Research Projects 2015

Topics for Honours, Masters and PhD research

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Responsible, conscientious students with well-developed interpersonal and written communication skills are sought for these projects.

It is expected that candidates will draft, under supervision, a paper for publication in a scientific journal. This is the first step in your research career!

Research projects

A wide range of potential projects are available, some of which are listed in the following pages.

- Most projects can be tailored to Honours, 12 point Masters Project, 24 point Masters dissertation or PhD scope. These are indicated by *.
- Projects suitable for 24 point Research Dissertation, MPhil (MPH by research) thesis or PhD are indicated by **
- Projects of specific lengths are indicated *** for Honours/12 point Masters and **** for Honours

Although some projects use linked data and require a high degree of analytical aptitude, there are many other projects that require different skills. Given the scope of projects available, a great project can be found to match your own interests and skills.

Want to know more?

Contact: Graduate Research Coordinator
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Projects with the Centre for Genetic Origins of Health and Disease (GOHaD)*
Supervisors: W/Prof Eric Moses. Assoc/Prof Phillip Melton, Assoc/Prof Jennifer Stone, Dr Nina McCarthy, Dr Gemma Cadby & Ms Sarah Ward (GOHaD), Prof Jane Heyworth (SPH) & other SPH academic staff.

A variety of projects are available, with joint supervision between the UWA Centre for Genetic Origins of Health and Disease and the School of Population Health. Projects will investigate the genetics of common, complex diseases, and could include:

- Cardiovascular diseases
- Cancers
- Neuropsychiatric disorders
- Pregnancy disorders

Projects will use contemporary methods of genetic analysis, utilising bioinformatics and high throughput technologies, to unravel the genetic and environmental contribution to these diseases.

The Economic Outcomes of Introducing Rapid PCR-Based Diagnosis of Serious Infection in a Regional Hospital *
Supervisors: Prof Elizabeth Geelhoed (SPH) & Prof Tim Inglis (School of Pathology and Laboratory Medicine (PaLM))

Background: Recent advances in laboratory medicine have enabled PathWest to precisely identify the cause of serious infection much faster than was previously possible. This service improvement relies on skills and equipment currently concentrated in the largest teaching hospital pathology services. A lightweight version of this approach has recently been developed and the logistic support required is now in place to establish the rapid diagnostic capability in our larger regional hospitals.

Outline: We expect the impacts to be reduced time to diagnosis, earlier antibiotic intervention and reduced patient transfers to teaching hospitals. A comprehensive economic impact assessment will assess both the benefits of more rapid diagnosis and the costs of implementation.
The aim of this project is to evaluate the impact of RWH systems on health, changes in water use and economic impact using a step wedged design. 250 households will be recruited into the study and data collection will occur from April to September 2015 and then again in 2016. Data on water sources, use and treatment and hygiene behaviours will be collected at baseline. During each intervention month, families will be interviewed weekly about health symptoms in the last 24 hours. Similar surveys will again be completed 11 months after RWH installation.

This study will provide a better understanding of the health, changes in water use and economic impacts of installing RWHs in rural Nepalese villages that are facing difficulties with water quality and supply.

Please note the availability of this project may depend upon funding. Currently we have one PhD project allocated to this study but dissertation projects will be negotiated with students who express interest in this work.
Issues and Trends in the Australian Nursing Graduate Workforce: Skills mismatches, migrant assimilation, gender imbalances and earnings*
Supervisors: Asst/Prof Ian Li & Assoc/Prof Rosemary Saunders (SPH)

Background: This research project will examine the Australian nursing graduate workforce in general, with scope for potential focuses on several issues prevalent in the nursing workforce. The project has direct relevance to nursing workforce planning and policy making.

Outline: Labour market trends and outcomes of nursing graduates in Australia are explored in this research project. The scope of this project is diverse, with focuses on post-graduation destinations, earnings, gender imbalances, skills mismatches, migrant assimilation, and institution of graduation differences. The project is suitable for a PhD project, or can be split up into smaller projects for honours or masters dissertations.

Assessment of Community Noise Concerns in Suburbs of Perth*
Supervisors: Prof Jane Heyworth (Environmental Epidemiology (EE) SPH) & Assoc/Prof Alison Reid (Centre for Medical Research/Occupational Respiratory Epidemiology (ORE))

Background: Noise is a health issue that is increasingly becoming one of community concern. Unwanted noise impacts on quality of life by disrupting individual activities including concentration, relaxation and sleep. However there are limited recent data on the extent to which people are concerned about noise and whether this varies by source.

Outline: This project will include a review of the health effects of noise and collation of existing data on noise levels across Perth and noise annoyance in Australia. In addition, a noise questionnaire will be developed and used to survey residents in selected suburbs across Perth. The survey will address main sources of noise in the community and the extent to which these impact on annoyance, quality of life or self-reported health effects.
Environmental Issues in Aboriginal Remote Communities*
Supervisors: Assoc/Prof Lisa Wood (CBEH), Assoc/Prof Peter Franklin & Assoc/Prof Graeme Zosky (Telethon Kids Institute (TKI))

Background: Which communities have greatest environmental issues and how is health related? The environments in which we live, work and play impact on health behaviours and outcomes in many ways and this is particularly evident in Aboriginal remote communities. The Environmental Health Needs Survey, conducted by WA Health every three years, collects data on a range of environmental health determinants including access to clean water, sewage, dust control, rubbish management, housing stock type, major perceived environmental health issues and provision of community services. The most recent survey collected this data from 232 communities, most of which are in remote east, central and northern parts of WA.

Outline: Project options include using this dataset to develop a community environmental quality score, then analysing it in relation to health data to determine relationships between environmental measures and health outcomes. Analysis may be done cross-sectionally on the survey data or the student could investigate changes over time. Spatial mapping techniques may also identify clustering patterns of environmental and/or health issues as a profile of communities of greatest vulnerability.

The Social, Community and Mental Health Benefits of Dog Ownership*
Supervisor: Asst/Prof Hayley Christian (Centre for the Built Environment & Health (CBEH))

Background: Pet ownership is associated with higher self esteem and decreased loneliness, social isolation, stress and depression. Pet benefits are seen at the individual, family and community level. Further study of the links between dog ownership and social, community and mental health is needed, as well as investigation of the mediators of these relationships.

Outline: The project aims to examine the association between dog ownership, dog walking and measures of community health, social capital and cohesion, and mental health. Longitudinal data from the RESIDential Environments (RESIDE) and Dogs And Physical Activity (DAPA) projects data will be used to explore the effect of acquiring or losing a dog on social, community and mental health. Qualitative research with community groups will complement quantitative findings.
Energy drinks: An emerging mental health risk for young people?*
Supervisors: Dr Gina Trapp, Asst/Prof Karen Martin & Prof Wendy Oddy (TKI)

Background: Energy drinks are highly caffeinated beverages marketed to boost energy levels, improve performance and increase concentration. They have catapulted to popularity among young consumers and are a rapidly expanding segment of the beverage industry. They are a potent caffeine source, which is known to be a psychoactive substance with addictive properties. These drinks have been linked to serious adverse health effects and concerns over their side effects have led some countries to restrict or ban them. Despite increasing concerns, empirical research into their health impact is scarce.

Outline: This project will involve quantitative analysis of survey data from the WA Pregnancy Cohort (Raine) Study. This provides a unique opportunity to examine prospective associations between energy drink consumption and mental health measures in young people, including emotional problems such as depression, anxiety, stress and risky behaviours such as alcohol abuse and illicit drug use. Findings will be further explored in qualitative work, through a series of focus groups. This will help develop a richer understanding of the perceptions, motivations, experiences and consumption patterns of energy drinks, and identify opportunities for health promotion intervention strategies aimed at reducing consumption.

Prevalence of Respiratory Diseases Among WA Miners*
Supervisors: Dr Susan Peters (ORE) & Dr Fraser Brims (Respiratory Medicine, SCGH)

Background: Occupational non-malignant respiratory disease (NMRD), such as asthma, chronic obstructive pulmonary diseases (COPD) and pneumoconiosis, arises from workplace exposure to airborne agents. Literature suggests that NMRD arising from occupational exposures are an important cause of disability and death worldwide. The mining industry is characterised by exposures to hazardous substances, such as silica dust, diesel fumes and asbestos. A study among Kalgoorlie goldminers in the 1980s estimated the proportion of cases of chronic bronchitis in underground miners due to occupational factors at 50%. Working conditions have changed over the last decades and the current prevalence of NMRD among miners is unknown. Increased knowledge of prevalence and determinants may help improve working conditions and better recognition of occupational NMRD.

Outline: Data from a cohort of ~250,000 people who worked in the WA mining industry between 1995 and 2012 have been linked to health records. Data on smoking habits and occupational information are also available for all miners. The prevalence of NMRD among miners can be established based on mortality and morbidity data. Furthermore, the determinants of those diseases can be described.
Developing a Social Fragmentation Measure for WA to Examine Neighbourhood Influences on Health *
Supervisors: Assoc/Prof Lisa Wood & Asst/Prof Sarah Foster (CBEH)

Background: Social fragmentation is a novel typology that can use national census data for an aggregated measure of neighbourhood social conditions that can compound material deprivation and disadvantage, shown to be associated with poorer health and wellbeing. New Zealand (NZ) research has developed a social fragmentation measure (NeighFrag), yet to be used in an Australian context. The development of such a measure for WA would provide a valuable tool for use in studies of locational influences on health or other wellbeing outcomes.

Outline: This project is an opportunity to be involved in a larger program of new collaborative work with the University of Otago, NZ. The project will involve a literature review and use of a WA subset of 2011 census data to create a WA NeighFrag measure (of variables such as residential mobility, home ownership/rental mobility, household composition, ethnicity, unemployment, car ownership). Spatial mapping for Perth or all of WA will then identify areas of higher vulnerability to poor health outcomes. There is scope to overlay this with analysis of existing health measures (eg mental health, smoking, alcohol use or other related morbidity/mortality outcomes). The project lends itself to the student co-authoring a publication.

Housing Vulnerability and Homelessness and its Relationship to Mental Health****
Supervisors: Assoc/Prof Lisa Wood & Asst/Prof Sarah Foster (CBEH)

Background: Housing is a recognised social determinant of health and housing vulnerability and homelessness can significantly impact on health inequalities. Mental illness and chronic disease risk factors are more prevalent among people in homeless or unstable housing circumstances, and transient housing reduces the likelihood of preventative behaviours or early help-seeking, resulting in greater use of costly emergency and tertiary health services.

Outline: We are involved in several research projects relating to housing and homelessness that would lend themselves to a student honours project. These range from a study looking at how support programs for homeless people may influence mental and other health outcomes, through to an evaluation of some innovative accommodation and service delivery models for homelessness in Perth.

Students interested in this topic area are encouraged to contact us to discuss possible projects.
Fly In Fly Out (FIFO) Families With Young Children: Challenges, adaptions and connectedness in communities*
Supervisors: Assoc/Prof Lisa Wood & PhD candidate Cecily Strange (CBEH)

Background: Families nurtured in communities are associated with better health and education outcomes, whereas lack of social support and poor community engagement are related to poorer health outcomes. FIFO families with young children are a growing population in WA; part of the fastest growing state in Australia. FIFO families have challenges that include disruptions to family life, rosters that can result in lengthy absences from family life and ‘lone’ parenting for extended periods of time, which may all reduce social support and community engagement. At the same time, adaptions to FIFO family life may have short and long term benefits.

Outline: There is scope to build on the Connected Families Project (CFP) to explore the challenges and adaptions experienced by FIFO families with young children. The CFP is currently surveying families with young children (at least one child under 5 years) in newer Perth residential areas. Variables of interest include social support, social capital, local community participation, digital communication, community experiences as a parent and wellbeing. Students interested in the topic area of FIFO families are encouraged to contact us to discuss possible qualitative and quantitative research projects.

Evaluation of Camps for Families Who Have Experienced Domestic Violence***
Supervisors: Assoc/Prof Lisa Wood & Asst/Prof Karen Martin (CBEH)

Background: Domestic violence has been identified as a significant and preventable health issue by the World Health Organisation (WHO). Support for families affected by domestic violence is vital for both their physical and mental wellbeing. Camps for these families, organised and run by domestic violence refuges, focus on building the skills which have been explored within the counselling process. These camps explore the family working together as a unit, using communication skills and the placement of appropriate boundaries to assist the family unit to work together to address the impact of domestic violence. However, many programs in this sector lack the resources and skill to evaluate such programs.

Outline: This project to evaluate the impact of the program (initial contact Pat Giles Centre) would incorporate qualitative research and involve interviews with children and their parents. Some quantitative research assessing impact of the camp on relationships, bonding and other family mental health outcomes is dependent upon numbers of camps to be evaluated and the number of participants in each camp.
A Health Promotion Intervention to Enhance Sense of Community and Self-esteem in Domestic Violence Refuges **

Supervisor: Asst/Prof Karen Martin & Prof Colleen Fisher (SPH)

Outline: This project would assess the impact of a small health promotion intervention in Perth refuges. The first stage would assess mood states (self-esteem/connectedness) of the mothers and children willing to be involved in the study. Consultation with the project participants would inform the details of the intervention to be run in the refuges (e.g. yoga program, fitness classes, walking group, community garden, general gardening etc.). Process evaluation would be undertaken to examine success of the program implementation. A post-intervention component would explore the mood-states with the participants. Depending on participant numbers, this may involve qualitative rather than quantitative data collection and analysis.

Background: Domestic violence results in enormous suffering to parents and children. Currently, families housed within domestic violence refuges are beleaguered with multiple issues and have complex needs. Correspondingly, much of the focus within the refuge setting is remedial assistance to ensure the families are able to live safely and independently while receiving counselling and support to assist with their immediate needs. With these priorities, few programs are delivered to those housed in refuges to assist with engaging them in health promotive activities. No studies have explored the impact of health promotive programs such as physical activity or vegetable garden programs on families housed at domestic violence refuges. This project will provide useful information to agencies about the impact of small programs on the well-being of mothers and their children residing in refuges.
Quantitative Assessment of Exposures to Potentially Harmful Hazards in the Workplace**

Supervisors: Dr Susan Peters and Prof Nick de Klerk (ORE)

Background: Assigning quantitative, accurate levels is the ultimate goal in occupational exposure assessment for epidemiological studies. Quantitative exposure assessment (QEA) enables epidemiologists to express risks of a disease per unit of exposure and hence to derive exposure limits. A framework describing how to properly perform QEA will enhance the use of available measurement data and will greatly improve the quality of occupational health studies.

To accurately estimate risks arising from exposure to hazards in the workplace, exposures need to be properly quantified. To perform quantitative assessment, measurement data are needed, together with information on how, why, when and where they were collected. Access to and accurate use of such measurements is limited in occupational epidemiology.

Routine measurements from mines will be modelled to describe the determinants of exposure to dusts in this industry and an algorithm will be derived to assign quantitative exposure levels to mine workers. A framework for quantitative occupational exposure assessment will improve future epidemiological studies that can also be applied to the general population exposed to these ubiquitous hazards.

Outline: Levels of exposure to (potentially) hazardous dusts and chemicals in Australian mines have been monitored by the industry for many years, but have as yet never been used for exposure assessment in occupational epidemiological studies. The electronic database (CONTAM) contains the results from exposure monitoring from Western Australian mines since 1986. These measurements will be modelled to describe the determinants of exposure to dusts and specific carcinogens in the mining industry. Subsequently, an algorithm will be derived to enable assignment of quantitative exposure levels to mine workers based on their work histories.
Interventions Targeting Physical Inactivity*
Supervisors: Asst/Prof Hayley Christian (CBEH) & W/Prof Steve Zubrick (TKI)

Background: There is growing interest in built environment interventions targeted at increasing children’s physical activity due to their potential reach and impact on the health and well-being of future generations. In the last decade there has been a 20% increase in the number of 0-4 year olds in WA, with 63% of 2-3 year olds attending some type of child care. This is where children spend a large part of their time and is an important setting in which they should have the opportunity for physical activity and unstructured physical play.

Outline: The main aim is to examine the influence of the physical, social and policy environment on young children’s physical activity and sedentary behaviour at childcare. It will provide information on how best to create a healthy childcare environment and will involve qualitative research with children, parents, staff and key stakeholders, objectively measuring the physical activity and sedentary behaviour of young children and the environment of childcare centres. This research will form the basis for an intervention study.

Early Child Health and Development: Influence of the Built Environment*
Supervisors: Asst/Prof Hayley Christian (CBEH) & W/Prof Steve Zubrick (TKI)

Background: Research on the impact of the built environment (BE) on adult health has increased over the past decade but little is known of the effect on early child health and development. Environments supporting healthy child development may impact child health over their lifetime and are critical for overall community health and wellbeing. More evidence is needed on what is a child-friendly neighbourhood environment and what are optimal levels of BE features for early child health and development. The BE incorporates land-use patterns, density, connectivity, transportation systems, building design and social infrastructure including public open space, and creates conditions that are optimal (or detrimental).

Outline: The aim is to identify BE aspects important for child health and development. This will help fill the knowledge gap on how to design urban landscapes that are supportive of good child health outcomes. This project involves a systematic review of the relationship between the BE and child health and development outcomes. It aims to develop measures to study this relationship within different settings.
Background: There is some limited laboratory and ecological evidence that suggests that animal viruses may be risk factors for breast cancer. In five studies, in which were 612 breast cancer cases, MMTV-like gene sequences were identified in 222 (36.3%), compared with six identified in 369 controls (1.7%).

Studies investigating the presence of MMTV-like sequences conducted in Tunisia, where wild Mus domesticus thrives, have reported the presence of MMTV sequences in ~80% of breast cancer tumours. Stewart et al investigated the distribution of incident breast cancer worldwide; the highest incidence occurred in lands where M. domesticus was the resident species of house mouse (refs provided on request).

Few analytical epidemiological studies have looked at the relationship between exposure to viruses and breast cancer. Exposure to pets may be a surrogate measure of exposure to viruses.

Aims: To investigate the relationship between breast cancer and pets in the home in WA women.

Techniques: Data from a population-based case-control study conducted from 2009-2011 will be available for this project. Cases were women aged 18-80 years, resident in WA with a first incident invasive breast cancer (ICD-10 C50) diagnosed between May 2009 - January 2011; 1205 agreed to participate. Controls of equivalent age and residency were randomly selected from the electoral roll. Participants completed a self-administered questionnaire that included questions on current and past pet ownership.

The project will involve a descriptive analysis of these data followed by logistic regression analyses to consider the relationship between pets and breast cancer. Sensitivity analysis for potential selection bias will be undertaken.

Data analyses skills and familiarity with statistics software such as Stata, SAS or SPSS will be required for this project.
Reducing Health Inequalities Among Vulnerable/Disadvantaged Populations*
Supervisors: Assoc/Prof Lisa Wood and Asst/Prof Karen Martin (CBEH)

Background: Huge inequalities in physical, mental and social health continue to exist between the most advantaged and disadvantaged population groups in many countries including Australia. There is substantial evidence that many underlying causes of poor health derive from social, environmental, economic and cultural factors that are embedded in the lives in which people live, work and play. Socially determined barriers can also impede the effectiveness of public health and other interventions with more disadvantaged population groups. This includes at-risk young people, homeless or socially isolated people, Aboriginal people, refugees and prison populations.

Outline: There is scope for a range of projects focussing on disadvantaged populations and/or addressing underlying policy, social, economic and geographic drivers of health and wellbeing disparities. Such projects could be linked to existing studies we are undertaking, or students could discuss their own ideas. Previous projects in this field include evaluating the impact of an intervention on the health of a disadvantaged population group; assessing the impact of broader public policies (e.g. housing, youth, recreation) on health related behaviours or outcomes; investigating whether access to community amenity differs in more disadvantaged neighbourhoods; relationships between post-traumatic stress disorder, loneliness and connectedness in adolescent refugees; and socio-economic differences in the density of alcohol and tobacco retail outlets. Methodologies can include qualitative and/or quantitative research, and we are particularly interested in research that has strong policy and practice implications.

Topics in Labour Economics*
Supervisor: Asst/Prof Ian Li (SPH)

Studies in the exciting and dynamic area of labour economics deal with issues of skills utilisation, training and workforce development. The research projects in this area may be focused on the health sector, such as health workforce development, or look at health-related workforce issues. Please contact Ian Li (ian.li@uwa.edu.au) to discuss potential projects or for more information.
Crime and Prison as a ‘Rite of Passage’: Attitudes of youth with an incarcerated parent towards crime and incarceration*
Supervisor: Asst/Prof Karen Martin (CBEH)

Background: With 50% of Australian prisoners being parents and ~ 4.3% of Australian children being affected by parental incarceration, it is likely that the family culture as well as home environment is compromised for many youth. Research has highlighted the potential impact of incarcerated parents on children and adolescents in relation to their health and wellbeing, but little is known about the perspectives towards crime and prison of children with an incarcerated parent or close relative. There are increasing anecdotal reports that some socially disadvantaged teenagers see prison as a ‘rite of passage’ or a place where they may ‘fit in’.

Outline: Using in-depth interviews with adolescents attending community services in targeted local areas (Midland, Armadale), this exploratory project will examine the attitudes of teenagers who have a parent/close relative incarcerated (or recently released) towards crime and incarceration. In identifying factors influencing attitudes towards crime and incarceration, this project will also ascertain potential mechanisms for promoting appropriate and healthy attitudes to criminal activities and prison. The project could be extended with additional components eg. qualitative research with police, justice system representatives and other stakeholders.

Designing Mental Health Services to Meet the Needs of Disadvantaged Youth*
Supervisors: Asst/Prof Karen Martin (CBEH), Prof David Preen & Prof Angus Cook (SPH)

Background: ~1/3 of males and 1/2 of females experience an episode of mental illness at least once during adolescence. Longer/recurrent episodes are associated with higher risk of persistence into adulthood. However, the Child and Adolescent Health Service Governing Council noted that access to mental health services has been restricted to severe cases and early intervention support is limited. Anecdotal reports indicate that policy, structural and information barriers are creating access and service delivery problems, particularly for disadvantaged youth.

Outline: The project will involve an evidence review, qualitative data collection and results translation. Specifically, this will incorporate 1) identification of effective youth mental health service delivery strategies, 2) identification of barriers encountered by local service providers (LSPs) including school and community in delivering support to disadvantaged youth 3) identification of barriers experienced by disadvantaged youth seeking/using mental health services, 4) exploration of strategies employed by LSPs to deliver effective mental health services to disadvantaged youth, 5) ascertaining the approaches, motivators and strategies used by disadvantaged youth in gaining mental health support, and 6) translation of results and recommendations to LSPs and other relevant organisations.

*An honours project can be developed from one or two of the components above.
Cardio-Metabolic Risk Factors and Disease Rates in a Rural Population**
Supervisors: W/Prof Matthew Knuiman (SPH), Prof Joseph Hung (UWA School of Medicine and Pharmacology (SMP), SCGH) & Dr Michael Hunter (Busselton Health Study (BHS))

Background: Rural populations have different disease rates, access to services and health outcomes to urban populations. Monitoring risk factor levels in rural populations is an important part of understanding differences in disease rates and outcomes and in developing strategies to address gaps. However, this monitoring is often restricted to urban samples or done for statewide/national samples which do not allow proper monitoring in rural areas. Monitoring of risk factor levels in rural populations is less common.

Outline: This project uses the Busselton 2005-7 survey of adults (n=3,000) to establish the prevalence of risk factors in Busselton, comparing prevalence with results for other rural surveys in Australia (eg Greater Green Triangle surveys in South Australia and Victoria) and with recent state and national surveys.

Extensions of this 24 point project include
- (1) analyses of the correlates of prevalent cardiovascular diseases (CVD) in Busselton 2005-7 and
- 2) a cohort component involving obtaining linked hospital morbidity/mortality data 1990-2012 for the Busselton survey cohort and doing CVD outcome analyses.

This project will involve familiarisation with CVD risk factors and surveys including the Busselton study, submission of research and ethics proposals, data analysis and dissertation and manuscript preparation.

Suitability: The base project with extension (1) would be suitable for a Master’s thesis candidate and conducted over a 2-3 year period depending on part-time or full-time enrolment.

The base project with extensions (1) and (2) would be suitable for a PhD thesis candidate and conducted over a 3-5 year period depending on part-time or full-time enrolment.

This project requires competency in biostatistical methods (eg mastery of regression methods in PUBH5769 Biostatistics II).
Outline: This project will use data on adults from the 2005-7 Busselton Health Survey (BHS) to establish the prevalence of lipid-lowering and anti-hypertensive medication use in a community sample overall and in adults who do and do not meet PBS/NHF criteria, and to assess the potential under-treatment in strata of absolute CVD risk. Absolute CVD risk will be based on the Framingham risk score and separately on a risk estimator developed from the 1994/95 Busselton survey cohort with CVD morbidity and mortality follow-up to 2010. Findings will be of importance for new recommendations and policies on the use and subsidy of lipid-lowering and anti-hypertensive medications.

This project will involve becoming familiar with absolute CVD risk estimation, guidelines for use of lipid-lowering and anti-hypertensive medications, PBS eligibility criteria and the Busselton Health Study. Research and ethics proposals will be prepared and submitted, BHS data analysed and report/dissertation and manuscript prepared for publication.

Suitability
This project can be conducted over a 1 or 2 year period. It would be suitable for an MPH student enrolled in Research Dissertation over two semesters or for a Master’s thesis candidate.
This project requires competency in biostatistical methods (eg mastery of regression methods in PUBH5769 Biostatistics II).
Inside Out: Evaluating a community radio intervention connecting prisoners and their families *
Supervisor: Asst/Prof Karen Martin (CBEH)

Background: Due to the unique social conditions within a prison setting, and removal of many support networks, social relationships between prisoners and their families and friends are often strained. Barriers to prison visits for family and friends work to destabilise relationships and connectedness at a time when these supports are important.

Inside Out is a unique radio program that broadcasts on the Indigenous community radio station Noongar Radio to Perth, Geraldton, Carnarvon, Meekathara and Mullewa. Recognising the importance that family, community and culture has on the health and well-being of people, Inside Out aims to connect members of the community with those in prison. Whilst personal stories about how the program has helped individuals are often relayed to the Inside Out staff; there has not been any objective evaluation of the impact of the program on prisoners or their family, friends and other community members.

Outline: This project at an honours level would incorporate interviews with family and friends of prisoners and program staff to ascertain if the aims of the radio program in enhancing communication and connectedness are being met. Extension as a Masters or PhD degree would include additional component including interviews with prison staff and prisoners. Interviews will ascertain the perception of the impact or benefits derived from the program, problems with the program and its implementation and strategies for maximising benefits of the program.
Exposure to Low Frequency Sound in the General Community*
Supervisors: Prof Jane Heyworth (SPH) & Asst/Prof Hayley Christian (CBEH)

Background: The assigned sound pressure level in occupational safety regulation is 85 dB(A) for 8 hrs. Beyond this level, the population in that environment will suffer from hearing loss. However, the A-weighting of the noise exposure does not reflect well the effect of low frequency noise on population health and well-being, which includes hearing loss, elevated blood pressure, annoyance and stress. For example, a 100 dB truck noise at 100Hz is only counted as 80 dB(A) and is still 5 dB(A) below the current standard for occupational noise. The aims of this project are to review the effects of and to estimate the level of exposure to low frequency noise on populations.

Outline: The project will involve a systematic literature review on sources, situations and populations where low frequency noise is significant, and the impact on population health (e.g. blood pressure, heart beat, quality of sleep, brain wave emission, and subjective comments). The student will understand the noise measurement procedure for low frequency noise in terms of dB, dB(A), maximum level and time average, and become familiar with current standards for occupational and environmental noise. Measurement of low frequency noise data to estimate levels of exposure across Perth will be carried out.

Effect of Noise on Children's Health and Development*
Supervisors: Prof Jane Heyworth (SPH) & Asst/Prof Hayley Christian (CBEH)

Background: The development of children’s academic, physical and social ability is vital for laying the foundations for later life success. The education environment, described by the visual and sound conditions in classrooms and playgrounds, has a direct impact on development. The aim of this project is to conduct a survey of the noise and acoustical environment around WA primary schools and establish if there is an association between child development and the noise exposure.

Outline: The project will involve a systematic literature review on the effect of school based noise on children’s development. Measurements of noise and acoustics around WA primary schools will be carried out and any association between school based noise and established population measures of child development (e.g. Australian Early Development Census (AEDC)) will be examined.
Water Contaminants and Pregnancy: An exposure assessment and biomarker validation study*
Supervisors: Assoc/Prof Angus Cook (SPH) & Res/Asst/Prof Kimberley McAuley (TKI)

Background: Trihalomethanes (THMs) are common disinfection by-products (DBPs) produced during the disinfection of water supplies, particularly in Perth due to the high organic molecule levels in groundwater. THMs are potential risk factors for adverse pregnancy outcomes including birth defects. Exposure occurs through water ingestion, inhalation or dermal absorption through showering and swimming.

Outline: The study aims to test whether THM exposure in Perth can be modelled in view of water supply variations and uses and to evaluate the blood folate/THM exposure relationship using an interactive model. Pregnant women from two Perth regions with different THM concentrations will be studied. Absorption will be estimated via a water use diary, a questionnaire and swimming pool, tap and urine sample analyses plus blood folate levels. The analyses will inform a major NHMRC cohort study and assist development of a DBP exposure matrix superior to any currently existing for maternal populations.

Topics and Issues in the Health Workforce*
Supervisor: Asst/Prof Ian Li (SPH)

Background: Workforce planning is a critical aspect of maintaining a healthy workforce. In Australia, the importance of planning for a healthy and sustainable workforce has been highlighted by the formation of Health Workforce Australia (HWA), a body dedicated to the development of workforce policy. A recent report by HWA projects a shortage of the Australian health workforce by 2025. The health workforce shortage can be attributed to a combination of demand-side factors, such as an ageing population and supply-side factors, such as the aging health workforce and the trend of decreasing working hours of the health workforce (due to feminisation and work-life balance). These factors highlight the issues faced in health workforce planning and policy and mirror the challenges identified in the international literature.

Outline: Health workforce trends will be examined using a national cross-sectional dataset. Several issues relating to the health workforce may be explored. Labour market outcomes of university graduates in a health-related field of study may also be explored, as this will help direct workforce development and training.
Outline: The miners’ X-rays and health records (n~200,000) have been scanned and entered into a database containing demography, mining occupation, dates and duration of mining, and smoking history for each miner.

The data will be linked to the newly consolidated TB Register. Incidence rates will be calculated and compared with the (non-mining) general population of WA to demonstrate the changing contribution of mining exposures to TB incidence over the past century.

Chest X-rays of miners with TB will be read for the presence of silicosis and compared with chest X-rays of miners without TB. These will be adjusted for known confounders such as age, country of birth, period of employment, smoking and dust exposure to determine if radiographic silicosis is a predisposing factor for the development of TB using multivariate logistic regression and the calculation of adjusted odds ratios.

Dust Diseases and Tuberculosis in WA*
Supervisors: Prof Bill Musk (ORE) & Dr Fraser Brims (SCGH)

Background: Hard rock mining has been a major industry in WA since the discovery of gold and the goldrushes of the 1890s. In 2011/12 there were nearly 100,000 individuals employed at mine operating sites in WA and this figure is rising. Hard rock mining is characterized by high exposures to silica dust. Tuberculosis (TB) rates are also rising in WA from 4.8 per 100,000 in 2009 to 7.1 per 100,000 in 2012. There is an established epidemiological link between silicosis (dust-related lung disease) and TB in other populations, but this has never been studied in WA. In particular, the association between silicosis from mining and the incidence of TB in the state is not known.

Silicosis has been recognized in miners since the early 1900s and compulsory chest X-ray examinations for TB were instigated in 1926 and continued until they were abandoned in 1995. At the time of their surveillance X-rays, miners were interviewed and their job and health histories updated on a “miner’s card”.

*The University of Western Australia | 17
Projects from the Eye and Vision Epidemiology Research Group*
Supervisors: Prof David Preen, (CHSR), A/Prof Nigel Morlet (Department of Ophthalmology, RPH) Prof Bill Morgan, (COVS/LEI) & Dr Jonathon Ng (SCGH)

Eye and vision disorders are a major cause of morbidity, with almost half a million Australians visually impaired in both eyes and over 50,000 blind. The major causes of blindness in Australians aged 40+ are glaucoma, macular degeneration, diabetic eye disease and cataract. In Australia, the total cost of vision disorders to the community was estimated in 2004 at $9.8 billion.

As a major problem in the community, eye and vision epidemiological research has the potential to significantly contribute to improving health and well-being by providing the evidence for clinical decision making and creating better policy by informing policy makers on the effectiveness of current programmes.

Interested students will play a major role by undertaking one of the many projects available and it is envisaged that students would take a primary role in preparing their work for publication.

Complications and Outcomes of Cataract Surgery
Research into cataract surgery is a major interest for the Group and has resulted in two major NHMRC grants. Data from the Western Australian Data Linkage System (WADLS) is used to examine the trends and major complications in cataract surgery. Potential study areas include other postoperative complications (ophthalmic such as retinal detachment and corneal decompensation or non-ophthalmic such as venous thromboembolism). Post-surgery survival can also be examined. This could have important policy implications on wait lists and on surgery benefits.

Cataract Surgery and Car Crash
Older drivers are a growing segment of the driving population. While involved in fewer crashes compared with other age groups, the crash risk is equivalent to that of young drivers considering the lower exposures. This retrospective study examines the impact of cataract surgery and visual impairment on crash risk in older drivers using linked data.
Fitness to Drive Knowledge in Eye Clinic
This project would be of interest to a student seeking survey methodology experience. It will involve the design, administration and analysis of a suitable survey to gauge current knowledge amongst eye clinic patients about fitness to drive with visual impairment and advice provided by health care professionals.

Glaucoma Epidemiology
Using linked Commonwealth pharmaceutical data, it will be possible to conduct large studies into glaucoma on the entire WA population. Potential projects using these data include trends in glaucoma medication use, trends in glaucoma surgery, persistency with medication use, medication interactions and side effects.

Systematic Review on the Risks for Postoperative Endophthalmitis
Postoperative endophthalmitis is uncommon but one of the most serious and potentially sight-threatening complications of cataract surgery. Many studies on risk factors are small, resulting in inconsistent conclusions. This project would involve a literature review and synthesis of the risk related evidence using pooled data and meta-analysis.

Seasonality and Retinal Detachment
A number of reports suggest an increased risk of retinal detachment during winter. WADLS can be used to identify all cases of retinal detachment in WA since 1980. This would provide a large population-based cohort over an extended time period with which to test the hypothesis that retinal detachments have a seasonal basis, using time-series analysis.
Epidemiology of Blinding Eye Diseases
The major causes of blindness in Australia are glaucoma, age-related macular degeneration and diabetic eye disease. This is a major project seeking first to validate the coverage and accuracy of the current blind registry data. It will then be possible to carry out a comprehensive epidemiological study into blindness in WA. It is also proposed to compare the utilisation level of health service to determine the economic cost of blindness in the health system.

Post-traumatic and Endogenous Endophthalmitis
Endophthalmitis is a serious infection of the internal ocular structures. Most cases occur after surgery but endophthalmitis can also occur after penetrating eye injuries or with systemic infection. This project involves the clinical epidemiology description of a cohort of patients with either post-traumatic or endogenous endophthalmitis, undertaking a review of patient records and performing descriptive and basic statistical analysis.

Community Approaches to the Conservation of Remnant Bush Areas in the Perth Metropolitan Area*
Supervisor: Dr Sue Bailey (Social Work and Social Policy (SWSP))

Background: Awareness is increasing on the importance of remnant bush areas for maintaining biodiversity as well as enhancing a sense of community. Trigonometric Park is a 2.2 hectare remnant bush area on a limestone outcrop in Duncraig and is the highest point within the City of Joondalup (CoJ). The site is classified by the WA Government as a priority to conserve. A community group “Friends of Trigonometric Park” (FOTP) has recently formed to tackle conservation work in concert with the CoJ.

Outline: This project is an exciting chance for a student to be involved in research with community members, the City of Joondalup, UWA and other external funding bodies. FOTP have offered suggestions for projects including; the development of a management plan; assessing community and health benefits of interaction in a Friends group; community education; flora and fauna surveys; seed collection, germination and planting; and a student’s own project of interest. This project will provide experience in community practice in the conservation context with an interested and engaged community group.
State-of-the-Art Cardiovascular Disease (CVD) Research*
Supervisors: W/Prof Matthew Knuiman, Assoc/Prof Tom Briffa, Asst/Prof Frank Sanfilippo & Asst/Prof Siobhan Hickling (SPH)

Background: CVD is costly and prevalent worldwide. Monitoring and reporting trends is a national priority health area and is a driver of health policy aimed at improving its healthcare delivery and outcomes.

Outline: Various projects in specific areas are offered. These will involve examining the trends and models of care in CVD prevention, treatment and management and may consider clinical epidemiology, health outcomes, pharmacotherapy, prevention, cost-effectiveness and community engagement. A range of areas include:
- Atherothrombotic disease across the vascular territories
- Monitoring coronary artery disease
- Busselton Health Study
- Management of CVD in the Indigenous population
- Diabetes and CVD
- Peripheral arterial disease
- Health in Men Study
- Risk Factor Prevalence Study
- Coronary artery revascularisation
- Chronic kidney disease and CVD

Topics in Health Promotion****
Supervisor: Assoc/Prof Colleen Fisher (SPH)

There is the opportunity to undertake honours in the area of health promotion, particularly in the areas of prevention and early intervention in family and domestic violence.

Please make an appointment to see Associate Professor Colleen Fisher (colleen.fisher@uwa.edu.au) to discuss potential projects in this area.
Physical Activity Intervention Targeting Dog Owners**
Supervisor: Asst/Prof Hayley Christian (CBEH)

Background: Almost half of all Australian households own a dog. There is growing awareness about the importance of dog ownership to physical and psychological human health. Dog owners do more walking and physical activity compared with non-owners. Dog walking has been shown to be a potentially viable strategy for increasing the proportion of the community who are sufficiently active for health benefit.

Outline: This project will involve intervention research to examine the potential of dog walking as a strategy for increasing walking and physical activity and increase the proportion of people who meet the recommended level of physical activity. The project is likely to have significant implications for health promotion policy and practice by providing innovative strategies for increasing physical activity and decreasing overweight and obesity.

Mental and Physical Health of Adults Exposed to Asbestos in Childhood*
Supervisors: Dr Peter Franklin, Dr Alison Reid (ORE) & Dr Monique Robinson (TKI)

Background: Nearly 2,500 children lived in the blue asbestos mining town Wittenoom and had considerable asbestos exposure. Many contracted disease; most have seen family and friends die or be incapacitated by asbestos-related disease and are aware of their own ongoing risk of developing serious disease many years after exposure. This may impact on their psychological well being even if disease does not develop. The study aims to investigate overall mortality and morbidity, specific causes of death and disease and mental health of the former ‘Wittenoom children’.

Outline: Physical and mental health questionnaires will be sent to all available former ‘Wittenoom children’, covering physical health issues such as respiratory, cardiovascular and autoimmune disease and mental health issues such as depression, anxiety and personal control feelings. Siblings who did not live in Wittenoom will form a control group. Participants will be invited to take part in further psychological health assessments.
Perceived Child Injury Risks: What is the evidence?*
Supervisor: Assoc/Prof Lisa Wood (CBEH)

Background: Restrictions in children’s independence to attend local playspaces have arisen due to concerns that children are at undue risk of injury or abduction. Evidence suggests that risk and injury perceptions far exceed reality and that children are disadvantaged in leading an increasingly “cottonwool childhood”. Preliminary research indicates that playground injury rates are low and that abduction is almost always from a relative (custody issues) or known perpetrators.

Outline: This project will involve a literature review on children’s injury from playgrounds, pedestrian, cycling and other causes. Safety, injury and playground-related litigation data will be analysed, including any detected socio-economic differences. An information brochure will be developed giving evidence-based information for parents and other stakeholders to make informed decisions on real vs perceived risk and strategies to address safety issues.

Uptake of Treatment for Sleep Apnea in a Community-based Screening Study of Sleep Disordered Breathing **
Supervisors: Clin/Assoc/Prof Alan James (West Australian Sleep Disorders Research Institute SCGH), W/Prof Matthew Knuiman (SPH) & Dr Michael Hunter (BHS)

Background: Obstructive sleep apnea (OSA) is characterised by recurrent episodes of partial or complete occlusion of the upper airway which can result in hypoxemia and frequent arousals from sleep. OSA is associated with impaired cognitive and psychomotor functioning, reduced quality of life, increased risk of injury and of hypertension, stroke, cardiovascular disease and insulin resistance.

Outline: This project will investigate the factors influencing the uptake of therapy or intervention for OSA in a semi-rural community cohort, identified from studies undertaken as part of the Busselton Health Study. The study will aim to:
- investigate whether in-home screening promotes treatment or lifestyle changes
- describe successful OSA therapy factors and the health and quality of life effects
- identify barriers to treatment

**Suitable for MPH 24 point dissertation.
Developing an Understanding of Living Apart Together (LAT) Relationships*
Supervisor: Asst/Prof Karen Upton-Davis (SWSP)

Background: LAT relationships (where those in a romantic relationship keep separate addresses) are an increasing relationship form. According to national data there are over 1.1 million people Living Apart Together in Australia: this is 24% of the supposedly single adult population. Among the reasons for making an active choice to LAT is the autonomy, reduced risk of asset loss in a break-up and enhanced ability to manage relationships with others such as children, parents and friends without the intrusion of a new live-in person to the household.

Outline: Exploring the implications of LAT for the individuals involved, for their relationship with each other and for friends and family are possible research directions. LAT also has social policy implications in areas such as health, housing and the environment as care-giving arrangements alter and greater physical resources are required to sustain separate households. Study in any of these areas would make an important contribution to understanding a relationship form that has ramifications for society as well as for the individual.

Environmental Contributors to Disease Progression in Adults with Chronic Obstructive Pulmonary Disease*
Supervisors: Asst/Prof Peter Franklin, Prof Jane Heyworth (ORE) & Assoc/Prof Yuben Moodley (SMP)

Background: Air pollution may be an important trigger for exacerbations of disease in patients with chronic obstructive pulmonary disease (COPD). Two of the most important contributors to poor air quality are traffic (outdoor air pollution) and unflued gas heaters (indoor air pollution).

Outline: The COPD-linkage program is a community based, chronic disease management program with over 500 patients involved. All patients have full lung function testing, walk testing, quality of life assessment and medical review at entry into the program, and repeat spirometry and walk testing at three-monthly intervals. The aim of the study is to determine potential exposure to indoor and outdoor air pollution and the extent that these exposures can contribute to disease progression in these patients.
Particulate Matter in al fresco Dining Areas and Beer Gardens Before and After the Implementation of the Tobacco Products Control Amendment Bill***
Supervisor: Asst/Prof Peter Franklin (ORE)

Background: In September 2009 WA Parliament passed the Tobacco Products Control Amendment Bill 2008 (TPCAB) prohibiting smoking in all al fresco dining areas and in 50% of outdoor beer gardens attached to pubs. Airborne concentrations of particulate matter were measured in al fresco dining areas, cafes and beer gardens in the Perth Metropolitan area both before and after implementation of the TPCAB to determine if there was a reduction in exposure to particulate matter.

Outline: Monitoring for airborne particulate matter was conducted on 3 occasions in a sample of 27 venues that originally permitted smoking in outdoor areas. Measurements were collected 6 months and 1 month prior and 6 months after the implementation of the TPCAB. Global and comparative analysis of the data over the three time periods will be undertaken, with variables and covariate factors analysed.

***Suitable for 12 point project.

Lung Function Decline in Asbestos Exposed Individuals: Relationship with radiological abnormalities*
Supervisors: Asst/Prof Peter Franklin & Clin/Prof Bill Musk (ORE)

Background: Exposure to asbestos is a cause of asbestosis and of a number of benign radiographic pleural abnormalities such as pleural plaques, thickening and effusions. Asbestosis is associated with impaired pulmonary function but the effect of the other abnormalities on pulmonary physiology has not been fully established. The aim of the proposed study is to assess the relationship between radiographic abnormalities, with and without disease, and pulmonary function in asbestos exposed cohorts.

Outline: This study is based on analyses of over 20 years of existing data from the ongoing Asbestos Review Program (ARP) participants. Analyses will focus on lung function changes prior to and after the development of radiographic abnormalities. Based on chest x-rays, individuals will be categorised into four groups: asbestosis, diffuse pleural thickening, pleural plaques or no radiographic abnormalities. Both cross-sectional and longitudinal analyses will be conducted.
Does the Work Environment Influence Healthy Eating and Physical Activity?***
Supervisors: Prof Fiona Bull & Dr Gina Trapp (CBEH)

Background: The level of obesity and physical inactivity in the WA adult population are both major public health issues. Promoting healthy eating and regular physical activity are two priority targets of the State Health Department. The work, home and neighbourhood environments influence opportunities to make healthy choices. Measuring these environments is now a major field of research alongside assessing the importance of each of these contexts in determining health behaviours.

Outline: This project will use data collected by Project RESIDE – a six year longitudinal study of adults relocating to new neighbourhoods across metropolitan Perth. The student will use GIS to geocode participants’ worksite locations and contribute to analyses of the work environment for healthy eating and physical activity. The project will include a literature review, use of GIS software and analysis to examine the influence of workplace food environments on eating behaviour. The project will provide the opportunity to be involved as an author in the development of a journal paper relating to the results.

Socio-economic Status and Equitable Access to Resources***
Supervisors: Asst/Prof Sarah Foster & Dr Paula Hooper (CBEH)

Background: The most disadvantaged groups have the poorest health and highest risk factor exposures. Tackling upstream environmental factors is important to minimise health inequalities, as intrinsic neighbourhood factors may disproportionately affect resident health behaviours. This resonates for socio-economically disadvantaged populations, who may be exposed to more ‘health-compromising’ retail and poorer quality public open space (POS) and lack the resources to move.

Outline: The aim is to investigate access to resources promoting healthy behaviours based on area level deprivation. Pre-existing datasets are available including the locations of retail and activity destinations in Perth (e.g. alcohol, tobacco and fast food outlets, recreation centres) and an audit of POS attributes that may promote physical activity (e.g. shade, paths, amenities). The project will involve a literature review, data analyses examining different access to resources by neighbourhood SES, and the opportunity to develop a journal paper based on the research findings.
Health in Men Air Quality Study*
Supervisors: Prof Jane Heyworth (SPH), Assoc/Prof Andrea Hinwood (ECU) & Assoc/Prof Kieran McCaul (Centre for Medical Research (CMR), UWA)

Background: Numerous studies have shown that high levels of air pollution are associated with adverse health effects, particularly in the elderly.

Outline: The Health in Men Air Quality Study is investigating the health effects of long term exposure to air pollution in a cohort of 12,000 older men residing in Perth, Western Australia. Samples of particulate matter and nitrogen oxides have been collected from 43 sites over 3 seasons across Perth in order to develop a land-use regression model. This model will be used to predict the ambient pollutant concentrations at the home addresses of the cohort. The relationship between air pollution and a range of health outcomes in this cohort will be investigated through the Western Australian Data Linkage System (WADLS).

Mental Health Well-Being and Field Education*
Supervisors: Dr Susan Bailey (SWSP)

Background: Field Education is a core part of professional education across a range of disciplines, including social work, medicine, nursing, dentistry, teaching, occupational therapy and business. Field Education presents a range of challenges and opportunities for students. The educational, role and time demands of placement mean students are at risk of experiencing stress and vulnerability. The Field Education Team, Discipline of Social Work and Social Policy, in 2011 ran a pilot project to develop mental health wellbeing seminars for students on placement.

Outline: Based on the success of the pilot project, opportunities exist for expanding the use of mental health wellbeing concepts and strategies across disciplines, and outward to other stakeholders in the teaching and learning community such as placement organisations and supervisors. There are also opportunities to expand these to industry. A range of evaluative and action research opportunities exist in developing these streams.
Projects can be tailored to the requirements for PhD, Masters by Research, Masters Dissertation and Honours students. These include, but are not limited to:

- Client, family/carer or specific community needs from AOD services regrading co-occurring AOD and mental health issues.
- Alcohol use amongst groups (eg by industry, community, service access, visa class, length of time in Australia); potential impact of Australian culture around alcohol use and its impact; protective and risk factors for alcohol consumption; alcohol related violence.
- Evaluation of Agency engagement strategies from worker, agency and consumer perspectives: what worked well and what did not.
- The impact of parenting styles on outcomes in families where there is co-occurring AOD and mental health issues.

There is the potential for more than one student to work on a specific topic. There is also the potential for the student to work with staff from the agencies to refine the topics above or develop alternatives. Women’s Health and Family Services (Dr Sue Lee), Cyrenian House (Mr Charl Van Wyk) and/or Palmerston (Ms Leanne Mirabella) will support the student with access to communities and desk and computer space to support the projects. There is also the possibility of access to bilingual workers and/or interpreters.
Labour Market Mismatch and Health Outcomes*
Supervisors: Assoc/Prof Alison Reid (Curtin & ORE) & Asst/Prof Ian Li (SPH)

Background: There has been growing interest in the incidence and extent of labour market mismatch (LMM); where the skills and needs of the worker do not match the job demands and conditions. Studies have looked at how mismatches between the educational or skill attainment and job requirements of an individual impact earnings or job satisfaction, but there is little information on how LMM affects health outcomes. Some interesting questions that could be asked include: Who are more likely to be mismatched to their jobs e.g migrants, females, younger or older workers? How does LMM impact the physical and mental health outcomes of individuals? Are individuals who are mismatched to their jobs entrenched in this situation? Does an individual, who was mismatched initially and is correctly matched subsequently, experience health improvements over time?

Outline: Longitudinal data on employment and health characteristics of individuals can be analysed to examine the extent of mismatched individuals in Australia over time. Mismatch can be defined in several ways, including education-job mismatch, skills utilisation, and underemployment. This project will involve the statistical analysis of secondary data. While the project has a broad scope and would thus be ideal for a PhD, honours and masters, candidates can focus in on smaller segments of the study.

The Economic and Health Costs of the Wittenoom Industrial Disaster*
Supervisors: Asst/Prof Ian Li (SPH) & Assoc/Prof Alison Reid (Curtin School of Public Health & ORE)

Background: The blue asbestos mining and milling operation at Wittenoom operated over 1943-1966 and left WA with the legacy of having the greatest rate of malignant mesotheliomas in the world. In addition, former workers and residents have watched friends and family members die from and live themselves with the fear of developing an asbestos-related disease.

Outline: This project will undertake an evaluation of the health economic costs of Wittenoom. The estimation of costs will take place from a societal perspective; costs are estimated from the viewpoint of society and will be as inclusive as possible. This includes the following: i) Costs will be estimated for the number of preventable cancers that have occurred as a result of asbestos exposure at Wittenoom. ii) Costs estimated for treatment of asbestos-related diseases iii) Disability adjusted life-years (DALYs) lost will also be estimated and costed. Data available include the workers and residents of Wittenoom cohorts, followed up at cancer and death registries since the mid-1970s, as well as public records.
Raine Study: Cardiovascular-Metabolic PhD Projects**
Supervisors: joint Raine Study & SPH staff

Background: Launched in 1989, the Raine Study examined ultrasound imaging of 2900 pregnant women recruited at King Edward Memorial Hospital Perth, WA. Women were assessed at 18 weeks of pregnancy and again at various time points until 38 weeks gestation. Information was collected on the parents including exercise, diet, work and health. The children were assessed at birth and followed up at 1, 2, 3, 5, 8, 10, 14, 17 and the current follow up at 20 years of age, measuring height, weight, development, lifestyle habits, cardiovascular measures, medical conditions and illnesses. At each follow-up information has also been collected from the parents or primary carer.

The Raine Study has amassed one of the most unique and important collections of data in the world and is one of the few where information has been collected on the pregnant mother and subsequently the child through to adolescence and adulthood. Information collected over 20 years ago has provided a better understanding of how events during pregnancy, as well as in childhood and adolescence, affect later health and development. The Raine Study has amalgamated an extensive database on demographic, developmental, psychological, physical and many other factors around the life of children and families. It provides a unique source of information regarding complex causal pathways to health outcomes. Scientific detail from the Raine Study has also been widely used by the media.

Outline: The Cardiovascular-Metabolic group at Royal Perth Hospital has a number of studies planned examining the influence of maternal, birth, anthropometric and lifestyle factors on cardiovascular and diabetes risk factors in the Raine participants, both cross-sectionally and longitudinally. If you interested in undertaking a PhD and would like to work with the Raine Study team please contact W/Professor Lawrie Beilin (92240258), Professor Trevor Mori (92240273) or Asst/Professor Rae-Chi Huang (0402 131 555) for further information. This project would be performed under joint supervision by academic staff affiliated with the Raine Study and from the School of Population Health.

**Suitable for PhD project.
Assessment of Occupational Exposures and Health Risks in WA Mines**
Supervisor(s) and Research Group:
Dr Susan Peters (ORE) and Prof Jane Heyworth (EE)

Background: Diesel exhaust has recently been classified as a human carcinogen by the WHO; there is convincing evidence that exposure to diesel exhaust causes lung cancer. Most evidence came from US studies in the mining and trucking industries. Until today, no such studies have been done in Australia. However, Australia lags behind many comparable countries in implementing diesel emission standards. Two databases available at the WA Department of Mines and Petroleum enable us to study the current levels of exposure to diesel exhaust and the lung cancer risk in WA mines.

Outline: This project will include analysing diesel exhaust monitoring results to determine to how much diesel exhaust WA miners have been exposed to over time and to identify the main determinants of exposure. Data from a cohort of WA miners (1995-2012) are available to analyse their lung cancer risk in comparison with the general WA population. Finally, the diesel exhaust exposure levels can be linked to the miners’ cohort to describe a potential exposure-response relationship between diesel exhaust exposure and lung cancer. Data on smoking habits and other occupational exposures (e.g. silica and asbestos) are available for adjustment.

Short projects from Ngala available for university students.
Contact The Ngala Research and Development Unit
Manager: Wade Sinclair wsinclair@ngala.com.au or Practice Consultant Educator: Wendy Muller wmuller@ngala.com.au

Data and Systems Analysis: Parenting confidence and perinatal mental health influence on parenting
Service area: Family Services
Estimated length of project: 60 hours
Most suitable study course: 3rd year or above Psychology degree/Honours student for Health or Social Sciences

Outline: There are two parts to this project. The first part is the analysis of pre and post Karitane Confidence Scale (KCS) data. Parents are administered the KCS on
arrival for the week long stay in the Family Services area and on termination of their stay. This data needs to be analysed to assess the simple question: “Did Ngala make a difference?” according to the two scores.

The second part relates to the development of an encoding system to link data from the KCS to the Edinburgh Post natal Depression scores (EPDS). Currently the EPDS is administered on admission to the week long stay. In addition recommendations, based on current evidence, are required regarding the validity of administering the EPDS for a second time; and if so, when this should be done.

Children’s Wellbeing, Engagement and Attachment
Service Area: Early Learning and Development Service (ELDS)
Estimated length of project: 120 hours
Most suitable study course: Honours or Postgraduate studies in Health or Social Sciences, Early Childhood Education.

Outline: A scale currently exits to measure wellbeing, engagement (involvement) and attachment (relationships). The student will assess a number of issues:

a) What literature exists about the validity of this scale and write a summary of findings;
b) Observe and record what Educators are doing to promote children’s wellbeing, engagement and attachment (WEA);
c) Discuss with Educators how they believe they are supporting children’s WEA. Compare b) and c);
d) Report on the different types of support Educators receive from Management, other internal or external organisational sources for their work in promoting children’s WEA;
e) Assess whether there a correlation between staff qualifications, group size and child-staff ratio and their WEA;
f) Assess whether there is a correlation between a child’s level of engagement and level of attachment with an Educator.

Woodside Project
Service areas: Education
Estimated project length: 80 hours
Most suitable study course: Final year student in Health or Social Sciences or Honours student.

Background: Woodside provided funding for Ngala to do education workshops and community development work in the Pilbara, the Plaza and at their head office. Initial funding was for a 15 month period commencing in January 2007. Further
funding was awarded until 2012.

Outline: The Pilbara part of the Woodside project called “Nurturing the Pilbara” won an award at the World Petroleum congress in Doha Qatar. This award had Ngala’s project competing against about 100 other social responsibility projects across the world.

The student will interview key staff involved with the Woodside project and document:

a) What they did and how they decided on what needed to be done;
b) What were the key elements of the project and what made the project so successful;
c) What measures did they use to gauge the effectiveness of the project;
d) What would they do differently if they had their time over again.

In addition the student will be required to compile a report based on the above and all the information contained in the various interim project reports.

Helpline Effectiveness
Service area: Helpline
Supervisor: Kim Johnson, RDU
Estimated length of project: 120 hours
Most suitable study course: Honours or PG studies in Health or Social Sciences,

Early Childhood Education; Community Psychology

Outline: Ngala runs a helpline service from 8am to 8pm. 7 days a week. On average approximately 22,000.00 calls are received annually. A student is needed to help analyse various sources of data. The aim of the analysis is to:

a) Assess whether the current primary presenting issues are different and/or more complex that past primary presenting issues;
b) Present in graph form the changes to the average length of calls over the past 10 years and the primary presenting issues;
c) Assess whether there is a correlation between the length of call and the complexity of the primary presenting issue;
d) Analyse past records kept with regard to reflective practice to identify any recurrent themes.

Research and Development Unit (RDU) Evaluation
Service Area: RDU
Estimated length of project: 120 hours
Most suitable study course: Honours or Postgraduate studies in Community Psychology, Health or Social Sciences, Early Childhood Education.
Outline: The RDU provides services across Ngala service areas regarding evidence based practice. A student is required to assist staff in the RDU evaluate how the evidence provided by RDU has changed the practice of staff. As part of this project the student will be required to conduct a literature search in order to determine the most effective method of evaluation. A report is required outlining the findings of this evaluation.

Evaluation Tools for CALD and Aboriginal Families
Service Area: RDU
Estimated length of project: 120 hours
Most suitable study course:
Scope of project: Honours or Postgraduate studies in Community Psychology, Health or Social Sciences, Early Childhood Education.

Outline: The RDU provides services across Ngala service areas regarding evidence based practice. A student is required to assist staff in the RDU identify validated/successful evaluation tools and methodology used for Culturally and Linguistically Diverse (CALD) and Aboriginal families and communities. The student will be required to conduct a national and international literature search and identify validated/successful evaluation methodologies and tools used and present the finding in a report.

Parenting Advice and Support Service (PASS) Bandyup Women’s Prison
Service Area: RDU
Estimated length of project: 180 hours
Most suitable study course: Honours or Postgraduate studies in Forensic Psychology, Health or Social Sciences, Early Childhood Education.

Outline: Ngala has had a history with Bandyup Women’s prison dating back to 2006 when a free consulting service was offered with regard to equipping the prison nursery environment. This relationship continued until Ngala was the preferred Agency for the Parenting Advice and Support Service (PASS) commencing 2012. Ngala is still funded to provide a variety of support services with the general prison population and the mothers in the mother-baby unit.

As part of the initial submissions Ngala undertook to evaluate the PASS program by quantitative methods (e.g. providing statistics) and qualitative methods (e.g. Collection of stories from women who participate in one or more elements of the
PASS program, (1) parenting program, (2) protective behaviours program; (3) Growing together program; case management, counselling, mediation, referral & advocacy, prison staff training).

A student is required to:

a) Assess whether or not the above mentioned evaluation methodology is the optimal one and make recommendations in a short report, as to what are the optimal method. This will require a literature search of both national and international evaluations conducted in women’s prisons;

b) Set up approved data collection systems’

c) Collect and analyse the data and present findings in a report.

Being Dad to a Child Under 2

Service Area: RDU

Estimated length of project: 60 hours

Most suitable study course: 3rd year or above Social Work; Psychology.

Outline: This project is to be an exact replica of the initial study conducted in 2003. Refer to the report on the Ngala website [ngala.com.au](http://ngala.com.au).

Animal Farm Project

Service Area: Community Programs

Estimated length of project: 60 hours

Most suitable study course: 3rd year or above Social Work; Psychology

Outline: Animal Farm program was developed by Curtin University to address gross and fine motor skills with an added advantage of influencing social and emotional development. As part of the Australian Children’s Trust funding Ngala is to purchase the program & manuals for use in rural and remote areas. Some work will be required on the parent manual for use in Aboriginal/remote communities. A student will be required for the development of the parent manual and another student for the continued evaluation of the program.

Evaluating changes in nurses’ practice:

Involving the client in handover

Service Area: Family Services
Projects in East Timor**
Supervisors: Debra Judge (School of Anatomy and Human Biology) & Jane Heyworth (SPH).

There is the potential to undertake a PhD in East Timor with Debra Judge and Jane Heyworth. Please contact Jane Heyworth directly (jane.heyworth@uwa.edu.au or 08 6488 7370) for further information on this project.

**Suitable for PhD.

What has Changed for Ngala Practice Since the Introduction of Clinical Supervision and Reflective Practice for Practitioners?
Service Area: R&D Unit
Most suitable study course: Honours or Postgraduate studies in Community Psychology, Health or Social Sciences, Early Childhood Education.

Outline: Currently Ngala is undertaking a project to develop a model for clinical/practice supervision at Ngala. Baseline data will be collected prior to implementation, and assistance with evaluation and/or research will be valuable to enable us to measure the impact both on staff and clients.

Estimated length of project:
Most suitable study course: Nursing Honours project

Outline: Due to changes in national accreditation changes for private hospitals, these changes require clients of services to be involved in the handover by nurses. The current practice does not involve clients therefore a new stem of handover would be developed, implemented and evaluated.
support and recognise PYMS as being integral to the support and care of local young people.

Outline: While it is perceived that the PYMS has a positive impact upon the youth who use the service, the actual impact and processes within the program have not yet been evaluated. An evaluation of this service provides the opportunity for a rewarding student project, with some flexibility regarding the core project components. These could include:

- a review of existing service provision strategies against current ‘best practice’ literature;
- a review of current systems and opportunities for increasing systematic data collection across the service;
- interviews with PYMS clients about their experience of the service and associated benefits / impacts / outcomes, and the most effective ways to involve them in ongoing evaluation of the service.

In addition to research experience, this project will provide a student with practical experience in client and stakeholder consultations and an understanding of program planning and development. This project would require a student with good interpersonal and problem solving skills.

Students will be supported by both experienced UWA SPH researchers and a clinical staff member at the PYMC.

***Honours or Masters dissertation project

Innovative, holistic health service for at-risk youth; an evaluation***
Supervisors: Asst/Prof Karen Martin & Assoc/Prof Lisa Wood

Background: Peel Youth Medical Service (PYMS) is based at the Billy Dower Youth centre and offers a comprehensive, multi-disciplinary health service to local young people aged between 12 and 25 years; clients tend to be at-risk and marginalised youth. The service provides on-site access to General Practitioners, a Youth Case Manager, Sexual Health Nurse, Registered Nurse and a Psychologist as well as linkages to other youth health services in the region.

PYMS aims to improve young people’s long term health outcomes. As such, staff work holistically and actively promote preventative medicine for optimal mental, emotional and physical health. The service offered by PYMS is valued by the community and the service works closely with a network of agencies in Mandurah to provide support for young people in times of need. Lead youth agencies in the region
Research Groups and Centres at SPH

Our research strengths include a strong evidence-based approach to services and health program evaluation. We have a proven record of achievement in preventative, clinical and occupational epidemiology and have been instrumental in setting world standards in population health databases through record linkage.

- Centre for Health Services Research: A leader in its field through its work with linked medical and health data and the evaluation of health services, patient safety, surgical care and pharmaco-epidemiology.

- Centre for the Built Environment and Health: A multi-disciplinary centre of policy-relevant research that builds capacity and influences planning and urban design policy and practice, to create healthy and sustainable communities.

- Occupational Respiratory Epidemiology: Investigates cancer and respiratory disease outcomes due to occupational and environmental exposures, in particular asbestos, silica and the aluminium industry.

- The Cardiovascular Research Group: Aims to reduce the burden of disease through research into trends and determinants of acute events, treatment, management and outcomes.

- Environmental Epidemiology: Investigates cancer causes and methods of prevention including protection from exposure to carcinogens.

- Busselton Health Study: Manages and maintains the Busselton Health Study database, one of the longest running epidemiological studies in the world.

- Ecology and Health: Investigates the relationship between ecosystem health and human health.

- Women’s Health: A particular focus on reproductive health, childbirth and chronic illness including cancer and the health impacts of caring.

- Aged Care Research and Evaluation: Evaluating the Commonwealth-funded Aged Care Assessment Program (ACAP) in WA.

- Social Work and Social Policy: Covering a broad range of issues including child and family welfare, community practice and child protection, early childhood trauma, adolescent suicides and Indigenous and cross-cultural issues.

There are opportunities to undertake research in most fields in the School of Population Health. Contact us and we’ll put you in touch with the right supervisor for your interests: grc-sph@uwa.edu.au