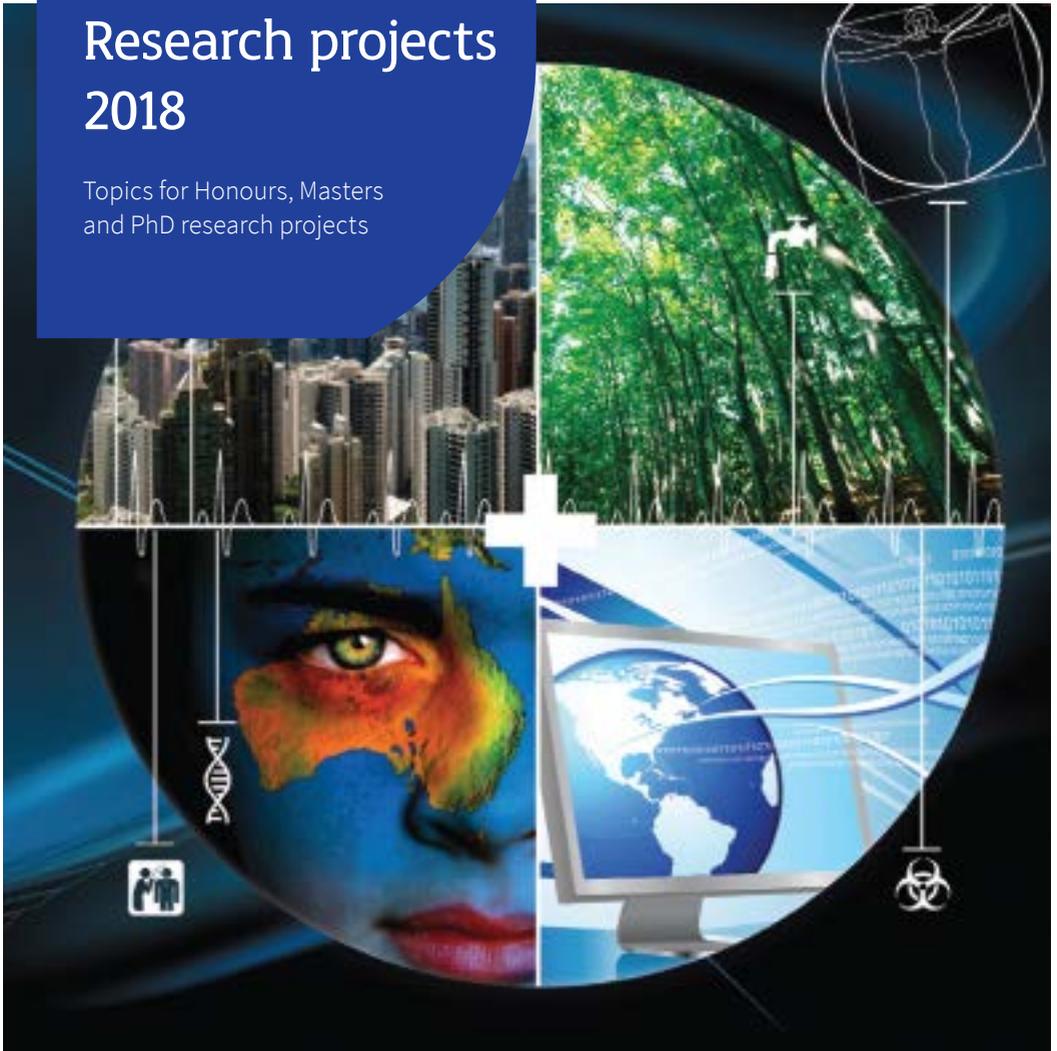THE UNIVERSITY OF
WESTERN
AUSTRALIA

School of Population & Global Health

Research projects 2018

Topics for Honours, Masters
and PhD research projects

Research projects now available in the School of Population & Global Health (SPGH)

As a world-class research university, UWA offers research opportunities of the highest calibre. You will work closely with an expert supervisor on a specific research topic to produce a thesis of significant academic scholarship and originality.

Research training at the School of Population & Global Health can lead to the award of Honours or a postgraduate coursework Master of Public Health (MPH) degree with 12 point project or 24 point dissertation. Our postgraduate research degrees can lead to the award of a Master of Philosophy or Doctor of Philosophy (MPhil or PhD).

As a research student with us, you will draft, under supervision, a paper for publication in a scientific journal - this is the first step in your research career!

How does research training at SPGH work?

You will work with both academic and clinical personnel to investigate an important and topical area of public health. Responsible, conscientious students with well-developed interpersonal and written communication skills are sought for these projects.

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?

If you're interested in an Honours / MPH 12 point project or MPH 24 point dissertation -
Contact our Honours & Dissertation Coordinator:
• Email: ian.li@uwa.edu.au

If you're interested in a MPhil or PhD research project -
Contact our Graduate Research Coordinator
• Email: grc-sph@uwa.edu.au

Research Groups & Centres at SPGH

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.

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

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

Centre for Health Services Research
Is 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.

Health and Art
Takes a scientific approach to the arts-health relationship, to build on current knowledge and complement the growing multidiciplinary nature of this field.

Health Promotion Research Group
Includes a multidisciplinary team of knowledgeable researchers who are passionate about optimising health and wellbeing and preventing the underlying causal factors for poor health.

Global Environment and Health
Investigates the relationships between environmental and occupational determinants of health, both locally and globally. There is also a focus on ecosystems and human health.

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

Nutrition and Health Research Group
Aims to inform public health policy and interventions to improve the diet of populations, in order to reduce the burden from obesity and cardio-metabolic disease.

Play Spaces and Environments for Children's Physical Activity (PLAYCE)
Focussed on improving children's physical activity, health and well-being through multi-level interventions focussed on the child, family, social and built environment. Investigates strategies to create healthy early childhood education and care environments and understand how the home and neighbourhood environment shapes children's health and development.

The Raine Study
The Western Australian Pregnancy Cohort (Raine) Study is one of the world's largest successful prospective cohorts of pregnancy, childhood, adolescence and now early adulthood. These families have provided environmental, developmental and health information over the past 28 years offering a unique and valuable resource covering a wide range of health areas.

Western Australian Centre for Rural Health
The Western Australian Centre for Rural Health (WACRH) aims to improve rural, remote and Aboriginal health through research, education, student support and community service activities. WACRH operates with funding from the Commonwealth Department of Health and support from the University of Western Australia but also works closely with numerous health organisations, on a local and national level.

Women's Health
A particular focus on family and domestic violence, reproductive health, childbirth and chronic illness including cancer and the health impacts of caring.

Contact information for SPGH Coordinating Supervisors (listed under each project title):

Associate Professor Hayley Christian:
hayley.christian@uwa.edu.au

Professor Colleen Fisher:
colleen.fisher@uwa.edu.au

Dr Peter Franklin:
peter.franklin@uwa.edu.au

Professor Jane Heyworth:
jane.heyworth@uwa.edu.au

Professor Matthew Knuiman:
matthew.knuiman@uwa.edu.au

Dr Ian Li:
ian.li@uwa.edu.au

Dr Karen Martin:
karen.martin@uwa.edu.au

Dr Kevin Murray:
kevin.murray@uwa.edu.au

Assistant Professor Julie Saunders:
julie.saunders@uwa.edu.au

Associate Professor Monica Moran
monica.moran@uwa.edu.au

Dr Nita Sodhi-Berry
nita.sodhi@uwa.edu.au

Associate Professor Lisa Wood:
lisa.wood@uwa.edu.au

Associate Professor Rohan Rasiah
rohan.rasiah@uwa.edu.au

Projects with the Busselton Health Study

Absolute cardiovascular risk estimation
Prof Matthew Knuiman; Dr Kevin Murray

Background: Absolute risk of cardiovascular disease (CVD) is the probability of a major cardiovascular event within a fixed period of time (e.g. next 10 years). Absolute CVD risk estimates are used for a variety of purposes.

They are used to:
- inform guidelines for the management of risk of cardiovascular events in people with and without risk factors;
- communicate risk to patients and thereby motivate them to modify behaviour;
- assess eligibility for government-subsidised medications (e.g. lipid-lowering medications).

There are a number of CVD risk estimation models in use, with the Framingham risk score being the most common, but they can provide quite a different risk estimates for the same individual.

Outline: This project will explore the development and assessment of a new absolute CVD risk estimation model using the rich variety of data available in the Busselton Health Study.

Approaches to produce better models include:
- expanding the list of risk factors and medical history variables used in the prediction;
- using past as well as current values of risk factors;
- considering competing risks of death;
- considering shorter term (e.g. 5 years) and longer term (e.g. 20 years) risk separately;
- developing methods for calibrating the models for use in populations different from the population from which they were derived.

Appoaches to assessing the performance and accuracy of models will include the commonly used C-statistic as well as other measures such as NRI (Net Reclassification Improvement) and IDI (Integrated Discrimination Improvement).

Methodology:
This project will require you to:
- review literature on absolute CVD risk estimation and its methods, uses and limitations;
- become familiar with the Busselton Health Study and its accumulated data;
- develop, prepare and submit a research proposal and application for ethics approval; and
- analyse data, compile results and prepare manuscripts for publication.

Project Specific Requirements:
Strong biostatistical knowledge and skills and familiarity with cardiovascular epidemiology.

Project Length: MPhil/PhD

Childhood determinants of adult health
Prof Matthew Knuiman; Dr Kevin Murray

Background: As the development of chronic diseases begins early in life and there are (modifiable) risk factors in childhood for adult chronic disease morbidity and mortality, there is potential to reduce the incidence and burden of chronic diseases in adulthood through interventions in childhood. Studies of the relationship of risk factors levels in childhood with measures of health and disease in adulthood require detailed risk factor measurement on cohorts of children together with repeated measurements and long-term follow-up for chronic disease events into adulthood.

Outline: The Busselton Health Study (BHS) conducted health surveys of school children in the period 1967-1983. Many of these children were re-assessed as adults in surveys of adults in 1994/95 and 2005/07 and 2010-15. In addition, linked hospital admissions and deaths to mid 2014 are also available. This project will examine childhood levels of health risk factors in relation to the adult level of risk factor; self-reported and objective measures of adult health; the occurrence and rate of cardiovascular and respiratory disease-related hospital admissions and deaths in adulthood.

Methodology:
This project will require you to:
- review literature on childhood determinants of adult health;
- become familiar with the BHS and its accumulated data and how it could be used for this topic;
- develop, prepare and submit a research proposal and application for ethics approval;
- analyse data, compile results, and prepare manuscripts for publication.

Project Specific Requirements:
Good knowledge of epidemiology and biostatistics.

Project Length:
Honours/ 24 point MPH/MPhil

Concordance between survey self-report and objective data in the Busselton Health Study
Prof Matthew Knuiman; Dr Kevin Murray

Background: The Busselton Health Sudy (BHS) has conducted 12 surveys of adults over the period 1966-2015 (16,000 adults with over 40,000 survey attendances). All surveys included a comprehensive questionnaire assessing health history and behaviours, a clinic visit that included measures of body size, blood pressure, lung function, allergy tests and blood samples were taken for laboratory assays. In addition, hospital admission, cancer and death data are available through record linkage to WA health administrative databases.

Outline: To use the accumulated BHS database of self-report and clinically measured data on 16,000 adults together with linked data on hospital admissions and cancer registrations to:
1) examine the consistency of self-reported health behaviours and conditions (e.g. smoking, ever had asthma, ever had a heart attack, family history of conditions, etc) within indiduals over time spanning many years and factors related to the level of consistency; and

(2) examine the concordance between self-reported and objective survey measures of health conditions and also there relation to information on these conditions derived from their (linked) history of hospital admissions and cancer registrations (e.g. for ever had a hear attack, do you have diabetes).

Methodology:
This project will require you to:
- become familiar with epidemiological assessment of health risk factors and conditions and measures of consistency and concordance of self-report vs objective assessment;
- conduct statistical analyses of the data relevant to the aims;
- write report/dissertation and possibly draft manuscripts for publication.

Project Specific Requirements:
Good epidemiology and biostatistics knowledge.

Project Length:
Honours/12 or 24 point MPH/MPhil

Risk of cardiovascular disease events and use of lipid-lowering and blood pressure-lowering medications in Busselton
Prof Matthew Knuiman; Dr Kevin Murray

Background: Clinical guidelines state that, in addition to those with established cardiovascular disease (CVD), people with a high 5-year risk (>15%) of a CVD event (assessed using the Framingham risk equation) should also be considered for lipid-lowering and blood pressure-lowering medications.

Outline: This project will use data on adults from the 2005-07 Busselton Health Survey (n=2,932) to establish the prevalence of use of lipid-lowering and blood pressure-lowering medications in a community sample by prior history of CVD, and by level of CVD risk and level of cholesterol and blood pressure in those without prior CVD history. Usage will also be assessed against clinical guidelines and/or PBS eligibility criteria. Based on this, the extent of potential over or under-treatment will be determined.

Methodology:
This project will require you to:
- become familiar with guidelines for use of lipid-lowering and blood-pressure lowering medications, PBS eligibility criteria, absolute CVD risk scores, and the Busselton Health Study.
- develop, prepare and submit research and ethics proposals.
- analyse Busselton Health Study data and prepare report/dissertation and possibly manuscript for publication.

Project Specific Requirements:
Good epidemiology and biostatistics knowledge.

Project Length: 12 or 24 point MPH/MPhil

Projects with the Centre for Health Services Research

What is the burden of mental & physical health disorders in cancer survivors?
Dr Nita Sodhi-Berry; Prof David Preen

Background: Therapeutic advancements allowing early cancer detection and treatment have enhanced survival. However, cancer survivors are known to deal with a variety of mental health and chronic physical health conditions over the course of their lifespan.

Outline: This study will ascertain the burden of a variety of chronic physical (e.g. cardiovascular and pulmonary) and mental disorders in cancer survivors relative to the general population and identify the determinants and trends over time since diagnosis. The study will be enabled by comprehensive linked hospital, death and cancer registry data on over 160,000 cancer patients in WA from 1982-2007. The findings will have public health policy and translational implications with respect to identifying opportunities for adequate diagnosis and management of these chronic disorders and provision of support services to vulnerable groups identified through this study. Due to the broad scope of this study, there is the potential for several students to work on a chronic health outcome of their choice.

Methodology:
The student will undertake a literature review and perform quantitative data analyses suited to the scope of the project.

Project Specific Requirements:
A fundamental knowledge of biostatistics will be required along with a working knowledge of a statistical sofware package like SAS, STATA or SPSS.

Project Length:
Honours/12 or 24 point MPH/MPhil/PhD

Are survival rates different for young & older patients with colorectal cancer (CRC)?
Dr Nita Sodhi-Berry; Prof David Preen

Background: CRC typically affects older adults with an average age at incident diagnosis of 70 years. However, the CRC incidence among adolescents and young adults in Australia has significantly increased over the past two decades. Some research suggests that young-onset CRC may represent a more aggressive underlying disease process compared with later-onset CRC, with younger patients exhibiting more advanced disease at diagnosis and poorer prognosis. However, empirical evidence in this area is currently inconclusive.

Outline: This study will use population-based linked WA Cancer Registry and mortality data from 1982-2007 to examine any significant differences in:
1) tumour characteristic and diagnosis and
2) survival rates for adolescents and young adults aged 15-39 years with CRC compared with later-onset CRC (≥ 40 years).

Methodology: The student will undertake a literature review and perform quantitative data analyses suited to the scope of the project.

Project Specific Requirements:
A fundamental knowledge of biostatistics will be required along with a working knowledge of a statistical sofware package like SAS, STATA or SPSS.

Project Length:
Honours/12 or 24 point MPH

Projects in Health and Labour Economics

An economic evaluation of the intervention to improve mental health & wellbeing for children with hearing loss
Dr Ian Li

Background: In addition to evidence demonstrating the efficacy or effectiveness of health-based interventions, evidence on the cost aspects are required to inform policy-makers and practitioners on the economic impact of funding decisions. This study will draw on effectiveness outcomes from the Belong project, which will trial interventions for children in mainstream schools targeted at supporting their mental health and well-being, and cost data to evaluate the cost-effectiveness of the interventions.

Outline: This study will involve collection and sourcing of cost data around implementation of the intervention, as well as estimation and analysis of Quality Adjusted Life Year data based on responses to the CHU9D instrument from the study's participants. These data will be analysed in order to estimate the incremental cost-effectiveness ratio from implementing the intervention, and the development of recommendations for policy and practice.

Methodology: Quantitative

Project Specific Requirements:
Essential -
- Excellent proficiency in English
- Basic statistical skills (good score in Biostatistics I or equivalent)

Desirable- Knowledge in health economics and economic evaluation techniques (completion of Health Systems and Economics and/or Economic Evaluation of Healthcare)

Project Length: Honours/24 point MPH

Discrete choice experiments & valuation of health states
Dr Ian Li

Background: In order to compare different healthcare interventions against one another, one needs to be able to put a value on different health states to quantify the benefit of moving from one health state to another. A discrete choice experiment design allows the valuation on a health state. In these, an individual is offered a choice of two or more health states, and is asked to select the best one. By asking someone to respond to a series of these, we can use regression analysis to identify the dimensions that matter most to respondents.

For instance, is pain more or less important than depression? Is poor mobility more tolerable than an inability to see friends and family? A range of datasets are available that explore these issues using different instruments for describing health in different countries.

This project would involve exploring one of these datasets to identify which aspects of health matter most. A useful extension would be to combine the raw data with demographics of the respondents, potentially identifying if different types of people are likely to respond differently to these questions.

Methodology: Quantitative

Project Specific Requirements:
Essential -
- Excellent proficiency in English
- Basic statistical skills (good score in Biostatistics I or equivalent)

Desirable-
Knowledge in health economics and economic evaluation techniques (completion of Health Systems and Economics and/or Economic Evaluation of Healthcare)

Project Length: Honours/24 point MPH

Investigating the public health workforce
Dr Ian Li

Background: There is a shortage of information on the public health workforce, particularly for Australia, New Zealand and Asian-Pacific countries. At the same time, shortages in the public health workforce have been predicted, with even greater shortages predicted due to the ageing workforce. The number of public health graduates in Australia and New Zealand has increased substantially in recent years. It is unclear whether there will be an over- or under-supply of public health expertise in these countries. To date, only two empirical Australian studies on the public health workforce have been identified, with one focussing on Bachelor of Health Science graduates from a single Australian university, and the other looking at broad labour market outcomes of Masters of Public Health (MPH) graduates using a national dataset. In particular, the latter study found that substantial proportions of MPH graduates do not work in health related occupations and industries after graduation.

University administrators need to make decisions about the size of their MPH and other public health educational programs. To do so effectively, they require detailed analyses on the labour market outcomes of MPH graduates. This information is also essential to inform the public health sector for workforce planning purposes. Ensuring that Australia and New Zealand have the appropriate amount of public health expertise, and that the expertise is appropriate to the needs of employers, is essential to the public's health.

This program of research will fill an important need in health workforce planning. Upon satisfactory completion, the student will have published several articles that can be used for decision making by Heads of Schools of Public Health, other university administrators, and those in charge of public health recruitment. The student will develop a strong understanding of the public health labour market, including the skills and attributes which are in demand from employers.

Outline: There are several aims and objectives for future analyses:

- to examine the labour market outcomes for MPH graduates. These outcomes include unemployment, earnings, underemployment, and contract type;
- to examine the degree and skills utilisation of employed MPH graduates;
- to examine the prior academic background of MPH graduates, with a focus on the discipline/field of study in undergraduate study;
- further to aim 3, an analysis of whether the prior discipline of study is influential to labour market outcomes;
- to summarise information about the number of people graduating with undergraduate and doctoral degrees in public health and related disciplines, via a survey of schools of public health;
- to better understand the proportion of public health graduates who are international students, and the trend through time;
- to examine which public health skills are most highly valued by employers, and how this is likely to change over time, via focused interviews with a select group of major employers.

Methodology:
The analyses for this study will be primarily quantitative in nature, with scope for some limited qualitative work on some extensions of the aims above. Analyses of the national Australian Graduate Survey 2007 to 2016 will be adequate for answering the research aims 1-4, however, primary data collection from schools of public health in Australian and New Zealand would be required to address aims 5 and 6.

Project Specific Requirements:
Essential -
- Excellent report writing skills and proficiency in English.
- Competency in statistics (a good score in Biostatistics I or equivalent

Desirable - Completed study in Biostatistics II or equivalent.

Project Length:
This project can be undertaken as:
- Honours or 24 point MPH (aims 1-4); or
- MPhil or PhD (aims 1-7).

Projects with the Health and Promotion Research Group

Reducing health inequalities among vulnerable/disadvantaged populations
Assoc/Prof Lisa Wood; *Dr Karen Martin*

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, Aboriginal people, homeless or socially isolated people, refugees and prison populations. Previous projects in this field include evaluating the impact of an intervention on the health of a disadvantaged population gropup; assessing the impact of broader public policies (e.g. housing, recreation) on health related behaviours or outcomes; investigating whether access to community amenities 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

Outline: There is scope for a range of projects focusing 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.

Methodology: Methodologies can include qualitative and/or quantitative research, and we are particularly interested in research that has strong policy and practice implications.

Project Length:
Honours/ 12 or 24 point MPH/MPhil/PhD

Salvation Army initiatives to support people to journey out of homelessness: Evaluation
Assoc/Prof Lisa Wood

Background: Homelessness is strongly associated with social exclusion factors such as poverty, unemployment, low education, poor health, mental health and/or substance addictions. Hence, enabling people to move out of homelessness requires much more than just a 'roof over their head'. There are a number of innovative programs being run by The Salvation Army in WA to break the cycle of homelessness that will lend themselves to student research or evaluation projects.

Outline: This project would be evaluation-based and examine the effectiveness of Salvation Army initiatives to assist client in exiting homelessness.

Methodology: This research could include both quantitative and qualitative methods in an evaluation context.

Project Length:
Honours/ 12 or 24 point MPH/MPhil

Housing vulnerability & homelessness & its relationship to mental health

Assoc/Prof Lisa Wood

Background: Housing is a recognised social determinant of health and housing vulnerability and homelessness can have significant impacts 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 projects relating to housing and homelessness that would lend themselves to a student 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.

Methodology: Methodologies can include qualitative and/or quantitative research, and we are particularly interested in research that has strong policy and practice implications. Students interested in this area are encouraged to contact us to discuss possible projects.

Project Length:
Honours/ 12 or 24 point MPH/MPhil/PhD

No Pets Allowed? Social & health benefits of enabling pets to live with people vulnerable to social isolation

Assoc/Prof Lisa Wood

Background: Research has shown the mental, social and physical health benefits of pet ownership, but for some people changes to their housing or life circumstances make it hard to keep a pet.

Outline: There is scope for three student projects looking at current policy and practice in these areas.
1. Retirement villages and aged care facilities often have a default 'no pets allowed' policy, yet we know that pets provide an important antidote to social isolation and can facilitate connectedness with other people. Given 63% of Australians own a pet, and we have an ageing population profile, this is a relevant public health and social issue.
2. Women and children escaping domestic violence situations are another population group who face challenges if they own a pet – most shelters and refuges are communal and can't accommodate pets, and evidence indicates that between 20-40% of women delay leaving a violent home environment for fear of the pet being harmed if left behind. It also exacerbates the trauma for women and children if they have to leave a much loved pet. A growing number of initiatives overseas and in Australia are seeking to address this issue – this includes foster programs for pets that cannot be taken into a refuge, and a small number of refuges that will accommodate some types of pets.

3. Homeless people face some unique challenges relating to pets. Not wanting to be separated from their pet often means that they can't stay at emergency, crisis or shelter accommodation, as these places typically do not allow pets. Yet a pet can be a vital source of companionship for a homeless person, and caring for the needs of a pet has a positive flow-on to self-care. As rental properties often don't allow pets, this can also limit the housing options for people who are at risk of homelessness.

Methodology:
1. This project could include a survey of retirement and aged care facilities to assess current pet policies and/or qualitative research with people for whom 'no pet' rules are a barrier to downsizing or moving into a retirement village.
2. This project could include a review of services/ programs in Australia to address this issue e.g. desktop and literature review plus a survey or interviews with services regarding demand for the service, barriers and enablers to program effectiveness etc.
3. This project could include a review of policies relating to pets in places that provide accommodation for homeless people and/or interviews with a sample of services to investigate barriers to altering 'no pet' policies and/or interviews with organisations such as the Mercy Foundation that have advocated on behalf of homeless people with pets.

Project Length:
Honours/ 12 or 24 point MPH/MPhil/PhD

Breaking the cycle between prison & homelessness

Assoc/Prof Lisa Wood

Background: There is a threefold (and potentially compounding) relationship between homelessness and imprisonment. Firstly, individuals that are or who have experienced homelessness are more likely to be convicted or imprisoned than those who have not; secondly; a significant proportion of people who have been in prison are at risk of becoming homeless when released from a correctional facility; and thirdly, a significant risk factor for recidivism is being homeless post release. It has been estimated that approximately 40% of prisoners will be homeless or living in crisis/emergency upon release. There are also many common risk factors between recidivism and current homeless including mental health issues, unemployment, debt and lack of positive social support.

Outline: This research would look at identifying and comparing the availability, structure and funding of services and programs in Australia that currently seek to prevent homelessness/promote tenancy sustainment amongst people released from prison.

Methodology: This research could include both quantitative and qualitative methods in an evaluation context to assess the effectiveness of services, identify service gaps and determine whether different services/ programs, funding models or combinations of services/support are more effective in reducing the likelihood of homelessness and recidivism.

Project Length:
Honours/ 12 or 24 point MPH/MPhil/PhD

Family & domestic violence: Impact on the WA Health system & associated costs
Assoc/Prof Lisa Wood

Background: Family and domestic violence (FDV) is a major public health and societal concern, with significant consequences for the individuals and families involved and the broader health system. People who have experienced FDV have poorer health outcomes and premature mortality, and are more likely to experience housing instability. Family and domestic violence also carries an enormous economic cost to society, and there is a need to build the economic argument for greater prevention and early intervention. However the health related costs of FDV are difficult to determine, particularly as FDV is often not disclosed as the reason for attending hospital. It has been estimated by the Department of Health, that FDV cost the health sector over $51 million for women hospitalised in WA during 2009-2015. However this is a conservative estimate, as it based only on assault data and patients where FDV was identified as a causal factor. A recent exploratory study by staff from King Edward Memorial Hospital (KEMH) sought to look further into the hospitalisation rates and associated costs of FDV; it found for example, that ED presentations were higher among those women who were impacted by FDV, and average length of inpatient stay was longer. Very little research to date has been able to capture the mental health burden and trauma attributable to FDV, and these costs are likely to be pervasive.

Outline: There is scope for a student to be involved in a research project that builds upon the exploratory work done through KEMH. The details of the project would be co-developed in consultation with the student, UWA supervisor and staff from KEMH. This could include quantitative research methods (for example analysis of existing hospital data from regional and/or Perth hospitals); a review of the different ways data is collected (or not collected on FDV) currently and scope to improve standisation of this, and/or a desk-top review of how FDV is screened for, recorded in hospital records and addressed in other healthcare settings. There is also scope to look at the health impacts of FDV for highly vulnerable population groups; for example national data indicates that Aboriginal women are 35 times more likely to be hospitalised due to FDV related assaults than non-Aboriginal women. FDV is also a major cause of homelessness in women, which in turn can exacerbate other health issues.

Methodology: This research could be primarily quantitative or mixed methods with a stakeholder interview component.

Project Length: MPH/MPhil

The role of therapy dogs in contributing to positive mental health in educational settings
Assoc/Prof Lisa Wood

Background:
There is a large body of international evidence supporting the benefits of companion animals at both the individual level (such as health and wellbeing benefits, an antidote to stress) and community level (for example the role of pets in facilitating social interactions and sense of community). Animal assisted therapy is increasingly used in healthcare, aged care and counselling contexts, and the use of therapy dogs in educational settings is gaining popularity. Whilst more common in the USA and Canada, there are now range of schools and universities across Australia with a therapy or campus dog. Hypothesised benefits include improving students' mental health and reducing stress. However most of the research on the wellbeing benefits of therapy dogs relates to health settings, or has been conducted in North America. Evidence to support the use of therapy dogs for positive mental health in educational settings in Australia is needed

Outline:
This project will look at the potential benefits of therapy dogs in educational settings (schools or universities) through a review of published evidence, and some data collection. The data collection could take a number of forms depending on the student's course requirements and preferences for qualitative or quantitative research methods. A survey of a sample of schools or universities with a therapy dog (in WA or nationally) to investigate the perceived benefits is one data collection option. Barriers and enablers to having a therapy dog on an educational campus would also be explored as part of survey or through interviews. The project could also include some more indepth interviews or case studies with staff and students where there is a therapy dog, subject to ethics approval for this.

Methodology:
This project would involve a literature review of existing evidence on therapy dog interventions. The evaluation of the Therapy Dog Program would be designed in consultation with Carine and is likely to consist of in-depth qualitative interviews with staff, students and parents to assess the impact of the program.

Project Length: Honours

Developing school-based interventions to reduce loneliness, PTSD, psychological distress & disconnectedness in adolescents who are refugees

Dr Karen Martin

Background: Due to prior experiences (such as conflict/persecution, detention and resettlement) young people who are seeking asylum or have refugee status (refugees) are particularly vulnerable to poor mental health. These factors often lead to young people who are refugees feeling disconnected from their local community including from peers and staff at their school. This is likely exacerbated with current discriminatory attitudes and debates towards those seeking asylum.

Completed research we have undertaken has identified high levels of loneliness, post-traumatic stress symptoms and psychological distress in adolescent students who are refugees and living in the Perth community. Although school is an ideal environment in which to offer support to assist adolescents who are refugees, conversations with schools with high refugee enrolments indicates that the system is not well designed to provide such support. Further research recently undertaken also identified stressors and factors impacting feelings of loneliness in refugee students and their ideas for strategies the school could implement to assist them and others.

This research project builds on this evidence-base by identifying an appropriate intervention to support students who are refugee and testing its impact in the school setting.

Outline: The aim of this specific research project is to improve mental wellbeing and community connectedness in students who are refugees in a local secondary school.

Methodology: This is research will incorporate the development and pilot testing an intervention at a local school with a high enrolment of young people who are refugees and involves three phases;
Phase 1) Qualitative data collection with school staff about their perspectives regarding existing support for refugee youth and suggestions for new strategies,
Phase 2) Combine data from Phase 1 with recently completed research with refugee youth at the school to underpin the development of a school-based intervention; and
Phase 3) Pilot test the intervention which will involve pre and post measurement of student mental health and determinants (for example school connectedness, mental wellbeing, PTSD symptoms, psychological distress, home environment etc).

Project Specific Requirements: The student must have a passion for assisting disadvantaged populations. Some knowledge of the Australian refugee process would be useful.

Project Length: Honours or 24 point MPH/MPhil(Phase 1) PhD (Phases 1, 2 & 3) If Phase 1 has been completed then Phase 3 will also include qualitative interviews with students about their perceptions of the intervention.

Investigating trauma-informed practice in the school setting

Dr Karen Martin

Background: Trauma and adverse experiences from childhood neglect and abuse are not uncommon. Australian data indicate that 12–23% of children experience family and domestic violence (FDV) and this includes 5–10% being physically abused and 12% being neglected. Burgeoning evidence also highlights the neurodevelopmental impact that trauma has on the developing brain, which in itself can lead to ongoing dysfunctional behaviours or mental health issues. Behavioural responses to single or repeated incidents of trauma are highly individual; they can be obvious (such as violence, self-harming) or more subtle (e.g. guarded, defensive, angry, inappropriate behaviour). Due to the expectations and stressors in the school setting, these behaviours are often displayed in this environment. Many of these behaviours result in punitive or stigmatising responses by staff; with this comes longer-term negative outcomes. Trauma-informed practice is an approach which recognises and acknowledges trauma (prevalence and impact) in all aspects of service delivery and minimises the effects of trauma and adversity without causing additional trauma.

This research is important and timely. Despite many schools and education departments (nationally and internationally) calling for evidence about the impact of trauma-informed practice, there is currently almost no research about its influence on student outcomes and staff stress/burnout

This research program has the potential to translate into policy and practice changes and impact a large number of vulnerable children and adolescents.

Outline: The overall aim of this research program is to improve student mental health and reduce teacher stress/ burnout by optimising relationships between students and their school community through trauma-informed practice promotion. Smaller aims will be developed for each project.

Methodology & Project Length: Example of available projects include:
1. A qualitative exploration of perceptions of facilitators and barriers to trauma-informed practice *(Honours)*
2. A quantitative examination of teacher and student perceived trauma-informed practice in the school setting and its relationship with student outcomes (suspension, mental health, academic, school connectedness and completion) (*Honours/24 point MPH/MPhil/PhD);*
3. A pilot project examining an intervention incorporating a trauma-informed practice framework (qualitative and quantitative components) in four secondary schools. *(PhD)*

Project Specific Requirements: A passion for assisting vulnerable populations is needed.

The PLAYCE Study: Play Spaces & Environments for children's physical activity & health
Assoc/Prof Hayley Christian

Background:
There is growing interest in environmental interventions targeted at increasing children's physical activity because of 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 WA 2-3 year olds attending some type of child care. The child care setting is where children spend a considerable portion of their time, thus it is an important setting in which children should have the opportunity to accumulate physical activity and other forms of unstructured physical play to facilitate their health and development.

Outline:
The PLAYCE (Places Spaces & Environments for Children's Physical Activity) research program investigates the influence of the physical, social and policy environment on young children's physical activity, sedentary behaviour, eating behaviour, weight status, sun exposure and development across different behaviour settings (childcare, home and the neighbourhood).

PLAYCE aims to provide information on how best to create healthy environments for young children and families to enable them to lead healthy and fulfilling lives.

PLAYCE research projects available include:
- using GPS to understand where and how young children move around their home and neighbourhood;
- qualitative research with children, parents, staff and key stake holders in the childcare setting;
- interventions to improve physical activity levels and health of children attending childcare.

Students are encouraged to arrange a time to meet and discuss potential topics.

Methodology: Literature review, Quualitative; Quantitative survey; Intervention research; Evaluation of existing programs.

Project Specific Requirements:
- Ability to conduct quantitative/ qualitative research.
- Excellent writing skills.
- Statistical analysis (SPSS and/or SAS).
- Ability to work as part of a team.
- Good interpersonal communication skills.

Project Length:
Honours/12 or 24 point MPH/MPhil/PhD

Influence of the built environment on child health & development
Assoc/Prof Hayley Christian

Background:
Developmental delays in physical health and wellbeing, social competence, emotional maturity, language, cognitive, and communication skills have significant health, social and economic consequences for later life. Across Australian suburbs there are inequalities in the proportion of children developmentally at risk. A significant amount of this inequality in developmental vulnerability remains unexplained. The project will examine the influence of the neighbourhood and home physical environment on child health and development. It will provide evidence to inform the design of urban areas that are supportive of child health and development. The built environment incorporates land use patterns, transportation systems, building design, access to shops and services and social infrastructure, and creates conditions that are optimal (or detrimental) for child health and development.

Outline:
The main aim of this research is to identify aspects of the built environment that are important for child health and development. This research will use data from the Australian Early Development Census (AEDC) and/or Middle Years Development Index to examine the neighbourhood attributes (e.g. access to child education and health services) associated with child health and development outcomes.

It will provide evidence to determine what is a child-friendly environment in the context of neighbourhood and what are optimal levels of built environment features for child health and development?

Methodology:
Quantitative: Data Linkage; Community based survey; Cohort study. One or more methods will be used depending on length of the project.

Project Specific Requirements:
- Ability to conduct quantitative/ qualitative research.
- Excellent writing skills,
- Statistical analysis (SPSS and/or SAS). Ability to work as part of a team,
- Good interpersonal communication skills.

Project Length:
Honours/12 or 24 point MPH/MPhil/PhD

Physical activity interventions targeting dog owners

Assoc/Prof Hayley Christian

Background:
There is growing awareness about the importance of dog ownership to physical human health. Almost half of all Australian households own a dog. Dog owners do more walking and are more physically active compared with non-owners. Importantly, 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 to contribute to owners' overall levels of 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 will involve working closely with industry partners, nationally and internationally.

Methodology: Qualitative; Quantitative community based survey; Intervention research.

Project Specific Requirements:
- Ability to conduct quantitative/qualitative research.
- Excellent writing skills.
- Statistical analysis (SPSS and/or SAS).
- ability to work as part of a team.
- Good interpersonal communication skills.

Project Length:
Honours/12 or 24 point MPH/MPhil/PhD

PhD thesis students who recevie a UWA Research Training Scholarship are able to apply for a top-up scholarship.

Benefits of family dog ownership for child health & development

Assoc/Prof Hayley Christian

Background: Physical inactivity and rising levels of overweight/obesity in children are a major public health concern. Dog ownership is associated with higher levels of physical activity in adults but few studies have examined the physical, social and emotional health benefits associated with dog ownership in children.

Outline: This research will investigate associations between dog ownership, physical activity, sedentary behaviour, overweight/obesity and developmental outcomes in children. The relationship between family dog ownership and dog-facilitated physical activity from dog-centred active play or walking with a dog will be examined for different child age groups (e.g. early years, primary school, adolescents). The influence of socio-demographic, social and physical environment factors will be considered. Existing data from the 'Play Spaces and Environments for Children's Physical Acitivty' (PLAYCE) is available to analyse for young children (2-5 years). There is scope to collect new data for older age groups of children as well as qualitative research with parents and children on the motivators and barriers to dog walking and play with the dog. Intervention research to determine strategies for increasing dog-facilitated activity and improving the child and family health benefits of having a family dog is encouraged.

Methodology:
Qualitative; Quantitative community based survey; Intervention research.

Project Specific Requirements:
- Ability to conduct quantitative/ qualitative research.
- Excellent writing skills.
- Statistical analysis (SPSS and/or SAS).
- Ability to work as part of a team.
- Good interpersonal communication skills.

Project Length:
HHonours/12 or 24 point MPH/MPhil/PhD

PhD thsis students who recevie a UWA Research Training Scholarship are able to apply for a top-up scholarship.

How does contact with nature facilitate young children's health & development?

Assoc/Prof Hayley Christian

Background: Contact with nature (plants and animals) is associated with children developing a sense of identity, autonomy, psychological resilience, self-regulation, gross motor skills and learning healthy behaviours. The pathways through which contact with nature facilitates child health and development has received some research attention in older children. Research on the effect of nature contact on young children's health and development is needed.

Outline: This project will involve collaboration with industry partner Nature Play WA (NPWA). The project will evaluate the impact of NPWA's education program aimed at providing early childhood education and care staff with the knowledge and skills to create nature play spaces within the childcare setting.

The student will conduct a literature review on the effects of nature contact on young children's health and development. A follow-up survey of early childhood education and care staff will be undertaken to ask them about changes to their childcare centre (e.g. changes to the outdoor physical environment, program content, care and teaching practices) post taking part in the NPWA program. Additional data will be collected to objectively assess changes to the child care environment and its effects on young children's health and development. Data has been collected as part of the 'Play Spaces and Environments for Children's Physical Activity (PLAYCE) study.

Methodology: Literature review; Qualitative; Quantitative survey; Intervention research; Evaluation of existing programs.

Project Specific Requirements:
- Ability to conduct quantitative/ qualitative research.
- Excellent writing skills.
- Statistical analysis (SPSS and/or SAS).
- Ability to work as part of a team.
- Good interpersonal communication skills.

Project Length:
Honours/12 or 24 point MPH/MPhil/PhD

Physical activity, sport and recreation research with the Department of Local Government, Sport and Cultural Industries

Assoc/Prof Hayley Christian
These projects are in collaboration with the WA Department of Local Government, Sport and Cultural Inudustries.

Background: In Australia, we face the most inactive generation of all time. Project 1 - Focuses on strategies for encouraging physical activity in children through targeting those not currently enrolled in sporting clubs but who would like to participate.Project 2 - Interests and motivations for participating in sport and recreation evolve and change, as do barriers to participation, and people are likely over the course of their lives, to be involved in a range of activities and challenges. Project 3 - What role do informal social networks play as barriers and or motivators for physical activity behaviour? How do these informal social networks function across different life stages (e.g. new parent, retiree, married no children etc)?

Outline:
Project 1 - What intervention strategies would encourage children's participation in physical activity, with a focus on fundamental movement skills?
Project 2 - What are the factors associated with participation in sport and recreation at various life stages?
 Project 3 - Understanding the role of informal social networks in facilitating accessible low-cost physical activity options.

Methodology: Qualitative; Quantitative community based survey; Intervention research.

Project Specific Requirements:
- Ability to conduct quantitative/ qualitative research.
- Excellent writing skills.
- Statistical analysis (SPSS and/or SAS).
- Ability to work as part of a team.
- Good interpersonal communication skills.

Project Length:
Honours/12 or 24 point MPH/MPhil/PhD

Projects in Global Environment and Health

Evaluation of effectiveness of Westplan Heatwave, a current heatwave management framework in WA

Prof Jane Heyworth in collaboration with Dr Alex Xiao (Epidemiology Branch, Department of Health WA)

Background: The Department of Health (WA) developed a response plan called Westplan Heatwave in 2012. A systematic assessment of the effectiveness of the plan is required. The findings from the project will be used to inform policy, and assist with the development of strategies to tackle the impact of heatwaves.
Further info: alex.xiao@health.wa.gov.au

Outline: The aims of this project are to:
- evaluate health service utilisations and demands in WA during heatwave days before and after the launch of the Westplan Heatwave.
- investigate potential dose-response relationships between health service demands in WA and heatwave intensities.
- identify which vulnerable groups in WA are most susceptible to extreme heat, and in need of targeted interventions.

Methodology: Quantitative methods using the Hospital Morbidity Data.

Project Specific Requirements:
We are looking for a candidate who is passionate about research; has basic knowledge in Population Health, Epidemiology, and Health Statistics; and is keen to learn programming in using statistical software such as SAS.

Project Length: 24 point MPH//MPhil/PhD

Health effects of air pollution
Prof Jane Heyworth

Background: Air pollution (AP) patterns have changed as technological advances and pollution controls have led to reductions in concentrations of pollutants such as lead and sulfur dioxide (SO_2). However, urbanisation with its associated increase in motor vehicles, industrial processes and energy requirements are overtaking the advances made in AP control over the past two decades. The AP health burden is substantial; there is evidence from Europe that ~50% of adult mortality resulting from AP is attributable to traffic emissions. Significant sources of AP in the Perth metropolitan area are motor vehicles and domestic wood heaters (25% of households have wood heaters). The overall aim of this study is to investigate the long-term effects of air pollution, specifically PM10, PM2.5, NO_2, CO and ozone, on human health in a cohort of older men in Perth.

Outline: Does exposure to air pollution at the concentration observed in Perth lead to health effects.

Methodology: Quantitative methods. AP exposure metrics have been developed and linked each participant in the Health in Men Study (HIMS), a cohort of 12,201 men aged 65 years and above. These men were recruited in 1996 and were followed up to 2012. Using cox proportional hazard regression models, the hazard ratios and 95% confidence intervals for the impact of different pollutants and a range of health outcomes will be estimated.

Project Specific Requirements:
Completion of Biostatstics II or equivalent.

Project Length: 24 point MPH/MPhil/PhD

Exploring the impact of a dual-mode population based health survey
Prof Jane Heyworth, Asst/Prof Julie Saunders in collaboration with Dr Sarah Joyce (Epidemiology Branch, Department of Health)

Background: The WA Department of Health relies on the population based Health and Wellbeing Surveillance System (HWSS) to monitor the health status of the WA population including prevalence of lifestyle risk factors (e.g. physical activity, alcohol consumption, diet) and chronic disease. The HWSS is currently conducted as a telephone survey but it is becoming increasingly difficult to reach younger adults through this method.

Outline: The aims of this project are to:
• estimate the effects of online mode on
   a) prevalence estimates for selected risk factors and chronic conditions
   (b) response and participation rates;and
   (c) timeliness of completion for both the total population and relevant sub-populations;
• design, develop and conduct a follow-up online survey to evaluate participant satisfaction with the online delivery mode for consenting participants;
• identify any issues contributing to improved or reduced quality of data collection and the potential implications for future program delivery.

Methodology:
Quantitative - a pilot study will be conducted whereby selected respondents for the HWSS are given the option to complete the survey online and the relationship between mode of completion and health estimates will be investigated.

Project Specific Requirements:
Completion of Biostatstics I and Epidemiology I or equivalent.

Project Length:
Honours/12 or 24 point MPH/MPhil/PhD

Health risk assessment of artisanal brick kilns in low- and middle-income countries: Opportunities for disease prevention with 'improved' kiln technologies
Prof Jane Heyworth

Background:
The artisanal brick kiln industry is an important but poorly characterized industrial sector. Brick workers are among the most marginalized of unskilled workers and the industry is in need of urgent environmental, occupational health and safety and labour regulation. There are over 300,000 highly polluting brick kilns throughout low- and middle-income countries, emitting over 890 million tonnes of CO_2 each year as well as high levels of PM 2.5, sulphur dioxide, carbon monoxide and black carbon. These emissions are responsible for serious negative impacts on human health in workers and residents of surrounding areas. Key issues faced by workers in this industry are child and bonded labour, unsafe and unhealthy

working conditions and sub-standard living conditions on the kiln sites. This project will describe the global artisanal brick industry and the associated risks to human health, and estimate the potential reduction in health risks with the implementation of 'improved' kilns that have been developed to reduce adverse environmental emissions. The recent Nepal earthquakes provide the opportunity to conduct a case-study of brick kiln reconstruction in Kathmandu valley, as all existing brick kilns (approx 200) were extensively damaged.

Outline:
1. Describe the artisanal brick kiln industry from a global perspective;
2a. Identify the hazards associated with artisanal brick kilns and the associated health and environmental outcomes for particular levels of exposure;
2b. Identify the exposed population and the potential for prevention;
3. Investigate the changes in hazards and exposure levels with the implementation of 'improved' kiln technologies; and
4. Investigate the implementation of 'improved' kiln technologies in the Kathmandu Valley since the Nepal earthquake of April 25, 2015.

Methodology:
The project will require you to:
• develop, prepare and submit a research proposal;
• review the literature on artisanal brick kilns in low-middle income countries;
• conduct a qualitative health risk assessments based on analysis of the available literature;
• obtain and compile available information on brick kiln reconstruction in the Kathmandu valley since April 2015;
• prepare manuscripts for publication.

Project Specific Requirements:
Well-developed literature searching and reviewing skills.

Project Length: 24 point MPH

Smoke from domestic wood heaters in the Perth region
Prof Jane Heyworth;

Background: Research has linked air pollution to lung and heart disease as well as many other health problems. However, air pollution is inherently complex and more investigation is needed to better understand the role that poor air quality plays on health and disease.   Sources of air pollution in the Perth metropolitan area are varied and emissions may arise from both point and fugitive sources, predominantly from burning of fossil fuels, such as motor vehicle emissions, power generation, other industrial combustions, residential wood fires and bush fires. Smoke emissions from domestic wood fires have been previously identified as one of the principal sources of particulate matter (PM) in the Perth region.

Outline: This project will examine data pertaining to emissions from wood heaters within the Perth region. The main aim will be to test the reliability of outputs from models that are used to measure exposure to ambient air pollution as a result of wood heaters.

Approaches to enable testing model outputs include:
• reviewing data inputs used to develop estimates of ambient air pollution as a result of wood heaters;
• collecting additional data where there are gaps in the knowledge around how wood heaters are used as a source of heating within Perth;

- comparing modelled estimates of air pollutants directly against observed data from monitoring stations and/or independent data sources, i.e. validation data;
- assessing the sensitivity of modelled outputs to modifying the assumptions on data inputs to models, e.g. can we assume the level of wood heater usage is homogenous across Perth.

Methodology:
The project will require you to:
- become familiar with the Health in Men and Air Quality Study (HIMAQs) and liaise with HIMAQs investigators;
- review emissions inventory data for the Perth region on the uses of wood as a primary or secondary source of residential heating;
- collect additional data and/or develop a better method to estimate of wood heater usage in the Perth Region. This may involve contacting organisations that have relevant information, e.g. the Australian Bureau of Statistics. This part of the project may lead to designing and implementing a small survey. There may also be scope to test the use of personal monitors to measure individual exposure levels. Personal monitors are an emerging technology and have potential to add a lot of value to this research area.
- analyse data, compile results, and assist with preparing manuscripts for publication.

Project Specific Requirements:
Good statistical knowledge and skills.

Project Length: Honours/24 point MPH

Indoor & outdoor air pollution & exacerbations of Chronic Obstructive Pulmonary Disease
Dr Peter Franklin

Background: Chronic Obstructive Pulmonary Disorder (COPD) is a major cause of morbidity and mortality in Australia. Total hospital admissions for COPD for both men and women in the over 55y age group have increased significantly over the last decade. Ambient air pollution (AP) is considered a potentially important trigger for COPD exacerbation. However, people spend most of their time indoors and this is particularly so for the elderly and those with pre-existing illness. Therefore, for patient groups such as those with COPD, who are likely to be in an older age group, indoors is probably the most important environment for exposure to air pollutants. Despite this there are very little data on the role of indoor AP on ongoing symptoms in COPD. The aim of this study is to investigate the role of both indoor, specifically unflued gas heaters (UFGH), and outdoor AP on COPD exacerbations.

Outline: COPD patients will be recruited from hospitals and study databases. A housing questionnaire will be administered and home address recorded. Outdoor AP exposure will be determined using an existing land-use regression model for the Perth metropolitan region. Exposure to indoor AP from UFGH will be determined from the questionnaire. Hopsitalisation for COPD exacerbation and other clinical data will be collected using data linkage.

Methodology:
The project will require you to:
- review literature on air pollution and COPD;
- develop, prepare and submit a research proposal and application for ethics approval;
- collect questionnaire data from COPD patients;
- organise data-linkage; and
- analyse data, compile results, and prepare manuscripts for publication.

Project Specific Requirements:
Good statistical knowledge and skills.

Project Length: 24 point MPH/MPhil/PhD

'Fight the Bite' evaluation
Dr Peter Franklin

Background: In 2014, the Department of Health undertook an extensive phone survey of 2,500 households in WA to ascertain the knowledge, attitudes and practices (KAP) in relation to mosquitoes and mosquito-borne disease. The baseline data generated from this study highlighted gaps in knowledge, attitudes, and practices among regional, age and gender groups that hinder public health efforts to reduce mosquito-borne disease. It became evident that more active communication channels were required to raise awareness of this important health risk. This data became the impetus behind the launch of *Fight the Bite i*n WA in September 2015. In the 15 months since *Fight the Bite* was launched, partnerships have been established with over 40 local governments, the Australian Medical Association of WA, individual General Practices and a range of outdoor event stakeholders.

Outline: This project proposes to rigorously and formally evaluate *Fight the Bite*, to ascertain whether it has had an impact on the knowledge, attitudes and practices of individuals into relation to mosquitoes and mosquito-borne disease in WA. It is proposed that this study will require you to:
- analysis of the data generated through the phone survey of 2500 participants and compare to previous baseline data;
- form focus groups with local government representatives, external stakeholders and members of the general public to evaluate individual aspects of the campaign artwork/messaging and available resources; and
- provide recommendations on the future of the *Fight the Bite* campaign in WA.

Methodology:
The project will require you to:
- review literature on mosquito-borne disease;
- become familiar with the *Fight the Bite* campaign in WA;
- analyse data existing data
- conduct focus groups;
- compile results, and prepare report for the Department of Health .

Project Specific Requirements:
Reasonable statistical knowledge for both quantitative and qualitative data.

Project Length: 24 point MPH

Projects with the *Occupational Respiratory Epidemiology Group*

Mine dust sampling project

Dr Peter Franklin

Background: Limesand is mined in a number of locations in WA. These include, Lancelin, Jurien Bay, Dongara and Wyalkatchem. Dust is generated from these mines and this may impact on surrounding communities. The mining company is required to conduct on- and off-site monitoring to ensure dust levels generated by the mine do not pose a risk to workers or nearby residents. The mining company (Aglime) is seeking to engage a student to undertake a comprehensive dust study at all of the mining operations

Outline: The aim of this study is to determine dust levels generated by the mining of limesand and/or gypsum to fulfil the requirements identified in Part 9 of the Mines Safety and Inspection Regulations (MSIR) 1995 for monitoring and analyzing airborne dust against personal exposure (surface operations). Where there are nearby communities the study will also determine dust levels in those communities

Methodology: The study will involve:
- consultation with a mine environmental officer to determine a monitoring strategy for the limesand and gypsum mines;
- measurement of * dust levels (both inhalable and respirable) at the mine site, boundary and nearby community (where relevant);
- analysis of the constituents of the dust (optional);

- compilation of the data, provide basic statistical analyses and compile the results;
- prepare a report for Aglime.

* All monitoring equipment is provided by the company

Project Specific Requirements:
- Basic statistical knowledge.
- Understanding of environmental and occupational monitoring techniques (or willingness to learn these techniques).

Project Length: Honours/24 point MPH

Quantitative assessment of occupational exposures in WA mines

Dr Peter Franklin

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. To accurately estimate risks arising from hazard exposure in the workplace, exposures need to be properly quantified. To perform QEA, 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 to assign QE levels to mine workers.

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 WA mines since 1986. This data will be modelled to describe the levels, determinants and variability of exposure to dusts, specific carcinogens and other hazards in the mining industry. Individual mine workers can then be assigned QE levels based on their work histories, which will assist future epidemiological studies.

Methodology:
The project will require you to:
- review literature on mining exposures;
- become familiar with CONTAM data;
- clean and analyse relevant CONTAM data, using established statistical techniques;
- compile results, and prepare manuscripts for publication.

Project Specific Requirements:
Good statistical knowledge and skills.

Project Length: Honours/24 point MPH

The Western Australian Pregnancy Cohort (Raine) Study

Background: The Raine Study is a longitudinal pregnancy birth cohort and a rich resource for the study of genetic and environmental factors that affect health and development. 2,900 pregnant women were recruited between 1989 and 1991 and their offspring formed the Raine Study Cohort. Information was collected on the pregnant mother and subsequently both parents and the child. The cohort participants have been assessed at birth, and at 1, 2, 3, 5, 8, 10, 14, 17, 20 and 22 years of age. Information available includes questionnaire data (demographic, developmental, psychological), clinical assessment information (anthropometry, DXA, physical fitness), genetics (GWAS, EXOME, EWAS) and biological sample (blood) analysis.

Raine Study information collected over the past 26 years has been utilised to obtain an understanding of how events during pregnancy, childhood and adolescence affect health and development.

The Raine Study information can be used to examine complex causal pathways associated with health outcomes. Information has been prospectively collected over the life course of the participants. The data provides a unique opportunity to examine data collected at more than 10 time points in the life of the participants to answer research questions. The data can also be utilised cross-sectionally at different time points.

Some findings from the Raine Study include:
- Foetal and infant exposures influence metabolic risk, behaviour, language and emotional development.
- Better mental health in teenagers is associated with healthy eating, less television and leisure computer use and less risk taking behaviour.
- Respiratory allergy is important to teenage asthma and exposure to environmental tobacco smoke increases the risk of wheeze.

- Respiratory allergy is important to teenage asthma and exposure to environmental tobacco smoke increases the risk of wheeze.
- Back pain affects over a third of teenagers and impinges on their daily lives.
- Posture, obesity, drug use and mental health are related to back pain.
- Teenagers who had been bullied were more likely to have depression and emotional problems; those who had bullied others were more likely to have depression and to abuse alcohol.
- Raine Study GWAS data has contributed to the identification of new genetic loci influencing birth weight, age of menarche and lung function.

A range of research opportunities are available for utilising the Raine Study Dataset. Data are available on research area including cardio-metabolic, mental health, nutrition, sleep, genetics, ophthalmology, stress, asthma, risk taking behaviour, and physical activity.

Detailed information on questionnaires and data collections are available on the Raine Study website **rainestudy.uwa.edu.au.**
Enquiries: Prof Peter Eastwood.

Raine Study: Cardiovascular-metabolic PhD projects [5]

This project would be performed under joint supervision by academic staff affiliated with the Raine Study and the School of Population and Global Health.

Background: 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. It provides a unique source of information regarding complex causal pathways to health outcomes.

Outline: The Cardiovascular-Metabolic group at Royal Perth Hospital (RPH) 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 Prof Trevor Mori (9224 0273) or W/Prof Lawrie Beilin (9224 0258).

Projects with the Western Australian Centre for Rural Health

Disability and disaster management in the Pilbara

Assoc/Prof Monica Moran; Assoc/Prof Rohan Rasiah

Background: The Pilbara region of Western Australia is well known for the frequency and ferocity of its weather related natural disasters. While such events pose significant risks for all residents in the times before, during and after the crises, evidence from other similar geographic locations suggests that the risks for people with physical disability are likely to be elevated. A recent systematic review suggested that the voices and needs of people with disability are rarely considered in emergency planning, disaster management and post disaster recovery activities.

Outline: This study will involve a desktop audit of governance, policy and procedure documents of public and private agencies funded to support the lives of people with physical disability in the Pilbara region of Northern Western Australia. The audit will focus on identifying the specific strategies already in place to support and empower people with physical disability to prepare for, manage and recover from the impacts of weather related natural disasters. The results will be mapped against best practice recommendations both nationally and internationally. Based on outcomes of the audit and the mapping with best practices a set of specific recommendations will be generated for the Pilbara with strategies for disaster response and recovery that are tailored to meet the needs of people with disability.

Methodology:
The project will require you to:
- review literature related to disaster management and disability;
- become familiar with the range of service providers engaged with people with disability and involved in disaster management across the Pilbara;
- develop an audit tool and conduct a detailed review of service documentation related to disaster management contingencies for people with disability;
- develop, prepare and submit a research proposal and application for ethics approval; and
- analyse and synthesise data to generate best practice guidelines and prepare manuscript for publication

Project Specific Requirements:
- Sound literature searching skills.
- Commitment to empowering people with disability.

Project Length: Honours/24 point MPH

The challenges of career development for health professionals in rural/remote locations

Assoc/Prof Monica Moran; Assoc/Prof Rohan Rasiah

Background: The health workforce in remote Western Australia is a particularly transient one and the turnover of health personnel has a significant negative impact on service provision for communities in remote areas. In addition the cost of a rapid turnover of health professionals introduces an additional financial burden on health services. Finally for health professionals themselves the upheaval of taking up and then leaving a position in a short period of time has many negative connotations.

Much has been written about the factors that impact on health professionals' reasons to stay or leave a remote position. Concerns regarding limited opportunities for career development in remote settings are frequently identified.

Outline: This study will involve the generation, development, implementation and analysis of an on-line survey to health professionals across a large remote area of Western Australia. The survey will explore the perceived career development needs of these health professionals including needs for mandated continuous professional development, needs for education and training specifically related to remote practice contexts, and needs for advanced education to support career advancement.

The results will be used to inform health services' managers and education providers regarding specific strategies to enhance the sustainability of the remote health workforce through the development of a comprehensive postgraduate educational program.

Methodology:
This project will require you to:
• review the literature related to Australian health workforce in the context of rural/remote practice areas;
• generate and deploy an online survey for health professionals;
• develop, prepare and submit a research proposal and application for ethics approval;
• analyse data, compile results, and prepare manuscripts for publication.

Project Specific Requirements:
• Sound knowledge and skills in survey development.
• Interest in rural/remote health workforce and service delivery.

Project Length:
Honours/24 point MPH/MPhil

This project can be broken into stages to suit the learning requirements of students enrolled in different programs.

Projects in Women's Health

Experiences of and responses to non-physical family and domestic violence

Prof Colleen Fisher

Background: Family and domestic violence is an important public health issue internationally. In Australia, the ABS (2013) estimated that 1 in 4 Australian women over the age of 15 years had experienced at least one incident of physical or sexual and/or emotional abuse in her lifetime. Despite a broad definition of family and domestic violence to include physical and non-physical abuse, the response from legal, police, health and social support agencies has been much more comprehensive and focussed on physical and sexual abuse. In a family and domestic violence research priority setting process in 2016 - undertaken with victims of family and domestic violence by academic staff from the School of Population and Global Health, the WA Consumer and Community Health Research Network and Anglicare WA – however, nonphysical abuse was highly prioritised by those with lived experience. The lived experience of participants who endured non-physical abuse without physical or sexual abuse felt they were rendered 'invisible' in formal and informal responses and their experiences not validated.

Outline: The final research proposal will be developed fully with the student, but potential issues for research include:
• how do we educate frontline service providers about non-physical abuse and best support clients (not exposed to physical/sexual violence)?
• how do we education the community to recognise non-physical violence as a form of family and domestic violence?
• how do women experiencing non-physical violence recognise this as a form of family and domestic violence and access support?

There may also be the possibility to explore trajectories of non-physical abusive relationships becoming physically or sexually abusive.

Methodology: The suggested research questions lend themselves to qualitative research. That said, a mixed-methods design may also be appropriate. It is envisaged that the student will recruit participants, collect and analyse qualitative data (likely to be in-depth interviews), and potentially undertake a scoping of the policy landscape. If a mixed methods design is warranted, the development of quantitative data collection instruments and quantitative data analysis will also be undertaken.

Project Specific Requirements:
Qualitative and potentially quantitative data analysis. The student will also need a high level of interpersonal skills to undertake qualitative data collection on a very sensitive and personal topic.

Project Length: PhD

Family and domestic violence research priority setting
Prof Colleen Fisher

Background: Family and domestic violence is an important public health issue internationally. In Australia, the ABS (2013) estimated that 1 in 4 Australian women over the age of 15 years had experienced at least one incident of physical or sexual and/or emotional abuse in her lifetime. Despite being constructed as a social and public health issue since the 1970s and the state in Australia formally responding to the issue since the 1980s, family and domestic violence became much more prominent on political and policy agendas following Rosie Batty being named Australian of the Year in 2015. Australia has a national plan to prevent family and domestic violence with a designated research arm – ANROWS. The research priorities through ANROWS are 'top down' with researchers submitting research grant applications against ANROWS priority areas. Academics from the School of Population & Global Health, Telethon Kids Institute, Anglicare WA and the WA Consumer and Community Health Research Network were keen to understand what the research priorities were for those with lived experience. To this end we undertook a family and domestic violence research priority setting process in late 2016. From this process a prioritised list of 10 research priorities for mainstream and 10 for Aboriginal women was developed.

See: - http://involvingpeopleinresearch.org.au/find-out-more/our-resources/family-and-domestic-violence-priority-setting-partnership

Outline: This project is placed inthe burgeoning area of scholarship and pratice related to the imperative of ensuring consumer and community involvement in research. The intended outcome from this project is the publication of a manuscript detailing the priority setting process and the analysis of the qualitative data that were collected during the process.

Methodology: In this project you will have the opportunity to analyse the open-ended qualitative data that was collected from the survey that formed part of the priority setting process and situate the analysis in the borader community involvement and resonses to family and domestic violence literatures.

Project Specific Requirements: An understanding of qualitative data analysis. Your qualitative data analysis skills will develop over the course of the project.

Project Length: Honours/24 point MPH

Projects with the World Health Organisation (WHO)

Prof Colleen Fisher in collaboration with Dr Joshua Vogel (Department of Reproductive Health and Research, WHO)

Preterm birth
Background: Preterm birth (PTB) is a condition affecting over 1 in 10 newborns worldwide. The Department of Reproductive Health and Research (RHR) at the World Health Organization co-ordinates a number of knowledge synthesis and research activities related to PTB, particularly related to PTB epidemiology, interventional research and knowledge gaps for clinical practice in low-and middle-income countries.

Potential candidates would have skills in quantitative analysis methods and software, and/or systematic review methodology.

Outline: Available topics include:
- Epidemiological analyses on levels and trends in preterm birth globally.
- Systematic review/s and primary research on international definitions, thresholds and reporting standards for preterm birth.
- Development and testing of tools for improving global PTB monitoring and reporting.
- Developing innovative approaches to PTB estimation at population level.

Knowledge translation
Background: While there is a growing volume of evidence and clinical guidelines in maternal and perinatal health, there is still a large gap between evidence and clinical practice, particularly in low- and middle-income countries. While collaborative writing platforms (such as Wikipedia and WikiDoc) are popular resources for clinicians and students globally, they are often of variable quality, which may have adverse impacts on clinical care.

WHO is exploring innovative methods to more efficiently develop recommendations and disseminate them globally. This includes prioritization of clinical questions, development of rapid review techniques, and expanding the use of digital tools and platforms (such as the WHO Reproductive Health Library) to support implementation. Potential candidates would have skills/demonstrated interest in systematic reviews, guideline development and knowledge translation methods.

Outline: Available topics include:
- Appraising the quality and accuracy of maternal and perinatal health information on priority clinical topics available in public knowledge translation platforms; exploring the use of digital communities to improve information quality.
- Using qualitative and quantitative methods to develop and test digital tools for use at point-of-care.
- Adapting and applying rapid review methodologies to development of WHO recommendations.

Core outcome sets

Background: While much attention has been paid to standardising randomised trial methods, the collection and reporting of outcomes has been comparatively neglected. Systematic reviews have characterised inconsistencies in outcome reporting across trials of key interventions in maternal and newborn health, as well as other disease areas. The development and implementation of patient-centred core outcome sets can help to address these issues.

The CROWN initiative collates a number of ongoing core outcome set research projects in maternal and newborn health, however several clinical topics and interventions are in need of COS development. Core outcome sets have often not considered generalizability to clinical settings in low- and middle-income countries, nor adequately engaged with women and communities living in low-resource contexts. Potential candidates would have skills/interest in quantitative analysis and systematic reviews.

Outline: Available topics include:
- Use of systematic reviews and Delphi consensus methods to develop COS in priority clinical topics within maternal and newborn health.
- Conduct research on the generalizability of COS to low- and middle-income country settings, and engaging the perspective of stakeholders (particularly women and communities) in low- and middle-income countries.

Mistreatment of women during childbirth in facilities

Background: Every woman has the right to dignified, respectful care during childbirth. Recent evidence has demonstrated that globally many women experience mistreatment during labour and childbirth in health facilities, which can pose a significant barrier to women attending facilities for delivery and can contribute to poor birth experiences and adverse outcomes for women and newborns. However there is no clear consensus on how mistreatment of women during childbirth in facilities is defined and measured. WHO has conducted a mixed-methods study in four lower-income countries on mistreatment during childbirth. The qualitative dataset relates to perceptions, experiences and drivers of mistreatment, while the quantitative dataset relates to measurement of the prevalence of different forms of mistreatment. Potential candidates would have skills and interest in qualitative analysis and software, and/or quantitative analysis and software.

Outline: Available topics include:
- Analysis of qualitative data on perceptions, experiences, and drivers of mistreatment.
- Analysis of quantitative data on prevalence, risk factors and adverse outcomes associated with mistreatment.