



From the outback to the coast – healthy rural communities

The Australian Rural Health Research Collaboration

Impact of a Program of Rural Health Research on Policy and Practice

Translation Report December 2005



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Introduction

The Australian Rural Health Research Collaboration is a joint venture partnership between four constituent research centres in rural NSW and their associated health services for the purpose of undertaking an innovative and robust program of research and development leading to sustained improvements in the health of rural communities. Teams of researchers across the Collaboration are working together on 6 specific research programs:

1. Mental Health research
2. Health Services research
3. Health Workforce research
4. Remote and Indigenous Health research
5. Agricultural Health research
6. Environmental Health research

A specific *objective* relating to “knowledge transfer” for the Collaboration was defined at its inauguration, viz:

- *To establish processes for the translation of research outcomes into improved policy and practice including publication of results in relevant media, working with government and industry peak bodies, and implementing education and training*

A Collaboration-wide Workshop was held in mid 2004 at Moree with the objectives:

1. To identify and describe models and mechanisms for the translation of rural health research into improved health policy and practice
2. To identify measures of performance for the translation of rural health research into improved policy and practice

The planned scope included:

- Agricultural health and safety policy and practice
- Rural health policy and practice

The workshop brought together researchers and area health program planners and leaders and benefited from expert input from health and agricultural research brokers, and following the Workshop, a Translation Strategy¹ was adopted that was based on discussions and common themes reached at that workshop. It has been agreed that the Australian Rural Health Research Collaboration can play a key role in development and evaluation of processes and programs that enhance the translation of research into improved policy and practice. However, action will be required by the research community, and the policy and practitioner communities for effective knowledge transfer.

This strategy focuses on achieving practical and measurable outcomes by Collaboration partners within the following 3-5 years. The strategic approach has five key elements, and key strategic objectives were adopted that provide direction for participating Centres, research teams and individual researchers:

This report is a mid-term report of performance of the Collaboration using the indicators that were defined in the Strategy.

¹ Australian Rural Health Research Collaboration *Translation of Research Strategy and Plan 2004-2008* ARHRC, University of Sydney

Component 1: A framework for action

To develop a coordinated framework that will facilitate the necessary action to develop processes and programs to transfer research knowledge into improved policy and practice.

Program indicators

1. Research Translation Workshop to define mechanisms and models of effective translation of research into improved policy and practice, and to identify possible measures of research transfer action.
2. Preliminary Translation Strategy and Plan adopted by the Advisory Council.
3. A Research Translation Leader nominated from within the Collaboration to work with Directors, Area Health Services and Research Leaders to receive reports, facilitate communication between partners and prepare six monthly reports of progress in implementing the Research Translation Plan.

Performance at December 2005

The Collaboration has made significant progress in establishing the framework for action. The Advisory Council has received reports of the Translation Workshop and adopted the Strategy in 2004. The Collaboration Advisory Council has received reports of the Translation Workshop and adopted the Collaboration Translation Plan². However, it has been recognized that the Advisory Council has the potential to provide further assistance in dissemination of research findings, in facilitating adoption of research findings by policy maker and practitioners. To that end, the Advisory Council will reconsider and enhance its role to achieve these outcomes in early 2005.

Component 2: Practitioners, policy makers and researchers working together

To achieve alignment of research planning and implementation with health policy and practice decision making with a view to facilitate translation of research into improved policy and practice.

Program indicators

1. Policy makers and relevant practitioners involved in research planning and partnerships
2. Researchers serving on relevant rural health policy-making committees and boards in national, state and local spheres
3. Research program leaders development as research brokers
4. Support for practitioner research
5. Joint practitioner/ teaching/ research appointment
6. Joint meetings/ journal clubs and meetings for researchers and practitioners

Performance at December 2005

Closer association between these practitioners, policy makers and researchers in identifying research priorities, planning research, implementing and reviewing and interpreting research results has been identified as a critical strategy by which the Collaboration will increase the adoption of research findings into improved policy and practice. Further, involvement of research leaders in policy development and in activities with practitioners such as education and review of practice will enhance understanding of key issues of importance to improvement of policy and practice. Research leaders from the Collaboration are well represented on a range of policy-making boards and councils at federal, state and regional and industry levels. During 2005, Dr Sue Page and Associate Professor Lyn Fragar were appointed as chairs of the North Coast and Hunter New England Area Health Advisory Councils, and professor David Lyle as a member of the Greater Western Area Health Advisory Council.

On the other hand, there has been an increasing representation of policy makers and practitioners engaged in setting research agendas and the inter-sectoral members of the Advisory Council has been beneficial in agenda setting in 2005.

² Australian Rural Health Research Collaboration *Translation of Research Strategy and Plan 2004-2008* ARHRC, University of Sydney

Component 3: Evidence based practice in rural health practice

To provide support for programs that encourage evidence based practice in rural health services and in primary health care, including health promotion and disease prevention programs.

Program indicators

1. Programs of ongoing education at all levels of the organization addressing access to and the nature of evidence, critical appraisal and contributing to the evidence base
2. Development and support of active research groups which report on their activities annually by means of internal and external publication, seminars and conference attendance
3. Measures that published research evidence is accessible by development of a program of dissemination and translation of evidence

Performance at December 2005

Early progress being made in this area was disrupted to some degree by the restructuring of the area health services across NSW in 2004, with impact during 2005. On the other hand in two area health services the Health Primary Health Care Research Evaluation & Development (PHCRED) program of funding from the Department of Health and Ageing has provided increased opportunity for appointment of clinician researchers and increased interest from practicing clinicians in research. Funding assistance has been secured to convene the Second Rural Health research Colloquium in 2006 that will bring together researchers, policy makers and practitioners to review and discuss issues of importance to rural health practice.

Component 4: Reporting research in accessible forms

To report research outcomes from the Australian Rural Health Research Collaboration in forms that are accessible to relevant policy makers and practitioners

Program indicators

1. Research publications in peer-reviewed journals
2. Citations of research in the peer reviewed journals
3. Conference presentations reporting research findings
4. Research findings reported as media releases and reported in the media
5. Citations of research results in health and health-related policy documents
6. Researcher involvement in development of relevant guidelines and educational material

Performance at December 2005

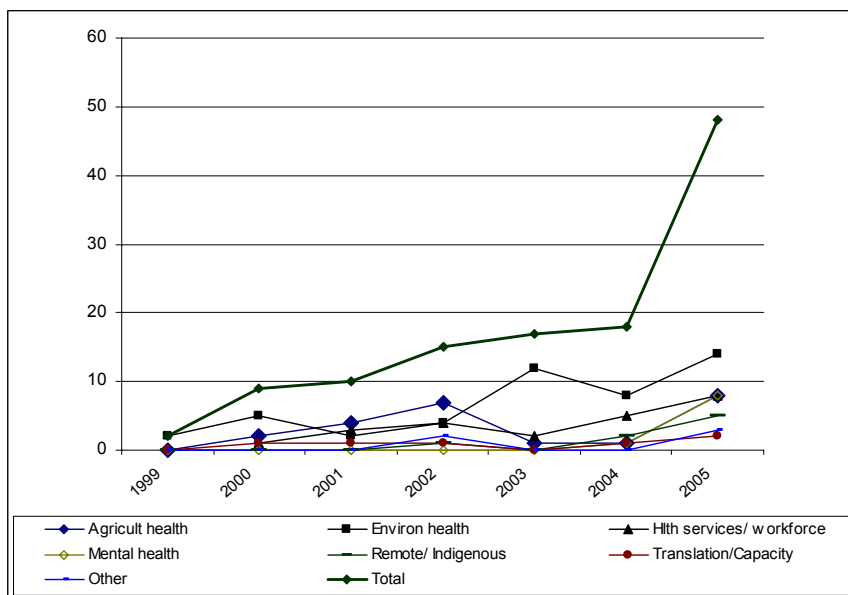
Researchers have been diligent in reporting their findings at professional conferences and seminars over the past 3 years, as well as in the peer-reviewed journals. A highlight of 2005 has been increased reporting of research outcomes of the Collaboration in the press and to the public. The Schofield and Beard³ paper on health workforce issues, and the impact of ageing on the future workforce attracted a high degree of media interest and response by government at regional, state and federal levels.

The Australian Centre for Agricultural Health and Safety has also reported that 2005 has seen significant increases in uptake of information through the Farmsafe Australia networks and website of resources developed from the agricultural health research program.

The metrics relating to translation activity are demonstrating the gains being made by the Collaboration. The growing number of publications in the peer-reviewed literature is demonstrated by research program in Figure 1.

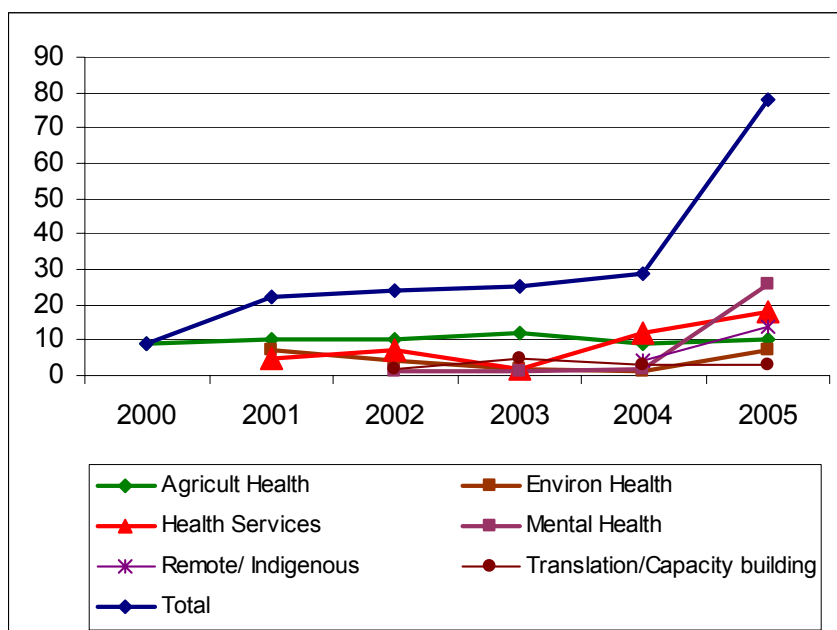
³ Schofield D, Beard, J (2005) Baby boomer doctors and nurses: demographic changes and transitions to retirement. *Medical Journal of Australia*. Vol 183, no 2, 18 July pp80-83

Figure 1: Number of publications and book chapters published in the peer reviewed literature by research stream



The number of conference presentations by researchers in the Collaboration is also showing a strong increase over the life of the Collaboration: (Figure 2).

Figure 2: Number of presentations at conferences by research stream. Australian Rural Health Research Collaboration



Reporting impact of research on policy and practice

The Australian Rural Health Research Collaboration and its constituent centres have established an enviable track record of translation of research findings into improved health policy and practice in rural health services policy and practice, in environmental policy and in rural health policy and practice in the agricultural sector. This position is demonstrated in the following section of the report that has been prepared by research leaders, detailing project-by-project the known impact of the research programs on health policy and practice

The impacts are wide-ranging – they range from health services research effecting changes in the way health services are provided in rural centres through working closely with local health service providers, to global impacts such as changes to design of farm machinery for improved safety, incorporation of environmental health findings regarding vehicle fuels into a World Bank Report of global significance and incorporation of outcomes into standard texts for students of rural health.

In summary

This report has demonstrated evidence of effective adoption of research outcomes across the programs of the Australian Rural Health Research Collaboration . The strategic approaches being taken will ensure that the Collaboration continues to have a high impact on improving the health and wellbeing, thence the healthy sustainability of rural communities.

Abbreviations:

ACAHS:	Australian Centre for Agricultural Health and Safety
BHCRHR:	Broken Hill Remote Health Research Centre
NRUDRH:	Northern Rivers University Department of Rural Health
CRRMH:	Centre for Rural and Remote Mental Health

1. Mental Health Research Stream

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
1. Rural Mental Health and Critical Care Access Project			
Kelly, B Centre for Rural and Remote Mental Health: Rural Emergency and Critical Care Access Plan	CRRMH		The Centre for Rural & Remote Mental Health led a project team in the development of <i>The Rural Mental Health Emergency and Critical Care Access Plan</i> for NSW Health. The draft report has been submitted by the Centre for Mental Health to the Minister for Health for approval. Collaboration with key agencies (such as Ambulance, Rural Doctors Network, and other health services), has been a significant component of this project
2. Drought Project			
Hoolahan, B, Sartore G, Tonna A ; Kelly B Wisdom from the Drought: Shaping a consultative conference.. <i>Australian Journal of Rural Health</i> , 2005. 13 (5), 315-320.	CRRMH	NSW Farmers Association Blueprint for Mental Health on Farms 2005 NSW Farmers Association Sydney	This action research program has directly resulted in a number of changes to improve rural mental health policy and practice: <ul style="list-style-type: none"> - A range of projects have been established within the NSW Farmers intersectoral network that aims to improve the mental health and wellbeing of farmers. Findings from the consultative conference have informed the development of these projects (eg needs of support workers). - Rural Support Line – led by CRRMH as a service initiative to increase the access to mental health and advice to farmers and farm families, and to services working closely with farmers. The methods of promotion of the phone line and the extension to providing support to non-mental health workers in a range of community and government agencies was a result of the findings in this report. - A state-wide service development project with Area Mental Health Services has been established to improve links between rural mental health services and other health and community agencies working with farmers. This incorporates Mental Health First Aid Training.
3. Stress, Mental Health and Suicide on Farms Studies			
Page AN, Fragar L.J. Suicide in Australian Farming, 1988-1997. <i>ANZ J Psychiatry</i> 2002;36: Fragar, LJ Henderson AJ Stronger Farm Families: Farm Family Business Project 2004 Australian Centre for Agricultural Health and Safety Fragar, LJ Henderson AJ Farming Insights: A Program for the Professional Farmer 2005 Australian Centre for Agricultural Health and Safety	ACAHS	NSW Farmers Association <i>Blueprint for Mental Health on Farms</i> 2005 NSW Farmers Association Sydney	This research resulted in a range of programs aimed to address stress, mental health and suicide risk factors and protective factors for the farming community. The research and have informed the development of content in resources for farm families and support services <ul style="list-style-type: none"> - Design of the Farm Family Business Resource which was made widely available to the farmers and farmer support services in northern NSW and has subsequently been endorsed and made accessible throughout NSW, Victoria, Queensland, Western Australia, South Australia and Tasmania. 2000 handbooks distributed, 5000 CD's circulated, 80 unique visitors for November 2005 - Implementation of Farming Insights program with establishment NSW Farmers Association social and professional network of farm men aged 25-44. - Drought Seminar Series to inform health workers of mental health issues for farming communities - Training series to Rural Mental Health Line call centre staff
4. Far West Mental Health Integration Project			
Perkins D & Lyle D. Is the Far West Mental Health Integration Project making a difference? The General Practitioner Perspective. <i>Australian Journal of Primary Care</i> . 2005; 11:32-37	BHCRHR		This study was part of a wider program evaluation and has been used to identify impacts of the program and support continued funding – ie contributing at the practice, rather than policy level at this stage.

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
5. Broken Hill Mental Health Studies			
<p>Everingham, C., Heading, G. & Connor, L. (2005) Couples Experiences of Postnatal Depression: A Framing Analysis of Cultural Identity, Gender and Communication. <i>Social Science & Medicine</i>. (In press)</p> <p>Magin P, Adams J, Heading G, Pond D & Smith W. (2005). Patient's perceptions of isotretinoin, depression and suicide: a qualitative study. <i>Australian Family Physician</i>. 2005;34(9):795-797.</p>	BHCRHR		In press – awaiting dissemination
6. Northern Rivers Mental Health Studies			
<p>Dudley M, Beard J., Clarke A, Knowles M, Buss^R, Schnieden V, Einfeld S, Tobin M, Dietrich U. Efficacy And Perceived Effectiveness Of A 'Green Card' Intervention For Patients Engaging In Deliberate Self-Harm (In Press) <i>Suicide Studies</i></p> <p>Tobin MJ, Clarke AR, Buss R, Einfeld SL, Beard J. Dudley M, Knowles M. Dietrich U. From efficacy to effectiveness: managing organizational change to improve health services for young people with deliberate self harm behaviour. <i>Australian Health Review</i>. 2001; 24(2):143-51.</p> <p>Teeson M, Dietrich U., Degenhardt L, Lynskey M, Beard J. Substance Use Disorders in an Australian Community Survey (In Press) <i>Drug and Alcohol Review</i></p> <p>Van Beurden E, Reilly D, Dight R, Mitchell E, Beard J. Alcohol brief intervention in bars and taverns: a 12 month follow up study. <i>Health Promotion International</i> 2000;15 (4):293-302</p>	NRUDRH	<p>Sobell, Linda Carter; Sobell, Mark B.; Leo, Gloria I.; Agrawal, Sangeeta; Johnson-Young, Lisa; Cunningham, John A. <i>Promoting Self-Change With Alcohol Abusers: A Community-Level Mail Intervention Based on Natural Recovery Studies</i>. <i>Alcoholism: Clinical & Experimental Research</i>. 26(6):936-948, June 2002.</p> <p>Lock, C Screening and brief alcohol interventions: What, why, who, where and when? A review of the literature <i>Journal of Substance Use University of Newcastle Newcastle upon Tyne UK V 9 no 2 2004</i></p>	The Mental Health Studies at Northern Rivers University Department of Rural Health will result in changed policy and practice outcomes through the identification of effective interventions particularly in substance use.

2. Health Service Research Stream

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
1. Falls Prevention Studies			
<p>Kempton A, van Beurden B, Sladden T, Garner E, Beard J. Older people can stay on their feet: Final results of a community-based falls prevention program in Australia. <i>Health Promotion International</i> 2000;15:1-7</p> <p>Rowell D, Scott D, Barnett L, Beard J, Deitrich U, Sloan K, van Berden E. Measuring the Economic Impact of Falls Prevention Interventions <i>Australian Journal of Business and Social Enquiry</i> 2004; 2 (2)</p> <p>Barnett LM, van Beurden E, Eaken EG, Beard J, Dietrich U, Newman B. Program sustainability of a community-based intervention to prevent falls among older people. <i>Health Promotion International</i> 2004; 19 (3):281-288.</p>	NRUDRH	<p>Lindqvist K, Timpka T & Schelp L, Evaluation of an inter-organizational prevention program against injuries among the elderly in a WHO Safe Community 115, 308 - 316 (2001).</p> <p>Prioritising Interventions to reduce Accidental Injury in Older People AITF Working Group on Older People UK Department Health www.dh.gov.uk</p>	<p>The work of these studies have influenced a range of community falls prevention programs including</p> <ul style="list-style-type: none"> ▪ International falls prevention campaigns ▪ NSW Health Falls Prevention Programs ▪ Farmsafe Australia Safety of Older Farmers Program.
2. Northern Rivers Health Service Research			
<p>Holden L, Passey M. Evaluation of the Priority Health Care Program - Patient and Carer Interview Findings. 2004 Final Report. Northern Rivers University Department of Rural Health, Lismore</p> <p>Holden L, Passey M. Evaluation of the Priority Health Care Program - Service provider Perspectives. 2004 Final Report. Northern Rivers University Department of Rural Health, Lismore.</p> <p>Webber KM, Spurr, L. Evaluation of the Rural Chronic Disease Initiative – Evans Head Pilot Site. Report. December 2003.</p> <p>Webber KM, Spurr, L. Evaluation of the Rural Chronic Disease Initiative – Dorrigo Plateau Pilot Site. Report. November 2003.</p> <p>Passey M, Patete S, Bird G, Bolt S, Brooks L, Lavender K, Scott D, Sloan K, Spooner C, Vail J. Evaluation of the Lismore Magistrates Early Referral Into Treatment Pilot Program – Final Report. New South Wales Attorney Generals Department. October 2003.</p> <p>Birden H, Public Health Workforce Development in Australia. Scholarly pursuits, Northeast Regional Public Health Leadership Institute, US. Winter 2003 (V3 #1)</p> <p>Mgone CS, Passey ME, Anang J, Peter W, Lupiwa T, Russell DM, Babona D, Alpers MP. Human immunodeficiency virus and other sexually transmitted infections among female sex workers in two major cities in Papua New Guinea. <i>Sexually Transmitted Infections</i>, 2002, 29(5):265-270.</p> <p>Barnett L, Molyneux M, van Beurden E, Dietrich U, Zask A. Using school management plans to track engagement in a public health intervention. <i>Australia & New Zealand Journal of Public Health</i>, 2002, 26(4):389.</p>	NRUDRH		<p>The research undertaken in the Northern Rivers health services involves strong collaboration between clinicians or policy makers, and the researchers with them often being instrumental in initiating much of the research, thus ensuring the relevance of the research to health policy and practice.</p>

3. Children Physical Health Studies			
<p>Zask A, van Beurden E, Barnett L, Brooks, Dietrich U. Active schools playgrounds - myth or reality / Results of the Move It Groove It project. <i>Preventive Medicine</i>, 2001, 33:402-408.</p> <p>Van Beurden E, Barnett L, Zask A, Dietrich U, Brooks L, Beard J. Can we skill and activate children through primary school Physical Education lessons? 'Move it Groove it' a collaborative health promotion intervention (In Press) <i>Preventive Medicine</i></p> <p>Barnett L, van Beurden E, Zask A, Brooks L, Dietrich U. How active are rural children in Australian physical education? <i>Journal of Science and Medicine in Sport</i>, 2002, 5(3): 253-265</p> <p>van Beurden E, Zask A, Barnett L. Fundamental movement skills - How do primary school children perform? The 'Move It Groove It' program in rural Australia. <i>Journal of Science and Medicine in Sport</i>, 2002 5(3):244-252</p>		<p>Graf C, Koch B 1, Gisa Falkowski G 1, Jouck S 1, Hildegard C Stauenmaier K Bjarnason-Wehrens B, Tokarski W, Dordel S and Predel H1 Effects of a school based intervention on BMI and Motot abilities in Childhood Research Journal of Sports Science and Medicine (2005) 4, 291-299 http://www.jssm.org</p>	<p>The Move It Groove It project has been funded by the Demonstration Grant Program NSW Health Department SUNPA Unit, and co-managed by the Health Promotion Unit of the Northern Rivers Area Health Service, NSW Department of Education and Training, and Southern Cross University.</p>
4. Royal Flying Doctor Service Study			
<p>Horsburgh T, D. Lyle. Review of Royal Flying Doctor Service medical database South Eastern Section and Western Operations. Prepared for RFDS, 2001.</p>	BHCRHR		<p>New procedures to review patients were instituted as a result of this study- including 1) A compilation of a list of the patients requiring frequent evacuation by the RFDS, and this being distributed to the doctor having clinical responsibility for the clinic of origin of each particular patient. The doctor then reviews the patient records with the nursing staff to establish the presence of a chronic/complex disease requiring better planning and management and 2) The establishment of regular weekly meetings between the RFDS doctor, nursing staff and AHWs at the clinic requiring the most evacuations, in order to discuss and establish care plans for patients requiring frequent evacuations. The doctor sets aside dedicated time for this process.</p>
5. Smoke Free Evaluation Study			
<p>Passey M Evaluation of North Coast Area Health Service smoke free policy training Preliminary Report 2005</p>	NRUDRH		<p>This study evaluated the training for community health staff of North Cost Area Health Service.</p>
6. Oral Health Study			
<p>Passey M Oral Health Network Evaluation 2005 Preliminary Report NRDRH</p>	NRUDRH		<p>The results of the evaluation have been used by the Northern NSW Oral Health Network to introduce a number of changes to their service and have also confirmed the high value and quality of the service.</p>

3. Health Workforce Research Stream

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
1. Medical Workforce Studies			
<p>Schofield, D and Beard, J Baby boomer doctors and nurses: demographic change and transitions to retirement, Medical Journal of Australia, 2005 Vol183 no 2 pp 80-83</p>	NRUDRH	<p>Schofield, D Initial submission from the Australian Rural Health Research Collaboration (ARHRC), University of Sydney, to the Productivity Commission Health Workforce Study, 15 July 2005</p>	<p>This study has only been running for 12 months and findings have used in policy and practice developments including</p> <ul style="list-style-type: none"> ▪ Contribution of analysis of doctor and nursing ageing and retirement for the NSW Health Futures to 2025 project, 4 January 2006 ▪ Appearance before the Productivity commission health workforce inquiry in May 2005 ▪ Contribution of analysis of projected demand for health services to 2015 in the North Cost Area Health Service Workforce Development plan 2005-2015 and advice on estimating retirement of doctors and nurses ▪ Involvement in seminars for NSW Health, Commonwealth Department of Health and Ageing and Commonwealth Treasury <p>The work was also presented at a related forum called "standing on the edge" run by Dr Sue Page on 22 July 2005. This forum linked key stakeholders in delivery of services in education and training of the future workforce and covered: policy and practice issues such as advanced Practice Nurses or similar profession, issues of certification and regulation, establishment of new career structure and payment system and reimbursement methods for such a new practitioner</p>

4. Remote Health Stream

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
1. Broken Hill Remote Health Studies			
<p>Burns P, Gooden K. Information sharing strategy. <i>Aboriginal & Islander Health Worker Journal</i> 2004; 29(1) pp22 – 23 & 28</p> <p>Kennedy C, Burke H, Telfer B, McAnulty J, Lambie B, Moreton A, Gosbell I. Improving our understanding of, and the control of, community methicillin-resistant <i>Staphylococcus aureus</i>: development of a trial sentinal surveillance program in the far west of New South Wales. <i>NSW Public Health Bulletin</i> 2004; 15(4):78-80.</p> <p>Laycock A. The Alcohol Handbook for Frontline Workers. An initiative of the Alcohol Community Development Project Far West Area Health Service. Broken Hill Centre for Remote Health Research September 2004.</p>	BHCRHR		<p>The Broken Hill Remote Heath Studies have had various impacts on policy and practice.</p> <p>The Pilot program-community methicillin-resistant <i>Staphylococcus aureus</i> has been taken up and used to make decisions about whether or not to institute the program more widely - ie policy</p> <p>The Alcohol Handbook for Frontline Workers has been used extensively in practice in far western NSW – requests for publication from around Australia reflect a potentially wider impact on policy and practice</p>

5. Agricultural Health Stream

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
1. Tractor Safety Research Projects			
Davidson A. National Tractor Safety Project Final Report. Australian Agricultural Health Unit. Moree. 1996	ACAHS	Day L, Rechnitzer G. 1999. <i>Evaluation of the tractor roll-over protective structure rebate scheme 1997/98</i> . Monash Accident Research Centre. Monash University Woods, B (1999)"Victoria's rollover subsidy - A safety success" Victorian Workcover Authority <i>Farm Injury Prevention 99Proceedings Papers</i> .	Roll Over Protective Structure (ROPS) rebate scheme implemented in Victoria, New South Wales and Queensland with an estimated 20,000 ROPS retrofitted on tractors with a subsequent observed decline in roll over deaths This policy action has resulted in a demonstrable decrease in tractor rollover deaths in Victoria and NSW. A guideline was published by the Australian Centre for Agricultural Health and Safety. The guideline gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au
A Davidson, G McDonald, J Tullberg, S Collie -Safe Tractor Access Platform Australian Centre for Agricultural Health and Safety Moree NSW, Australia 1996	ACAHS	Day, L., Scott, M., Williams, R., Rechnitzer, G., Walsh, P., Boyle, S. Development of the Safe Tractor Assessment Rating System. Barton, ACT: <i>Journal of Agricultural Safety and Health</i> , 2005, 11(3): 353-364 Included in submission to Rural and Regional Services and Development Committee <i>Parliamentary Inquiry- Death and Injury on Victorian Farms 2005</i> SafetyLine Institute of Worksafe WA (Online safety guidelines) <i>Tractor Run Overs</i> . Government of Western Australia Steps to tractor safety. <i>Workplace Issues</i> July 2001 Workcover Tasmania and Workplace Standards Tasmania Roll Over Protection Structure (ROPS) <i>Farm Safety Series</i> Feb 2003 Worksafe Victoria	This research resulted in design specifications for a <i>Safe Tractor Access Platform</i> that were promulgated by production of a guideline that was made widely available to the agriculture industries, government and manufacturers. The guideline gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au The state governments of Western Australia, Tasmania and Victoria have adopted the recommended guidelines and are promoting the retrofitment of the platform to farmers in those states. Subsequently, leading tractor manufacturers based in the USA and Europe have incorporated safe access platform/steps into design of new tractors. The Farm Injury Data Centre monitors tractor deaths to track decline in tractor run-over deaths
Franklin R (2005) <i>Evaluation of the New South Wales Rollover Protective Structure Rebate Scheme 2000-2004</i> . Australian Centre for Agricultural Health and Safety Moree.	CAHS	Workcover NSW Rebate Scheme for replacement of worm drives with pin drives in shearing hand pieces	This evaluation of the tractor ROPS rebate scheme in NSW has provided the information that the NSW Government has based further subsidy incentives for upgrading the safety of older farm machinery – eg shearing handpieces that cause hand injury to shearers.

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
2. Profile of rural health study			
<p>Fragar, LJ, EJ Gray, RJ Franklin and V Petrauskas, A picture of health? A preliminary report of the health of country Australians (1997), ACAHS</p> <p>Fragar L. A Picture of Health? <i>Proceeding of Rural Public Health in Australia 1997 Conference</i>. National Rural Public Health Forum. National Rural Health Alliance, Canberra</p>	ACAHS	<p><i>Mental Health Programs in Remote Divisions of General Practice</i> Primary Mental Health Care Australian Resource Centre Flinders University 2004</p> <p>JS Humphreys - Worner Lecture Series, 1998 - Rural Health and the Health of Rural Communities Monash University</p> <p>Dal Grande E, Taylor A, Wilson D, South Australian Health & Wellbeing Survey - 2002 - 2000</p> <p>Farmsafe Australia (2002). <i>Child Safety on Farms National Strategy</i> Farmsafe Australia: Moree</p> <p>McDonald J, Harris E, Furler J Discussion Paper: Research priorities and capacity building issues 2002 Centre for Equity Training Research and Evaluation University of NSW, Department of General Practice, University of Melbourne.</p> <p>Addressing the Burden of Heart Failure in Australia: The Scope for Home-Based Interventions The Journal of Cardiovascular Nursing, 2001 - jcnjournal.com October 2001, 16:1</p> <p>Van Erp A Down... not out—the surprising evidence of disability in old age The National SARRAH Conference 2004</p> <p>Measey MA, Dal Grande E Northern Territory Health and Wellbeing Survey Non-Indigenous Population NT Department of Human and Community Services</p> <p><i>Collaborative Health and Wellbeing CATI Survey of adults living</i> REPORT 2: ANALYSIS BY ARIA n Western Australia, Northern Territory and South Australia Commonwealth Department of Health and Ageing</p> <p>South Australian Health Goals and Targets Health Priority Areas Survey Strategic Policy and Planning Branch <i>entral Campaigns Primary Care Partnership Integrated Service Plan 2001</i> Centre for Health Promotion Evaluation University of Melbourne</p> <p>Stratigos S (undated) <i>Equal is not equitable Medicare in the bush</i> Rural Doctors Association of Australia</p>	This study resulted in the "Picture of Health" report being presented at the National Rural Public Health Conference and is referenced in most policy documents relating to rural health in Australia.

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
3. National Farm Injury Data Collection Project			
<p>Franklin RC, Fragar LJ, Page AN. The national farm injury data collection: data to inform farm injury prevention programs. <i>Australian Epidemiologist</i> 2000. 7(1) 18-24.</p> <p>Fragar L, Franklin R, Coleman R <i>The farm injury optimal dataset. Version 1.2</i> (2000). RIRDC & ACAHS: Moree</p> <p>Hewitt RJ, Franklin RC, Fragar LJ <i>Research methodologies for benefit –Cost studies of farm occupational health and safety projects.</i> Moree: ACAHS, RIRDC; 2000.</p>	ACAHS	<p>Fragar L. Coleman R. Health and safety in Australian Agriculture – Linking research, data and action. <i>Journal of Agromedicine.</i> 4(1/2) 1997</p>	<p>The development, testing and modification of the National Farm Injury Optimal Dataset has guided the collection, collation and publication of most farm injury research in Australia since the mid 1990's.</p> <p>The farm injury optimal data set has directly resulted in Modification to ICD10 classification to more accurately define farm injury specifically related to 4 wheel motorcycles</p>
<p>Fragar LJ, Franklin RC The Health and Safety of Australia's Farming Community 2000 ACAHS</p> <p>Franklin RC, Davies JN. Farm related injury presenting to an Australian base hospital. <i>Australian Journal. Rural Health</i> 2003;</p>	ACAHS	<p>Farmsafe Australia <i>Health and Safety in Sheep Industries- A National Strategy</i> Farmsafe Australia. 1997</p> <p>Farmsafe Australia. <i>Health and Safety in Cotton Industry A national Strategy</i> Farmsafe Australia. 1999</p> <p>Farmsafe Australia . <i>Child Safety on Farms National Strategy</i> Farmsafe Australia: 2002</p> <p>Farmsafe Australia . <i>Noise Injury Prevention Strategy for the Australian Farming Community.</i> Farmsafe Australia: 2002</p> <p>Farmsafe Australia <i>Safe operation of All-terrain Vehicles and All-terrain Utilities on Australian Farms - An Industry Strategy 2004-2009</i> Farmsafe Australia 2004</p> <p>Farmsafe Australia. <i>National Farm Machinery Safety Strategy 2000-2000, with Review 2004.</i>Farmsafe Australia 2004.</p> <p>Farmsafe Australia. <i>Health and Safety in the Australian Beef Cattle Industry – an Industry Strategy 2004-2009</i> Farmsafe Australia . 2004</p> <p>Farmsafe Australia. <i>National Farm Machinery Safety Strategy 2000-2000, with Review</i> Farmsafe Australia .2004.</p> <p>Farmsafe Australia. <i>Health and Safety in the Australian Horticultural Industry – An Industry Strategy 2004-2009</i> Farmsafe Australia 2004</p>	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries, government and manufacturers.</p> <p>The guidelines gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au</p> <p>The research and guidelines have informed the development of content in Rural Short Courses;</p> <ul style="list-style-type: none"> • <i>MFS-Managing Farm Safety</i>™ (over 10 000 farmers involved Australia wide) • • <i>Return to Work on the Farm</i> (for rural rehabilitation service providers)
<p>Franklin R, Fragar L. <i>The health and safety of Western Australian farmers, farm workers and farm families.</i> Moree: Australian Centre for Agricultural Health and Safety with the Rural Industries Research and Development Corporation; 2002.</p>	ACAHS		<p>The Western Australian study has informed a range of programs and projects undertaken in Western Australia by the Department of Health and Farmsafe Queensland.</p>

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
4. Farm Fatalities Research Study			
<p>Franklin R, Mitchell R, Driscoll T, Fragar L (2000). Farm related fatalities in Australia, 1989-1992. ACAHS, NOHSC and RIRDC: 2000.</p> <p>Franklin RC, Mitchell RJ, Driscoll TR, Fragar LJ (2001a). Agricultural Work-Related Fatalities in Australia, 1989-1992. <i>Journal of Agricultural Health and Safety</i>. 7(4):213-227</p> <p>Franklin RC, Mitchell RJ, Driscoll TR, Fragar LJ (2001b). Non-Work-Related Farm Fatalities in Australia, 1989-1992. <i>Journal of Agricultural Health and Safety</i>. 7(4):229-239</p> <p>Mitchell RJ, Franklin RC, Driscoll TR, Fragar LJ (2001). Farm-related fatalities involving children in Australia, 1989-1992. <i>Australian & New Zealand Journal of Public Health</i>, 25: 155-166</p> <p>Mitchell RJ, Franklin RC, Driscoll TR,</p> <p>Mitchell RJ, Franklin RC, Driscoll TR, Fragar LJ. Farm-related fatal injury of young and older adults in Australia, 1989-1992. <i>Aust J Rural Health</i> 2002; 10, 209-219</p>	ACAHS	<p>Farmsafe Australia. <i>Health and Safety in the Australian Beef Cattle Industry – an Industry Strategy 2004-2009</i> Farmsafe Australia. 2004</p> <p>Farmsafe Australia. <i>National Farm Machinery Safety Strategy 2000-2000, with Review 2004</i>. Farmsafe Australia. 2004</p> <p>Farmsafe Australia. <i>Health and Safety in the Australian Horticultural Industry – An Industry Strategy 2004-2009</i> Farmsafe Australia 2004</p> <p>Farmsafe Australia. <i>Child Safety on Farms National Strategy Farmsafe Australia: Farmsafe Australia</i>. 2002</p> <p>Farmsafe Australia. <i>Health and Safety in Cotton Industry A national Strategy</i> Farmsafe Australia Farmsafe Australia. 1999</p> <p>Farmsafe Australia <i>Safe Operation of All-terrain Vehicles and All-terrain Utilities on Australian Farms - An Industry Strategy 2004-2009</i> Farmsafe Australia 2004</p> <p>Farmsafe Australia. <i>Health and Safety in the Australian Beef Cattle Industry – an Industry Strategy 2004-2009</i> Farmsafe Australia. 2004</p>	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries and government agencies.</p> <p>The guidelines gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au</p> <p>The research and guidelines have informed the development of content in Rural Short Courses;</p> <ul style="list-style-type: none"> ▪ <i>MFS-Managing Farm Safety</i>™ (over 10000 farmers involved Australia wide) ▪ <i>Return to Work on the Farm</i> (for rural rehabilitation service providers) <p>Development of national safety competencies in all units of competency in the rural training system www.vetab.gov.au</p> <p>Roll Over Protective Structure (ROPS) rebate scheme implemented in Victoria, New South Wales and Queensland with an estimated 20,000 ROPS retrofitted on tractors with a subsequent observed decline in roll over deaths</p> <p>A small business workers compensation premium discount scheme with cotton with over 50 farms successfully completing the program</p>
5. Farm Injury Data Centre Research Project 2			
<p>Fragar LJ, Franklin RC, Allen C, Harding W. <i>Occupational Health and Safety Risk Associated with Sugarcane Production</i>. Moree: Australian Centre for Agricultural Health and Safety with Rural Industries Research and Development Corporation, 2001.</p> <p>Franklin RC, Brown P, Fragar LJ, Houlahan JB. <i>Health and Safety Risks Associated with Horticultural Produce Production</i>. Moree: Australian Centre for Agricultural Health and Safety with Rural Industries Research and Development Corporation, 2001.</p> <p>Franklin RC, Fragar LJ, Houlahan JB, Brown P, Burcham J. <i>Health and Safety Risks Associated with Cotton Production On-Farm</i>. Version 1.2. Moree: Australian Centre for Agricultural Health and Safety with Rural Industries Research and Development Corporation, 2001.</p> <p>Franklin RC, Thomas, PR, Fragar LJ. <i>Falls in Agriculture</i>. 2004 Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra.</p> <p>Franklin RC, Thomas, PR, Fragar LJ. The Health and Safety of</p>	ACAHS	<p>Farmsafe Australia. Health and Safety in the Australian Horticultural Industry – An Industry Strategy 2004-2009 Moree. 2004</p> <p>Farmsafe Australia . Safety of Older Farmers - A National Strategy 2005 – 2007 (Draft) Farmsafe Australia 2006</p> <p>NSW Farmers Association <i>Farm Safety Guide</i> . NSW Farmers, Sydney 2005.</p>	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries, government and agricultural equipment manufacturers.</p> <ul style="list-style-type: none"> ▪ The guidelines gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au ▪ The research and guidelines have informed the development of content in Rural Short Courses; - <i>MFS-Managing Farm Safety</i>™ (over 10000 farmer participants Australia wide) - <i>Return to Work on the Farm</i> (for rural rehabilitation service providers)

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
New South Wales Farmers, Farm Families and Farm Workers. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra.			
Chartbook series: Fragar LJ, Thomas, P Machine Injuries on Australian Farms - The Facts 2005 ACAHS RIRDC Fragar LJ, Thomas P, Morton C Injury on Farms in New South Wales - The Facts 2005 ACAHS RIRDC Fragar, LJ, Stiller L, Thomas P Child Injury on Farm - The Facts 2005 ACAHS RIRDC Fragar LJ, Pollock K, Morton C Occupational health and safety risk in the Australian Beef Cattle Industry - The Facts 2005 ACAHS RIRDC Fragar LJ, Pollock, K, Morton C Occupational health and safety risk in the Horticulture Industries - The Facts 2005 ACAHS RIRDC Fragar LJ, Pollock, K, Morton C Occupational health and safety risk in the Poultry Industry - The Facts 2005 ACAHS RIRDC	ACAHS		This series presents findings in readily downloadable visible forms that are being down-loaded from the Farmsafe Australia website at a rate of 2-300 per month, by educators, contractors and policy makers .
6. Child Safety on Farms Studies			
Page A, Fragar L (2001). Recall of Farm Hazards in Australian Primary School Age Children Using A 3-D Visual Cue Test. <i>Australian Journal of Rural Health</i> 9(5): 216-221:	ACAHS		This research has provided evidence of effectiveness for the continuation of similar promotions aimed at small children across rural Australia
Financial Markets Foundation for Children Research Project			
Fragar L, Gibson C, Peters A, Franklin R. <i>Farmsafe farms for kids: evidence based solutions for child injury on Australian farms.</i> Moree: Australian Centre for Agricultural Health and Safety; 2002. (First draft, under review).			This research resulted in a range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries and government. The guidelines have gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au <ul style="list-style-type: none"> • RIPPER II: A child safety on farms guideline for primary school teachers (1961 downloads Nov 05-Jan 06) • State Government Departments have picked up the guidelines and promoted key messages within internal programs including Department of Community Services in NSW, Department of Child Safety in Qld. • Guidelines have been adopted by the NSW Child Deaths Review Team in the investigation of child deaths in that state.
Child Safety on Farms Project			
Stiller, S, Baker W <i>Safer Fences for Children on Farms - Effective safe play area fencing options for rural properties</i> 2005 ACAHS, RIRDC			This research was incorporated into guidance material and made widely available to the agriculture industries, government and manufacturers. <ul style="list-style-type: none"> ▪ The guideline gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au
7. Farmsafe Australia Approaches and Evaluation			
Fragar L, Houlahan JB. Injury Prevention approaches in Australian agriculture. <i>NSW Public Health Bulletin.</i> 2002; Jun. Franklin R, Crosby J. Farm Related Injury in NSW: Information for Prevention. <i>NSW Public Health Bulletin</i> 2002,13, 5. Fragar, LJ, Franklin RC, Farmsafe Australia Goals Targets and Strategy 1996-2001 Mid Term Review 1999, ACAHS, RIRDC	ACAHS		This research has guided the policy direction of <ul style="list-style-type: none"> ▪ Farmsafe Australia ▪ State Farmsafe Organisations ▪ Local farm safety action groups ▪ Contributed to farm safety promotion policy and practice application throughout Australia.

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
8. Pesticides and Human Health Projects			
<p>L Fragar and B Sankaran (2004) Cholinesterase testing for rural workers: experience of a rural health surveillance program in New South Wales., <i>Journal of Occupational Health and Safety – Australia and New Zealand</i> 2004, 20 (4): 325-334.</p> <p>Sankaran B, Fragar L. <i>Cholinesterase screening for organophosphate exposure - preliminary results of the blood screening program of the Australian centre for agricultural health and safety.</i> Moree: Australian Centre for Agricultural Health and Safety; 2002</p>	ACAHS		<p>This research has influenced the pesticides health policies of</p> <ul style="list-style-type: none"> ▪ Agricultural businesses health and safety policy ▪ Information from this research has also contributed to the Plague Locusts Spraying risk management policy of the NSW Department of Primary Industries
<p>Fragar L, Sankaran B, Thomas P. 2004 Pesticides and human health — a report of health data related to pesticides in Australia. A report to the Australian Pesticides and Veterinary Medicines Authority.</p> <p>(Fragar LJ, Sankaran B, Thomas P <i>Pesticides and Adverse Health Outcomes in Australia - The Facts</i> 2005 ACAHS RIRDC)</p>	ACAHS		<p>This research has been presented to the Federal Minister for Agriculture, Fisheries and Forestry as part of the work with State Primary Industry Departments by the APVMA, with subsequent commitment to regular monitoring of adverse health outcomes of pesticides registered for use in Australia.</p>
Worker exposure studies			
<p>Fragar, L Sankaran B Worker Exposure to Endosulfan in the Broadacre Industries 2004 ACAHS</p> <p>Fragar, L Sankaran B Worker Exposure to Endosulfan in Horticulture Industries 2004 ACAHS</p> <p>Fragar, L Sankaran B Worker Exposure to Diazinon 2005 ACAHS</p> <p>Fragar L, Sankaran B, Woods N, Hohenhaus M Murray P, Nicholls J, Boyd A, Levot G. The potential dermal exposure of sheep ectoparasitocides by workers using different application systems. <i>Journal of Occupational Health and Safety – Australia and New Zealand</i> (Submitted 2005)</p> <p>Fragar, L Sankaran B Worker Exposure to Diazinon 2005 ACAHS</p>	ACAHS	<p>Australian Pesticides and Veterinary Medicine Authority <i>Endosulfan Final Review Report and Regulatory Decision 2005 Endocrine Disruption technical report</i> 2005 APVMA</p> <p>Australian Pesticides and Veterinary Medicine Authority <i>Endosulfan Final Review Report and Regulatory Decision 2005 Endocrine Disruption technical report</i> 2005 APVMA</p> <p>Australian Pesticides and Veterinary Medicine Authority <i>Diazanone Review</i> 2005 APVMA</p>	<p>The research from these studies has resulted in:</p> <ul style="list-style-type: none"> ▪ changed conditions of registration and use of endosulfan in broadacre and horticulture industries ▪ a significant reduction in use of diazanon as a result of stringent conditions to be applied
9. Farm Noise and Hearing Loss Research Project			
<p>Franklin RC, Depczynski JD, Challinor K, Williams W, Fragar LJ Factor's Affecting Farm Noise During Common Agricultural Activities <i>Journal of Agricultural Safety and Health</i> (accepted for publication 2006)</p> <p>Depczynski JD, Franklin RC, Challinor K, Williams W, Fragar LJ Farm Noise Emissions During Common Agricultural Activities <i>Journal of Agricultural Safety and Health</i> 2005 11 (3): 325-334</p> <p>Franklin RC, Challinor KC, Depczynski JD, Fragar LJ. <i>Noise exposure, hearing protection and noise injury in young adult farmers.</i> Moree: Australian Centre for Agricultural Health and Safety with the Rural Industries Research and Development Corporation; 2002.</p> <p>Depczynski JD, Franklin RC, Challinor KC, Williams W, Fragar LJ. <i>Farm noise hazards: noise emissions during common agricultural activities.</i> Moree: Australian Centre for Agricultural Health and Safety with the Rural Industries Research and Development Corporation; 2002.</p>	ACAHS	<p>Farmsafe Australia. <i>Noise Injury Prevention Strategy for the Australian Farming Community.</i> Farmsafe Australia: 2002</p>	<p>This research has informed the development of</p> <ul style="list-style-type: none"> • Guidance material and programs for the farming community and farming service providers to reduce noise injury on farms • Noise Injury Prevention Screening Program conducted at Ag-Quip Agricultural Field days at Gunnedah NSW in which over 300 farmers each year have their hearing tested.

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
10. Injury Prevention in key Agricultural Industries Research Projects			
<p>Lower T, Fragar L, Temperley J. Improving health and safety in the Australian sheep industry. <i>J Occup Health Safety – Aust NZ</i> 2000, 16(2):117-125</p> <p>Fragar LJ, Franklin RC, Lower A. <i>Occupational Health and Safety Risk Associated with Sheep and Wool Production in Australia</i>. Moree: Australian Centre for Agricultural Health and Safety with Rural Industries Research and Development Corporation, 2001.</p>	ACAHS	Farmsafe Australia 1997 Health and Safety in Sheep Industries- A National Strategy Farmsafe Australia Moree	<p>This research resulted in production of a guideline that was made widely available to the agriculture industries and government agencies.</p> <ul style="list-style-type: none"> The guidelines gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au
Beef and Horticulture Research Project			
<p>Franklin RC, Fragar LJ, Houlahan J. <i>Health and safety risks associated with beef cattle production</i>. Moree: Australian Centre for Agricultural Health and Safety with the Rural Industries Research and Development Corporation; 2002. (Draft).</p>	ACAHS		<p>This research resulted in a range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries and government.</p> <ul style="list-style-type: none"> The guidelines have gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au (687 downloads for guideline in November 2005)
11. Farm Machinery Safety Project			
<p>Miller J, Fragar L, Franklin R. 2004. Farm Machinery Safety – Injuries associated with posthole diggers. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra.</p> <p>Miller J, Fragar L, Franklin R. 2004. Farm Machinery Safety – Injury involving tractor run-over. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra.</p> <p>Athanasiov A, Fragar L, Gupta M. 2004. Farm Machinery Safety – Injuries associated with Grain augers in Australia. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra.</p> <p>Athanasiov A, Gupta M, Hewitt RJ, Franklin RC, Fragar LJ. 2004 Farm machinery safety – Power take off shaft guards. Australian Centre for Agricultural Health and Safety, Moree and Rural Industries Research and Development Corporation, Canberra.</p>	ACAHS	Farmsafe Australia. <i>National Farm Machinery Safety Strategy 2000-2000, with Review 2004</i> . Farmsafe Australia 2004	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries, government and manufacturers.</p> <ul style="list-style-type: none"> The guidelines have gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au (628 downloads for Farm Machinery Workshop guide for November 2005). A submission to Standards Australia for changing the standard for guarding of agricultural machinery
12. Farm Motorcycle Research Study			
<p>Schalk T. Australian farm motorcycles. Reducing the risk of injury associated with the operation of 2-wheel motorcycles and All Terrain Vehicles (ATV's). A thesis submitted to the University of New England for Masters in the degree of Rural Science; 2002.</p>	ACAHS	<p>Farmsafe Australia <i>Safe operation of All-terrain Vehicles and All-terrain Utilities on Australian Farms - An Industry Strategy 2004-2009</i> Farmsafe Australia 2004</p> <p>Farmsafe Australia <i>Safety of Older Farmers Strategy 2005-2007</i> ACAHS</p>	<p>This research resulted in an extensive range of programs, production of strategies and subsequent guidelines that were made widely available to the agriculture industries, government and manufacturers.</p> <ul style="list-style-type: none"> The guideline gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au
13. ATV Safety Project			
<p>Fragar L, Pollock, K. All-terrain Vehicle Injury on Australian Farms – Update 2005</p>	ACAHS		<p>This research was incorporated into guidance material and made widely available to the agriculture industries, government and manufacturers.</p> <ul style="list-style-type: none"> The guideline gained the endorsement of the agricultural industries and is made accessible to industry members by the Farmsafe Australia website – www.farmsafe.org.au

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
14. Osteoarthritis in Farming Research Program			
Boughton KS, Fragar LJ. 2004, Osteoarthritis in Farming People — a Practical Resource, Australian Centre for Agricultural Health and Safety (ACAHS), Moree.	ACAHS		This research resulted in a <ul style="list-style-type: none"> ▪ Guideline 'Osteoarthritis in Farming' that was made widely available to the agriculture industries and government. ▪ Divisions of General Practice have also promoted the guideline to their GP's.
15. Zoonoses Program			
Fragar L , Adriana Milazzo. <i>Optimal Dataset for Q fever surveillance</i> . Report produced for the national Q Fever Surveillance and Target Working Party. ACAHS Moree 2001	CAHS		Review of the data needs to define levels of risk of farmers of contracting for Q fever resulted in publication of the Optimal Dataset. This publication has been used by public health groups and researchers in their program planning, although collection of the necessary data is proving difficult.
16. Health and rural economy studies			
Fragar L (2001). The health of the people in agriculture and its interdependence with the health of rural communities. <i>NSW Public Health Bulletin</i> 12 (6): 155-159	ACAHS		The research and guidelines have informed the development of content in Rural Short Courses; <ul style="list-style-type: none"> • MFS-Managing Farm Safety™ (over 10000 farmers involved Australia wide) • <i>Return to Work on the Farm</i> (for rural rehabilitation service providers) • <i>Introduction to rural communities course for GPs. ACRRM</i> • <i>Rural Economy Short Course (for Rural Health Community Health Workers)</i> • <i>NSW Public Health Officer Training</i>

6. Environmental Stream

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
1. Social and Environmental Epidemiology Studies			
<p>Burden S, Guha S, Morgan G, Ryan L, Sparks R, Young L. Environmental and Ecological Statistics 2005;12(4):427-448. Spatio-temporal analysis of acute admissions for Ischemic Heart Disease in NSW, Australia.</p> <p>Morgan G, Telfer B, Summerhayes R, Taylor D, Jong K, Beard J, Sparks R, Ryan L. Spatial environmental epidemiology using routinely collected health, environment and soci-demographic data in New South Wales: Case studies of ischaemic heart disease and childhood leukaemia, <i>Australian Epidemiologist</i> 2004; 11(3):45.</p>	NRUDRH		<p>The research conducted on Environmental and Ecological issues specifically the Spatio-temporal analysis of acute admissions for Ischemic Heart Disease in NSW developed considerable expertise in disease mapping and collaborated with the NSW Health Epidemiology Branch on the development of disease mapping expertise. This expertise has contributed to the publication of detailed disease maps in NSW for the first time as part of the NSW Health Chief Health Officer Report.</p>
2. Air Pollution Research Studies			
<p>Australian and New Zealand Journal of Public Health 2005;29:205-212. The short-term effects of air pollution on mortality in four Australian cities. Simpson R, Williams G, Petroschevsky A, Best T, Morgan G, Dennison L, Hinwood A, Neville G, Neller A</p> <p>G Morgan, S Corbett, J Wlodarczyk, P Lewis. Air Pollution: Prevention and Long Term Perspectives - Morgan et al Respond (letter). <i>American Journal of Public Health</i>, 1999; 89:419</p> <p>Denison L, Simpson R, Petroschevsky A, Thalib L, Rutherford S, Williams G, Morgan G, Streeton J Effects of Ambient Air Pollution on Daily Mortality 1991-1996, Victorian Environment Protection Authority, 2000, EPA Publication 709.</p> <p>Jalaludin B, Marks G, Morgan G. Serial correlation and confounders in time-series air pollution studies (letter). <i>Medical Journal of Australia</i>, 2002;177:397.</p> <p>Morgan G, Lincoln D, Lumley T, Sheppard V, Beard J, Jalaludin B, Corbett S. Time scale effects of particulate air pollution and mortality in Sydney, Australia, 1994-2000. <i>Epidemiology</i> 2003; 14(5):S111.</p> <p>Morgan G, Lincoln D, Sheppard V, Jalaludin B, Beard J, Simpson R, Petroschevsky A, O'Farrell T, Corbett S. The effects of low level air pollution on daily mortality and hospital admissions in Sydney, Australia, 1994-2000. <i>Epidemiology</i> 2003; 14(5):S111.</p> <p>Jalaludin B, Morgan G, O'Toole B, Leeder S. Acute effects of bushfires on respiratory symptoms in children with wheeze, Sydney, Australia. <i>Epidemiology</i> 2003; 14(5):S107</p> <p>Jalaludin B, O'Toole B, Morgan G, Leeder S. Acute effects of bushfire on respiratory symptoms and medication use in children with wheeze in Sydney Australia. <i>Environmental Health</i> 2004; 4(2):20-29.</p>	NRUDRH	<p>Gwillian, K, Kojima M, Johnson, T Reducing Air Pollution from Urban Transport Word Bank 2004</p> <p>Bullock G Ethanon from Sugarcane Sagan Research Institute 2002</p>	<p>The health and air pollution studies contribute to the understanding of the health effect of air pollution. Outcomes of the study have been included in the national process to set ambient air quality standards for Australia. A review of all National Environment Protection Measures on ambient air pollution will be commenced by the Environment Protection and Heritage Council in 2006. The studies also contributed to the development by NSW Health of health warnings during episodes of high air pollution.</p> <p>These warning are used by NSW Health and Area Health Services in both urban and regional settings.</p>

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
<p>Jalaludin B, Morgan G, Lincoln D, Sheppeard V, Corbett S, Mannes T. Effects of ambient air pollution on gestational age, Sydney, Australia. <i>Epidemiology</i> 2003; 14(5):S130.</p> <p>Jalaludin B, Morgan G, Lincoln D, Sheppeard V, Corbett S, Mannes T. Effects of ambient air pollution of birth weight in term infants, Sydney, Australia. <i>Epidemiology</i> 2003; 14(5):S32.</p> <p>Simpson R, Williams G, Petroeschevsky A, O'Farrell T, Dennison L, Hinwood A, Morgan G, Neville G. A description of the SPIRT study for Brisbane, Melbourne, Perth and Sydney: meta analysis studies for the short-term health effects of air pollution of mortality and hospital admissions and the robustness of the result. <i>Epidemiology</i> 2003; 14(5):S33.</p> <p>Simpson R, Williams G, Petroeschevsky A, O'Farrell T, Dennison L, Hinwood A, Morgan G, Neville G. A description of the SPIRT study for Brisbane, Melbourne, Perth and Sydney: meta analysis studies for the short-term health effects of air pollution of mortality and hospital admissions and the robustness of the result. <i>Epidemiology</i> 2003; 14(5):S33.</p> <p>Simpson R, Williams G, Petroeschevsky A, O'Farrell T, Dennison L, Hinwood A, Morgan G, Neville G. The short-term effects of air pollution on cardiovascular admissions: A meta analysis for 4 Australian cities. <i>Epidemiology</i> 2003; 14(5):S33.</p> <p>Simpson R, Williams G, Petroeschevsky A, O'Farrell T, Dennison L, Hinwood A, Morgan G, Neville G. The short-term effects of air pollution on respiratory admissions: A meta analysis for 4 Australian cities. <i>Epidemiology</i> 2003; 12(5):S33.</p> <p>Simpson R, Williams G, Petroeschevsky A, O'Farrell T, Dennison L, Hinwood A, Morgan G, Neville G. The short-term effects of air pollution on mortality: A meta analysis for 4 Australian cities. <i>Epidemiology</i> 2003; 14(5):S32.</p> <p>Jalaludin B, Morgan G, Lincoln D, Sheppeard V, Corbett S, Mannes T. Effects of ambient air pollution of birth weight in term infants, Sydney, Australia. <i>Epidemiology</i> 2003; 14(5):S32.</p> <p>Simpson R, Williams G, Petroeschevsky A, Best T, Morgan G, Dennison L, Hinwood A, Neville G, Neller A. The short-term effects of air pollution on mortality in four Australian Cities. <i>Australian and New Zealand Journal of Public Health</i> (In Press, accepted 15th Nov 2004).</p> <p>G Morgan. Air Pollution, Motor Vehicle Use and Public Policy. WHO Collaborating Centre for Environmental Health (University of Western Sydney)</p> <p>G Morgan. Air Pollution Health Impact Assessment and Standard Setting. WHO Collaborating Centre for Environmental Health (University of Western Sydney)</p> <p>G Morgan. Time Series Analysis of Health and Air Pollution</p>			

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
<p>Data. WHO Collaborating Centre for Environmental Health (University of Western Sydney)</p> <p>G Morgan. Sources and Health Effects of Particulates and Nitrogen Dioxide. Air Pollution Training Workshop. WHO Collaborating Centre for Environmental Health (University of Western Sydney)</p> <p>T. Beer, T. Grant, G. Morgan, J. Lapszewicz, P. Anyon, J. Edwards, P. Nelson, H. Watson, D. Williamson. <i>Comparison of Transport Fuels – Report to the Australian Greenhouse Office on the Stage 2 study of Life-cycle Emissions Analysis of Alternative Fuels for Heavy Vehicles</i>. CSIRO, 2001.</p>			
3. Environmental Health Research Studies			
<p>Sladden T, Beard J, Simpson J, Luckie K. Population Health Environment Indicators: ecologic monitoring of environment health trends. <i>Australian and New Zealand Journal of Public Health</i> 1999; 23:486-93</p> <p>Beard F, Stafford R, Terry J, Morgan G, Ayyar A, Birrell F. NSW Public Health Bulletin 2005;15(9-10):172-177. Risk factors for sporadic salmonella Birkenhead infection in Queensland and Northern New South Wales: A case control study.</p> <p>Bass DJ, Delpeche V, Beard J, Bass P, Walls R. Ragweed in Australia. <i>Aerobiologia</i> (2000);16:107-111</p> <p>Beard J, Birden H. The Role of the Public in the Management of Public Health Risks. <i>Australian and New Zealand Journal of Public Health</i> 2004; 28 (5): 415-417.</p> <p>Garne D, Watson M, Chapman S, Byrne F. Environmental tobacco smoke research published in the journal Indoor and Built Environment and associations with the tobacco industry. <i>The Lancet</i> 2004 (in press).</p> <p>Morgan G, Beard J. Associations between Ross River Fever, mosquito numbers and environmental factors in northern NSW from 1992 to 1999. <i>Australian Epidemiology</i> 2003; 10(3):41.</p> <p>Beard J, Marshall S, Jong K, Newton R, Triplett-McBride T, Humphries B, Bronks R. DDT and Reduced Bone Mineral Density. <i>Archives of Environmental Health</i> (2000); 55 (3): 177-180.</p> <p>John Beard, Kathy Jong. Can molecular epidemiology help us better understand the environment's role in carcinogenesis? The example of pesticides. <i>NSW Public Health Bulletin</i> 2002; 13: 212-214.</p> <p>John Beard, Tim Sladden, Geoffrey Morgan, Geoffrey Berry, Lyndon Brooks, and Tony McMichael. Health Impacts of Pesticide Exposure in a Cohort of Outdoor Workers. <i>Environmental Health Perspectives</i> doi:10.1289/ehp.5885. [Online 30 October 2002]</p>	NRUDRH		<p>In 2005 the Environmental Health Group were part of a planning day for the Executive of the North Coast Area Health Service (NCAHS) on the epidemiological profile of the newly formed North Coast Area Health Service. This involved a series of the NCAHS Director of Population Health and Planning to identify the priority areas to be covered Feedback indicated that the work was an important tool in helping to set directions for planning health service delivery in the NCAHS</p>

Research Papers/Reports	Centre	Policy/practice citation	Known policy/practice outcome
4. Respiratory Health Research Studies			
<p>Morgan G, Lincoln D, Sheppeard V, Jalaluding B, Beard J, Corbett S. The association between hospital admissions for childhood asthma and return to school in Sydney Australia, 1994 to 2000. <i>Epidemiology</i> 2003; 14(5):S112.</p> <p>Lincoln D, Morgan G, Sheppeard V, Jalaludin B, Beard J, Corbett S. Time series analysis of hospital admissions for childhood asthma: an application of generalised additive model and smoothing techniques. <i>Australian Epidemiology</i> 2003; 10(3):36.</p> <p>Lister S, Sheppeard V, Morgan G, Corbett S, et al. February asthma outbreaks in NSW: A case control study. <i>Australian and New Zealand Journal of Public Health</i>, 2001;25:514-519</p>	NRUDRH		
5. Broken Hill Lead Study			
<p>Lyle DM, Balding B, Burke H & Begg S. NSW lead management program in Broken Hill. <i>NSW Public Health Bulletin</i> 2001; 12(6): 165-167.</p> <p>Boreland F, Lyle DM, Włodarczyk J, Balding B & Reddan S. Lead dust in Broken Hill homes: a potential hazard for young children? <i>Australian & New Zealand Journal of Public Health</i> 2002; 26(3):203-207.</p> <p>Lyle D, Phillips A, Balding W, Burke H, Stokes D, Corbett S & Hall J. (2005) Dealing with lead in Broken Hill – trends in blood lead levels in young children 1991 – 2003. <i>Science of the Total Environment</i>, (Accepted 21 April 2005) (doi:10.1016/j.envres.2005.06.007) (In press)</p> <p>Boreland F & Lyle, DM. (2005) Lead dust in Broken Hill homes: effect of remediation on indoor lead levels. Submitted to <i>Environmental Research</i>. (Accepted 25 June 2005). (doi:10.1016/j.scitotenv.2005.04.022) (In press) 100</p>	BHCRHR		<p>The Broken Hill Lead Study provided a number of policy and practice outcomes.</p> <p>This information confirmed that remediation is not a panacea for children with high blood lead levels, but rather is only likely to be effective for those also living in homes with high indoor lead levels. It supported a Greater Western Area Health Service decision to be more targeted, through revised criteria for offering home remediation.</p> <p>The study also provided evidence for the need for concentrated efforts in the highest lead risk area, to bring children's blood lead levels closer to the rest of the population, and as a result a remediation program specifically targeting this area was undertaken. Recent results suggest that it may be working; children's blood lead levels in the highest risk have been similar to those of children in the rest of town for the last two years.</p> <p>The studies findings were also used in public education campaigns and also confirmed the potential usefulness of sealing up gaps and cracks in 'high lead' homes as a way of reducing children's exposure to lead</p>
6. Indoor Air Quality			
<p>Bowman J, Dwyer S, Morgan G, Brown S, Ponsonby A-L Commonwealth Department of Health and Ageing, 2002. Healthy Homes: A guide to indoor air quality in the home for buyers, builders and renovators.</p>	NRUDRH	http://enhealth.nphp.gov.au/council/pubs/ecpub.htm	<p>This guide was published by the Commonwealth Department of Health and Ageing in association with the members of the EnHealth Council, the Master Builders Association, and the Housing Industry Association.</p>