceptions of evidence-based practice. *The British Journal of Occupational Therapy*. 2001;64(5):214-22.
 32. McCluskey A. Occupational therapists report a low level of knowledge, skill and involvement in evidence-based practice. *Australian Journal of Occupational Therapy*. 2003;50(1):3-12.
 33. Upton D, Upton P. Knowledge and use of evidence-based practice by allied health and health science professionals in the United Kingdom. *Journal of Allied Health*. 2006;35(3):127-33.
 34. Metcalfe C, Lewin R, Wisher S, Perry S, Bannigan K, Moffett J. Barriers to implementing the evidence base in four NHS therapies: Dieticians, occupational therapists, physiotherapists and speech and language therapists. *Physiotherapy*. 2001;87(8):433-41.
 35. Thomas DE, Kukuruzovic R, Martino B, Chauhan SS, Elliot EJ. Knowledge and use of evidence-based nutrition: a survey of paediatric dieticians. *Journal of Human Nutrition and Dietetics*. 2003;16(5):315-22.
 36. Barnard S, Wiles R. Evidence based physiotherapy: physiotherapists' attitudes and experiences in the Wessex area. *Physiotherapy*.

- 2001;87(3):115-24.
37. Barratt M. Organizational support for evidence-based practice within child and family social work: a collaborative study. *Child and Family Social Work*. 2003;8(2):143-50.
 38. Stevenson K, Lewis M, Hay E. Do physiotherapists' attitudes towards evidence-based practice change as a result of an evidence-based educational programme? *Journal of Evaluation in Clinical Practice*. 2004;19(2):207-17.
 39. Mullen EJ, Shlonsky A, Bledsoe SE, Bellamy JL. From concept to implementation: challenges facing evidence-based social work. *Evidence and Policy: A Journal of Research, Debate and Practice*. 2005;1(1):61-84.

Appendix

Evidence based practice in allied health clinical education practice: barriers and opportunities

Section 1

1. In the past 6 months, have you been involved in supervision / education of undergraduate students?

- Yes *Please go to Question 2* No *Please go to question 27, page 5*

Section 2

This section inquires about your personal attitudes toward, use of, and perceived benefits and limitations of evidence-based practice. In clinical practice, EBP is defined as "integrating individual clinical expertise with the best available external clinical evidence from systematic research" (Sackett et al, 1996).¹ This definition can be applied to the clinical education of students, whereby evidence regarding teaching methods and theories of education (clinical education literature) is integrated into clinical education setting.

For the following items, place a mark in the appropriate box that indicates your response.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2. Application of Clinical Education Literature is necessary in the practice of clinical education/supervision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Clinical Education Literature and research findings are useful in my day to day supervision/education practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I need to increase the use of clinical education evidence in my daily supervision/education practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The inclusion of Clinical Education Literature places an unreasonable demand on my work as a clinical educator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I am interested in learning or improving the skills necessary to incorporate Clinical Education Literature into my clinical education practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Clinical Education Literature improves the quality of clinical education processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹ Sackett, D., Rosenberg, W., & Gray, J. (1996). Evidence based medicine: what it is and what it isn't. *BMJ*, 312, 71-72.

- | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
| 8. Clinical Education Literature helps me make decisions about educating/supervising students | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Clinical Education Literature does not take into account student preferences (i.e, students' learning styles, reported values and preferences for learning) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. There is a definite divide between clinical education research and clinical education practice | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Allied health practitioners should be responsible for conducting their own literature reviews to answer their clinical education questions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Allied health practitioners should be responsible for critically evaluating the quality of the literature to address their clinical education questions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Allied health practitioners should be responsible for interpreting whether research findings apply to their students' learning needs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Section 3

The following section inquires about your educational preparation and about how confident you are in your ability to access, interpret, and apply research evidence to clinical education challenges. The information you provide will be used to enhance future clinical education support materials and information including the planning of continuing education courses and clinical education resources.

For the following items, place a mark in the appropriate box that indicates your response.

14a. I have received formal training (eg, workshops, courses) in *search strategies* for finding research relevant to my role as a clinical educator

- Strongly Disagree Disagree Neutral Agree Strongly Agree

14b. If you have received formal training in *search strategies*, please state the year when this was undertaken _____

15a. I received formal training in how to *critically evaluate* research literature as part of my academic preparation

- Strongly Disagree Disagree Neutral Agree Strongly Agree

15b. If you have receive formal training on how to *critically evaluate* the research literature, please state the year when this was undertaken _____

16. For each of the following activities please indicate how confident you are in your current level of ability by choosing the corresponding number on the following rating scale:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Cannot do
at all

Moderately
able to do

Certainly
can do

How confident are you in your ability to:

- a. Identify an issue in your clinical education practice that requires further knowledge or research? _____%
- b. Effectively search the relevant literature to address a specific clinical education question? _____%
- c. Critically appraise the literature for quality and relevance? _____%
- d. Interpret results of statistical tests? _____%
- e. Appropriately apply evidence from the literature to your needs as a clinical educator? _____%
- f. Continually evaluate the effect of your clinical education practice? _____%

Section 4

The following section inquires about the availability of resources and support to promote EBP for your work as a clinical educator.

For the following items, place a mark in the appropriate box that indicates your response.

- | | Yes | No | Do not know |
|---|--------------------------|--------------------------|--------------------------|
| 17. I have access in my department to current research through professional journals about clinical education in their paper form | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | | | |
|-----|--|--------------------------|--------------------------|--------------------------|
| 18. | I have the ability to access relevant databases and the Internet at my department | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. | I have the ability to access relevant databases and the Internet at home or locations other than my department | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. | A resource person (eg, clinical education leader, librarian, research therapist) is available at my department to assist me with accessing clinical education literature | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. | My department mandates the use of current research findings in clinical education practice (mandate is a written requirement) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Yes | No | Do not know |
| 22. | My department provides protected time to conduct literature reviews and appraise the clinical education literature | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. | My department provides financial support to attend clinical educational meetings and conferences on clinical education | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. | My department supports the use of current research in clinical education practice | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. | Colleagues within my department are sceptical of new clinical education literature in the area of clinical education. | | | |
| | <input type="checkbox"/> Strongly Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Neutral <input type="checkbox"/> Agree <input type="checkbox"/> Strongly Agree | | | |
| 26. | The following question inquires about the top 3 barriers to updating your clinical education knowledge with new knowledge. Please indicate by ticking the appropriate box the 3 greatest barriers to updating your clinical education skills with new knowledge | | | |
| | Insufficient time allocation for clinical education activities | <input type="checkbox"/> | | |
| | Lack of information resources | <input type="checkbox"/> | | |
| | Lack of research skills | <input type="checkbox"/> | | |
| | Poor ability to critically analyse the literature | <input type="checkbox"/> | | |
| | Inability to apply research findings to my particular students | <input type="checkbox"/> | | |
| | Lack of understanding of statistical analyses | <input type="checkbox"/> | | |

- Lack of support among my colleagues in my department
- Lack of interest
- Lack of organisational priority
- Isolation from peers
- Other, please specify _____

Section 5

The following section inquires about your demographic characteristics and your clinical education practice.

27. How old are you? _____years
28. What is your gender? female Male
29. What is your area of allied health practice?
- Dietitetics /Nutrition
- Facial prosthetics
- Music Therapy
- Occupational therapy
- Orthotics and Prosthetics
- Physiotherapy
- Podiatry
- Psychology
- Social work

Speech therapy

Other (provide name)

30. What is your entry-level degree for **your** allied health qualification?

Certificate

Bachelor degree

Entry-level Master

Other, please specify

31. In what year did you graduate with your allied health qualification? _____

32. What is your highest allied health degree attained?

Bachelor degree

Entry-level Master

Applied or research Master

Doctorate

Other, please

specify _____

33. For how many years have you been in clinical practice? _____ years

34. How many years of experience do you have as a clinical educator? _____ years

35. In a typical week, how many hours do you work as an allied health professional?

< 20 hours per week

20-30 hours per week

31-40 hours per week

> 40 hours per week

36. In a typical day, how many students do you supervise?

1-2 students

3-4 students

- 5-6 students
- 7-8 students
- 9-10 students
- > 10 students

37. Please indicate the percentage of your total work time that you spend in each type of activity **during an average month**

- a. Patient care _____ %
- b. Research _____ %
- c. Clinical teaching _____ %
- d. Administration _____ %
- e. Service improvement/quality _____ %
- f. Other, please specify _____ %

Thank you

for completing this questionnaire