About CHERE

CHERE is an independent research unit affiliated with the University of Technology, Sydney. It has been established since 1991, and in that time has developed a strong reputation for excellence in research and teaching in health economics and public health and for providing timely and high quality policy advice and support. Its research program is policy-relevant and concerned with issues at the forefront of the sub-discipline.

CHERE has extensive experience in evaluating health services and programs, and in assessing the effectiveness of policy initiatives. The Centre provides policy support to all levels of the health care system, through both formal and informal involvement in working parties, committees, and by undertaking commissioned projects. For further details on our work, see www.chere.uts.edu.au.

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Advisory Board

The Advisory Board plays an important role in guiding the strategic directions of CHERE, and monitoring its performance. The Board has an independent Chair, and its members are appointed for their expertise and knowledge of government, the health sector, and universities, and with a commitment to research. Other members are appointed for their individual expertise.

Professor Richard Madden (Chair)
Director
National Centre for Classification in Health, University of Sydney

Professor Denzil Fiebig
School of Economics, University of NSW

Professor Roy Green
Acting Deputy Vice-Chancellor and Vice-President (International)

Professor John Daly
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Professor Jane Hall
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A/Professor Marion Haas
Deputy Director, CHERE

A/Professor Rosalie Viney
Deputy Director, CHERE
About CHERE

The Centre for Health Economics Research and Evaluation is a recognised Research Strength of the University of Technology, Sydney. It is located in the Faculty of Business. CHERE was established in 1991 and became a Centre at UTS in 2002. CHERE is recognised nationally and internationally as a centre of excellence in health economics.

CHERE contributes to the University’s mission through:

- Achieving research excellence through knowledge creation and dissemination
- Using research outcomes to contribute to the development of health policy and practice
- Providing informed commentary to the community debate on health policy
- Providing health sector relevant education to facilitate the application of economic analysis to health policy and practice.

Research Strategy

CHERE develops and uses advanced theory and methods in health economics to achieve excellence in research and produce new knowledge. We have collaborations with other leading researchers in Australia and in other countries. Our research broadly covers the financing, organisation and delivery of health services. Our areas of expertise are financing and the use of health care services; economic evaluation and health outcomes measurement; preferences and decision making in health care; and the health workforce.

Financing the health system and the incentives generated for how health services are used is a key concern in Australia as in other countries. Developments in medical technology and increasing community expectations make it more difficult to ensure that health services deliver value for money. Australia has a unique combination of public and private sources of finance for health care, and public and private sector providers. CHERE has considerable work investigating the impact of these, particularly around private health insurance. There are substantial data sets, collected for administrative purposes and surveys, which have been under-used for research. The increasing availability of panel studies are presenting new opportunities to investigate how individuals respond to changes in personal circumstances, how past experiences within the health system impact on present choices and how changes in the policy setting shape decisions and impact on outcomes. Panel data also allow more sophisticated approaches to control for unobserved heterogeneity across individuals. This approach will allow for better modelling of policy responses over time.
Economic evaluation and health outcomes measurement are an important component of the application of economics research to health care decision making. Increasingly health care funders and providers wish to assess the cost-effectiveness (efficiency) of interventions, not just their safety and effectiveness. Methods in economic evaluation are developing rapidly and CHERE has a strong focus on the application of rigorous and up to date methods, and extending these applications to complex interventions.

The assessment of health outcomes that are relevant to end users, sensitive to differences in alternative interventions, and valid in comparing across health care services remains a major challenge in applying economic evaluation. CHERE is also involved in work that explores how different decision makers use and can use the results of such evaluations.

Individuals make choices about their life styles, whether to use health care, and what services to use. Health system outcomes – aggregate use of services, costs and health outcomes – depend on these choices. So understanding how individuals make choices is fundamental to understanding how the health system works, and predicting the impact of changes in policy settings or constraints. Often the data available do not include all the factors that are relevant to individuals’ choices. Or in the case of new technologies, data simply do not exist as the relevant options are not yet available. Discrete choice modelling of stated preference data can address these crucial gaps and provide more insight into key choices, whether of consumers, providers or funders.

CHERE has developed substantial expertise in the use of this approach in health care settings.

The health workforce is crucial to the productivity, effectiveness and accessibility of health care. To date there has been little Australian research in this field. CHERE is engaged in this topic, particularly around the nursing workforce.

CHERE’s work is broadly based on the following two themes:

- Economic evaluation and health outcomes measurement
- Quantitative evaluation of health policy
Quantitative Evaluation of Health Policy

Australia has to improve health system performance if it is to meet the growing demands on health services. Financing the health system and the incentives generated for how health services are used is a key concern. The evidence base for future health system reform builds on the experience gained analysis and evaluation of recent health policy initiatives. This research focuses on the use of econometric methods to evaluate policy and thus to encourage more efficiency, better safety, higher quality and better results for consumers.

Current projects within this research theme:
Adolescents and young adults with a life threatening illness: Preferences for support services

Key objective:
To investigate the preferences and trade-offs for support services in a group of adolescents and young adults with a life threatening illness

Life-threatening illnesses in young people are traumatic for patients and their families. Support services can help patients and families deal with various non-medical impacts of diagnosis, disease and treatment. The aim of this study was to determine which types of support are most valued by adolescents and young adults (AYA) with cancer or blood disorders and their families.

A discrete choice experiment (DCE) was performed. Separate experiments were conducted with AYA and their guardians. Types of support included in the experiment were: assistance returning to school/work; emotional support for the patient and/or family; financial support; spiritual support; and cultural support.

Completed surveys were returned by 83/88 AYA and 78/79 guardians. AYA preferred emotional support for themselves (either by counsellors and/or peers), emotional support for their family, financial support and assistance returning to school/work over services relating to cultural and spiritual needs. Covariate analysis indicated female AYA were more likely than males to prefer emotional support, while males were more likely to prefer assistance returning to work/school and to have an aversion for cultural needs. Guardians preferred emotional support for their dependants and assistance returning to school/work. To a lesser extent, they valued financial and emotional support for themselves. Like AYA, they were indifferent about services relating to cultural and spiritual needs.

Providing the types of support services that people prefer should maximise effectiveness. Results from this DCE can inform evidence-based health policy decision making about the types of support services provided for AYA and their families.

This study was presented at AHES, Brisbane 2007. A journal article has been prepared and submitted for peer review.

Funding source
CHERE

CHERE staff
Stephen Goodall

Collaborators
Madeleine King¹

1. University of Sydney
Can discrete choice experiments be used to predict uptake of new drugs?

Key objective:
To explore whether discrete choice experiments can be used to predict uptake of new drugs?

The Pharmaceutical Benefits Advisory Committee (PBAC) is responsible for evaluating clinical and economic evidence and making recommendations to the Australian Minister for Health and Ageing on whether a drug should be listed on the Pharmaceutical Benefits Scheme (PBS). Forecasts of the financial implications of a new PBS listing are required to ensure that resources are available to fund the new drug and the impact on health budgets will not be overly strenuous. Unfortunately the estimated uptake of new drugs is often based on weak evidence.

The aim of this study is to explore the use of discrete choice experiments (DCEs) to predict uptake of new drugs. The study will involve 1) a review of currently available DCEs that may be used to predict uptake of new drugs; 2) testing the external validity of the DCEs by comparing the results to mature prescribing data; and 3) design a model using DCE data that predicts uptake over time and then test the external validity of the model using the same process as before.

Funding source
Faculty of Business Research Grant

CHERE staff
Bonny Parkinson, Richard Norman, Rosalie Viney

Choice experiments for complex choices: the case of contraceptives

Key objective:
To use choice experiments to investigate the interaction of women’s and general practitioners’ preferences with regard to contraceptive choices

The range and complexity of contraceptive choices introduced over the past 5 years pose a significant challenge for GPs to provide information and recommendations to women, in the limited consultation time available. No detailed data are available about the factors which will influence a woman’s choice of method or the way GPs will deal with these issues.

This research will quantify the trade-offs that women make in assessing different contraceptive alternatives, provides information about how they will choose under different circumstances, and seeks to predict uptake of new products. These data are necessary to inform GPs in providing appropriate advice and recommendations to women.

The data collection has been completed for this study:

728 women participated in 2 choice experiments.
162 GPs completed 2 choice experiments.

Results have been presented at the Australasian Health Economics Society conference in Hobart in 2009 and at the Health Services Research conference in Brisbane in 2009.

The preparation of journal articles is underway.
Funding source
ARC Linkage Grant
Linkage partners: Family Planning NSW, Janssen-Cilag Pty Ltd, Schering Pty Ltd and Organon Pty Ltd.

CHERE staff
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Collaborators
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1. School of Economics, UNSW
2. Family Planning NSW
3. Faculty of Science, UTS

General Practitioners knowledge, attitudes and practices regarding cervical cancer screening in Australia

Key objective
To investigate the knowledge, attitudes and practices of General Practitioners with regards to cervical cancer screening in Australia

In Australia, the National Cervical Screening Program (NCSP) has been an important public health achievement. General practitioners (GPs) are the main providers and have been crucial to this success. This study assesses the views of GPs about the value of the Pap smear tests, their knowledge of the current screening policy, awareness of new technologies and concerns of litigation.

Completed questionnaires were returned from 452 GPs. GPs are generally supportive of the NCSP guidelines; 88.5% agree with the 2 yearly screening interval. However, half believe the age range should be increased to include older and younger patients. Factors most important in recommending a Pap test were time since last test and false negative rate. Least important factors were; patient age, socio-economic status and cost. There are notable differences between male and female GPs. Female GPs were more likely to: support the 2 yearly screening interval; advocate expansion of the age range to include younger and older patients; be familiar with new technologies; offer opportunistic screening; and be at ease with patients from different cultural/religious backgrounds. Male GPs were more concerned about legal implications of over and under-screening.

While the NCSP is generally well supported by GPs there are differences in the knowledge and views of male and female GPs. This information is essential if we are to optimise the effectiveness of GPs as providers of cervical screening, improve the rate of appropriate utilisation and successfully implement future changes to the NCSP.

This work was presented at the HSRAANZ in Auckland 2007, a paper has been submitted for peer-review and a CHERE Working Paper has been produced.

Funding source
NH&MRC Program Grant

CHERE staff
Stephen Goodall, Marion Haas, Rosalie Viney, Denzil Fiebig
Mandatory public health interventions, loss of consumer choice and economic evaluation: Does the (dollar) value for those in favour, compensate for the loss in consumer choice

Key objective:
To conduct a pilot study to quantify the loss of consumer choice, in dollars. By doing so we aim to estimate the ‘cost’ associated with reduced consumer choice when mandatory health programmes (MHP), in particular preventative interventions, replace voluntary ones

Governments are increasing their focus on mandatory public health programmes following positive economic evaluations of their impact. This project involved reviewing the economic theory behind the loss of consumer choice resulting from MHPs. A literature review was then conducted to identify economic evaluations of MHP, whether they discuss the impact on consumer choice and any methodological limitations. It was found that the impact of MHP on the loss of consumer choice has largely been ignored in economic evaluations and there were significant methodological limitations whenever it was included.

Whether the loss of consumer choice from implementing MHPs can be measured using discrete choice experiments (DCEs) was then explored using the following case studies: fortification of bread making flour, mandatory influenza vaccination, and banning trans-fats. Overall it was found that DCEs can be used to measure the loss of consumer choice and the loss of consumer choice must be estimated for each MHP being evaluated.

Future research into the importance of the loss of consumer choice to the final implementation decision is planned.

Funding source
Faculty of Business Research Grant

CHERE staff
Bonny Parkinson, Stephen Goodall, Richard Norman

The Medicare Safety Net

Key objective:
To measure the distribution of the Medicare Safety Net expenditure and determine its impact on provider fees and out-of-pocket costs

The Medicare Safety Net was introduced in 2004 to provide financial relief for those Australians who face high out-of-pocket costs incurred through out-of-hospital medical services. This study examines the distribution of Safety Net benefits by type of medical service, geographic areas and income groups. The findings show significantly higher Safety Net benefits reach those families in high income areas compared those in lower income areas. The study also shows that patients who use private obstetricians and assisted reproductive services are the greatest beneficiaries of the policy.

Whilst the Safety Net was introduced to help reduce out-of-pocket medical costs, there has been significant leakage towards higher medical fees in some specialist areas. The report on the Medicare Safety Net was released in May 2009 and is available at the Department of Health and Ageing’s website (www.health.gov.au/emsnreview).
**Patient waiting times at public hospitals and the demand for private care**

**Key objective:**

To analyse the factors influencing waiting times for electives procedures; to develop an empirical model of expected waiting times and estimate the impact of waiting times on insurance purchase and hospital choice

Reducing public hospital waiting times is the central issue in the Australian health care debate. Subsidies to private health insurance and increased expenditures to shorten waiting times both aim to ease pressure on the public hospital system. However there is no empirical evidence to support the relative equity or efficiency merits of alternative policies. This study will develop an empirical model of expected waiting times and estimate the impact of waiting times on insurance purchase and hospital choice. The model will be used to evaluate the effectiveness of alternative policies to improve access to public hospital care, a key factor in the National Priority of promoting and maintaining good health.

We have estimated an empirical model of waiting times and the demand for private health insurance using classical econometric techniques. We find that expected waiting time does not increase the probability of buying insurance but a high probability of experiencing a long wait does. Overall we find there is no significant impact of waiting time on insurance purchase. In addition, we find that the inclusion of individual waiting time variables removes the evidence for favourable selection into private insurance, as measured by self-assessed health. This result suggests that a source of the favourable selection by reported health status may be aversion to long waits among healthier people. This research has been presented at the 1st Australasian Workshop on Econometrics and Health Economics in Melbourne in April 2010, the Australian Health Economics Society Conference in Hobart in October 2009 and at the Labour Econometrics Workshop in Brisbane in August 2009. It has also been accepted for presentation at two international conferences: the 3rd Biennial Conference of the American Society of Health Economists Conference, Cornell University, June 2010, and the European Conference of Health Economics, Helsinki, July 2010.

We have also undertaken descriptive econometric analysis of waiting times and written a paper on the impact or patient status on waiting times entitled “Do private patients have shorter waiting times for elective surgery? Evidence from New South Wales public hospitals”. We find that private patients have substantially shorter waiting times, and tend to be admitted ahead of their listing rank, especially for procedures that have low urgency levels. We also explore the benefits and costs of this preferential treatment on waiting times. This paper has been accepted for publication in Economic Papers.

Further research analyses the factors influencing the distribution of waiting times for elective hospital procedures entitled: “Non-clinical determinants of waiting times for elective admissions in NSW public hospitals”. We undertake Oaxaca-Blinder and DiNardo-Fortin-Lemieux decomposition analyses to attribute variation in waiting time to a component explained by clinical need and to differential treatment effects. We find evidence that socioeconomically advantaged patients and patients in several Area Health Services have shorter waiting times than their clinically comparable
counterparts. A paper based on this research has been accepted for presentation at the 3rd Biennial Conference of the American Society of Health Economists Conference, Cornell University, June 2010.

Another component of this research develops an equilibrium model of waiting times using regional data. The empirical results imply that demand for elective surgery is affected negatively, and supply positively, by waiting time. The estimated elasticity of demand with respect to waiting time is found to be higher in NSW than reported in studies using data on the UK National Health System. A paper based on this research, “An Equilibrium Model of Waiting Times for Elective Surgery in NSW Public Hospitals”, was presented at the 3rd World Conference of Spatial Econometrics Association held in Barcelona in July 2009.

The last component of this research to date, analyses the different impacts of waiting lists and waiting times on insurance demand. In this research we revisit the analysis in an influential paper by Besley, Hall and Preston (JPubEc, 1999) using Australian data and test the use of waiting lists as a proxy for waiting time in models of insurance demand. Unlike Besley et al., we find that the long-term waiting list is not a significant determinant of the demand for insurance. However we find that long waiting times do significantly increase insurance. Overall however waiting times do not have a positive impact of insurance demand. A paper from this research, “The demand for private health insurance: do waiting lists or waiting times matter?” has been accepted for presentation at the 3rd Biennial Conference of the American Society of Health Economists Conference, Cornell University, June 2010, and the European Conference of Health Economics, Helsinki, July 2010.

Funding source
Australian Research Council

CHERE staff
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Collaborators
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2. Macquarie University
3. Wollongong University

The trade-off between equity and efficiency: A discrete choice experiment to elicit population opinion

Key objective:
To investigate the trade-offs people are willing to make between total health gain and targetting gain to particular social groups

Standard economic evaluation considers outcomes to be of equal value irrespective of who they accrue to. However, it is plausible that, under certain circumstances, society may decide that an outcome in one group (such as the more disadvantaged) may be relatively of greater importance. While people such as Alan Williams have highlighted the possibility of weighting outcomes in economic evaluation according to societal preferences using equity weights, this has not been undertaken on a large scale. Discrete choice experiments may be a useful way forward towards doing this. They allow investigation of complicated preferences, estimating both the effect of changing individual characteristics, but also the way that characteristics interact in the decision-making process.
Funding from the Faculty of Business has provided the opportunity to undertake a pilot investigating the issue. The survey was developed through use of small convenient samples, and then piloted using an online representative sample of the Australian population. The advantage of using an online panel is that a larger sample can be reached than through more labour-intensive methods, allowing more complicated designs. The experiment suggested individuals were willing to discriminate between people, particularly favouring non-smokers.

This study was presented at AHES, Adelaide 2008 and IHEA, Beijing 2009

**Funding source**
Faculty of Business Research Grant

**CHERE staff**
Richard Norman, Stephen Goodall, Jane Hall

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**The training and job decisions of nurses: An integrated approach using panel surveys and dynamic discrete choice experiments**

**Key objective:**
To develop models that describe the training and job decisions of nurses and to identify factors which reduce retention in nursing so that health system and health workplace reform can be designed from a robust evidence base

Nursing shortages are already common in Australia, Europe and North America, and affect not only the capacity to keep health facilities open, but also the quality of care provided. This project analyses the factors that influence the recruitment and retention of nurses in educational programs and the workforce, and generally in their career choices. It investigates aspects of job satisfaction and stress, and how these change with on the job experience and lifestyle.

This longitudinal study is recruiting nursing students from three universities and will follow them for five years. Nursing students and graduates are being recruited from the University Of Technology Sydney, Southern Cross University and the University of New England.

Participants will be asked to complete annual online surveys containing two parts: a questionnaire about their actual experiences, decisions and level of satisfaction and a discrete choice experiment (DCE) to elicit their preferences for jobs with different characteristics.

The analysis will model the nurses’ preferences, including how they trade-off various job characteristics and how these trade-offs change over time in response to their actual experiences. Recruitment commenced in 2008 and continued throughout 2009; the first online survey commenced in September 2009.

**Funding source**
ARC Discovery Grant

**CHERE staff**
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1. School of Economics, UNSW
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Turnover in private health insurance membership

Key objective:
To identify the predictors of uptake and dropping of private health insurance in response to financial incentives and to develop profiles of those with different insurance behaviours.

Between 1997 and 2000 the Australian Government introduced a series of incentives to encourage private health insurance (PHI) membership including Lifetime Health Insurance Cover (LHC), an age related premium loading for those purchasing insurance after a certain deadline. Panel data from the Household Income and Labour Dynamics (HILDA) survey was used. The researchers estimated a multinomial probit model for six insurance choices including those who joined before the Government insurance incentives, those who joined because of LHC, and those who have never joined PHI.

The findings suggest that Government incentives are not effective in maintaining higher PHI coverage especially among the younger population. While the LHC deadline attracted younger members in 2000, the subsequent effect of the age penalty deters new joiners.

A working paper has been prepared and an article has been submitted for review to Social Science and Medicine.

Funding source
NH&MRC Program Grant

CHERE staff
Elizabeth Savage, Stephanie Knox

Collaborator
Denzil Fiebig

1. School of Economics, UNSW

Understanding the determinants of participation: An analysis of breast cancer screening in New South Wales

Key objectives:
To develop a better understanding of the reasons why some women undertake regular mammograms and others do not, as well as quantify the main determinants of screening behaviours amongst women.

Many jurisdictions have used public funding of health care to reduce or remove price at the point of delivery of services. Using the 2002 and 2004 NSW Health Survey, CHERE researchers estimated multinomial logit models on the probability of three screening behaviours; never had a mammogram, had last mammogram within the last two year and had last mammogram more than 2 years ago. The models examined the relative importance of socio-economic and geographic factors as well as the level of education and being born overseas in predicting screening behaviours for women in the target aged group 50 - 69.
The findings showed that women in lower socio-economic groups were more likely to have never screened or be overdue for a screening. Place of residence and being in the younger age cohort (women aged 50 to 55) plays a significant role in predicting the likelihood of a woman to have never screened. More educated women are more likely to be overdue for screening.

The research indicates that despite the existence of a ‘free’ and well established program, social disparities remain. This indicates the need for further recruitment and maintenance strategies that focus on women (i) residing in certain geographic locations, (ii) entering the target age group, (iii) on low incomes and (iv) born overseas.

**Funding source**
NH&MRC Project Grant

**CHERE staff**
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**Economic Evaluation**

Economic evaluation is an important component of the application of economics research to health care decision making. Increasingly health care funders and providers wish to assess the cost-effectiveness (efficiency) of interventions, not just their safety and effectiveness.

Methods in economic evaluation are developing rapidly and CHERE has a strong focus on the application of rigorous and up to date methods, and extending these applications to complex interventions. The assessment of health outcomes that are relevant to end users, sensitive to differences in alternative interventions, and valid in comparing across health care services remains a major challenge in applying economic evaluation.

**Current projects within this research theme:**

**A population-based comprehensive lifestyle intervention to promote healthy weight and physical activity in people with cardiac disease: The PANACHE (Physical Activity, Nutrition And Cardiac HEalth) study**

**Key Objectives**

To determine the effectiveness and cost-effectiveness of a telephone-delivered lifestyle intervention, focusing on healthy weight and physical activity, in people with cardiovascular disease in urban and rural settings

Cardiovascular disease (CVD) is the leading cause of death and the most costly disease group treated in Australia. Maintaining a healthy weight and undertaking regular physical activity are important for the primary and secondary prevention of CVD. However, many people with CVD are overweight and insufficiently active. In addition, in Australia only 20 to 30% of people requiring cardiac rehabilitation (CR) for CVD actually attend. To improve outcomes of and access to CR, the efficacy, effectiveness and cost-effectiveness of alternative approaches of CR need to be established.

PANACHE is a randomised controlled trial, including an economic evaluation, of
patients who have been referred to a CR program. The intervention group receives an 8 week comprehensive lifestyle intervention which comprises of 4 behavioural counselling and goal setting sessions on weight, nutrition and physical activity via telephone; written materials and a pedometer via mail. The control group receives 2 behavioural counselling and goal setting sessions by telephone on physical activity only, plus the written materials and pedometer. Participants complete a pre-questionnaire and two post-questionnaires at 8 weeks and 8 months. The primary outcome is healthy weight (i.e. body mass index). Secondary outcomes include physical activity, sedentary time and reported relevant nutritional habits. Information about resource use and health related quality of life is collected pre and post trial as inputs into the economic evaluation.

CHERE’s role is to determine the relative cost-effectiveness of these approaches to the secondary prevention of CVD. The results of the trial will be used to build a decision analytic model of costs and benefits from within the trial and beyond the trial period. This will be done by extrapolating the intermediate clinical (healthy weight and physical activity levels) and quality of life (QALYs) endpoints to the final outcomes (death or cardiovascular events) using epidemiological data. Results will be presented as incremental cost-effectiveness and cost-utility ratios. This will allow comparison of the healthy weight intervention group and the control group in terms of, for example, cost per kilogram lost or cost per QALY gained.

Funding Source
NSW Health Promotion Demonstration Research Grant 2008/2009

CHERE Staff
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Collaborators
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1. Health Promotion Service, South Eastern Sydney and Illawara Area Health Service
2. University of New South Wales
3. University of Sydney
4. Heart Foundation

An economic evaluation of community and residential aged care falls prevention strategies in NSW

Key Objective:
To assess the costs and benefits of falls prevention strategies in the older people living in NSW in both the community and residential aged care

In New South Wales, no other single cause of injury (including road trauma), costs the health care system more than fall-related injury (NSW Department of Health, 2006). In addition to the direct economic costs, falls also reduce independence and confidence, cause increased anxiety / depression and reduce health related quality of life. The costs associated with falls are expected to escalate over the next 20 years unless effective prevention programs are implemented and these costs are predicted to rise to 2.7 times those in 2001 by 2051 (Hendrie, et al., 2004, Moller, 2003). This project aims to evaluate the cost-effectiveness of interventions that help reduce the risk of falling and furthermore, the associated morbidity and mortality that result from falling.
The first part of the analysis involved conducting a meta-analysis exploring interventions for preventing falls, in both the community and residential care. Only interventions with robust positive results were then analysed on a cost-effectiveness basis. The second part of the analysis involved designing a Markov decision-analytical model to simulate the impact of interventions on the elderly population in NSW. The benefits associated with the varied interventions were measured by falls avoided, injuries avoided and hospitalisations avoided. Cost-effectiveness was measured in terms of the incremental cost per life year gained and cost per QALY (quality adjusted life year). The model parameters were tested by sensitivity analysis.

The results show that in community-dwelling older people, the most cost-effective interventions are expedited cataract surgery, psychotropic medication withdrawal, Tai Chi, home hazard Assessment and group-based exercise. In the residential aged care setting, the most cost-effective interventions are medication review, hip protectors and vitamin D supplementation. The economic model was sensitive to a number of model inputs; in particular the key driver appeared to be the quality of life decrement associated with a fear of falling. The model was also sensitive to the effectiveness and cost of each intervention, however there is more certainty regarding those estimates.

Funding source
CHEEP – NSW Health and Cancer Institute

CHERE staff
Jody Church, Richard Norman, Stephen Goodall, Marion Haas

Collaborators
NSW Department of Health

Building capacity in innovative approaches to health technology assessment: the CHEETAH project

Key objective:
The key objective of this grant is to build capacity in health technology assessment in Australia, particularly in the application of econometrics methods to modelling of costs and outcomes of health care interventions and health care utilisation, to inform resource allocation and reimbursement decisions.

The specific focus of the program of research is towards:
1. Incorporating the most relevant patient outcomes in HTA, allowing for heterogeneity in preferences;
2. Characterising and evaluating the uncertainty inherent in HTA due to inadequate evidence; and
3. Monitoring diffusion, effectiveness and cost effectiveness of technology in real-world settings and providing information that will allow for appropriate disinvestment in ineffective technologies.

During 2009 the major activities of the program of research have been recruitment of staff employed on the capacity building grant (Rebecca Reeve, Yuanyuan Gu (CHERE), Preeyaporn Srasuebkul (UNSW)), conduct of internal training in economic evaluation at CHERE, development of new applications for access to linked data sets and access to a large data base of health services utilisation for Department of Veterans Affairs patients. These data bases will be key tools in the analysis undertaken as part of the capacity building grant. A PhD training program within CHERE has been
implemented. This initiative includes research students whose research forms part of the capacity building program and other researchers, including one potential future PhD student who is anticipated to begin her PhD studies in 2011 under the capacity building program. The research team has submitted four NHMRC grant applications to develop research projects in the three areas of the focus of research.

**Funding Source**

NHMRC Capacity Building Grant in Health Services Research

**CHERE staff**

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**Collaborators**

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**Costing Health Economic Evaluation Project (CHEEP)**

**Key objective**

In 2007, CHERE was awarded the Costing for Health and Economic Evaluation Program, a program of research jointly funded by NSW Health and the Cancer Institute NSW. The objectives of the Program were to provide evidence regarding the cost and consequences of health interventions, services and systems that is useful to NSW Health and the Cancer Institute NSW, develop a model for defining and producing policy relevant deliverables for these stakeholders, develop and report new methods for studying, and knowledge regarding, the costs and consequences of health interventions, services and systems in the course of its work for the stakeholders and build skills and capacity for undertaking these types of analyses in New South Wales. CEEP represented a new model for funding a program of research within Australia, with the annual work plan and specific projects being developed through a process of negotiation between the funders, CHERE and the Sax Institute.

The following projects were auspiced under the CEEP program of work. CEEP is now complete.

**NSW Health projects**

1. **Good for Kids**

**CHERE staff**

Marion Haas, Richard Norman

The objective of the CEEP aspect of this project was to work collaboratively with the parties involved in the program, including NSW Health, Hunter New England AHS and the NSW Centre for Overweight and Obesity (COO) to:

• Provide advice on the feasibility of undertaking an economic evaluation of the Good for Kids program
• Estimate the costs of the overall Good for Kids program and individual aspects of the program, as appropriate.

The outputs of the CEEP Good for Kids project are:

• Input to a detailed process evaluation of the Good for Kids program. The report of this evaluation is an internal document for use by NSW Health and the program itself.
• The development of a framework for reporting the costs of the program. CHERE staff liaised with program staff to ensure they understood and were able to complete such reports on a regular basis; we continue to be available in a support role.
• Production of a report: Issues in Costing aimed at informing managers and staff associated with large public health programs about identifying, measuring and valuing resource use. The report has been produced by NSW Health and widely distributed to Public Health and Health Promotion Units within NSW.
• A presentation to the Advisory Committee of the Good for Kids Program.

2. The Sydney Diabetes Prevention Project

CHERE staff
Marion Haas

The objective of the CHEEP aspect of this project is to evaluate the costs, outputs and outcomes of the project. The project is being piloted in three Divisions of General Practice within Sydney South West AHS. Marion Haas is a member of the Advisory Committee and the Evaluation Management Group for the project, attending monthly meetings since its inception. In collaboration with the evaluation team, she has devised a framework for collecting information about resource use from the perspectives of NSW Health, the Divisions of GP and the research participants. She has also advised on the collection of appropriate outcome measures for the purposes of economic evaluation. The outputs of the CHEEP SDPP are:
• The enrolment of a PhD student (University of Sydney); the thesis will be based on the evaluation of the SDPP and an important component will be the economic analysis of the project. Marion Haas is the co-supervisor of the student.
• The submission of two NHMRC applications for further funding in 2010 aimed at continuing the follow-up of participants in the SDPP; a Partnerships application and a project grant application. Marion Haas is a CI on both applications.
• A publication describing the project methods, accepted for publication in BMC Public Health in June 2010.

Although CHEEP is complete, this project is ongoing. Marion Haas continues to be involved in the evaluation of this and related projects.

3. Economic evaluation of Falls Prevention strategies

CHERE staff
Stephen Goodall, Jody Church, Marion Haas

The objectives of this project are to evaluate the cost-effectiveness of strategies designed to prevent falls amongst NSW residents who are either i) community living adults aged 65 and over or ii) adult residents of aged care facilities. The strategies or interventions to be evaluated (seven aimed at community living adults and four at residents aged care facilities) have been agreed on in consultation with an expert Advisory Committee. Evidence of effectiveness has been taken from recent Cochrane reviews or recently published RCTs. A societal perspective has been used to estimate the costs of each strategy or intervention. Due to the number of strategies and the variation in the amount and strength of evidence available, this is a challenging project. It is likely to be unique in that, within each target group, it will compare the costs and consequences of each strategy or intervention with each of the others.

The outputs of this project are:
• The development of a number of decision analytic models to evaluate the costs and consequences of a range of strategies aimed at preventing falls in the target groups listed above.
• A CHERE seminar has been delivered
• A report will be prepared for NSW Health
• One or more peer-reviewed manuscripts will be prepared.

From the CHEEP perspective, this project is complete.
4. Threshold of investment in overweight and obesity prevention programs targeting children

**CHERE staff**
Marion Haas, Rosalie Viney

The aims of this project were to assess i) the level of investment in childhood obesity prevention at an Area Health Service (AHS) level and ii) the resources that would be required to maximise the reach of the current childhood obesity prevention program. The level of current investment was measured as the inputs to projects implemented by the South Eastern Sydney Illawarra Health Promotion Service (HPS). Inputs were measured by identifying the activities associated with each obesity prevention project and measuring and valuing the resources used to undertake these activities. The HPS estimated that a 10 year cycle of projects would enable them to reach 100% of children attending organised childcare, primary and secondary schools.

The outputs of this project are:
- A report prepared for NSW Health
- A presentation to the NSW Directors of Health Promotion (September 2008)
- A presentation to the Sax Institute Policy Roundtable (November 2008)
- An abstract submitted to the 2009 conference of the Public Health Association of Australia.

**Cancer Institute NSW projects**

1. Lung Cancer Costs of Care

**CHERE staff**
Patsy Kenny, Jane Hall, Marion Haas

A protocol for this project was developed in 2007 and work commenced on a literature review. However, CHERE was advised by the Cancer Institute NSW not to proceed with the project.

2. Costs of Non Melanoma Skin Cancer

**CHERE staff**
Jane Hall, Marion Haas, Patsy Kenny

The aims of this project are difficult to specify as there is no clear policy issue to investigate. Non-melanoma skin cancer (NMSC) was identified as a priority for CHEEP by the Cancer Council in 2008. CHERE developed a briefing paper as a basis for discussions to determine whether further research on the costs of NMSC is feasible and warranted. It was agreed that CHERE should use data from the 45 and Up Study to further consider issues of cost of NMSC. The final report is based on these data and the published literature. The 45 and Up Study Medicare data were not used as arrangements were not yet in place for external researchers to access these data.

The outputs of the project to date are:
- A briefing paper Costs of Non-Melanoma Skin Cancer submitted to the Cancer Institute.
- A final report

From the CHEEP perspective, this project is now completed

**Funding Source**
NSW Health and NSW Cancer Institute (administered by the Sax Institute)
Costs and benefits of health programs: A framework to assist in informing policy decisions

Key Objective:
The key objective of this project is to develop a framework to assist policy makers in assessing the costs and benefits of alternative health programs in order to inform health policy decisions. There are three outputs of the project: a briefing paper, the framework document and a case study illustrating the use of the framework by employing smoking prevention and cessation as an example.

Briefing paper
The background briefing paper summarises international approaches to assessment of costs and benefits of health programs to inform priority setting and decision making, based on a review of the literature. It provides an outline of approaches and where they have been used. In addition to a preliminary literature review, the briefing paper provides a summary of the main approaches to priority setting which were identified through the review.

Framework
This document sets out a proposed framework to assist policy makers in the NSW health system to assess the costs and benefits of alternative health services/interventions to inform health policy and resource allocation decisions within and between programs. The framework takes into account the available sources of evidence, the nature of the evidence and how this differs across different areas of health service delivery. The key focus of this framework is on the development of an appropriate evidence base to support decisions about investing in service delivery within the health system, and inform priority setting. The proposed framework has been developed to be sufficiently broad to encompass the full range of potential health interventions from population health and preventive interventions to specific interventions for particular conditions. The framework is informed by a literature review of different approaches to program evaluation and priority setting which was reported in the Briefing Paper.

The framework sets out in detail the means by which decision makers can assess the costs and benefits, of new programs in order that such programs are able to demonstrate that they are effective in delivering social or community benefit and that they represent value for money. This requires considering, in particular, whether investment in a proposed new service or intervention is worthwhile, what other services will have to be forgone to fund the new program, what, among the alternative uses of resources, are the best buys and can existing resources be re-allocated to improve outcomes?

Case study of interventions aimed at smoking prevention and cessation
The key objective of this report was to model the cost-effectiveness of a range of existing and potential interventions aimed at both prevention and cessation of smoking for the NSW population. The model was constructed using effectiveness data obtained from a literature review of smoking cessation and prevention interventions and costs using NSW data where possible as well as published data. Following a literature review of cessation and prevention strategies included those likely to be relevant in the NSW health system and including those currently implemented and potential interventions, a decision analytic model was constructed using estimates of effectiveness of selected strategies, and local estimates of resources required to implement the strategies/interventions.

The results produced by the model indicate that the most cost effective interventions
are brief advice, tailored self-help materials and Varenicline. Depending on the upper threshold of willingness to pay for one additional quitter, any of these three options offer the most quitters per dollar spent compared to the others. For an additional $491 per quitter, an additional 15,584 quitters over a 12 month period could be obtained. If willingness to pay per quitter is higher than this amount then an additional $1,334 per quitter produces an additional 19,362 quitters and an additional $15,338 produces an additional 28,295 quitters.

A model has been produced in Excel and instructions for running and updating the model have been provided to NSW Health. As better information becomes available, the parameters in the model pertaining to the effectiveness of an intervention, as well as any associated costs can be updated and a new economic evaluation can be run.

**Funding Source**
NSW Department of Health

**CHERE staff**
Rosalie Viney, Marion Haas, Jane Hall, Gisselle Gallego, Stephen Goodall, Richard Norman, Nicole Tschaut, Kees van Gool, Jody Church, Braedon Donald

**Collaborators**
Liz Develin

1. Centre for Health Advancement, NSW Health

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**Clinical trial of rehabilitation after ankle fracture (the EXACT Trial)**

**Key objective**
The aim of the trial is to determine whether a rehabilitation program (involving supervised exercise, gait training, and advice) is more effective and cost-effective than the provision of general advice about exercise after cast immobilisation for ankle fracture.

Ankle fracture is one of the most common injuries of the lower limb. Initial management consists of surgical or conservative orthopaedic treatment and a period of immobilisation. Subsequently, the presence of pain, stiffness, weakness and swelling impairs the performance of everyday activities and results in significant activity limitation and participation restriction.

Rehabilitation programs are often provided to address the health consequences of the fracture and the subsequent immobilisation. There have been no randomised trials of the effectiveness of a comprehensive rehabilitation program after removal of cast immobilisation for ankle fracture.

A randomised controlled trial will be conducted to determine the effects of a rehabilitation program on activity limitation and quality of life. The intervention will be applied to people with ankle fracture initially treated with a period of cast immobilisation. The results of the trial will enable an evidence-based approach to the treatment of ankle fracture.

Preparations to commence the trial are underway and data collection will commence in the second half of 2010.
Developing multi-attribute utility instrument weights for Australia (MAUDcE)

Key objective:
To develop Australian weights for key multi-attribute utility instruments using discrete choice experiment (DCE) methods and standard methods.

The primary aims of this research are:

- To develop discrete choice experiment (DCE) methods to model and measure community trade-offs for health states (‘utility scores’) for use in calculation of quality adjusted life years (QALYs) in economic evaluation; and
- To provide utility weights that can be used in economic evaluation in the Australian context, and that can be compared with utility weights from other countries

This project has involved the collection and analysis of valuation data from an Australian community based sample for two of the most widely used multi-attribute utility instruments used to estimate Quality Adjusted Life Years for economic evaluation. The two instruments are the EQ-5D and the SF-6D. Valuation data for both instruments has been collected using discrete choice experiments, and using time trade-off for the EQ-5D. A secondary aim of the project has been to use these data to explore a range of methodological issues in valuation of health states.

1. University of Sheffield UK

DoCs Early Intervention Program “Brighter Futures”

Key Objective
To design a framework to evaluate the effectiveness of the DoCs Early Intervention Program “Brighter Futures”

The DoCs Brighter Futures program aims to reduce and prevent child-abuse and neglect in at risk families by providing targeted support. The Program is being rolled out over a five year period (2003-2008) under a DoCs $1.2 billion program of reform and renewal.

CHERE is working in a consortium comprising:

- the University of NSW Social Policy Research Centre,
- the University of Western Sydney School of Education and Early Childhood Studies, and
- the Southern Cross University, Gnibi College of Indigenous Australian Peoples

to design and implement an evaluation framework for the Brighter Futures program. The framework was designed in 2006. Data collection, analysis and reporting was undertaken 2007-2009. CHERE will be undertaking the cost-effectiveness and cost-benefit analyses. During 2007, CHERE completed a framework document for the cost-benefit analysis and commenced work on this aspect of the evaluation. Final data from the prospective evaluation of the costs and effectiveness outcomes has been received. The analyses will investigate the effectiveness and cost effectiveness of the Brighter Futures Program in terms of its short term impact on reports to Community Services and long term affects on education, employment health and rates of crime. The final report is due in July 2010.

Funding source
Department of Community Services (DoCs)

CHERE staff
Kees Van Gool, Rebecca Reeve, Marion Haas, Jane Hall.

Collaborators
Ilan Katz¹, Judy Cashmore¹, Fiona Hilferty¹, Christine Eastman¹, Killian Mullen¹, June Wangmann², Christine Woodrow², Christine Johnston², Judy Atkinson³

1. Social Policy Research Centre (SPRC) UNSW
2. School of Education and Early Childhood Studies, UWS
3. Gnibi College of Indigenous Australian Peoples, Southern Cross University

Economic evaluation of Cystic Fibrosis (CF): A cost of illness and cost effectiveness analysis of carrier screening

Key objective
To assess the cost effectiveness of CF carrier screening and estimate the lifetime cost of CF care
Cystic Fibrosis (CF) is the most common serious genetic disease in Caucasians. In this project we will (1) examine the cost effectiveness of alternative screening strategies to detect CF carriers and (2) estimate the health care costs associated with managing for patients with CF.

Cost-effectiveness of CF carrier screening
This project will undertake a cost effectiveness analysis of alternative CF carrier screening programs. The project aims to provide policy makers with economic evidence to enable rational resource allocation decisions regarding the potential implementation of carrier screening programs. Two systematic carriers screening programs (pre-natal and pre-conception) are compared against a more opportunistic cascade screening program.

Cost-of-illness
We use three waves of the CF Australia Registry Data (2003, 2004 and 2005) to estimate the transition probabilities of disease progression. Registry data was used to estimate annual mean and median cost depending on the age of the patient and the severity of their disease. Preliminary results indicate that costs vary significantly depending on age and severity of disease. Mean costs in the early years being substantially lower compared to the teenage years and young adult years. Overall, around 58% of costs are incurred in the inpatient setting, 29% on pharmaceuticals and the remainder on medical services, diagnostic tests and managing CF-related complications. The results provide economic (as well as clinical) grounds to ensure treatment is optimal and reduce the chance for the disease to progress. The results of this study can be used as part of future cost-effectiveness analysis of new treatments.

Preliminary results of this project are expected to be published in 2010.

Funding Source
NH&MRC Program Grant

CHERE staff
Jane Hall, Kees Van Gool, Richard Norman

Collaborators
John Massie¹, Martin Delatycki¹
¹. Royal Children's Hospital, Melbourne

Home based rehabilitation program for survivors of a critical illness: a randomised clinical trial

Key Objective
To test the effects of an eight-week home-based, individually tailored rehabilitation program on the health status and quality of life outcomes for the survivors of a critical illness

Over 130,000 Australians are admitted to intensive care units each year. Whilst survival rates are high, recovery post-discharge is often slow. Many patients suffer from de-conditioning as well as psychological distress. This study involves survivors of a critical illness, aged over 18 years, who have spent more than 48 hours in intensive care. Patients were recruited through eleven intensive care units around Australia. Recruits were randomly allocated to either intervention or control. Those allocated to intervention receive an individualised endurance and strength training program conducted at home over an eight-week period. Both the exercise and non-exercise groups were assessed at weeks 1, 8 and 26 (post hospital discharge) to examine
physical functioning, exercise capacity, health related quality of life and psychological well-being.

Recruitment was slower than anticipated, commonly because of the requirements for home visits within a 30km radius (now nominal) of the recruitment site, and patients being transferred into the tertiary ICUs from outside local geographical catchment areas. There were 195 participants randomized, participant follow-up was completed in February 2009 and analysis has commenced.

**Funding source**  
NH&MRC Project Grant

**CHERE staff**  
Patsy Kenny

**Collaborators**  
Doug Elliott¹, Sharon McKinley¹, Jenny Alison², Leanne Aitkin³, Madeleine King⁴

1. Faculty of Nursing & Midwifery USYD  
2. School of Physiotherapy, USYD  
3. Trauma Registry UQLD  
4. Psycho-oncology Co-operative Research Group, USYD

**Health related quality of life (HRQOL) and supportive care needs of men after treatment for early stage prostate cancer**

**Key Objective**  
To describe the medium and long-term outcomes of treatment of prostate cancer in men less than 70 years of age

Prostate cancer is second only to lung cancer as the most common cancer in men. The NSW Prostate Cancer Care and Outcomes Study (PCOS) is following a group of men with prostate cancer from diagnosis for up to five years. The original cohort contained 2021 cases recruited via the NSW Central Cancer Registry and 495 age and postcode matched controls. HRQOL is the main outcome of interest, but supportive care needs and coping styles have also been surveyed. HRQOL data are being collected using a telephone administered questionnaire. The University of California LA Prostate Cancer Index (UCLA PCI) and the hormonal domain section of the Expanded Prostate Cancer Index (EPIC) are being used to measure HRQOL at baseline then at 1,2,3 and 5 years after diagnosis.

Five-year interviews were completed for all cases by December 2007. When we originally set up this cohort we estimated that approximately 67% of cases would likely be alive and available for their five-year interview, equating to approximately 1,355 interviews. Retention rates in the cohort exceeded our estimates by a considerable amount, to the extent where 80% of cases who were interviewed at baseline undertook a five-year interview (n=1,602). Five-year interviews for controls were completed in 2008 and 390 controls (80%) of the original cohort completed their 5th year interview. A paper describing the quality of life study was published in the British Medical Journal in 2009. The findings show that the various treatments for localised prostate cancer have a persistent effects on long term quality of life. Men with prostate cancer and the clinicians who treat them should be aware of the effects of treatment on quality of life and weight them up against the patient's age and the risk of progression of prostate cancer if untreated, to make informed decisions about treatment.

A paper describing the unmet supportive care needs in the year following diagnosis was published in the Journal of Clinical Oncology in 2007. The findings show that
attention should be given to sexual and psychological needs in the early months after diagnosis or treatment of prostate cancer, particularly in younger men, those with less education, and those having surgery.

A subsample of the cohort completed a discrete choice experiment of preferences for treatment outcomes. A final version of a manuscript will be shortly submitted to the BMJ.

Linked data have been obtained from Medicare and PBS for men who consented to these data being released. A costing study is currently underway.

A submission has been made to the NHMRC to obtain funding to complete 10 year quality of life measures in all men remaining in the cohort.

Funding source
NH&MRC Project Grant

CHERE staff
Paula Cronin, Bonny Parkinson, Jody Church

Collaborators
Madeleine King¹, David Smith², Rajah Supramaniam², Jeanette Ward³, Martin Berry⁴, Bruce Armstrong⁵
1. University of Sydney
2. The Cancer Council New South Wales, Sydney
3. Institute of Population Health, Ottawa, Canada
4. Cancer Therapy Centre, Liverpool Health Service, Sydney
5. Sydney Cancer Centre and School of Public Health, USYD

Incorporating the contribution of informal carers into the economic evaluation of community palliative care

Key objective:
To assess the support preferences of informal carers providing care to people receiving palliative care at home

The provision of care at home for people with a terminal illness necessitates a substantial care input from family and friends (informal care). This study aims to investigate the carers’ preferences for support with providing this care and uses a discrete choice experiment to identify:

• the support services carers prefer, and
• whether carers prefer to receive support services or financial assistance

The analysis of the carers’ preferences for different types of support services found that while all carers valued nursing services, preferences for other services varied over the palliative process. Domestic help, transport and coordination of treatment and information sharing were important at the earlier phase, while help with personal care and respite became the priority as the care recipient’s condition deteriorated (results published in Chere Working Paper 2007/12).

Investigation of the carers’ preferences regarding financial assistance found that some carers were unwilling to accept financial support instead of services. Among carers supporting a patient with relatively low care needs, fewer older carers would trade services for financial support; among carers supporting a patient with high care needs, those who had been providing care for a short period were less likely to trade. A cost benefit analysis of support services is expected to be completed in 2010.
The study also examined the health related quality of life (HRQOL) of the informal carers and found that over one third reported worse health than one year ago and that the carer’s HRQOL was associated with the patient’s care needs (paper accepted for publication in the Journal of Pain & Symptom Management).

Funding source
NH&MRC Program Grant

CHERE staff
Jane Hall, Patsy Kenny, Stephanie Knox

Collaborators
Denzil Fiebig1, Deborah Street2, Ishrat Hossain3, Sharon Wiley4, Susan Bray5, Betty Servis6, Siggi Zappart7, Pauline Davis8

1. School of Economics, UNSW
2. School of Mathematical Sciences, UTS
3. Qatar University (formerly CHERE)
4. Sacred Heart Palliative Care Service, St Vincent’s Hospital
5. Community Palliative Care, SSWAHS
6. Central Sydney Community Nursing Service
7. Centre for Health Equity Training Research & Evaluation SSWAHS (formerly CHERE)
8. Community Palliative Care SSWAHS (formerly CHERE)

Investigating best practice primary care for older Australians with diabetes using record linkage

Key objective
The primary aims of this research project are to:
• investigate processes of primary care provision for older people with diabetes;
• identify the predictors (patient, system, and environment) of provision of primary care (best practice or worse); and
• explore the relationship between primary care (best practice or worse) and measures of health outcomes including quality of life and hospitalisation.

In Australia most people access health care through community based primary care settings such as general practice (GP), pharmacy, and allied health. In these settings care may be fragmented due to the range of health professionals involved, mix of private and public funding and practice, number of stakeholders with funding responsibility, and mix of fee-for-service and salaried staff. Because there is no comprehensive source of data on service use in this setting, primary care is underrepresented in health statistics, and there has been limited exploration of processes of care for people with chronic health care needs.

Diabetes is a significant chronic disease that is largely managed in the primary care setting. Research has identified the elements of best practice diabetes management, helped clinicians reach consensus on processes of care for people with diabetes and led to the publication of management guidelines suitable for implementation in primary care settings.

Current initiatives to increase the availability and use of administrative data collections provide important opportunities to explore processes of primary care using record
linkage. Record linkage will be used to investigate the relationships between processes of care, costs, and health outcomes among Australians aged 45 years or more to inform policy development relation to primary health care and integration of multidisciplinary care.

Preparations to commence the research are underway and data collection will commence in the second half of 2010.

**Funding source**
NHMRC project grant

**CHERE staff**
Marion Haas

**Collaborators**
Elizabeth Comino¹, Mark Harris¹, Louisa Jorm²,³, Bin Jalaludin³, Jeff Flack⁴, Kris Rogers⁵

¹. Centre for Primary Health Care and Equity
². Faculty of Medicine, UWS
³. Centre for Research Evidence, Management and Surveillance, SSWAHS
⁴. Sydney South West Area Health Service
⁵. Sax Institute

**Using clinical and economic evidence to inform local decision making in cancer care (EM-CAP)**

This NHMRC Health Services Research Program grant is a collaboration between CHERE and researchers at UNSW and consists of a number of projects, three of which involve CHERE.

**Key Objective**
The outcome of this program is to produce and disseminate evidence about the cost effective use of cancer medicines in clinical practice. Freely available economic models in a readily accessible form integrated into local circumstances will allow decision makers, clinicians and patients to better determine suitable cancer treatments. Inherent in our implementation plan is the development of skilled academics, clinicians and policy makers who can continue our activities in the future.

**Developing an Economic Model for Treatment Side-effects**
One of the key objectives for the EM-CaP program is to develop a model to estimate the resource use associated with managing chemotherapy side effects which is independent of the medicine under consideration. Alison Pearce, a PhD student enrolled at CHERE has undertaken a literature review to identify the previous work done in this area, including an analysis of methodological approaches. This led to eleven recommendations for best practice methodology to guide modelling of the resource use associated with managing chemotherapy side effects. The data requirements for the model have been identified. This includes the incidence of adverse events in clinical trials, adverse event management from clinical practice guidelines, and resource costs from administrative data. A number of additional projects have arisen from the work in this area to date. These projects will also form part of Alison’s PhD Program. These are;

- Exploring the management of adverse events outside clinical trials, including incidence, management strategies, compliance with management recommendations and resources use.
• Examination of the strengths and weaknesses of clinical trial data as an input to economic models.

Whilst work on the constructing the economic model continues, we have also been conducting a case study of how one NSW-based private health insurance company has approached the problem of access to high cost cancer medicines. In particular we have data from this private health insurer which will allow us to the way in which decisions to fund high cost drugs are made (mapping the decision making process), the details of the requests (clinical condition, indication, drug class, length of requested treatment), the patient populations seeking subsidy and gaining funded access, the relationship between the outcome of initial requests for a drug for a specific indication and the volume of requests thereafter, the timing of the request in relation to TGA listing and PBS approval and the costs of subsidy to the insurer and patients.

**Elements of Care Study**
This study, using primary data collected in hospitals in metropolitan and rural areas of NSW aims to identify the individual care elements involved in administering specific chemotherapy treatment protocols and estimate the costs associated with each care element and determine where these costs are borne. In 2009, 370 patients receiving chemotherapy were recruited in 11 hospital sites across NSW. The study will continue to recruit patients throughout 2010. In addition, we have successfully negotiated access to secondary data sources including: MBS, PBS, Admitted Patients Data Collection, Emergency Department Information System and NSW Central Cancer Registry on the patient cohort.

Developing General Economic Models of Administration of Chemotherapy Medicines
This project was completed in 2009 by a student from the University of Utrecht, Johan de Raad, who was based at CHERE for a period of six months. Johan’s research involved both review of chemotherapy protocols and field work at hospitals to estimate resource associated with chemotherapy administration. The major findings were that costs estimated in the field (ie in chemotherapy units) are higher than those typically reported in Australian costing data and that there are significant differences in costs between different types of protocols. This work features in a recent paper accepted for publication in June 2010.

**Funding source**
NHMRC Health Services Research Program Grant

**CHERE staff**
Marion Haas, Kees Van Gool, Jane Hall, Alison Pearce (PhD student), Rosalie Viney

**Collaborators**
Robyn Ward, Margaret Faedo, Sallie-Anne Pearson, Carole Harris (PhD student)  
1. Lowy Cancer Institute, UNSW, NSW Cancer Institute, SESI Area Health Service

**Medical Services Advisory Committee (MSAC) Applications**

**Key Objective:**
External evaluators for MSAC, in collaboration with ASERNIP-S (Australian Safety and Efficacy Register of New Interventional Procedures – Surgical)

The role of MSAC is to provide recommendations to the Australian Minister for Health and Ageing regarding the evidence relating to the safety, effectiveness and cost-effectiveness of health technologies and medical procedures. The recommendations of MSAC are used by the Australian federal government to decide whether public funding
via MBS should be granted.

In 2007, ASERNIP-S and CHERE entered a formalised Memorandum of Understanding, outlining a collaborative approach to undertaking health technology assessments for MSAC. ASERNIP-S and CHERE have been working in collaboration for over 12 months, and this experience has allowed streamlined and cohesive approaches to economic assessment to be developed. Over the past year, we have produced a total of six reviews together for MSAC in what we believe is a successful and positive collaboration.

**MSAC Applications since 2007-(in collaboration with ASERNIP-S)**

- Application 1033 Autologous chondrocyte implantation (protocol)
- Application 1106 Endoscopic argon plasma coagulation therapy (to be presented to the MSAC executive)
- Application 1109 Deep brain stimulation for dystonia and essential tremor (current)
- Application 1113 Endovenous laser treatment for varicose veins (to be presented to the MSAC executive)
- Application 1115 Sacral nerve stimulation for urinary incontinence (current)
- Application 1123 Computer-aided total knee arthroplasty (current)
- Application 1129 Second Generation Contrast Agents for Use in Patients with Suboptimal Echocardiograms (complete)
- Application 1137 Middle ear implant for sensorineural, conductive and mixed hearing losses (under assessment)
- Application 1140 Matrix-induced Autologous Chondrocyte Implantation (MACI) and Autologous Chondrocyte Implantation (ACI) (current)
- Application 1143 Radiofrequency Ablation in Barrett's Oesophagus with Dysplasia (current)
- Application 1090.1 Review of MSAC Assessment 1090 - Artificial Intervertebral Disc Replacement (current)
- Application 1054.1 Review of MSAC Assessment 1054 - Hyperbaric Oxygen Treatment (HBOT) of two indications, late soft tissue radiation injury and radio necrosis and hypoxic problem wounds in non-diabetic patients (current)

**Funding source**
Australian Department of Health and Ageing

**CHERE staff**
Stephen Goodall, Richard Norman, Paula Cronin, Braedon Donald, Jody Church, Bonny Parkinson, Marion Haas

**Modelling the costs and benefits of interventions to prevent and reduce obesity**

**Key Objective:**
To complete the first stage of developing a decision analytic model of interventions designed to reduce the poor health impacts of obesity

There is increasing concern, within Australia as in other countries, that the rising incidence of overweight and obesity will increase the future prevalence of chronic disease, increase premature mortality, and add to the costs of health service delivery.
Governments are being lobbied to undertake population level interventions focused on overweight and obesity. However, there is as yet little evidence about the effectiveness and cost-effectiveness of possible interventions, particularly in terms of lifelong health outcomes. Controlled trial evidence of long term outcomes is difficult to accumulate for several reasons: it is not simple to control for all factors which influence an individual’s lifestyle; and long term can mean most of an individual’s lifespan. Consequently, estimating how a lifestyle intervention impacts on long term health outcomes and health care costs requires the development of an appropriate decision analytic model.

A decision analytic model will need to capture causality from the intervention to final health outcomes using the best available clinical or epidemiologic evidence. Modelling lifestyle interventions are complex as the model needs to accurately reflect the following, i) how a change in exercise leads to a change in BMI; ii) which leads to a change in risk factors, such as blood pressure levels and cholesterol; iii) leading to a change in habits that may or may not be sustained; iv) which lead to a long term changes in risk factor profile; v) which result in lower incidence of symptomatic disease; vi) and may result in less severe disease events; vii) and eventually will reduce premature mortality. The effect may vary by population sub-groups such as age and/or sex; and this must be incorporated in the model. Further, lifestyle factors have an impact on many chronic diseases and any one disease or condition is often associated with multiple risk factors. However, models often only focus on one risk factor or one disease, see for example (Liew, et al., 2006). It is obvious from this that the required model will be complex.

The overall objectives are:
- Gather economic model parameter data
- Develop economic model (“gold standard”)
- Build collaborations with other teams
- Further CHERE’s and UTS’s knowledge/reputation

**Funding source**
UTS Early Career Researcher Grant

**CHERE staff**
Jody Church, Richard Norman, Stephen Goodall

**Modelling the costs and benefits of interventions to prevent and reduce tobacco smoking in NSW**

**Key Objective:**
To model the cost-effectiveness of a range of existing and potential interventions aimed at reducing tobacco smoking in the NSW population

Tobacco smoking is the greatest single cause of premature death in Australia and is a leading preventable cause of morbidity throughout Australia (Australian Bureau of Statistics 2006). Although the prevalence of tobacco smoking in the Australian population overall, and in the NSW population, has fallen over the past 25 years (White, Hill et al. 2003), a significant proportion of the population continues to smoke. If current demographic patterns in smoking persist, it is estimated that 14% of Australians will still be smoking in 2020. It has been estimated that current smoking cessation rates would need to double to reach an indicative policy target of 10%. It has been suggested that a holistic approach to tobacco control which targets individuals and populations is most likely to be successful in reducing the prevalence of smoking to this indicative target of 10% (Gartner, Barendregt et al. 2009).
This project was aimed at evaluating which tobacco control strategies would be the most cost effective at both the individual smoker level and population wide. The review identifies strategies for which it is possible to estimate the relative cost-effectiveness in the NSW population. However, it was not intended to provide a comprehensive account of all published studies or currently implemented smoking cessation interventions and tobacco control programs. Rather, it is intended to provide an overview and indication of the existing evidence of the effectiveness and cost-effectiveness of interventions deemed most relevant to the NSW context.

A decision analytic model was constructed using estimates of effectiveness of selected strategies, and local estimates of resources required to implement the strategies/interventions. The model was used to estimate the cost-effectiveness. Not all interventions included in the literature review were modelled in the cost-effectiveness analysis due to a paucity of evidence regarding the effectiveness, or evidence suggesting that they are not effective. The results showed that the most cost-effective smoking cessation programs in terms of cost per quitter, was Varenicline, brief advice and tailored self-help materials.

**Funding source**
NSW Health

**CHERE staff**
Jody Church, Braedon Donald, Marion Haas, Rosalie Viney

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**Optimising access to best practice primary health care: A systematic review**

**Key Objectives**
To use the results from a systematic review of the published literature on potential interventions to enhance access to ‘best practice’ primary health care suitable for implementation in the Australian primary health care system

Ensuring that Australians have access to best practice primary health care (PHC) is an integral component of Australian health care policy. Growing awareness of the importance of a high quality PHC and equitable and cost-effective health care is creating interest in better ways to understand and address access to PHC.

A systematic review of the published literature examined three areas of PHC: chronic disease management, prevention and episodic care, with a focus on diabetes prevention, management, screening cervical cancer (Pap test), and episodic care (timely appointments, out-of-hours care and continuity).

Factors associated with access to best practice PHC can be grouped into patient, organisational, financial, workforce, and geographical factors. Effective interventions had the following elements: inclusion of multiple strategies, e.g. patient information, practitioner behaviour, and practice systems; building strategies into usual practice, e.g. practice systems to recall patients and outreach; financial incentives, e.g. to encourage multidisciplinary teams; maintaining ongoing education and awareness. There was fairly strong match between factors identified as influencing access to best practice PHC and effective strategies. The results of this review indicate a number of areas in which there would be scope for improving access to best practice primary health care.

A report has been submitted to APHCRI.
**Funding source**
Australian Primary Health Care Research Institute, Stream 13 funding round.

**CHERE staff**
Marion Haas, Jane Hall

**Collaborators**
Elizabeth Comino, Mark Harris, Gawaine Powell-Davies, Bettina Christl, Yordanka Krastev¹, John Furler², Antony Raymont³.

1. Centre for Primary Health Care and Equity, UNSW
2. University of Melbourne
3. Victoria University of Wellington, New Zealand

**Person-centred environment and care for residents with dementia: A cost-effective way of improving quality of life and quality of care?**

**Key objective**
The aims of this study are to determine the separate and combined effects of providing person-centred care (PCC) and modifying the physical dementia care environment (person-centred environment design (PCE) on the QOL and Quality of Care (QOC) of aged care residents with dementia and to undertake an economic evaluation of PCC and PCE.

The study commenced in February, 2009 after a four month training period for all research staff, which was conducted in four unrelated dementia care units in Sydney, NSW from 1 August 2008. To recruit suitable dementia care sites 79 dementia care units located in 79 separate aged care homes within a 300 km radius of Sydney, NSW, were screened for inclusion with the PCECAT by Research Assistants 1, 2 and the EAT assessment tools by Research Assistant 3, under supervision of three of the CIs. The 40 homes with the lowest scores on PCECAT (care quality) and EAT (environment quality) and therefore, able to most benefit from the study interventions, were deemed eligible for inclusion. The 40 eligible dementia care units were randomly allocated into the 4 Intervention arms, Person-Centred Care (PCC), Person Centred Environment (PCE), PCC and PCE in combination, and Usual Care and Environment (UC, UE). To help ensure comparability of the intervention and usual care sites with respect to baseline characteristics, sites were matched according to the following criteria: geographical location, size of care unit, profit/not for profit status, and dementia/non-dementia specific orientation. Research Assistants 4, 5, 6 and 7 administered the baseline and outcome data for stage 1 (Pre-Test), which concluded in December 2009. Post-Test data collection for all measures commenced in January 2010. All baseline and pre-test outcome data have been entered and triple checked and are currently being cleaned by the study statisticians.

**Funding source**
NHMRC Dementia project grant

**CHERE staff**
Marion Haas, Richard Norman

**Collaborators**
Lynn Chenoweth¹, Jane Stein-Parbury¹, Laurel Hixson¹, Ian Forbes², Richard Fleming², Madeleine King³, Georgina Luscombe³, Henry Brodaty⁴
Reducing the use of ineffective health care interventions

Key Objective
The NSW Treasury, through the Sax Institute, commissioned CHERE to undertake a literature review of Australian and international models for identifying existing health care interventions that are ineffective, and for reducing the use of these interventions. This is generally described as ‘disinvestment’, and refers to the formal processes and mechanisms which are used to reduce or discontinue the use of selected procedures and treatments.

Results of the project
The review identified a number of case studies and pilot projects. There is limited information available on the mechanisms used, and no rigorous evaluations of their impact. The most developed model is that of NICE which has recently embarked on providing guidance for disinvestment. A number of technologies have been reviewed; but there is limited information available on how these were identified, how disinvestment is implemented, or what the effect has been. There is substantial resistance to any active disinvestment. Across the various case studies, appraisal of candidate technologies seems most likely to be triggered by expert opinion.

Disinvestment is generally passive. Technologies may be removed from funding or reimbursement if new research demonstrating harms or inefficacy becomes public or when a procedure or treatment gradually falls out of use over time. More generally, technologies fall into disuse, and are gradually replaced by new or improved technologies. Even when guidelines or funding rules are changed, there is generally continued use of an existing technology. Active disinvestment has generally been removal of funding for ineffective and/or unsafe technologies, usually initiated by new evidence of inefficacy or harm. There are very few instances of disinvestment, or appraisal for disinvestment, driven by considerations of cost-effectiveness. There are considerable difficulties implementing disinvestment in ineffective health care practices.

An alternative approach to proactive disinvestment of specific technologies is to encourage more rapid change in medical practice. There are various strategies for health care reform which can be categorised as changing provider information, such as through the use of clinical guidelines, or the results of practice variations studies; changing incentives, though different payments for clinicians and other providers, or specifically targeted incentives; changing consumer behaviour, by providing more information with or without financial incentives; or changing the structures of health service delivery to provide organisational support and incentives for more efficient purchasing of care.

Funding source
Sax Institute (on behalf of NSW Treasury)

CHERE staff
Gisselle Gallego, Marion Haas, Jane Hall, Rosalie Viney
Systematic review of the cost-effectiveness of treatments for low back pain

Key Objective
To undertake a systematic review of the literature on the cost-effectiveness of alternative treatments for non-specific low back pain

Low back pain (LBP) is a common health condition which affects most adults at some point during their lifetime (1). For most patients in primary care, the source of symptoms cannot be specified and the patient receives the label non-specific LBP. Most individuals with non-specific low back pain receive all or part of their care from a primary care physician or GP and understanding the relative cost-effectiveness of alternative treatments is important. Recently, the American College of Physicians and the American Pain Society published a joint clinical guideline which recommended a range of interventions as effective; in this instance, additional information on the relative cost-effectiveness of the recommended treatments will be useful for decision makers.

Relevant articles were obtained by searching nine clinical and economic electronic databases, and the reference list of relevant systematic reviews and included studies to February 2009. Economic evaluations conducted alongside randomised controlled trials were eligible for inclusion. Eleven studies were included in the review of GP care; the results indicated that GP care alone did not appear to be the most cost-effective treatment option for low back pain. Twenty-five studies were included in the review of the cost-effectiveness of guidelines-endorsed care. Evidence supports the cost-effectiveness of some guideline-endorsed treatments: interdisciplinary rehabilitation, exercise, acupuncture, spinal manipulation and cognitive-behavioural therapy for sub-acute or chronic LBP. However, there were inconsistent results on the cost-effectiveness of advice, insufficient evidence on spinal manipulation for people with acute low back pain, and no evidence on the cost-effectiveness of medications, yoga or relaxation.

Two journal articles have been submitted for publication.

Funding source
Internal funds

CHERE staff
Marion Haas

Collaborators
Christine Lin¹, Chris Maher¹, Luciana Machado², Maurits W van Tulder³

1. George Institute, University of Sydney
2. Universidade Federal de Minas Gerais, Brazil
3. Department of Health Sciences and the EMGO Institute for Health and Care Research, Faculty of Earth & Life Sciences, VU University, The Netherlands

The impact of care-giving on the health of informal carers: Change over time and association with stressors and resources

Key Objective
To investigate the impact of care-giving on the mental and physical health of informal carers
Informal carers represent approximately 13% of the Australian population and this is likely to increase as the population ages. Health is an important factor in the capacity of informal carers to continue providing care and research has shown that informal carers (or some groups of informal carers) have worse mental and physical health than similar non-carers. However, it is possible that some of these differences relate to the health of carers before they become carers.

This study uses data from the Household Income and Labour Dynamics in Australia (HILDA) survey to examine the mental and physical health of informal carers, measured as health related quality of life (HRQOL) using the SF-36 Health Survey. HRQOL will be investigated in terms of differences between carers and non-carers, and changes over time from prior to the commencement of care-giving, in order to identify if there are changes that are likely to be the consequence of care-giving. We will also investigate the extent to which changes vary according to the duration of care-giving, the amount of care provided, socio-economic status, perceived social support and the competing demands of family and work. The analysis will involve the estimation of linear mixed models of change over time which include person-level and time varying covariates.

The study will provide information about the health changes after care-giving starts and how these vary with the duration and amount of care-giving. It will also provide information about these effects in different groups of carers such as those with conflicting time demands related to childcare and employment as well as those with different levels of access to resources and support. This is a two year project commencing in 2010.

**Funding source**
NH&MRC Project Grant

**CHERE staff**
Patsy Kenny, Jane Hall

**Collaborators**
Madeleine King
1. School of Psychology, University of Sydney

**Validation and calibration of the SF-36 health transition question in the Household, Income and Labour Dynamics in Australia (HILDA) survey**

**Key objective:**
To quantify the change in health status for the categories of the SF-36 health transition question in clinical terms

Cross-sectional population surveys depend on retrospective self-report if they are to estimate changes in health status over time. An example is the health transition question (HTQ) from the SF-36 health survey that ask the respondent rate his/her health compared to one year ago. However little has been done to estimate the clinical magnitude of change in health related to responses to health transition questions.

Calibrating the response categories of the HTQ against an external measure of known clinical change will help in interpreting the clinical meaning of the HTQ categories and increase its usefulness as a stand alone item in cross-sectional surveys.
We are using the HILDA study to obtain some estimates of the size of prospective change in health status on the SF-36 scales for the HTQ and comparing this against the size of prospective change for respondents who have recently developed a new long-term health condition.

**CHERE Working paper 2007/15 has been produced.**

Results were presented at the International Society for Quality of Life (ISOQOL) conference Montevideo 2008

Published article:

**Funding source**
NH&MRC Program Grant

**CHERE staff**
Stephanie Knox

**Collaborator**
Madeleine King¹
1. University of Sydney
Publications

2009 Journal Articles


King, M.T., Kenny, P. & Marks, G.B. 2009, 'Measures of asthma control and quality of life: Longitudinal data provide practical insights into their relative usefulness in different research contexts', Quality of Life Research, vol. 18, no. 3, pp. 301-312. View/Download from: UTSiResearch | Publisher's site

Knox, S.A. & King, M.T. 2009, 'Validation and calibration of the SF-36 health transition question against an external criterion of clinical change in health status', Quality of Life Research, vol. 18, no. 5, pp. 637-645. View/Download from: UTSiResearch | Publisher's site


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2009 Reports

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2009 Conference Presentations


Goodall, S. & Scott, T. 2009, 'Is hospital treatment in Australia inequitable? Evidence from HILDA, a large nationally representative household-based panel survey', iHEA 7th World Congress, Beijing, China, July 2009.


Hossain, I., Hall, J.P., Fiebig, D.G. & King, M.T. 2009, 'How do preferences elicited through DCEs vary over time and with changing experience? The case of preferences for asthma medications', iHEA 7th World Congress, Beijing, China, July 2009.


2010 Journal Articles


### 2010 Working Papers


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Industry engagement

CHERE is strongly engaged with health policy makers, health care agencies, and clinicians to facilitate the use of research findings in the development of health policy and practice. This involves a range of activities. There are two research programs developed and implemented in partnership with policy makers and practitioners. There are a series of directly commissioned projects. These may produce situations where research will directly influence policy but for the most part the way that research influences policy will be diffuse. One contribution of research to policy is through engaging with policy making, through participation in policy and practice committees. CHERE staff are members of several key Australian policy advisory committees, including the Pharmaceutical Benefits Advisory Committee, the Medical Services Advisory Committee, and the NSW Health NSW Health Resource Distribution Formula Technical Committee. Participation in significant policy forums and discussions is another way in which research evidence and skills of analysis are brought to decision making and decision makers. CHERE researchers contribute to the two significant international health policy exchanges: the Commonwealth Fund International Program in Health Policy and Practice, including the Harkness Fellowship and the Packer Policy Fellowship; and the International Network on Health Policy and Reform supported by the Bertelsmann Foundation. Other contributions include providing media commentary, and presentations to particular target audiences.

Education and Capacity Building

CHERE's teaching includes health economics and health services research and planning through short courses and workshops, courses within other programs of study, and specialised programs in health economics and health services research. Enquiries about workshops and short courses should be directed to Rosalie Viney: rosalie.viney@chere.uts.edu.au

Programs are designed to meet the needs of three main groups:

**Economists:** we are committed to encouraging the best young economics graduates to work on health-related issues and to enhance their economics skills. Opportunities for postgraduate coursework, for study leading to the award of a PhD, and for post-doctoral programs are available.

**Non-economists:** specific training in health economics for people engaged in health policy development and implementation, and for those working in areas such as health care planning, management and/or evaluation is provided through short courses and workshops. For further information contact: rosalie.viney@chere.uts.edu.au

**Clinicians:** many health care professionals, particularly those involved in epidemiological and/or health services research, require an understanding of the principles of economics as applied to health and health care. Although some of this understanding may be developed through the general workshops offered, there are also opportunities to incorporate health economics as a subject in post-graduate training in public health, clinical epidemiology and health services research.
Academic staff

Jane Hall is the founding Director of CHERE and Professor of Health Economics in the Faculty of Business at UTS. She studied undergraduate economics at Macquarie University and holds a PhD in Health Economics from Sydney University. Jane is a Past President of the International Health Economics Association (iHEA) and Immediate Past President of the Health Services Research Association of Australia and New Zealand (HSRAANZ). In 2005 she was elected a Fellow of the Academy of Social Sciences in Australia. Jane was recently a member of the Medical Services Advisory Committee which advises the Minister for Health and Ageing on the funding of new medical technologies in Australia. Jane has represented Australia on many international health policy forums. She is actively involved in policy analysis and critique, and is a regular commentator on health funding and organisational issues in Australia.

Marion Haas is a Deputy Director of CHERE and Associate Professor of Health Services Research at UTS. Formerly a physiotherapist, she has a Master of Public Health from the University of Sydney and a Graduate Diploma of Applied Epidemiology. Marion completed the NSW Public Health Officer Training Program prior to joining CHERE in 1994. Her PhD, awarded in 2002, examined the non-health outcomes of health care which are important to, and valued by, patients.

Rosalie Viney is a Deputy Director at CHERE and Associate Professor of Health Economics at UTS. She holds an honorary Senior Lectureship in the Faculty of Medicine at the University of Sydney and is a Research Associate of the Centre for Applied Economics Research at the University of New South Wales. Rosalie has a PhD in economics from the University of Sydney. Her PhD research focused on the use of discrete choice experiments to value health outcomes and investigate the assumptions underlying Quality Adjusted Life Years (QALYs). She is a member of the Pharmaceutical Benefits Advisory Committee’s Economics Sub-Committee.

Elizabeth Savage is an Associate Professor at CHERE, an Honorary Associate Professor, School of Public Health, University of Sydney and an invited research affiliate, Centre for Applied Economic Research, UNSW. She studied economics at the London School of Economics. She is a member of the Resource Distribution Formula Technical Committee for the NSW Department of Health, the Finance Committee for the International Health Economics Association and is an elected board member and convenor of the Health Economics subgroup of the ARC-funded Economic Design Network. She is on of the Editorial Board of the Economic Record and between 2005 and 2007 was President of the Economic Society of Australia, NSW Branch. In 2008 she was the invited to participate in the Long-term National Health Strategy stream at the Australia 2020 Summit.

Research staff

Stephen Goodall is a Health Economist and the manager of the economic evaluation research group. This role involves managing a group of health economists, and liaising, negotiating contracts and completing reports with commissioning agencies. His main areas of interest are: economic evaluation of health technologies, public health, primary care, access to health care and equity. He also provides postgraduate lectures on topics aligned with his research (to date: “Introduction to Health Economics” and “Planning and Evaluating Health Services”).
Stephen completed a Master of Health Economics from the University of York. His thesis, an econometric analysis of the HILDA (a large panel) dataset, titled “Is hospital treatment in Australia equitable?” was undertaken at the University of Melbourne. He has a PhD in Vascular Medicine from the University of Leicester, which focussed on health services research.

Prior to joining CHERE Stephen worked for 7 years within clinical development, where he helped design and managed national and international randomised clinical trials. He was also responsible for training and supervising medical colleagues during their research sabbatical. He spent two years in the Pharmaceutical Industry. At the University of Bristol he managed a large multi-centred UK Government sponsored evaluation of access to primary care. His work has led to numerous peer reviewed journal articles and conference presentations, as well as several commissioned reports.

Kees van Gool is a health economist and has extensive experience in international, national and regional health policy research. Kees has contributed to and managed a variety of projects including work conducted for the Commonwealth Department of Health and Ageing, MBF and the Senate Community Affairs References Committee. Currently, he is a chief investigator on an NHMRC health services research program grant investigating the cost-effectiveness of chemotherapy protocols as well as an NHMRC capacity building grant. Kees has a Bachelor of Economics and Arts (ANU) and a Master of Economics (USYD) and is currently undertaking a PhD at the University of Technology Sydney. He is a member of Cancer Australia’s National Research Advisory Group and a regular contributor to the Bertelsmann Foundation’s Health Policy Monitor series. Kees has previously worked at the Organisation for Economic Cooperation and Development (OECD), NSW Health and the Commonwealth Department of Health and Ageing. At the OECD he was responsible for the project on health-related technologies, which focused on evidence-based policy and practice in relation to integrating new technologies into health care systems.

Patsy Kenny is a Senior Research Officer and joined CHERE in 1990. She worked as a registered nurse before completing the BA in Government and Political Economy at The University of Sydney. Patsy was awarded her Master of Public Health from The University of Sydney in 1998, her treatise investigated patient participation in treatment decisions for breast cancer.

Paula Cronin has a Bachelor of Science and a Master of Public Health. She conducted her Masters thesis at Curtin University in Perth, working with a local Division of General Practice looking at the management of cardiovascular disease and factors that would improve patient outcomes. In the late 1990s Paula moved to the USA where she worked as a Research Associate for the Health Science Centre at the University of Texas. Her research looked at health inequalities in Grade 4 (age 8 – 10 years) children, investigating how school performance, race and socioeconomic factors affected health status. More recently Paula was a research officer with the Australian Paediatric Surveillance Unit at the Children’s Hospital, Westmead. The Unit, which gathers reports from Australian paediatricians, is producing an Australian data base of rare childhood disorders. Paula joined CHERE in June 2006 and her research interests are in the application of discrete choice experiments to value multi-attribute health states for use in economic evaluation and the perception of obesity in NSW. In
addition, Paula is working in the Economics Evaluation team on a number of commissioned projects.

**Bonny Parkinson** is a Research Fellow at CHERE and has considerable experience in economic evaluation, both in Australia and the United Kingdom. She has a Bachelor of Economics with Honours from the Australian National University and a Master of Health Economics from the University of York. Her Masters thesis focused on integrating health economic modelling in the product development cycle of medical devices. She recently joined CHERE in 2009 and has specialised in economic evaluation of healthcare interventions and technologies, including evaluations for the Pharmaceutical Benefits Advisory Committee. Prior to joining CHERE Bonny worked for 2 years in the pharmaceutical industry in the UK as a health economist responsible for new and existing drugs in the oncology, mental health and influenza vaccine portfolio. She has also previously worked as a health economist for Access Economics for 5 five years and as an assistant researcher for the Social Policy Evaluation and Research Centre at the Australian National University. She is currently a reviewer for the Centre for Research and Dissemination at the University of York.

**Jody Church** is a Research Fellow (Health Economics) at CHERE. She has an Honours Bachelor degree in Management Economics in Industry and Finance from Guelph University and a Master's degree in Economics (with an emphasis in Health Economics) from McMaster University. Prior to joining CHERE she worked as a policy analyst in the health department at the Organization for Economic Co-operation and Development (OECD) in Paris, funded through Health Canada. She also gained experience in risk management while working as a business analyst for TELUS Corporation in Canada and in business development when she was nominated for an internship in México by AIESEC and the Canadian International Development Agency. She was also a research assistant for the economics department and a teaching assistant to undergraduate students while studying at McMaster University in Canada.

**Braedon Donald** is a Research Fellow at CHERE and has broad experience in public health research and health policy analysis, both in Australia and Canada. She has an undergraduate degree in Political Science and Sociology from the University of Toronto and an MPH from the University of Sydney, with an emphasis in health policy, epidemiology and health economics. Her previous appointments include a Research Assistant position at the Women’s College Hospital Research Institute in Toronto, where she researched the relationship between globalization and women’s health, and program officer at Women’s College Hospital’s Knowledge Translation Office. She was also worked with the UNDP at the International AIDS Conference in 2006. In Australia, she has worked as a Research Officer at the Menzies Centre for Health Policy, and was also a research assistant at the School of Public Health at the University of Sydney where she investigated the relative roles of the public and private sectors in health services provision at the national and international levels. More recently, she has worked as a research assistant in the medical school at the Australian National University in which she assisted in an evaluation of a public health program in NSW using both qualitative and quantitative analytical approaches.

**Meliyanni Johar** is a Research Fellow (Health Economics) at CHERE. She received first class Honours in Economics in 2005 from the University of Sydney and a PhD in Economics from the University of New South Wales. Her research is mainly applied econometrics. Prior to joining CHERE, she was a research and teaching assistant in microeconomics and econometrics courses at the University of Sydney and UNSW.
Rebecca Reeve has an honours degree in economics from Macquarie University (2004) and has recently qualified for the award of Doctor of Philosophy in economics. Rebecca’s PhD thesis investigates the degree and causes of Indigenous poverty in NSW major cities and the efficacy of current policy approaches to improving Indigenous welfare. Her honours thesis examined the impact of alternative immigration and fertility rates on Australia’s future labour force outcomes. In 2003, Rebecca was a Ronald Henderson Research Foundation intern at the St Vincent de Paul National Council of Australia, where she undertook a research project on the condition of poverty in Australia. Prior to joining CHERE in late 2009, Rebecca was employed at Macquarie University, since 2004, as a tutor and lecturer in microeconomics and econometrics.

Richard Norman completed a Bachelor Degree in Philosophy and Economics at the University of York in 2003, and a Master of Health Economics in 2004. His thesis, written at the University of Bergen, investigated the measurement of productivity in Norwegian Hospitals. His work in CHERE focuses on economic evaluation, population modelling and discrete choice experiments, particularly in the areas of quality of life measurement and equity. Prior to joining CHERE in August 2006, Richard worked within the UK National Health Service. He was involved in cost-effectiveness analyses of a range of clinical management approaches for NHS treatment guidelines. Areas of research included postnatal care, obesity management, familial breast cancer treatment and the management of chronic fatigue syndrome.

Stephanie Knox has a BSc from Sydney University, a BA in psychology with first class honours from Macquarie University and a Master in Public Health from the University of New South Wales. Prior to joining CHERE Stephanie worked at the Family Medicine Research Centre at the University of Sydney, where she was responsible for the analysis and reporting of findings from a large study of general practice activity in Australia (the BEACH program). Before that Stephanie worked at the National Centre in HIV Social Research, managing and analysing data from the Sydney Men and Sexual Health (SMASH) cohort and a number of other quantitative studies. Stephanie’s research interests while at CHERE include validating the SF-36 health status instrument in the Australian context and the design and analysis of discrete choice experiments.

Yuanyuan Gu has a Bachelor’s degree in Statistics from Fudan University in Shanghai, a Master of Commerce Honours degree in Economics from University of New South Wales (UNSW), and is currently completing his PhD in Economics at UNSW. Yuanyuan’s master thesis develops a Bayesian approach to analyse the contaminated data when people lie or misreport in the survey. Yuanyuan’s PhD thesis develops novel Bayesian methods for analysing health economics data. In particular he is interested in identifying the sources of heterogeneity in consumers’ choices. Prior to joining CHERE in 2010, Yuanyuan was employed at UNSW, since 2005, as a tutor and associate lecturer in quantitative methods and econometrics. Previously Yuanyuan worked as consultant assistant at Boston Consulting Group Shanghai Office from 2002 to 2003.

Administrative staff
Alex Glading holds a degree in Management from Brunel University, London and is CHERE’s Finance & Administration Co-ordinator. She is responsible for monitoring and managing the centre’s Finances and Administrative functions. She supervises the
centre’s administrative staff and advises the management team primarily on financial issues, as well as working closely with individual researchers regarding their activities. Before joining CHERE, Alex worked at a UK Biological Research Institute, The John Innes Centre, as an Assistant Management Accountant in the Finance Department, where she was heavily involved with scientific research accounting.

**Gretchen Togle** is Executive Assistant to Jane Hall, the Centre's director. Gretchen’s role at CHERE revolves around the Director's functions as well as that of the Management Team in general. She provides administrative support in areas of recruitment and liaises with the Human Resources Department. She likewise provides organisational and secretarial support to the Centre. She is the Program Assistant for the US-based Commonwealth Fund’s Harkness Fellowship Program, which is officially represented in Australia by Jane Hall.

**Liz Chinchen** holds a Bachelor of Applied Science (Information) and is responsible for the management of the Centre's library which consists of a large number of books, reports, discussion papers and journal articles. She works closely with the researchers on a variety of projects, providing a current awareness service, undertaking literature searches and locating and providing relevant information as required. Liz also maintains CHERE's web site.

**Liz Justic** is the Centre’s Administrative Officer. Liz contributes to the day to day running of the Centre by providing administrative support to the management team, research, teaching and support staff. Her key responsibilities include assisting the Finance & Administrative Co-ordinator, managing the Kronos staff pay system, travel arrangements, and supporting the Executive Officer of the Health Services Research Association of Australia and New Zealand (HSRAANZ).