The Rural Research Capacity Building Program 2009
Final report for research project

Rural Allied Health:

A cross sectional survey on the use of evidence in day to day clinical practice

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Summary of Tables and Figures

Abstract

Background and Purpose:

Allied health professionals are expected to use evidence in day to day clinical practice. While there is an existing body of knowledge in regard to this topic, there is a lack of context specific knowledge in rural NSW. This research explored the use of evidence in day to day clinical practice by a range of allied health professionals working in rural Area Health Services in NSW.

Method:

A self completed anonymous survey of all allied health professionals working in rural Area Health Services in NSW was conducted. The response rate was 13%, with 293 surveys completed. Descriptive and comparative statistical analyses were undertaken.

Results:

The majority of respondents use evidence at least weekly (82%), with 54% using evidence daily. Differences were found in the extent of use of evidence when the type of training received was compared (χ^2=26.45, df=4, p <0.001), with respondents with multiple sources of training most frequently using evidence, while those with no training reporting the least frequent use. Differences were found when the extent of evidence and professional groups were compared (χ^2=31.39, df=6, p <0.001), with psychologists reporting the most frequent use and occupational therapists reporting the least. Differences were also found when comparisons were made between different AHPs working different lengths of time in their profession (χ^2=19.11, df=3, p=0.003), with those working less than 5 years using evidence most frequently, and those working between 11 and 15 years using evidence least frequently.

A wide variety of sources of evidence were used, including the use of clinical policies, procedures or guidelines and discussions with other professionals. The most frequently identified reason for using evidence was for patient care. Factors impacting on the use of evidence in day to day clinical practice were analysed and significant differences found between a number of these.

A range of barriers to using evidence were identified, the most frequent being sufficient time. A variety of strategies were identified that may help improve the use of evidence.

Conclusions:

Allied health professionals in rural NSW Area Health Services frequently use evidence and believe it improves patient care. Continued strategies to maximise the use of evidence in this context include appropriate training, increasing the availability of specific strategies such as clinical guidelines, structured journal clubs and using online libraries with pre-existing research critiques. All clinicians should consider that when providing advice to their peers, this is considered a source of evidence, and thus there is both an obligation and an opportunity to consider the available evidence in these discussions.

Keywords

Allied health professionals, evidence, research, clinical practice, rural

Executive Summary

Implications

This research has identified that allied health professionals (AHPs) in rural NSW Area Health Services (AHS) frequently use evidence in their day to day clinical practice, and that using evidence has a positive impact on patient care.

A range of issues have been identified that can maximise the use of evidence by these professionals, in this context.

While the majority of rural AHPs have received some training in the use of evidence **there are ongoing educational requirements**. This education should focus on those AHPs with no or lower levels of training, target skills in understanding research and target specific skills associated with using evidence efficiently in day to day practice.

In this research discussion with colleagues was identified as the most useful source of evidence. **The advice provided in peer discussions needs to be founded in evidence.** The health professionals involved need the requisite knowledge in regard to the use of evidence and communication skills to use these conversations most effectively to disperse the use of evidence in day to day clinical practice.

A number of barriers to using evidence in day to day practice were identified by AHPs – **sufficient time being the most frequent barrier identified**. Multiple approaches are required to overcome this barrier, including optimising skills, maximising knowledge about time-efficient methods of accessing evidence and ensuring organisational processes exist to support the allocation of time to allow evidence to be incorporated into day to day clinical practice. Further research to understand the priorities that compete with finding and using evidence would be beneficial.

Existing strategies have been shown to facilitate the use of evidence. These influence both the identified skill deficits and also the time taken for individuals to access and use evidence. These include:

- **development and dissemination of evidence based clinical guidelines**, taking into consideration local barriers
- maximising the **use of online libraries with an existing critiques of the literature**
- increasing the **use of structured journal clubs**
- development of **local experts / local opinion leaders**

To allow maximal use of evidence in day to day clinical practice, **access must be maximised through a combination of training and appropriate physical access,** particularly for AHPs working in community settings within rural NSW AHS.

Difficulties related to the available evidence itself were identified and to overcome these barriers appropriate training is required and efforts are required to ensure **research is targeted to the clinical needs of rural AHPs.**

The profession of the respondent impacted on the extent of use of evidence, factors relating to the organisation, factors relating to research characteristics and the knowledge and skill when using evidence. Further investigation into the causes behind this result would be beneficial.

The length of time working in a profession impacts on the frequency of use of evidence. Those least likely to use evidence in their day to day practice were AHPs in the 11-15 years length of practice bracket. These professionals need to consider their practices in relation to the use of evidence, as do the organisations they work within. Further investigation into the causes behind this result would be beneficial.

Context

To maximise the effectiveness and efficiency of health care delivery the use of evidence in clinical practice has been emphasised for over a decade, through the training of professionals, health department policy and by professional organisations. There has also been an increasing body of literature with improved immediacy of access through electronic sources in people's homes and at the desktop at work.

While there is an existing body of knowledge in regard to this topic in relation to AHPs, there is a lack of context specific knowledge in rural NSW. This research explored the use of evidence in day to day clinical practice by a range of AHPs working in rural Area Health Services in NSW.

Approach

A self completed anonymous survey of all AHPs working in rural AHS in NSW was conducted. The response rate was 13% with 293 surveys completed. Descriptive and comparative statistical analyses were undertaken.

Findings

Eighty-two percent of respondents identified they used evidence in day to day clinical practice at least weekly, with 54% of the total respondents identifying they used evidence on most days. There were differences in the extent to which evidence is used in day to day clinical practice according to the training received, the professional group and according to the length of time working in a profession.

As expected a variety of sources of evidence were identified. It was identified that the most useful sources of evidence were peers (43%) and internet sources of evidence (40%). An overwhelming number of respondents (96%) believed that they had recently used evidence in day to day clinical practice to improve patient care.

Seventy-seven percent of respondents identified they have ready access to evidence. It was found that training positively effects the perception of access to evidence in day to day clinical practice, while different primary work settings are associated with different perceptions to access. Sixty-four percent believed they were encouraged and supported within their organisation to use evidence as part of their day to day clinical role. Seventy-six percent of respondents responded that their colleagues are supportive of retrieving and appraising evidence. Only 22% believed they are able to allocate sufficient time to retrieve and appraise evidence.

Forty-nine percent of respondents believed that there is sufficient evidence in their field to support their clinical decisions in day to day practice. Fifty percent of respondents believed that the implications for day to day clinical practice are clear in the available evidence. There were differences between the participants who had training and those who had not, in regard to perceptions about the availability of sufficient evidence and regarding the implications of the evidence. Similarly there were differences between the different professions regarding the availability of sufficient evidence and regarding implications of the evidence.

The majority of respondents identified they believed they had very good (14%) or good (52%) knowledge about using evidence in day to day practice. There were differences in the knowledge about using evidence according to the training received and between the professional groups.

Sixty-nine percent of respondents strongly agreed or agreed they could develop a clear clinical question to use as a focus when searching for evidence. Sixty-one percent believed they are able to locate the evidence they are seeking. Sixty-five percent identified they are able to critically appraise the evidence they find. Seventy-nine percent responded positively in regard to being able to integrate the evidence found into their clinical practice. It was found that training influenced the ability to develop a clinical question, to locate evidence and to appraise evidence. It was also found that training influences the ability to integrate evidence into day to day clinical practice. There are differences between the different professions in regard to appraising evidence and integrating evidence into practice.

A range of barriers to using evidence and strategies to increase the use of using evidence were identified.

Conclusion

Allied health professionals in rural NSW Area Health Services frequently use evidence and believe it improves patients care. Continued strategies to maximise the use of evidence in this context include appropriate training, increasing the availability of specific strategies such as clinical guidelines, structured journal clubs and using databases with pre-existing research critiques. All clinicians should consider that when providing advice to their peers, this is considered a source of evidence, and thus there is both an obligation and an opportunity to consider the available evidence in these discussions.

Introduction

This report provides details regarding a research project undertaken as part of the Rural Research Capacity Building Program. The report will include the findings in regard to allied health professionals (AHPs) in rural NSW Area Health Services (AHS) and their use of evidence in day to day clinical practice.

This report provides the rationale underpinning this research and describes how the research was undertaken. It describes the results in terms of the extent of use of evidence in day to day clinical practice, the sources of evidence used, the reasons the evidence was used, the barriers to using evidence and potential strategies to overcome these barriers. It identifies differences between a range of factors including different allied health professions, between respondents with different length of time working in a profession, between respondents working in rural and regional areas, and metropolitan areas, within these rural AHS, between respondents from different work settings and between respondents with different training in the use of evidence.

The report discusses the findings and provides recommendations in regard to future directions in relation to this topic.

Background

Using evidence in day to day clinical practice

The use of evidence in clinical practice is an expectation of consumers, health care organisations and clinicians. For over a decade there has been an increasing emphasis on incorporating findings from research into the clinical setting, to maximise clinical effectiveness.

A landmark definition was described by Sackett et al (1996, p71) as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients". Since the time of this definition the literature has continued to use a number of terms to describe the incorporation of evidence and research into a clinician's day to day practice. These include evidence based practice (EBP), evidence based medicine and research based practice. While the terminology may differ the intent is similar. Despite this, a number of authors including Barnard and Wiles (2001, p 118), Tonelli (2004, p249-250) and Dawes et al (2005, p2) have reported that practitioners have a wide variety of views on what evidence based practice entails.

As differences exist in terminology and perceptions in this topic, for the purpose of this research it was decided that a descriptive statement would be used in preference to other terminology. Hence this research project investigated the use of evidence in day to day clinical practice.

Availability of evidence

It is well acknowledged that there is an increasing amount of evidence available to clinicians to support their day to day clinical practice. In addition the acceptance of the internet as a distribution source for research has made the existing research far more accessible. Both employers and professional organisations have provided systems to enable and support access to sources of evidence for all health professionals.

In the allied health field, while many professions have a considerable history in producing research based professional journals, recently there has been in an increase in the number of, and the access to, these publications. Databases such as Cumulative Index to Nursing and Allied Health Literature (CINAHL), initially increased access to allied health specific literature, while more recently discipline specific databases, that incorporate a critique of the literature have been established, for example OTseeker, PEDro, and SpeechBITE.

Existing Knowledge regarding Allied Health and the use of evidence

There is extensive literature on the use of evidence across health professions over the last 15 years. Some of the literature reviewed aspects of evidence across or between professions, including allied health.

Literature across multiple professions, including Allied health

In 2003, in a teaching hospital in the United Kingdom, it was found that there were both differences and commonalities between nurses and physiotherapists in their use of, sources of and barriers to using evidence (Palfreyman, Tod and Doyle). Tweed et al (2007) presented an overview of the use of evidence

based practice in the United States of America and in some instances elsewhere, for nursing and some allied health professions. They identified that this approach to practice was in the early stages of development for many of these professions and resources were being devoted to enable the respective workforce to increase the use of evidence.

Scott, Buckmaster and Harvey (2003) undertook a survey of one aspect of EBP (the view of, and use of, clinical practice guidelines) in Queensland hospitals across medical, nursing and some allied health disciplines. They found that the majority of clinicians surveyed used clinical practice guidelines and viewed them as a positive and an effective way to implement evidence into practice. They also found that there was no difference between the professional groups in their responses (p274 – 275).

In contrast it had been identified that the use of evidence in Australian hospitals was suboptimal, across a range of professions, and that further research into its use and implementation strategies was recommended (Peach, 2003).

There is less literature in relation to the use of evidence in rural settings, such as the rural Area Health Services (AHS) of NSW, and while some studies may have included a proportion of rural participants, specific issues for this group have rarely been identified. Parsons et al, in their critical review of implementing research in rural areas, postulated that context specific research in this area is required (2003).

Allied Health Specific Literature

Although some literature suggests that there is little research on whether allied health practitioners integrate evidence into practice (Stevenson, Lewis and Hay, 2004, p366), it has also been identified there is considerable research into specific allied health professions and their use of evidence in the international setting. Examples include discipline specific research into occupational therapy (Cameron et al, 2005; Dysart and Tomlin, 2002; Reagan, Bellin & Boniface, 2008), physiotherapy (Barnard and Wiles, 2001; Connolly, Luppinaci and Bush, 2001; Jette et al, 2003; Schrieber & Stern, 2005; Stevenson, Lewis and Hay, 2004), and speech pathology (Nail-Chiwetalu & Ratner 2007; Zipoli & Kennedy, 2005). Different approaches have been used by these authors and there has been a different focus on aspects of using evidence in practice. Despite this there have been a number of similarities found across the professions, including the importance of research and evidence in developing the profession, the barriers to using evidence (eg time), the need for skills in using evidence and the increased value of research associated with higher levels of academic training. Some differences were also found between professions, particularly between what constitutes using evidence, the extent to which evidence was used, the relationship between length of time working in the profession and the attitude to evidence, and the best strategies to increase the use of evidence.

A number of authors in the United Kingdom have investigated this topic across a range of allied health professions and the findings include variations between disciplines. Metcalfe et al (2001) identified differences in perceptions across the four professions investigated, in regard to the barriers to implementing evidence and the perceived importance of research at this time, although they reported that most professionals agreed research plays an important role in developing clinical plans. Upton and Upton (2006) also investigated the knowledge and practice regarding clinical effectiveness and evidence based practice of 14 different allied health and health science professionals. They found that different professions had different levels of knowledge regarding the use of evidence. They also identified that different approaches, in particular in education and policy development, are required to increase the

uptake of evidence based practice in the specific professions. Hadley, Hassan & Khan (2008) investigated the training needs of different allied health and other professions and identified that as the education needs of the groups were different it would be beneficial for curricula development to be different, having specific relevance for each professional group.

Allied Health in Australia

In the Australian context, studies on facets of allied health and the use of evidence have been undertaken. There are a number of discipline specific studies.

Bennett et al (2003) analysed response to a survey regarding the attitudes, barriers to implementing and educational needs of over 600 occupational therapists. They found that most respondents identified that evidence was important, although its amount of use was not as strongly reported, with the primary barriers identified as time and skills. They also identified that the rural respondents were more likely to identify that EBP placed too many demands on their workload and that metropolitan respondents were more likely to have higher degrees and training, which impacted positively on the use of evidence based practice. Interestingly McCluskey and Lovarini, in 2005, investigated the effects of a short course in evidence based practice with email and phone follow up support, in 114 occupational therapists in New South Wales. They identified that there was an increase in skills, knowledge, and confidence in regard to using evidence, however the training did not lead to a change in behaviour in using evidence after an eight month period. While 36% of participants worked in a regional or rural area no specific information regarding this group was reported. One hundred and twenty-four Victorian physiotherapists responded to a survey undertaken by Iles & Davidson in 2006 that explored the self reported practice, skills and knowledge of the use of evidence based practice. It was found that the while the majority of respondents used evidence, only a small percentage searched for and critically appraised research regularly. Differences were found due to length of time working in the profession and type of training received. Similar to other studies time was identified as the major barrier, while lack of skills and lack of access to summaries of evidence were also identified. Grimmer-Somers et al (2007) sought information, through a mail-out survey, on South Australian physiotherapists' perceptions of the importance of research, and barriers to its uptake in clinical practice. Holding a postgraduate degree was again a factor that positively influenced perceptions, as did undertaking research and working in a hospital. The consistent theme of insufficient time was again identified as a barrier from the 171 respondents, as were length of time working in the profession, skills and relevance of research to clinical practice. In this study comparisons were made with a similar study on United Kingdom physiotherapists in 2001, and these indicated a change towards more positive attitudes. Fielding et al (2009) used qualitative methods to investigate how experienced social workers in Western Australia use evidence and knowledge in shaping effective practice and found a complex interplay of these components in social work practice.

Across 790 AHPs in New South Wales, Gosling & Westbrook (2004) investigated the use of a point of care web based system to access evidence (Clinical Information Access Project – CIAP). They found that while the majority of AHPs used the system there were varying rates across disciplines. Time, skills and organisational support were identified as barriers to using this system to enhance the use of evidence in practice.

Existing knowledge regarding barriers impacting on the use of evidence and strategies to improve the use of evidence in day to day clinical practice.

Grol and Wensing (2004, pS57) identify that to bridge the gap between scientific evidence and patient care we need an in-depth understanding of the barriers and incentives to achieve a change in practice.

Throughout the literature and across professions, some consistent barriers to implementing evidence in clinical practice have been identified. The most prominent of these is the availability of time to undertake the activities associated with using evidence, and this has been repeatedly identified within the relevant allied health literature. Another frequently identified barrier is the skill sets required to access, appraise and use evidence. Factors associated with organisational support have also frequently been reported. Some authors have identified issues with the clinical applicability of existing research including Bialocerkowski et al (2004) amongst Australian physiotherapy published research, and Grimmer et al in regard to AHPs needing better quality and clinically focused research to assist in the implementation of EBP (2004).

In regard to strategies that improve a health professional's ability to integrate evidence in practice there have been a number of specific investigations. A systematic review undertaken by McGowan et al (2009) identified that education for a specific electronic source increased knowledge but did not change behaviour, and that there is not conclusive evidence that it improves patient outcomes. This is consistent with the findings of McCluskey and Lovarini for occupational therapists in Australia (2005). The use of "local opinion leaders" is one strategy that has been espoused to close the research – practice gap and Doumit et al undertook a systematic review of the effectiveness of local opinion leaders in 2009. They found this strategy could improve the uptake of evidence in practice however it was unclear if this could be implemented as a widespread strategy. Clinical practice guidelines is a noted widespread strategy for dissemination evidence into day to day practice and within Australia the National Health and Medical Research Council (NHMRC) has produced guidelines for their development and implementation (2000). In 2004 Grimshaw et al undertook a systematic review of the development and implementation of clinical practice guidelines and concluded that there is imperfect evidence on the best dissemination strategies. Thomas et al (1999) undertook a systematic review that included studies of dietitians and found that there was some evidence that guidelines improved clinical practice. Hakkennes and Dodd (2007) identified that for allied health guidelines, effective implementation strategies must consider the specific barriers that are to be overcome.

Further literature identifies strategies for AHPs to expand their use of evidence in daily practice. Wrightson and Cross identified that in the United Kingdom a need for an increased research focus across the professions is required to increase the use of evidence based practice. Plastow (2006) in the United Kingdom and Johnson (2006) in North America outline processes for implementing changes from the current to a more evidence based approach to practice.

Some specific strategies to improve the use of evidence by AHPs have been identified within Australia.

Green and Piehl (2003) outline the benefits and strategies to ensure the suitability of clinical practice guidelines in regard to physiotherapists. McCluskey and Cusick presented a "Managers toolbox" to assist occupational therapists to move towards a greater use of evidence (2002). Lizarondo, Kumar and

Grimmer-Somers (2009) report on a successful strategy - structured journal clubs - to increase the uptake of EBP in allied health practitioners in South Australia.

Aims of the Research

The available literature provides a substantial, however at times conflicting, perspective around the use of evidence in the day to day practice of health professionals. Within the contemporary literature there remains very limited knowledge on the Australian, rural, allied health specific context and how these professional groups integrate evidence into their practice, the barriers to this integration and strategies that may improve this integration.

This study aims to provide detailed information of the use of evidence by rural AHPs in their day to day clinical practice.

Specific questions to be answered by the research were:

1. To what extent do rural AHPs use evidence in their day to day clinical practice?
2. To what extent do rural AHPs use different sources of evidence available to them in their day to day clinical practice?
3. For what purposes do rural AHPs use evidence in their day to day clinical practice?
4. What are the barriers to rural AHPs using evidence in their day to day clinical practice and what strategies may improve their use of evidence?

Method

Research design

A self completed survey instrument has been used repeatedly across allied health and other health professionals internationally when investigating the use of evidence and research in practice. This method was considered the most practical and effective manner to collect data across rural NSW, seeking information regarding rural AHPs use of evidence in day to day clinical practice.

A draft survey was developed, using information from previous surveys identified from the literature and in consultation with allied health stakeholders, taking into consideration the specific research target group.

This draft survey was completed by ten AHPs, including clinicians, clinical managers and academics. Feedback from this process was incorporated into the final survey design.

The survey sought information regarding the participants' demographics, the extent of use of evidence in day to day clinical practice, the sources of evidence used, the reasons the evidence was used, and barriers to using evidence and strategies to increase the use of evidence. The barriers to using evidence and strategies to increase use were divided into the following factors:

- Factors relating to the organisational context of the participant including; access to evidence, support for the use of evidence, and sufficient time to use evidence,
- Factors related to the existing research relevant to the participant including; sufficient evidence being available and implications of the available research being clear,
- Factors relating to the participants' knowledge about using evidence,
- Factors relating to the participants' skills in locating and using evidence, including; developing clear clinical questions, being able to locate evidence, critically appraising evidence and integrating the evidence into practice.

Apart from the demographics, the survey primarily contained Likert-type questions, with opportunities for further comments. The survey is attached in Appendix One.

Participants

Participants were from the allied health professionals in the following disciplines – dietetics, occupational therapy, physiotherapy, podiatry, psychology, social work and speech pathology. Although not the primary target groups some responses were received from other professions.

Participants were recruited from the four rural Area Health Services (AHS) in existence in NSW at the time - Greater Southern (GSAHS), Greater Western (GWAHS), North Coast (NCAHS) Area Health Service and Hunter New England (HNE), including employees at the Calvary Mater Hospital, Newcastle.

The aim was that every person in the population under study would be given the opportunity to participate in this cross sectional survey, over a two month period in September and October, 2010.

Data collection

Data was collected using an anonymous survey. The primary method of survey completion was through a secure internet site using Select Survey software. The link to the survey website was distributed via email to all AHPs in these Area Health Services through existing communication channels. A participation sheet identified that completion of the survey would be considered to be consent to participation in the research. The participant information sheets is attached in Appendix Two. One participant completed a paper based survey.

The participants were emailed reminders on two occasions during the two month data collection period. Data from the electronic survey was loaded to an Excel spreadsheet. Paper based survey data was added.

Data Analysis

The data was analysed using Excel.

The post code from each participants primary work address was translated to a category using the Australian Standard Geographical Classification (ASGC). These classification groups are Major cities, Inner regional, Outer regional, Remote, and Very remote. There were no responses from remote or very remote postcodes. This result is not inconsistent with information provided from the Australia Bureau of Statistics in 2001, as reported by Lowe and O'Kane (2003), that identified a total 25 people from the related AHPs living in rural and remote areas in NSW, across all sectors and employment status. To ensure sufficient numbers of responses were available for statistical analysis, inner regional and outer regional response were combined into one cohort, described as Regional.

Descriptive statistics were used to analyse the AHPs extent of use of evidence in day to day clinical practice, the sources of evidence used, the reasons the evidence was used and the barriers to using evidence.

Comparative statistics were used to analyse differences in the above responses between the different professions, between respondents with different length time working in the profession, between respondents working in different locations (major cities vs regional), between respondents from different work settings and between respondents with different training in using evidence.

As this is categorical data, the Chi square test was the most appropriate measure to determine statistical differences. To account for some small cell numbers response categories were collapsed into positive or negative responses as per the table below. A conservative approach was taken in this process which led to neutral and fair responses being allocated to a negative response.

Table 1. Participant responses and their corresponding collapsed responses for data analysis

Participant responses			**Collapsed responses**
Most days Weekly	Strongly Agree Agree	Very Good Good	Positive
Every month Less than monthly	Neutral Strongly Disagree Disagree	Fair Poor Very Poor	Negative

Narrative responses were collected and grouped into similar themes, and summarised using descriptive statistics.

Ethics

The research was submitted to the Hunter New England Human Research Ethics Committee as a NSW Health accredited lead Human Research Ethics Committee, under the model of single ethical and scientific review. It was first considered by the committee on April 21, 2010 and with some minor modification was approved on May 13, 2010.

Subsequently Site Specific Approvals were sought from Hunter New England Area Health Services, Calvary Mater Newcastle, Greater Western Area Health Services, Greater Southern Area Health Service and North Coast Area Health Service. All approvals were received by August 13, 2010.

Research Support

This research received support and ongoing review from the NSW Clinical Education and Training Institute (CETI) - Rural and Remote Division staff as part of Rural Research Capacity Building Program. Throughout the process review of the research was undertaken by the research mentor, Sheila Keane, Allied Health Academic, University Centre for Rural Health - North Coast.

Results

Response rate

Two hundred and ninety-three surveys were completed, 292 electronically and one by paper. The majority of respondents answered all questions. Missing responses were excluded from the data analyses.

Gender and age

Two demographic variables, gender and age, were collected to compare the response population with the limited known characteristics of the total population. Eighty-six percent of the respondents were female, while the average age of respondents was 46.4 years.

Information regarding participants

Based on existing knowledge, there are a number of factors that can potentially have an impact on the use of evidence in day to day clinical practice. There are specifically discussed in the following paragraphs.

Training in the use of evidence

Eight percent of the respondents identified they had received no training to help them use evidence in day to day clinical practice. Of the 92% that had received training, 30% had received training as part of their undergraduate training while another 30% identified that training had been included in their post graduate training. Twenty-three percent identified they had attended a short course, while nine percent identified they had received multiple forms of training.

Professions

The 293 respondents were from the different professional groups as described in the Table 2 below:

Table 2. Respondents by profession

Profession	Respondents (%)	Profession	Respondents (%)
Dietetics	44 (15)	Psychology	36 (12)
Occupational Therapy	50 (17)	Social Work	38 (13)
Physiotherapy	53 (18)	Speech Pathology	59 (20)
Podiatry	6 (2)	Other / not described	9 (3)

Primary work setting

There were 292 responses to this question. Forty-six percent of respondents identified they worked primarily in a community setting. Thirty-six percent identified they worked in a hospital setting, while the remaining 18% percent worked in a mixed setting.

Location of work (Regional vs major city)

There were 290 responses to this question. Thirty-six percent of respondents were classified as working in a major city, as defined by the ASGC-RA, within the NSW Rural Area Health Services. The remaining 64 percent were from regional areas, comprised of both inner and outer regional postcodes, under the ASGC-RA system.

Length of time worked in the profession

There were 293 responses to this question. Nineteen percent of respondents had been working in their profession for less than five years and 26% had been working between five and 10 years. Sixteen percent

had been working in their profession for between 11 and 15 years while 39% had been working for more than 15 years.

The extent to which evidence is used in day to day clinical practice

Eighty-two percent of the 289 respondents to this question identified they used evidence in day to day clinical practice at least weekly, with 54% of the total respondents identifying they used evidence on most days.

Using Chi square analysis there was very strong evidence that there were differences in the extent to which evidence is used in day to day clinical practice according to the training received (χ^2=26.45, df=4 , p <0.001). Respondents with multiple sources of training in using evidence reported the most frequent use in their day to day practice, while those with no training reported the least frequent use (see Figure 1).

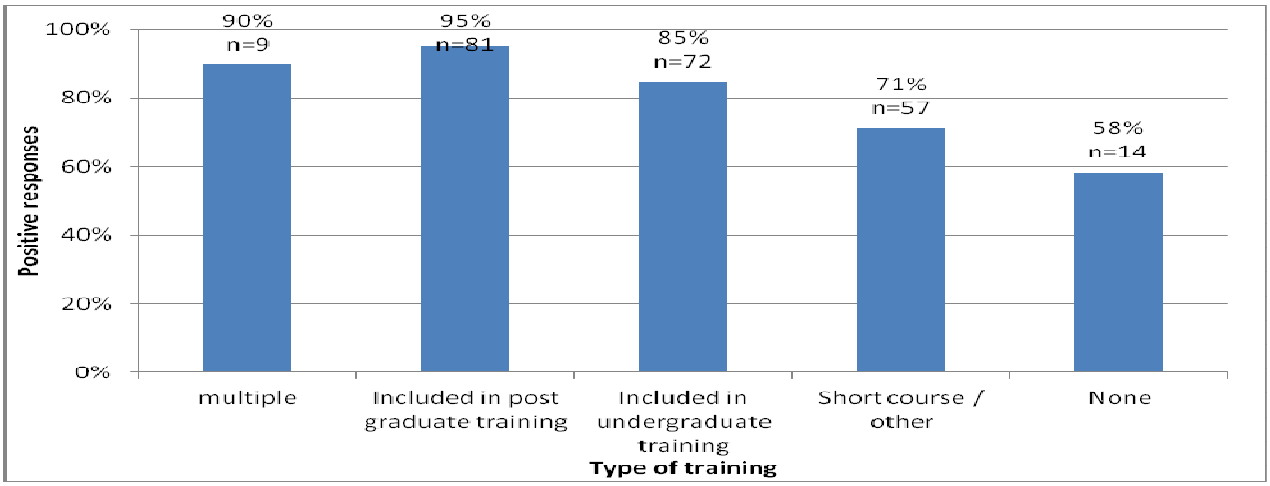

Figure 1. Comparison of the respondents' frequency of use of evidence with the type of training in using evidence they had received

Using Chi square analysis there was very strong evidence that there were differences in the extent to which evidence is used in day to day clinical practice according to professional groups (χ^2=31.39, df=6, p <0.001). Psychologists reported the most frequent use in their day to day practice, while occupational therapists reported the least frequent use (see Figure 2).

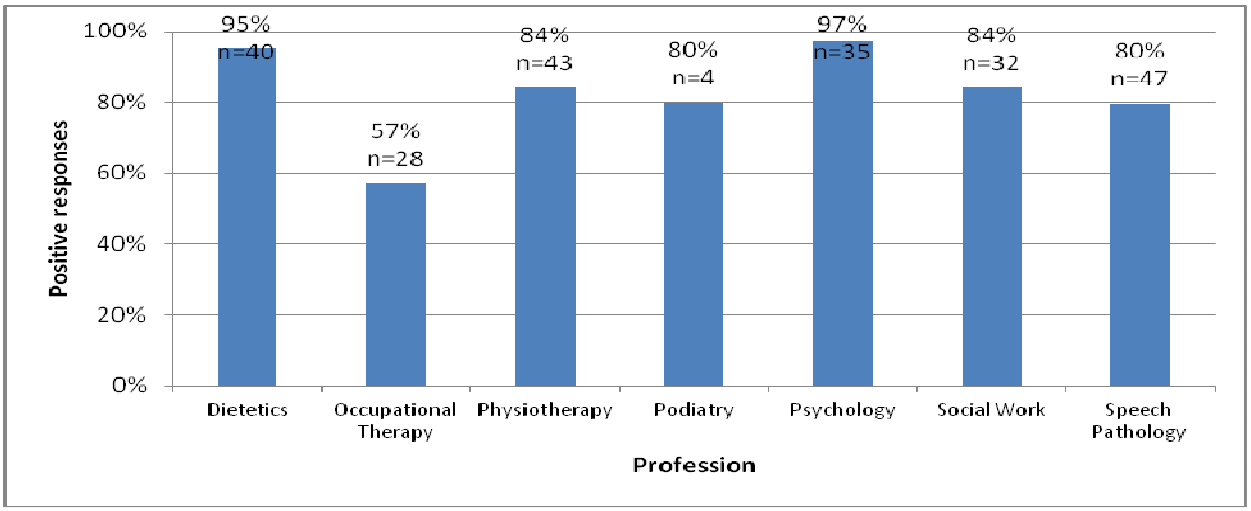

Figure 2. Comparison of the respondents' frequency of use of evidence by profession

Using Chi square analysis there was strong evidence that there were differences in the extent to which evidence is used in day to day clinical practice according to the time worked in a profession (χ^2=19.11, df=3, *p*=0.003). Respondents with less than five years practice reported the most frequent use in their day to day practice, while those with between 11 and 15 years practice reported the least frequent use (see Figure 3).

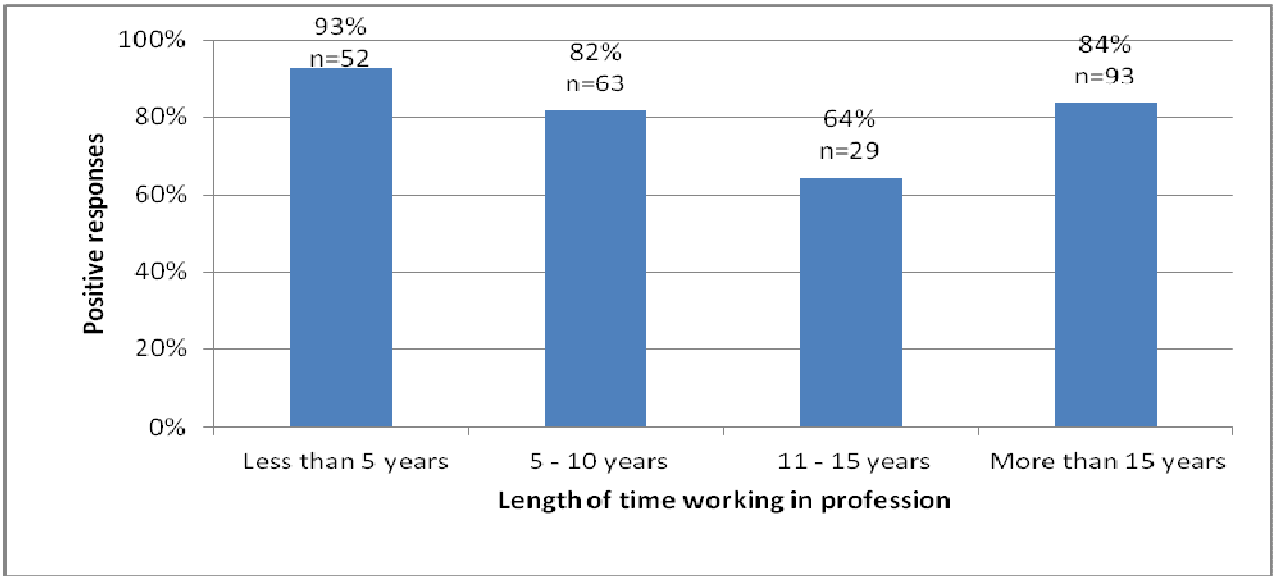

Figure 3. Comparison of the respondents' frequency of use of evidence with their length of time worked in the profession

Using Chi square analysis there was no evidence that primary work setting or location of work impacted on the extent to which evidence is used in day to day clinical practice.

Sources of evidence and reasons for use in day to day clinical practice

Sources of evidence

The percentage of responses for the frequency of use of different sources of evidence are presented in Table 3.

Table 3. Frequency of use of specific sources of evidence

	Most days	Every week	Every month	Less than monthly
Evidence based clinical policies/procedures/guidelines (n=287)	14%	25%	32%	29%
Internet source - databases and journals including those which incorporate a critique of the literature (n=284)	4%	19%	35%	42%
Text books (n=283)	4%	18%	38%	40%
Publications from peak professional bodies (n=288)	3%	9%	42%	46%
Paper based journals (n=283)	2%	9%	43%	47%
Evidence discussed with other professionals (n=290)	24%	4%	25%	47%
Other professional development activities (eg courses, conferences) (n=290)	4%	4%	25%	67%
Journal clubs (n=268)	1%	2%	18%	79%

Why evidence is used

The percentage of responses for each reason for using evidence are presented in Table 4.

Table 4. Frequency of reasons identified for using evidence

	Very frequently	Frequently	Sometimes	Rarely or never
For patient / client care (n=292)	35%	47%	15%	3%
Answering a question from a patient / client / carer / family member (n=292)	20%	46%	29%	5%
Answering a question from a colleague (n=290)	20%	44%	29%	7%
For general personal education (n=287)	20%	47%	24%	8%
Providing an inservice or education to peers / colleagues / students (n=289)	17%	34%	31%	18%
Reviewing / developing a clinical policy / procedure / guideline (n=288)	13%	24%	32%	32%

When asked to identify the most useful source of evidence the responses were peers (43%) and internet sources of evidence (40%). Paper based sources (journal and texts) were identified as the most useful by 24% of respondents while policies / procedures / guidelines were selected by 18% of the respondents.

Impact on patient care

An overwhelming number of the 293 respondents believed that using evidence in day to day clinical practice improved patient care – 51% strongly agreed and 45% agreed. One respondent strongly disagreed with the statement and the remaining responses were neutral. Ninety six percent of respondents identified that they had used evidence to improve patient care, with a wide variety of sources and uses for this evidence being identified.

Factors impacting on the use of evidence in day to day clinical practice

Factors related to the organisational context

Seventy-seven percent (total responses = 287) responded positively (either agreed or strongly agreed) they have ready access to evidence. Sixty-four percent of the 290 respondents believed (either agreed or strongly agreed) they were encouraged and supported to use evidence as part of their day to day clinical role. Seventy-six percent (total responses = 290) of responses were positive (either agreed or strongly agreed) to the statement that their colleagues are supportive of retrieving and appraising evidence. Only 22% of the 289 respondents believed (either agreed or strongly agreed) they are able to allocate sufficient time to retrieve and appraise evidence.

Using Chi square analysis there was no evidence that training led to differences between organisational support for, colleague support for, or time available to use evidence. There was strong evidence that training affects the perception of access to evidence in day to day clinical practice (χ^2=18.31, df=4, p=0.001). Respondents who had training in using evidence as part of their post-graduate training reported the most ready access to evidence, while those with no training reported the least ready access (see Figure 4).

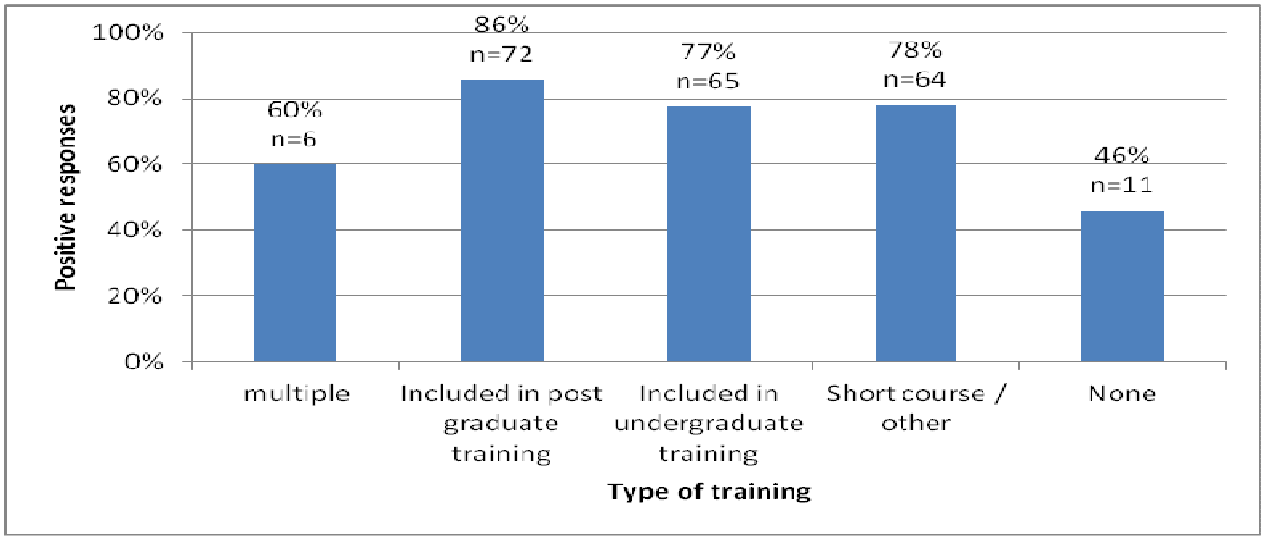

Figure 4. Comparison of the respondents' perception of access to evidence with the type of training in using evidence they had received

Using Chi square analysis there was no strong evidence that the primary work setting in which AHPs worked led to differences between organisational support for, colleague support for, or time available to use evidence. There was strong evidence that the primary work setting affects the perception of access to evidence in day to day clinical practice (χ^2=11.44, df=2, p=0.003). Respondents whose primary work setting was in a hospital reported more ready access to evidence than those in a mixed or community setting (see Figure 5).

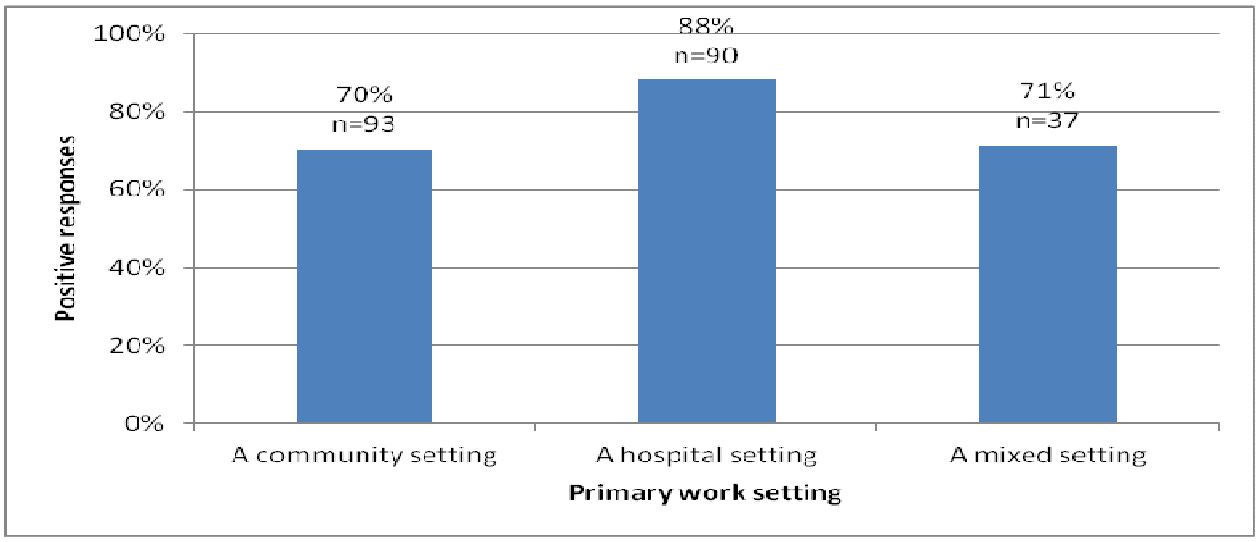

Figure 5. Comparison of the respondents' perception of access to evidence with their primary work setting

Using Chi square analysis there was no strong evidence that the profession of the respondent, the length of time worked in the profession, or location of work led to differences in any of the organisational contextual factors.

Factors related to the existing research

There were 289 responses to the questions regarding the existing research. Forty-nine percent of respondents either agreed or strongly agreed that there is sufficient evidence in their field to support

their clinical decisions in day to day practice. Fifty percent of respondents believed (either agreed or strongly agreed) that the implications for day to day clinical practice are clear in the available evidence.

Using Chi square analysis there was strong evidence of differences between the participants that had training and those who had not, in regard to perceptions regarding the availability of sufficient evidence (χ^2=16.34, df=4, p=0.003). Respondents who had training in using evidence as part of their post-graduate training most frequently reported there was sufficient evidence to support their clinical decisions, while those having had short courses and other types of training least frequently reported there was sufficient evidence (see Figure 6). There was very strong evidence of difference regarding the implications of the evidence (χ^2=19.69, df=4, p<0.001). Respondents who had training in using evidence as part of their post-graduate training most frequently reported that the implications for clinical practice are clear in the available evidence, while those having no training least frequently reported that the implications were clear (see Figure 6).

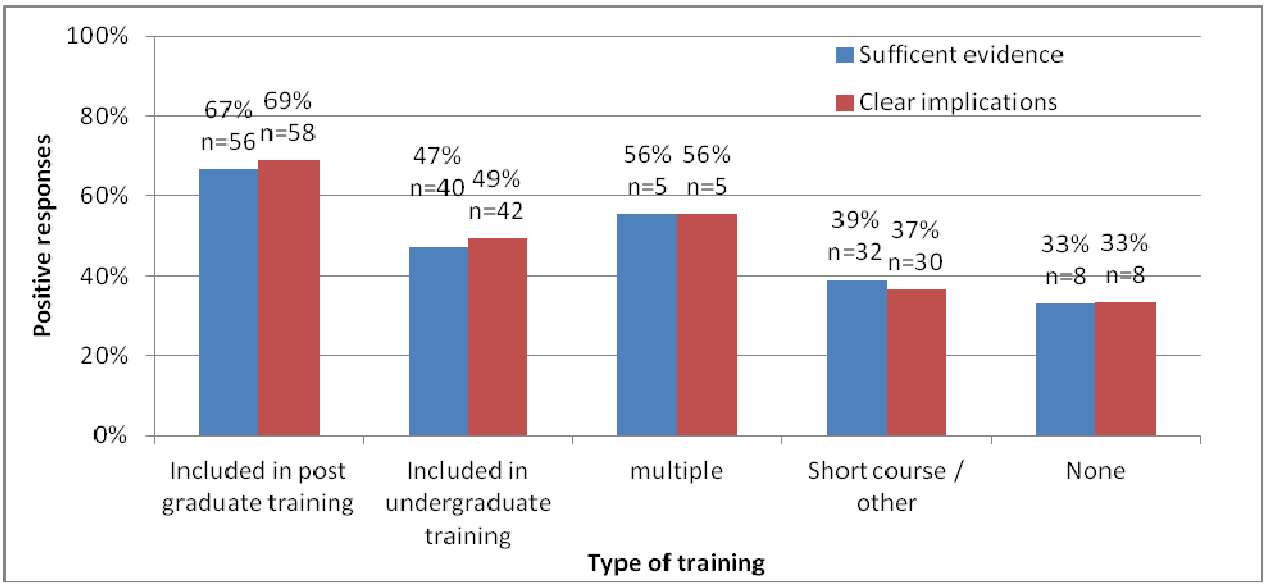

Figure 6. Comparison of the respondents' perception of there being sufficient evidence available and there being clear implications for clinical practice, with the type of training in using evidence they had received

Using Chi square analysis there was very strong evidence of differences between the different professions regarding the availability of sufficient evidence (χ^2=50.53, df=6, p <0.001). Psychologists most frequently reported there was sufficient evidence to support their clinical decisions, while occupational therapists least frequently reported there was sufficient evidence (see Figure 7). There was very strong evidence of differences between the different professions regarding the implications of the evidence (χ^2=41.01, df=6, p<0.001). Psychologists most frequently reported implications for clinical practice are clear in the available evidence, while occupational therapists least frequently reported that the implications were clear (see Figure 7).

There was no evidence that primary work setting, length of time worked in the profession or location of work led to differences in perceptions regarding the existing research when using evidence in day to day clinical practice.

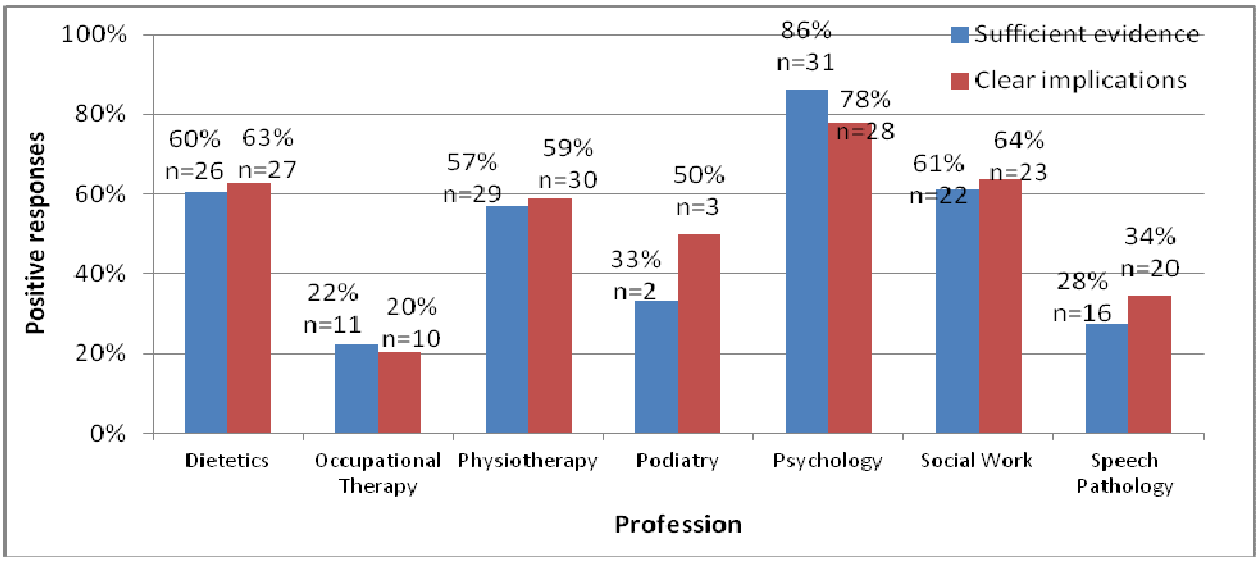

Figure 7. Comparison of the respondents' perception of there being sufficient evidence available and there being clear implications for clinical practice, by profession

Factors related to knowledge

The majority of the 293 respondents to this question identified they believed they had very good (14%) or good (52%) knowledge about using evidence in day to day practice. Thirty percent indicated their knowledge was fair while three percent identified they had poor knowledge.

Using Chi square analysis there was very strong evidence that there were differences in the knowledge about using evidence according to the training received (χ^2=31.42, df=4, p<0.001). Respondents who had training in using evidence as part of their post-graduate training reported they had the most knowledge about using evidence in day to day practice, while those with no training reported they had the least knowledge (see Figure 8).

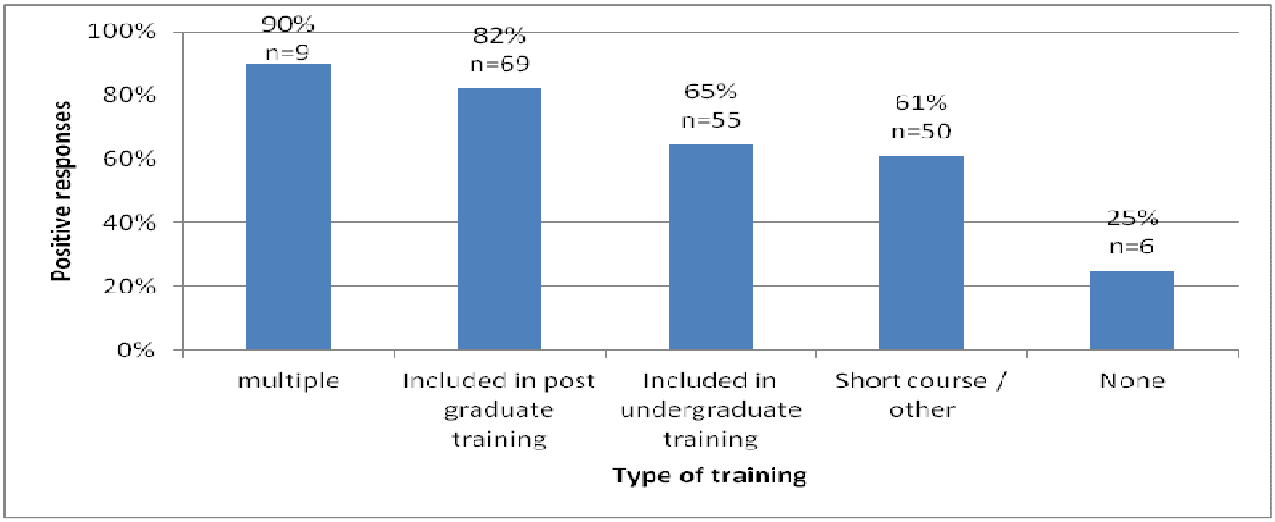

Figure 8. Comparison of the respondents' perception of knowledge about using evidence in day to day clinical practice, with the type of training in using evidence they had received

Using Chi square analysis there was strong evidence that there were differences in the knowledge about using evidence between the professional groups (χ^2=17.66, df=6, p=0.007). Psychologists reported they had the most knowledge about using evidence in day to day practice, while occupational therapists reported they had the least knowledge (see Figure 9).

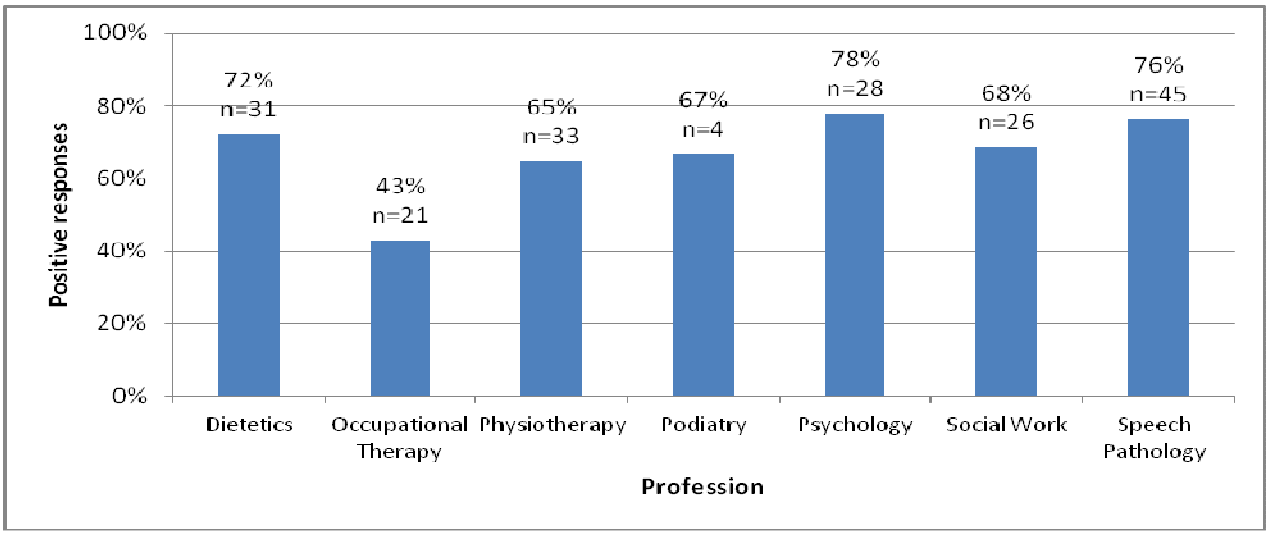

Figure 9. Comparison of the respondents' perception of knowledge about using evidence in day to day clinical practice, by profession

Using Chi square analysis there was no evidence that the length of time worked in the profession, the primary work setting, or the work location impacted on knowledge about using evidence in day to day clinical practice.

Factors related to skills in locating and using evidence

Sixty-nine percent of the 289 respondents strongly agreed or agreed they could develop a clear "clinical question" to use as a focus when searching for evidence. Sixty-one percent (total responses = 287) believed (strongly agreed or agreed) they are able to locate the evidence they are seeking. Sixty-five percent (total responses = 289) identified they are able to critically appraise the evidence they find (strongly agree or agree). Seventy-nine percent of the 290 responses were positive in regard to being able to integrate the evidence found into their clinical practice.

Using Chi square analysis there was very strong evidence that training influenced the ability to develop a clinical question (χ^2=28.51, df=4, p<0.001), the ability to locate evidence (χ^2=27.46, df=4, p<0.001) and the ability to appraise evidence (χ^2=27.91, df=4, p<0.001). There is strong evidence regarding training and integrating evidence into day to day clinical practice (χ^2=17.10, df=4, p=0.002). Respondents that had training in using evidence as part of their post-graduate training reported the greatest ability to develop clear clinical questions, locate evidence and integrate evidence into practice. Respondents who had multiple sources of training reported the greatest ability to appraise the evidence that they found. Respondents with no training reported the least ability to all of these skills in locating and using evidence. (see Figure 10).

Using Chi square analysis there was no evidence found to identify differences between professions and their ability to develop clinical questions or locate evidence. There was very strong evidence that there are differences between the different professions in regard to appraising evidence (χ^2=28.75, df=6, p<0.001). There was strong evidence that there are differences between the professions in regard to integrating evidence into practice (χ^2=22.36, df=6, p=0.001). Psychologists reported the greatest ability to appraise the evidence and integrate evidence into practice, while occupational therapists reported the least ability for these skills (see Figure 11).

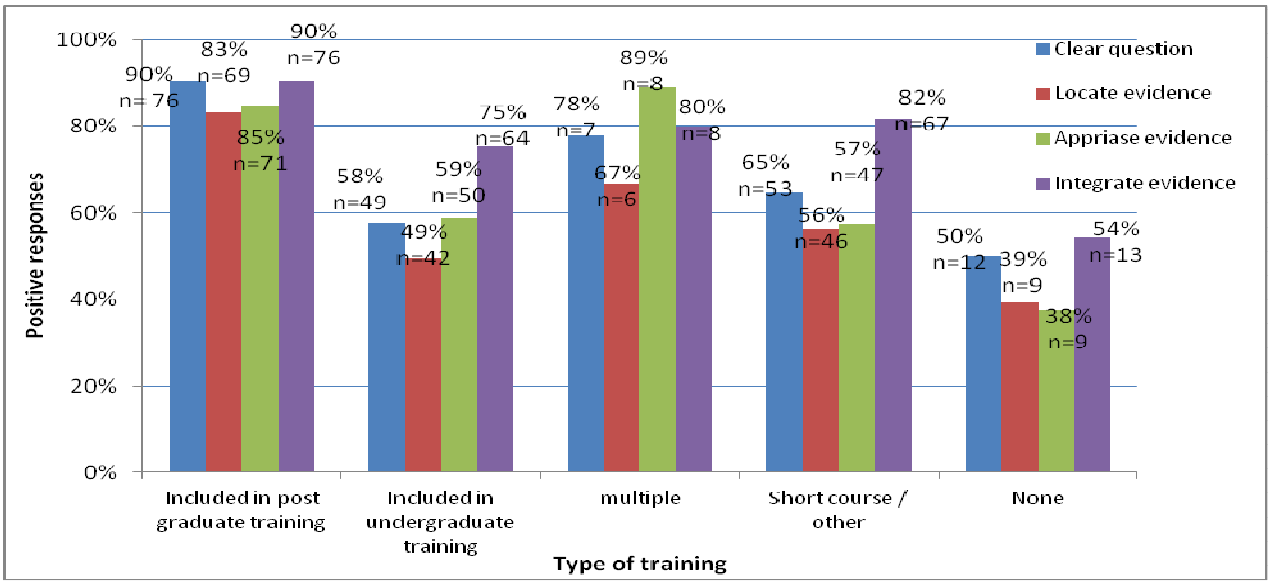

Figure 10. Comparison of the respondents' ability to locate and use evidence in day to day clinical practice, with the type of training in using evidence they had received

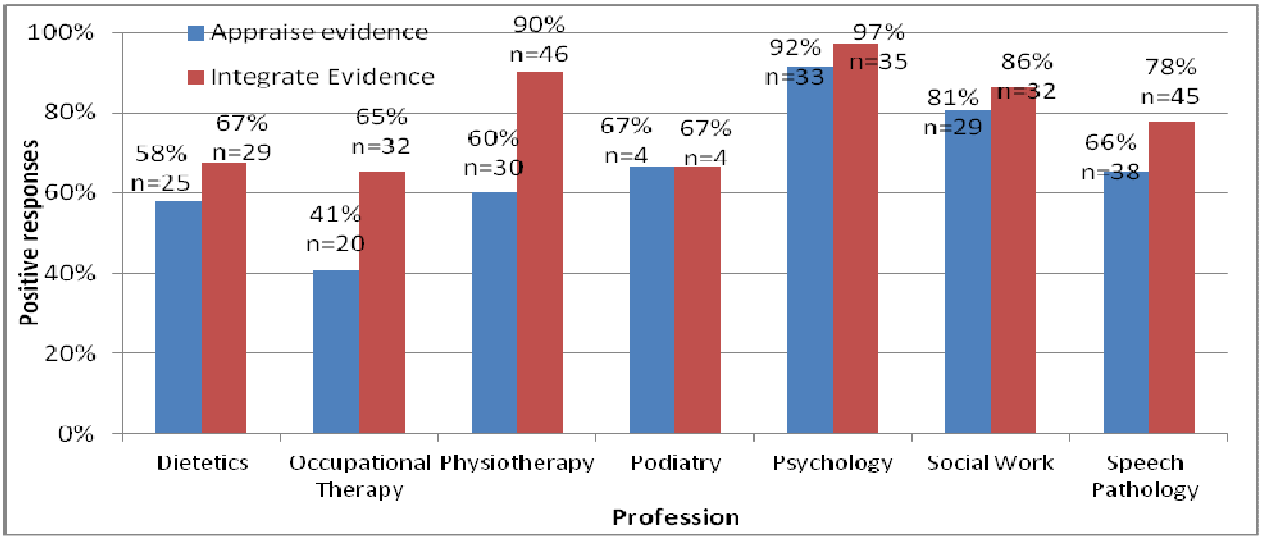

Figure 11. Comparison of the respondents' ability to appraise and integrate evidence in day to day clinical practice, by profession

Using Chi square analysis there was no evidence that primary work setting, the length of time worked in the profession or work location led to differences in perceptions regarding skills in using evidence in day to day clinical practice.

Barriers impacting on the use of evidence and strategies to increase the use of evidence in day to day clinical practice

The responses to the free text question regarding perceptions of the barriers to using evidence in day to day clinical practice were classified according to themes and are presented in Table 5. Multiple responses were possible for each respondent. Insufficient time was identified as the most frequent barrier, while factors relating to the existing research was the next most frequent.

Table 5. Barriers to using evidence

Barriers to using evidence - themed	Responses (%)
Insufficient time	169 (56)
Insufficient evidence related to specific context / unclear implications	54 (18)
Poor access to evidence	24 (8)
Lack of organisational support mechanisms	24 (8)
Insufficient knowledge and skills of finding, appraising and implementing evidence	24 (6)
Others	12 (4)

The responses to the free text question regarding perceptions of the strategies to increase the use of evidence in day to day clinical practice were classified according to themes and are presented in the Table 6. Multiple responses were possible for each respondent. Having more time was the strategy identified most frequently. Improving skills in locating and using evidence and strategies to increase the sharing of evidence were the next most frequent strategies identified.

Table 6. Strategies to increase the use of evidence

Strategies to increase the use of using evidence - themed	Responses (%)
More time to find, appraise and implement evidence	99 (37)
Improved knowledge and skills of finding, appraising and implementing evidence	43 (16)
Increased sharing of evidence (including policies / procedures / guidelines, journal clubs and other strategies)	43 (16)
Increased organisational support mechanisms	32 (12)
Improved access to evidence	21 (8)
Increased evidence related to specific context / clearer implications	19 (7)
Others	11 (4)

Training and profession

Training and profession were both important factors in regard to the frequency of use, knowledge and skills of using evidence in day to day clinical practice. Further comparison of these factors was undertaken. Table 7 summarises the training type by professional group.

Table 7. Type of training by professional group

Profession	Training Type				
	Included in post graduate training (%)	Included in under graduate training (%)	Multiple (%)	Short course / other (%)	None (%)
Dietetics	11 (26)	18 (42)	2 (5)	7 (16)	5 (12)
Occupational Therapy	7 (14)	12 (24)	1 (2)	24 (49)	7 (10)
Physiotherapy	16 (34)	14 (30)	2 (4)	8 (17)	7 (15)
Podiatry	3 (50)	3 (50)	0	0	0
Psychology	23 (64)	5 (14)	4 (11)	4 (11)	0
Social Work	14 (38)	8 (22)	3 (8)	10 (27)	2 (5)
Speech Pathology	6 (10)	23 (40)	1 (2)	23 (40)	2 (9)

Chi square analysis was not undertaken to compare training and profession, as more than 20% of the cells had values of less than five, and several cells contained zero, making this statistical analysis unreliable (Peat, Barton, and Elliott, 2009, p34-35).

Discussion

Response rate

An estimate of the total population was derived from numbers of allied health staff at the time of the survey, supplied by each of the participating AHS. The response rate for the survey was 13%.

As a method of verifying the estimate of the total population, and thus the estimated response rate, in one Area Health Service the number of emails sent to AHPs inviting participation in the survey was tracked. The secondary method of estimating total population was within five percent of the original method, suggesting that the total population of the specified AHPs across rural NSW health services, and thus the response rate, was accurate.

This response rate is lower than has been reported for other surveys for AHPs and evidence based practice. This response rate means that generalisations from the results need to be made with caution.

Gender and Age

The proportion of female respondents participating in this survey (86%) is consistent with the other limited information regarding the rural allied health workforce in NSW. From information presented by Keane et al (2009, p8), 80% of the relevant allied health disciplines were female, across all government and private sectors. Deriving information from Lowe and O'Kane (2003, p 10) that draws on 2001 ABS figures, 80% of the relevant AHPs, across all sectors in regional NSW, were female.

The average age of participants in this survey (46.4 years) is slightly higher than the 43 years as identified by Keane et al (2009, p9) noting their report identified a broader range of professions and was across all across all government and private sectors, not just AHS. Table 8 demonstrates that the age of respondents for this survey was comparable to data as derived from Lowe and O'Kane (2003, p 16), who analysed 2001 ABS figures. Using Chi square analysis there was no significant difference between the age groups in the 2 studies (χ^2=0.19, df=2, p=0.909).

Table 8. Age of Participants

Age	ABS 2001	This survey
< 34	33%	35%
35-54	59%	55%
>55	9%	10%

The comparison of gender and age characteristics of the respondents, with the known information about the total population, indicates the respondent population is generally representative of the total population of the AHPs under study in the rural NSW AHS, in these key areas.

The extent to which evidence is used in day to day clinical practice

The AHPs in rural NSW AHS surveyed report they frequently use evidence in their day to day clinical practice. The use of evidence in clinical practice has been emphasised for over a decade, through the training of professionals, health department policy and by professional organisations, to maximise the effectiveness and efficiency of health care delivery. There has also been an increasing body of literature

with improved immediacy of access through electronic sources in people's homes and at the desktop at work.

There were a number of factors in the literature that influence the frequency of use of evidence in day to day clinical practice. It is expected that greater training would lead to greater use (Bennett et al, 2003, p17; Hadley et al, 2008, p5; Iles and Davidson, 2006, p99). The task of using evidence in clinical practice is a complex activity and the better equipped a health professional is, the more they will be prepared to undertake the components of this activity. This research found that postgraduate training and multiple sources of training were associated with the most frequent use of evidence for AHPs in rural NSW AHS. This is consistent with McCluskley and Lovarini's (2005) and McGowan et al (2009) findings. The implications are that there are ongoing educational requirements for rural AHPs in regard to using evidence in day to day practice.

This study found that the time working in a profession impacts on the frequency of use of evidence. While discipline specific studies found greater use of evidence in the early years of a professional's practice (Iles and Davidson, 2006, p101; Vallino-Napoli and Reilly, 2004, p110), the results from this study were interesting as the greatest use is reported in the early stages of a career, declining until 11-15 years in practice, then increasing again after 15 years. Professionals in the 11-15 years length of practice bracket need to consider their practices in relation to the use of evidence, as do the organisations they work within.

Differences in the frequency of use of evidence between professional groups have been reported in other studies (Palfreyman, 2003, p249; Upton and Upton, 2006, p131) but not in the same pattern as this research. The underlying causes of the differences found in the current study are unclear. The discipline reporting most frequent use, psychology, also had consistently positive responses in factors relating to the existing research and factors relating to skills in the location and use of evidence. The discipline reporting least use, occupational therapy, also had consistently negative responses in factors relating to the existing research and factors relating to the skills in the location and use of evidence. Further investigation into the causes behind this result would be beneficial. It is noted that the nearly 60% of the respondents from occupational therapy had received training in either a short course or no training in using evidence, which was the least training of any professional group. It is postulated that the amount of training impacted on the response in regard to extent of use of evidence and this possibly confounded the results.

Sources of evidence and reasons for use in day to day clinical practice

Sources of evidence

As expected, AHPs, along with all health professionals, obtain their evidence from a variety of sources.

Some of these sources are perceived to be quicker and easier and are chosen more frequently to obtain evidence. This includes discussion with colleagues, which was identified as the most useful source of evidence by the respondents in this survey, a finding consistent across disciplines (Bennett et al, 2003, p17; Lizarondo et al, 2006, p233; Palfreyman et al, 2003, p251; Upton and Upton, 2006, p 131; Vallino-Napoli and Reilly, 2004, p 109). This has implications for all health professionals when discussing clinical practice with their peers, as this is interaction is obviously considered a source of evidence. The advice provided and the discussion between peers needs to founded in evidence. The health professionals involved should ensure they have the requisite knowledge in regard to the use of evidence. This needs to

be coupled with communication skills to use these conversations most effectively and to disperse the use of evidence in day to day clinical practice.

A large number of AHPs in rural NSW AHS identified they used evidence based clinical policies, procedures or guidelines. It was identified as one of the four most useful sources of evidence, and has been identified as an effective method of integrating evidence into day to day practice (Thomas et al, 1999). However Hakkennes and Dodd (2008, p296) identified there is limited evidence in regard to the successful implementation of guidelines for AHPs. To maximise the effectiveness of guidelines as an aid to the implementation of evidence in practice, strategies are required to ensure sharing of guidelines is facilitated and implementation should always include plans to overcome local barriers.

Earlier this millennium the use of the Internet was not reported as a primary source of evidence by AHPs (Iles and Davidson, 2006, p98; Palfreyman et al, 2003, p250; Upton and Upton, 2006, p131). Specific strategies have been introduced in NSW and elsewhere to increase access to evidence through the Internet (Gosling and Westbrook, 2004, p2-3). The current research has identified an increased use and favourability of this source of evidence with the Internet being identified as the second most useful source of evidence for rural AHPs. This is consistent with other recent investigations (Hadley et al, 2008, p3; Nail-Chiwetolu and Ratner, 2007, p184). Internet based libraries with a pre-existing critique of the literature have been developed to assist health professionals improve their access to the available evidence (Iles and Davidson, 2006, p101), including The Cochrane Database, OTseeker, PEDro, and SpeechBITE. Interestingly it was found that these resources were not used to a greater extent than other internet databases that do not have an already completed critique of the literature. There is potential for greater use of this source of evidence, particularly taking into consideration that lack of time has consistently been identified as a barrier to utilising evidence in day to day clinical practice.

Text books and paper based journals were identified being used considerably each month. Paper based resources were identified as one of the four most useful sources by AHPs in Rural NSW AHS. This is a somewhat surprising finding as there is a delay associated with incorporating evidence in printed materials, in particular text books, compared to the relatively timely availability of updated information available from internet based sources. However it is not inconsistent with other studies (Bennett, et al 2003, p16; Vallino-Napoli, 2004, p108) and may relate to limited access of other sources of evidence and the familiarity, comfort and ease of accessing a variety of specific information in a paper based resources.

Participants did not identify journal clubs as useful as other sources of evidence, nor are they identified as a frequently used source of evidence. It would appear that journal clubs in rural NSW AHS are an under-developed resource with potential for further development, perhaps along a similar model to the structured journal clubs as described by Lizarondo et al (2009) – which included rural practitioners in South Australia.

Other sources of evidence identified included other professional development activities and accessing publications from peak professional bodies. These were utilised less frequently and were identified as being less useful than other sources of evidence, but still represented important sources for AHPs in rural NSW AHS.

Reasons for using evidence

There are a range of reasons why evidence is used in day to day clinical practice. Not surprisingly in this study the most frequently identified use was patient or client care.

It was identified that evidence was frequently used for reasons such as answering questions from a client or carer or a family member, and general personal education. It was also found that evidence is used frequently or very frequently in rural NSW AHS by approximately half the AHPs for the purpose of providing inservices and answering questions from a colleague. There would appear to be disconnect between this reported practice and the finding that AHPs identified they seek information from their peers as a source of evidence on a daily basis more frequently than any other source (Table 3).

A vast majority of the respondents either strongly agreed or agreed to the statement that evidence based practice improved patient care. This is an increased percentage from previous studies where this was sought (Bennett et al, 2003, p16; Vallino-Napoli and Reilly, 2004, p110). It is postulated that this is a natural evolution as evidence has become more prominent over the past decade with the increased emphasis on the use of evidence in clinical practice, increased availability of training and increased access to a variety of sources of evidence. However it should be noted that this response may also reflect the change in the attitude of how respondents perceive they should answer this question, an inherent weakness of surveys of self perceptions.

Factors impacting on the use of evidence in day to day clinical practice

Factors related to the organisational context

Organisational factors have consistently been described in the literature as being important in the use (or not) of evidence. In rural NSW the majority of respondents identified they had ready access to evidence which would appear to be consistent with other recent findings.

It was found that training impacts on perceptions of access to evidence. It is intuitive that those AHPs with training know how to access evidence better than those who do not and this is consistent with other studies (Bennett et al, 2003, p16; Iles and Davidson, 2006, p101). It was also found that the clinical setting in which the respondents worked impacted on access, with those working in community settings having less access to evidence than those in hospital or mixed settings. This is not inconsistent with findings by Taylor et al (2002), in one of the few rural specific studies in Australia, which identified that GPs have poor access to evidence in the rural setting – although this research is somewhat dated and relates to medical staff. Gosling and Westbrook (2004, p395) identified that electronic access to resources via CIAP was related to location of computers. Anecdotal information and personal experience of community centres in rural AHS in NSW indicates there is often less access to computers, there is relatively poorer internet connectivity, and library staff are less likely to be on site. All of these factors can impact on access to evidence. To allow maximal use of evidence in day to day clinical practice, access must be maximised through a combination of training and appropriate physical resources.

The majority of respondents felt they were supported by their colleagues and organisation to use evidence in their day to day clinical practice. This culture within the organisational of valuing the use of evidence should be continued and encouraged.

As has been repeatedly reported in the literature, across all disciplines and settings, it was found that AHPs in rural AHS in NSW overwhelmingly believe they do not have sufficient time to allow them to use evidence in their day to day clinical practice. There would be benefit in further investigation into the specific reasons why AHPs in rural NSW, and in general, do not perceive they have the time to locate and use evidence, against their other competing priorities. In addition, a number of strategies should be employed to help overcome this barrier, including sharing of existing resources (eg policies or guidelines),

ensuring skills are present to minimise the time it takes to source and implement evidence and maximising knowledge in regard to the time-efficient methods of accessing evidence. Organisations could implement processes to assist AHPs to seek and use evidence in their practice such as supporting time to undertake these activities as part of inservices or staff meetings and including the use of evidence in the performance review process. Organisations and AHPs need to be cognisant that using evidence is a core component of day to day practice and as such it requires allocated time (Bennett et al, 2003, p19; Palfreyman et al, 2003, p250; Vallino-Napoli and Reilly, 2004, p112).

Existing research for Allied Health professionals

It has been reported that clinicians do not feel that the evidence or research available is specific enough to that context in which they work, in particular in non-metropolitan areas (Parsons et al, 2003, p246). Approximately half the respondents to this survey felt that there was sufficient evidence for use in their day to day clinical practice and that the evidence available had clear implications, consistent with the findings of Bennett et al (2003, p17), Bialocerkowski et al (2004, p234) and Vallino-Napoli and Reilly, 2004, p110). Analysis of the responses identified that training led to differences in perception – those with more comprehensive training believe the evidence had more to offer their workplace. The responses regarding existing research also varied depending on the profession of the respondent.

To maximise the use of evidence a multi-pronged approach is required. It needs to be ensured that appropriate and sufficient training is provided for AHPs, but as Bialocerkowski et al identified, research needs to be targeted to clinical needs of health practitioners, and responsibility for this lies with clinicians and researchers alike (2004, p234).

Factors related to knowledge and skills

The self reported knowledge of the use of evidence in day to day clinical practice was higher than in previous reported research across AHPs (Upton and Upton, 2006, p137; Metcalfe, 2000, p174). This is likely to be contributed to by the integration of EBP into undergraduate training and into the culture of the workplace, for over a decade. The effect of non-response bias may have influenced this item – those AHPs not interested in using evidence in day to day clinical practice may have selectively chosen not to respond, despite the steps taken to reduce this impact.

Training improved the knowledge base and perceived skills related to the use of evidence for AHPs in rural NSW AHS with post graduate training, multiple source and undergraduate training having the most impact. Consistent with Iles and Davidson (2006, p93), Bennett et al (2003, p16) and McCluskey and Lovarini (2005, p7) this study identified that training led to increased knowledge and skills regarding evidence. As previously noted this study identified training also increased self reported frequency of use of evidence. Differences across professions exist in regard to the specific skills of appraising and integrating evidence in day to day clinical practice.

The responses relating to each of the different skill areas were consistent only in regard to the profession that identified the highest knowledge and skills (psychology) and the profession identifying the lowest knowledge and skills (occupational therapy), with differing levels of responses for the each of the other professions. In this study it is likely that the different training profiles undertaken by the participants in these two professions (as described in the table on page 24) may have influenced the differences in skills. Upton and Upton (2006, p130) reported a similar disparity between professions but the underlying reasons are unclear and further detailed study of differences between professions would be required to understand and address this skill differentiation.

A range of strategies can be introduced to overcome lower skill levels, for example lower skills in appraising evidence can in part be circumvented by the use of pre-appraised evidence sources where available, as identified by Iles and Davidson (2006, p101).

Barriers impacting on the use of evidence and strategies to increase the use of evidence in day to day clinical practice

The barriers identified by AHPs working in rural NSW AHS were similar to those found in previous research. Consistent with other research, sufficient time was most frequently identified as a barrier to using evidence in practice. Conversely more time was identified most frequently as the strategy to support an increased use of evidence. This has been consistently found across the allied health professions (Bennett et al, 2003 p17; Grimmer-Somers et al, 2007, p155; Metcalfe et al, 200 p172; Upton and Upton, 2006, p132; Vallino-Napoli and Reilly, 2004, p109).

The second most frequent barrier identified in the current research was deficiencies with the existing evidence, but this was not identified as frequently as a factor to improve the use of evidence in day to day clinical practice. Other barriers, such as lack of access, lack of organisational support and deficiencies in knowledge and skills were identified in this survey, but far less frequently than lack of time.

A range of other opportunities to improve the use of evidence, other than increased time, were identified – the most frequent being increased skills in finding, appraising and implementing evidence, and methods of sharing evidence. This included having more guidelines or procedures, through journal clubs, or other strategies such as having centralised functions to identify and summarise evidence and local experts. All of these strategies are consistent with other research in this area (Doumit et al, 2007; Lizarondo et al, 2009).

The consistent theme is that while AHPs use and value evidence in their day to day clinical practice, more needs to be done to minimise the burden of sourcing and appraising evidence and identifying clinical implications. Strategies such as the implementation of more guidelines, evidence summaries, as well as continued and repeated training, with a practical component, will facilitate ongoing and increased use of evidence by AHPs in rural NSW AHS.

Key factors impacting on the use of evidence

There were a number of key factors that were expected to impact on the use of evidence in day to day practice by AHPs in rural NSW AHS.

Length of time working in the profession only impacted on the extent of use of evidence and was discussed in the relevant section. Primary work setting only impacted on access to evidence and was also identified earlier in this report.

In this survey the location of the respondents' work did not lead to any significant differences in the extent to which evidence is used, or the factors impacting on the use of evidence in day to day clinical practice. While there has been little research in this specific topic there have been assumptions made that differences would be identified between those in rural or regional setting and those in metropolitan or major cities. It is useful to note that strategies that have been shown to be effective in increasing the use

of evidence in one setting, or across a range of settings, are likely to be applicable for AHPs across rural NSW AHS.

The profession of the respondent impacted on the extent of use of evidence, factors relating to the organisation, factors relating to existing research and knowledge and skill when using evidence. The results were consistent for two of the professions, which it is postulated is due to the different training levels of the respondents to this survey. For the remaining professions the relativity between professional groups is not consistent between the different factors of the survey, indicating that each profession has differing areas of strength. As this detail was outside the scope of this research, further investigation of the nuances of each profession, in relation to the different factors, would be beneficial.

The vast majority of AHPs have been exposed to training in using evidence in day to day practice (92%). This was a considerable increase on previously reported studies. This is most likely a result of the cumulative emphasis on using evidence in everyday work and its inclusion through undergraduate and postgraduate training. There have also been short courses in EBP through a number of providers, for example professional associations, AHS and Universities. Training was identified as being influential on the extent of use of evidence, factors relating to the organisation, factors relating to existing research and knowledge and skill when using evidence. All future training design and implementation should consider the needs of AHPs in rural NSW AHS to maximise effectiveness.

Limitations to the study

There were limitations within this study. The method used – a self reported questionnaire – has inherent limitations, including responses being aligned to the perceived expected answers. Steps were taken in development and implementation of the research to minimise non response bias, sampling frame error, measurement error and non response error as described by MacDonald et al (2009). The response rate was low, limiting the ability to make generalisations that can be made from this study. As all of the target population was sampled, sampling error was minimised. The negligible amount of existing knowledge in this field makes it difficult to compare and estimate the impact of the non responses.

Despite the limitations, the research can provide useful information for those interested in the use of evidence in day to day clinical practice for AHPs in rural NSW AHS.

Conclusions

The use of evidence in day to day clinical practice remains challenging for AHPs in rural NSW AHS. Analysis of the responses to this survey identified widespread use of evidence and positive attitudes towards it use and benefits to patient care. There were statistically significant differences between the extent of use of evidence when comparisons were made between the different types of training received by AHPs, the different professions and how long the AHP had been working their profession.

As expected, a variety of sources are frequently used. Clinical policies, guidelines and protocols were identified as source of evidence most frequently used, with evidence as discussed with other professional the second most frequent source.

It was found that evidence was used for a variety of purposes with patient or client care being the most frequent use identified. It is also frequently used for answering question from patients, clients, cares and colleagues, as well as for general personal education.

There are opportunities for changes in practice to overcome the barriers that have been identified.

Similar to other studies, the major barrier identified was the allocation of sufficient time to retrieve and access the available evidence. A number of strategies are available to reduce the impact of this barrier. There is potential for greater use of sources of evidence that already include critiques of the literature, including industry wide sources (eg The Cochrane Database) or profession specific databases (eg OTseeker, PEDro, SpeechBITE). Systems that increase the availability of clinical practice guidelines or evidence summaries would ensure that evidence is readily and broadly available to a greater number of individual AHPs. Implementation of structured journal clubs can assist in addressing barriers to using evidence. Allocation of dedicated time for activities related to sourcing and critiquing evidence has been postulated to be an effective strategy. In addition, AHPs need to be aware that when discussing practice with their peers, this is widely considered a source of evidence, and accordingly advice should be provided with this context in mind.

This research has confirmed that appropriate training influences many facets relating to the use of evidence in day to day clinical practice, including the extent of use of evidence, access to evidence, perceptions about the existing evidence, knowledge of evidence and skills in locating and using evidence. Education strategies are required to change behaviour in the use of evidence, not just knowledge. Any education strategy should target those with little or no training, and further investigation on specific target groups by discipline would be beneficial.

Continued efforts are required to ensure that, as much as possible, research reflects the needs of clinical practice.

While this research provides some insights into the use of evidence in day to day practice for AHPs in rural NSW AHS, further research, particularly which validates the effectiveness of strategies to increase the use of evidence, would be beneficial.

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Appendix One

Rural Allied Health:
Use of evidence in day to day clinical practice

This research is supported by the NSW Institute of Rural Clinical Services and Teaching.

The following questions are seeking information about allied health professionals and their use of evidence in day to day clinical practice.

Participation in this survey is voluntary.

Please be assured the information in this survey is confidential.
You will not be able to be identified by the researcher.

For assistance or further information please contact:
Richard Christensen, Allied Health Advisor, NCAHS.
02 6620 2472
Richard.christensen@ncahs.health.nsw.gov.au

Thank you for taking the time to complete this survey

1. Which Allied Health profession do you work in? (tick one) ☐ Dietetics ☐ Occupational Therapy ☐ Physiotherapy ☐ Podiatry ☐ Psychology ☐ Social Work ☐ Speech Pathology ☐ Other:_ _ _ _ _ _ _
2. How long have you worked in this profession? (tick one) ☐ Less than 5 years ☐ 5 -10 years ☐ 11 – 15 years ☐ More than 15 years
3. What is your gender? ☐ Female ☐ Male
4. What year were you born? _ _ _ _
5. What is the postcode of your primary **work** address? _ _ _ _
6. What is your primary work setting? (tick one) ☐ A hospital setting ☐ A community setting ☐ A mixed setting ☐ Other
7. In which Area Health Service do you work? ☐ GSAHS ☐ GWAHS ☐ HNEAHS ☐ NCAHS

8. What training have you had to help you use evidence in your daily clinical practice?

☐ None ☐ Included in undergraduate training

☐ Included in post graduate training ☐ Short course ☐ Other:_ _ _ _ _ _ _ _ _ _

Please select the answer that best describes you.

9. My knowledge about using evidence in day to day clinical practice is:

☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor

10. I believe using evidence in my day to day clinical practice has the potential to improve patient care.

☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

11. Have you used evidence in your day to day clinical practice which then improved patient care?

☐ No ☐ Yes

List an example: _

12. I use evidence in my day to day clinical practice:

☐ Less than monthly ☐ Every month ☐ Every week ☐ Most days

13. Please select the answer that best describes how often you use the following **specific sources of evidence** to inform in your day to day clinical practice.

In the last 3 months, how often have you used:	*Most days*	*Every week*	*Every month*	*Less than monthly*
• Internet databases which incorporate a critique of the research (eg the Cochrane Library, PEDro, OTseeker)				
• Other internet based databases and journals (Medline, CINAHL, PsycInfo, PubMed)				
• Paper based journals				
• Text books				
• Evidence discussed with other professionals				
• Other professional development activities (eg courses, conferences)				
• Publications from peak professional bodies				
• Journal clubs				
• Evidence based clinical policies / procedures / guidelines				
• Other: _				

14. What sources of evidence are the most useful your day to day clinical practice?

_____

_____

_____

15. Please select the answer that best describes <u>the reasons you use evidence</u> in your day to day clinical practice.

VF = Very frequently F= Frequently S = Sometimes R=Rarely N=Never

In the last 3 months, how frequently have you used evidence in your day to day clinical practice ***for the purpose of:***	VF	F	S	R	N
• For patient / client care					
• Answering a question from a patient / client / carer / family member					
• Answering a question from a colleague					
• Reviewing / developing a clinical policy / procedure / guideline					
• Providing an inservice / education to peers / colleagues / students					
• For general personal education					
• Other reason (list): _____					

16. Please select the answer that best describes <u>your current situation</u> in regarding to using evidence in your workplace

SA = Strongly Agree A = Agree N = Neutral D = Disagree SD= Strongly Disagree

	SA	A	N	D	SD
I have ready access to sources of evidence					
In my organisation I am encouraged and supported to use evidence as part of my day to day clinical role					
My colleagues are supportive of me retrieving and appraising evidence for use in my day to day clinical practice					
I am able to allocate sufficient time to retrieve and appraise evidence for use in my day to day clinical practice					
There is sufficient evidence in my field to support my clinical decisions in day to day practice					
The implications for my day to day clinical practice are clear in the available evidence					

17. Please select the answer that best describes your ability to locate and use available evidence.

SA = Strongly Agree   A = Agree   N = Neutral   D = Disagree   SD= Strongly Disagree

	SA	A	N	D	SD
I can develop a clear "clinical question" to use as a focus when I want to search for evidence					
I am able to locate the evidence I am seeking					
I am able to critically appraise the evidence I find					
I am able to integrate the evidence I find into my day to day clinical practice					

18. What do you think are barriers to using evidence in your day to day clinical practice?______

____

____

____

____

19. What do you think would help you most to use evidence in your day to day clinical practice in the future? ____

____

____

____

____

____

You have now completed the survey

Thank you

Appendix Two

Research Project Participant Information Sheet

Rural allied health – the use of evidence in day to day clinical practice.

About the research

This research project aims to increase our knowledge about the use of evidence by rural allied health practitioners in day to day clinical practice. The results may provide information to enable strategies to be devised to maximise the use of evidence.

It is not currently known to what extent allied health practitioners in rural NSW use evidence in their clinical practice, the sources of evidence they use, the reasons they use evidence, the impacts of using evidence and the barriers to their using evidence.

The research project is part of the NSW Institute of Rural Clinical Services and Teaching (NSW IRCS&T) Rural Research Capacity Building Program. The research is expected to be completed by June 2011.

Why are you being asked to participate?

As you are a rural allied health practitioner in NSW, you are being invited to complete a survey about your use of evidence in your day to day clinical practice. All Dietitians, Occupational Therapists, Physiotherapists, Podiatrists, Psychologists, Social Workers, and Speech Pathologists in NSW rural Area Health Services are being invited to participate.

Voluntary participation

Participation is voluntary and your information will be kept confidential. Please note that once you complete the survey and submit it, your response cannot be identified from anyone else's, so it cannot be withdrawn. Refusal to participate in the project will not affect your relationship with your Area Health Service, or any staff member within it.

What are you being asked to do?

You are being asked to complete a 10 minute survey. The survey includes Likert -type and short answer questions.

This survey can be done either "on line" or in a paper based format.

The on-line survey is available at…

http://selectsurvey.hnehealth.nsw.gov.au/Login.aspx

pass word: xxxxxxxxxxxxxx

To complete a paper based survey please contact:

"NCAHS Administrative person"
xxxx.yyyy@ncahs.health.nsw.gov.au
02 6620 xxxx

It would be appreciated if you could complete the survey by xx/xx/2010.

The principal researcher is Richard Christensen, Allied Health Advisor, North Coast Area Health Service. Measures are in place to ensure that the researcher cannot identify any individual participant.

If you have any questions about the project, please contact the principal researcher, Richard Christensen, on:

- (02) 6620 2472.
- Richard.chrstensen@ncahs.health.nsw.gov.au
- c/- NCAHS, Locked mail Bag 11, Lismore 2480

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Research Project Participant Information Sheet

Rural allied health – the use of evidence in day to day clinical practice.

What happens to the information?

The information will be collated and analysed to provide descriptions of current practice and comparisons between aspects that influence the use of evidence in day to day clinical practice.

All information gathered will be securely stored and only available to the research team. The information which you provide will be accessed, used and stored in accordance with Commonwealth Privacy Laws and the *NSW Health Records and Information Privacy Act 2002.*

Results

The information from the project will be made available in a report which will be posted on the NSW Institute for Rural Clinical Services & Teaching website. It will be made available through your AHS. Results may be presented at a conference and /or submitted for publication. Individuals will not be able to be identified from any of these reports.

Yours Sincerely

Richard Christensen

NCAHS Allied Health Advisor

Complaints

This research has been approved by Hunter New England Area Health Service Research Ethics committee, Reference xxxxxxxxx

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to:

Dr. Nicole Gerrand,
Manager
Research Ethics and Governance
Hunter New England Health,
Locked Bag 1,
New Lambton NSW 2305,
telephone (02) 49214950,
email HNEHREC@hnehealth.nsw.gov.au.

The conduct of this study at the [name of site] has been authorised by the [name of organisation]. Any person with concerns or complaints about the conduct of this study may also contact the [Research Governance Officer or other officer] on [telephone number] and quote reference number [insert SSA reference]