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Research projects 2020

Topics for Honours and
MPH 24 point Dissertations
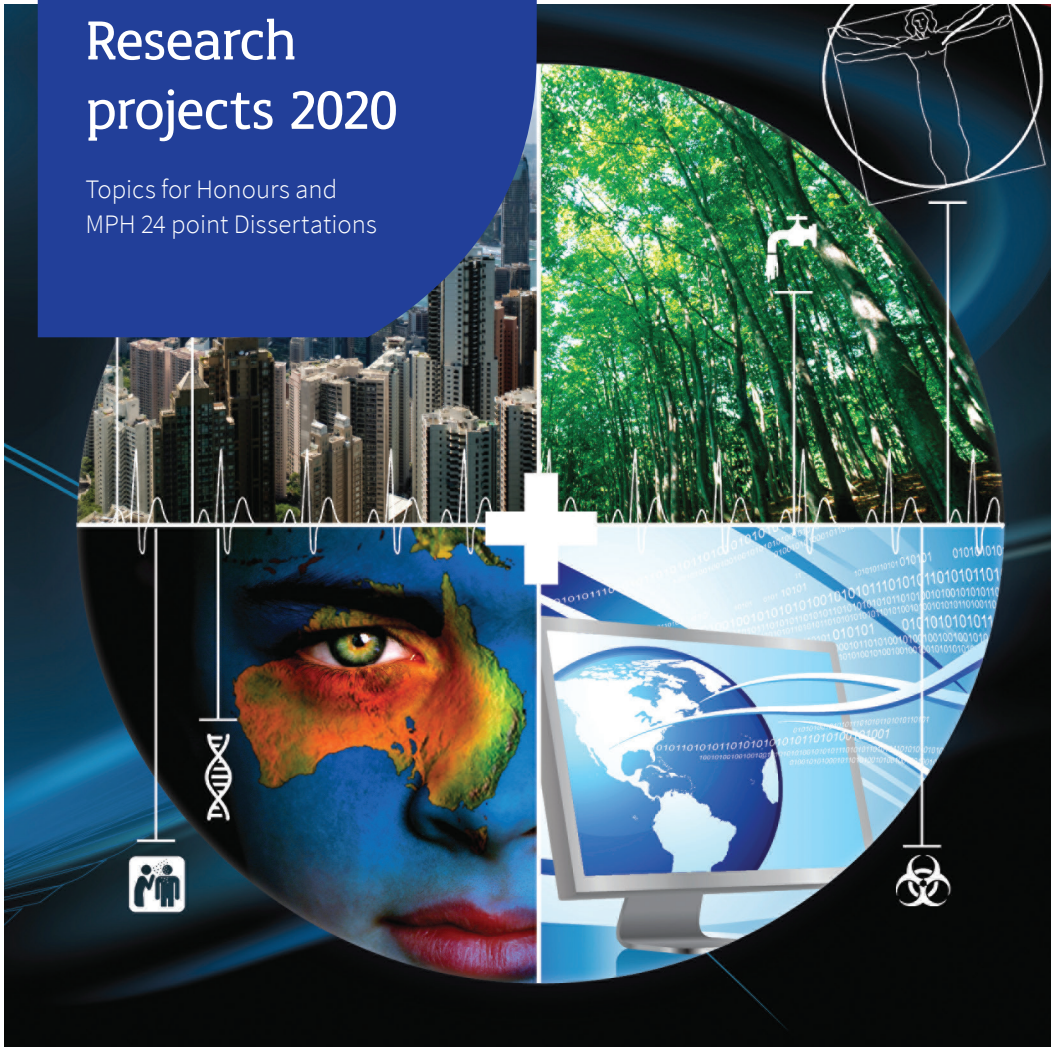
Research projects now available in the School of Population & Global Health (SPGH)

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 manuscript of significant academic scholarship.

Your initial research training can include completion of an Honours or a postgraduate coursework Master of Public Health (MPH) with a 24 point dissertation. This can lead to enrolment in a Master of Philosophy (MPhil) or Doctor of Philosophy (PhD).

As an honours or 24 point dissertation research student with us, you will develop, 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 an academic researcher to investigate an important and topical area of public health. Responsible, conscientious students, who meet the eligibility criteria, 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 or a MPH 24 point dissertation
Contact our Honours & Dissertation Coordinator by email - karen.martin@uwa.edu.au

Research Areas & 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.

Cardiovascular Disease Epidemiology
Aims to reduce the burden of cardiovascular 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.

Child & Adolescent Development and Health
Early influences on child and adolescent health significantly impact on health and development outcomes throughout life.   Our research draws on the skills and experience of our teams' multi-disciplinary backgrounds to engage with stakeholders and deliver high quality research with real world policy and practice implications.

Global Environment and Health
Investigates the relationships between ecosystems, environmental and occupational agents and health, at local and global scales, in order to determine ways that we can improve global human health. We research disease outcomes resulting from occupational and environmental exposures, such as mining hazards, asbestos, air pollution, heat, noise and water. We are also investigating the positive impact of green and blue spaces on health, and a developing area of interest is health promotion in relation to global and environmental health

Health and Labour Economics
To improve resource allocation and decision making in the health sector through systematic evaluation and assessment, with an economic perspective.

The Raine Study - https://www.rainestudy.org.au/
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 30 years offering a unique and valuable resource covering a wide range of health areas.

Neuropsychiatric Epidemiology Reserach Unit (NERU)

Focuses on psychiatric epidemiology, taking a cross-disciplinary approach to the study of psychotic disorders including schizophrenia and other severe mental illness.

Vulnerable Groups

Aims to improve health and social outcomes and reduce the disease burden among some of society's most at-risk populations.

Western Australian Centre for Rural Health -http://www.wacrh.uwa.edu.au/

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.

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

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Projects under the Busselton Health Study

Busselton Health Study Projects

Dr Kevin Murray

The Busselton Health study is a series of internationally recognised cross-sectional and longitudinal population health studies carried out on the population of Busselton, Western Australia which aims to provide a better understanding and management of disease and illness.

Research activities undertaken as part of the Busselton Health Studies are diverse and encompass a wide range of health conditions and measures.

These have included cardiovascular disease, respiratory disease, diabetes and endocrine disorders, gastrointestinal, kidney and liver diseases, cancer, obesity, sleep disorders, cognition and genetic epidemiology.

Extensive information on demography, lifestyle and behaviour have also been collected at each of the surveys along with blood samples for biochemical measures and genetic studies.

Epidemiological data analysis driven projects are available for Honours and Masters students, and interested students should contact Dr Murray for details.

Projects under Cardiovascular Research Epidemiology

State-of-the-Art Cardiovascular Disease (CVD) Research

A /Prof Tom Briffa

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 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 topic areas include:
- Atherothrombotic disease across the vascular territories

- Busselton Health Study
- Monitoring coronary artery disease
- Management of CVD in the Indigenous population
- Diabetes and CVD
- Peripheral arterial disease
- Risk Factor Prevalence Study
- Coronary artery revascularisation
- Chronic kidney disease and CVD

Methodology: The cardiovascular research group uses clinical data collected from cohorts in Western Australia together with person linked administrative data from hospitals and registers to examine influences, trends and epidemiology of CVD health outcomes.

Project Length:
Honours/24 point MPH

Processing evaluation of the Healing Right Way trial

Dr Judith Katzenellenbogen

Background: This project is part of a process evaluation of the NH&MRC-funded randomised control trial (RCT) entitled 'Enhancing rehabilitation for Aboriginal Australians after brain injury: Healing Right Way' (HRW). This project is focused on providing culturally secure rehabilitation services for Aboriginal patients with acquired brain injury. HRW uses a randomised cluster step-wedge design of a complex intervention (consisting of culturally secure training (CST), and the introduction of an Aboriginal Brain Injury Coordinator (ABIC) role) in four metropolitan and four regional Western Australian hospitals.

We have designed and implemented a mixed methods process evaluation which is being undertaken both prospectively and retrospectively, enhancing the conduct and interpretation of the parent study.

Outline: To determine processes, barriers and facilitators that have influenced the implementation of the trial and ongoing partnerships with stakeholders during the first two years of the RHW.

Methodology: Qualitative study using data collected prospectively as part of the process evaluation.

Data collected includes minutes of meetings, interviews with project staff, surveys with participants of cultural security training in hospitals, review of communication with project partners.

Project Specific Requirements: Knowledge of evaluation frameworks, qualitative methods.

Project Length: 24 point MPH

Developing reliable algorithms for monitoring coronary heart disease in Australia

Dr Lee Nedkoff

Background: Coronary heart disease in Australia is very common and kills more people than any other disease. A number of factors including changing diagnostic criteria means that current methods for monitoring and measuring the trends in coronary heart disease are becoming out of date.

There are a number of potential projects available under this topic encompassing validation of heart attack coding in hospital data, developing algorithms to reliably monitor coronary heart disease over time, and translation of findings into national data through our collaboration with the Australian Institute of Health and Welfare.

Outline: Develop new models for national monitoring of heart attack and coronary heart disease in Australia.

Methodology: The project will use a linked database from multiple sources.

Project Length: 24 point MPH

The epidemiology and experience of rheumatic heart disease in Australia

Dr Judith Katzenellengbogen

Background: Acute rheumatic fever (ARF) and rheumatic heart disease (RHD) persist as significant sources of health burden among Indigenous Australians. End RHD in Australia: Study of Epidemiology (ERASE) Project aims determine the baseline burden of ARF/RHD in Australia and to develop further insights into the progression of the disease as a basis for improved monitoring. The project also investigates factors affecting the management of these conditions in primary care.

Outline: A number of potential projects associated with the ERASE project are available for students, including epidemiological analyses and analyses related to health systems. Translation of findings will occur through the End RHD Coalition as well as dissemination of results to communities.

Methodology: The project use a multi-jurisdictional linked database from multiple sources as well as qualitative data on primary care systems to support RHD management. An appropriate methodology will be developed depending on the research question, available data and the level of skill/interest of the student.

Examples:
- Missed opportunities in the diagnosis of ARF in hospital (review administrative records of ARF/RHD diagnosed patients to identify whether ARF had not been diagnosed in previous emergency department and hospital encounters)
- Descriptive study of PHC data of patients diagnosed with ARF and RHD in NT.
- Development and evaluation of resources for dissemination of findings to communities.

Project Specific Requirements:
- For linked data analysis, competence in SAS; R or SPSS or preparedness to learn quickly.
- For Health systems research, preparedness to learn qualitative methods.

Project Length: Honours/24 point MPH

Use of statins in coronary heart disease patients

Dr Frank Sanfilippo

Background: Statins are frequently used drugs in coronary heart disease (CHD) patients to prevent heart attacks.

Outline: This project will investigate a number of important areas of statin utilisation including identifying age- and sex-specific risk thresholds for use of statins and determining levels of risk in patients who cease statins. There are also opportunities to investigate a broader range of secondary prevention medications in this patient group.

Methodology: The project will use linked administrative datasets including hospital morbidity/mortality and PBS data.

Project Length: 24 point MPH

Projects with the Centre for Health Services Research

Exploring the Mental Health and Emotional Wellbeing of Reception Prisoners
Prof David Preen

Background: People who go to prison experience social disadvantage, mental illness and trauma at far higher rates the general community. To investigate mental illness and emotional wellbeing in this group further 719 adults were recruited and interviewed within one week of entering prison. They were asked a range of questions on topics that included mental health, life stressors, drug and alcohol use, and unmet needs.

Outline: The project aims to describe and quantify the nature and extent of mental disorders including alcohol and substance misuse disorders amongst WAreception prisoners, as well as their met and unmet needs. A main project aim is to provide high quality data that will assist in the planning and provision of mental health services to mentally disordered offenders both within the criminal justice system and in the community.

Methodology: Cross-sectional survey data collected within one week of reception into prison.

Project Specific Requirements:
Reasonable knowledge of biostatistics

Project Length: Honours/24 point MPH

Medication safety in pregnancy
Dr Erin Kelty

Background: The use of medications in pregnancy has the potential to cause serious harm to the developing fetus, as such pregnant women are generally excluded from clinical trials resulting in a sparsity of information on medication safety in pregnancy. However, pregnancy is not protective against illness, and women often require medications during pregnancy. In treating these women, clinicians are generally advised to use a given medication in pregnancy only when the benefits outweigh the potential risks. This is problematic where there is little evidence of the risk.

Outline: To examine the maternal and child health outcomes associated with the use of different medications in pregnancy.

Methodology: The study will use linked health data to examine the safety of medications in a retrospective cohort of pregnant women. A wide range of data is available for both the mothers and their children, including hospital, emergency department, mental health, mortality, congenital anomalies, and cancer.

Project Specific Requirements:
Good statistical knowledge and skills.

Project Length: Honours

Projects under Child and Adolescent Health

Physical activity interventions targeting dog owners

Dr Hayley Christian

Background: Almost half of all Australian households owns a dog. Dog walking has been shown to be a potentially viable strategy for increasing the number of people (adults and children) who meet national physical activity recommendations.

Outline: This project will involve intervention research to examine the potential of dog walking to contribute to owners physical activity levels. The project is likely to have significant implications for physical activity promotion and will involve working closely with key stakeholders, 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/24 point MPH

$1000 scholarship available for suitable candidate.

Health benefits of natural outdoor environments

Dr Hayley Christian

Background: Natural outdoor environments including blue spaces help reduce stress, promote physical activity and social connections, improve overall health and well-being, improve connection to place and reduce urban heat effects. The health benefits associated with exposure to blue space (oceans, rivers, lakes etc) likely follow similar pathways and mechanisms to those identified for green space.

Outline: This research will determine the health benefits of blue space. It will involve stakeholder interviews and or intercept surveys to investigate how Western Australians access and use different types of blue spaces in their community and what the health and wellbeing benefits are (and potential negative effects)?

Methodology: Literature review; Qualitative; Quantitative survey.

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/24 point MPH

Physical activity policy for early childhood education and care- parent engagement

Dr Hayley Christian

Background: Daily physical activity is critical during the early years of life for facilitating children's health and development. Only one in three Australian children aged 2 to 5 achieve the recommended level of three hours of daily physical activity. Early childhood education and care (ECEC) services are a key setting to intervene to increase physical activity.

Outline: The student will be part of a multi-jurisdictional NHMRC funded project and have the opportunity to work with eight partner agencies. The project will provide n-depth knowledge about parents' barriers and enablers for improving parent-child, and parent-educator engagement around children's physical activity.

This will involve exploring, identifying and better understanding the factors that strengthen the educator-parent engagement process to boost children's physical activity in the home and ECEC environment.

Methodology: Literature review; Qualitative.

Project Specific Requirements:
- Ability to conduct quantitative/ qualitative research.
- Excellent writing skills.
- Ability to work as part of a team.
- Good interpersonal communication skills.

Project Length: Honours/24 point MPH

Testing the capacity of an online tool to promote safe sun behaviours in teenagers

Dr Hayley Christian; Shelley Gorman (Telethon Kids Insitute - shelley.gorman@ telethonkids.org.au)

Background: In this project, we will test a recently developed prototype app, designed to help young teenagers better balance their sun health needs. Sun protection is important as excessive exposure (causing sunburn) in childhood and adolescence is a major risk factor for melanoma. Indeed, young people in this age group are at increased risk of sunburn. However, some safe sun exposure is necessary for health benefits, such as vitamin D. We will test the capacity of the designed app to actively engage young people in an entertaining and age- appropriate way to deliver rigorously vetted health information around optimal sun protection and exposure.

Project Aim: To pilot test a prototype app that aims to improve the knowledge and behaviours that young adolescents have around safe sun protection and exposure practices for vitamin D.

Methodology: In school- and community-based pilot studies, we will test end-user responses ('process': engagement, functionality, aesthetics and information quality) to using the app, as well as its capacity to improve their safe sun knowledge and behaviours.

Specific methodological approaches:
1. Assess responses to questionnaires on 'process' outcomes related to using the developed app;
2. Assess the knowledge gain related to sun health outcomes in response to using the app, comparing with baseline answers to a standardised multiple-choice test; and

3. Measure skin type, sun sensitivity and normal sun exposure patterns of participants and sun exposure behaviours before and after using the app (questionnaires, polysulfone badges).

Project Specific Requirements:
The student will help the research team to: supervise young adolescents complete questionnaires; measure sun exposure behaviours; collate and record all data and feedback; perform statistical and other data analysis, using analyses such as student's t tests, one-way ANOVA and simple correlations on programs like Prism GraphPad and Microsoft Excel; and, prepare a manuscript that describes and critically discusses study findings in a publication. Essential skills for this project include excellent written and oral communication, very good organisation, motivation and dedication. If accepted for the project, the student will need to complete police and working with children checks, which will be funded by the study.

Project Length: 24 point MPH

Projects under Global Health

In addition to the projects listed there may also be opportunities to get involved with research projects in northern Thailand. One potential topic is a SinLek rice project which is a placebo-controlled cross-over trial of a heritage black rice vs a white rice in a primary school in Chiang Rai, Thailand. Any students interested in undertaking a project in this area please contact Dr Justin Denny.

Scholarship - *The Governor Sanderson Scholarship in Population Health (Dr Haruhisa Handa Leadership Scholarship Program) [F15096] encourages and enables graduates from a variety of professional backgrounds to undertake a Master of Public Health degree course with a field component (related to their dissertation) in East Asia.*

Chronic kidney disease in Sri Lanka
Prof Jane Heyworth in collaboration with Dr Tanuja Ariyananda (Lanka Rain Water Havesting Forum) and Dr Gayan Bowatte (Univerity of Peradeniya)

Background: There are approximately 70,000 estimated CKD/CKDu patients in 6 of the 9 provinces in Sri Lanka. Despite many studies conducted in this area, the risk factors for this disease are still uncertain (thus "u" in CKDu). According to studies carried out to date, CKDu maybe a result of drinking water contamination.

In the Northern province, a preliminary survey conducted of CKDu patients in households with rain water harvesting system installed in the northern province indicated that the patients "feel healthier" after drinking rain water and that their condition remain stable. However, further research is needed to confirm these finding and to identify differences in the constituents of harvested rainwater and other drinking water

The Lanka Rain Water Harvesting Forum (LRWHF) has installed over 500 RWH systems in households Northern & Uva province.

Outline:
- Is drinking harvest rainwater associated with a reduced risk of CKD?
- Are the symptoms of CKDu improved among patients drinking rain water?

- What factors in drinking water sources might lead to differences in risk?
- What are other potential risk factors for CKDu?

Methodology: Establish/undertake a case control study of CKD in Sir Lanka.
1. Identify methods for selecting cases and control .
2. Develop survey instruments for assessing exposure to water and other risk factors.
3. Monitor water quality of different water sources (RW, RO, well)

Project Specific Requirements:
Good performance in epidemiology and biostatistics units.

Project Length: Honours/24 point MPH

Evaluation of Public Health field trips

Dr Julie Saunders; Prof Jane Heyworth

Background: Since 2008, we have taken student groups on public health field trips to India, Nepal and Fiji, enabling students to gain field experience of public health issues and practice in the Asia-Pacific region. The fieldwork is focussed on specific projects that are a priority for the NGOs that we work with. We are designing an innovative evaluation approach to capture the multifaceted aspects of this program, which involves NGOs, local communities, government agencies, students and staff. As part of this approach we have developed an evaluation instrument for the NGOs and other agencies that we interact with.

Outline: To evaluate the public health field trips from the perspective of staff of the NGOs and agencies, with respect to whether the program is mutually beneficial and specifically:

- worth of the specific project outcomes to the NGO's current and future work;
- impact on workload/staff during the fieldwork;
- interactions with staff and students;
- challenges and areas of improvement;
- benefits beyond the fieldwork.

If possible, we will also evaluate the impact on local communities.

Methodology:
A qualitative research approach will be undertaken. Where possible, the student in collaboration with a local research assistant, will undertake focus groups or interviews with the staff of NGO and agencies.

The student will analyse the transcribed interviews, undertake thematic analyses, and interpret and write up these findings. The student will prepare a report the findings to be provided to the NGOs, prepare a video of the key messages of this research and a conference abstract.

Project Specific Requirements:
Completed PUBH3305 Health research design and methods or PUBH5805 Qualitative research methods in health, or their equivalent with a Distinction or High Distinction grade.

Project Length: 24 point MPH

Projects under Global Environment and Health

Health risk assessment of artisanal brick kilns in low-and middle-income countries
Prof Jane Heyworth

Background: The artisanal brick kiln industry is an important source of air pollution in low to middle income countries. In addition brick workers are among the most marginalized of unskilled workers and the industry is in need of urgent environmental, occupational health and safety interventions. 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, sulfur dioxide, carbon monoxide and black carbon. These emissions are responsible for serious impacts on human health in workers and residents of surrounding areas.

This project will involve describing the global artisanal brick industry and the associated risks to human health, and estimating the potential reduction in health risks with the implementation of 'improved' kilns that have been developed to reduce adverse environmental emissions. A case study of post-earthquake brick kiln reconstruction in Kathmandu valley will be undertaken.

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: Honours/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

What is the impact of vegetation on air quality?

Prof Jane Heyworth; Ania Stasinska; Dr Natasha Pauli (School of Agriculture and Environment UWA)

Background: There is emerging evidence that green space is associated with health and wellbeing. Some of the mechanisms by which this might occur include: increased physical activity, reduced stress, improving air quality and reducing urban heat effects. Vegetation may be both beneficial and harmful for air quality as trees can filter out particulates in air, but some may also produce volatile organic compounds or pollens. In order to plan greening in urban areas to improve health more in-depth knowledge is needed regarding the specific settings and greening characteristics that will maximize benefits.

Outline: To understand the relationship between green space and air pollution in Australian urban environments.

Methodology: Literature review.

Project Specific Requirements:
Good analytical and writing skills

Project Length: Honours/24 point MPH

Health and well-being impacts of interactions with green space: Does perception of biodiversity influence outcomes?

Prof Jane Heyworth; Dr Natasha Pauli (School of Agriculture & Environment UWA)

Background: Perth is within a global biodiversity hotspot, with a high proportion of endemic species coupled with a dramatic reduction in total area covered in native vegetation. There exists a broad body of literature detailing the links between green space and impacts on physical and mental health and wellbeing. However, there is a relative lack of information on how the biodiversity of green spaces is a) perceived by the general public and b) is linked with health and well-being.

Emerging research has shown some potential correlations between access to areas with higher biodiversity, respiratory health and allergic conditions. However, the degree to which people's perception of biodiversity influences their use and opinion of green spaces with varying levels of native biodiversity has been little explored in the Australian context.

This research project will use a mixed methods approach to explore perceptions of a cross-section of the community to a spectrum of green spaces that could be used for recreation, highlighting the likely impacts on wellbeing and physical activity.

Outline: To understand variation in the perception of biodiversity; and to assess whether people's views on biodiversity are linked with differential impacts on health and well-being.

Methodology: Literature review, questionnaires, focus groups, qualitative and/or quantitative data analysis.

Project Specific Requirements:
Good analytical and writing skills. Ability and willingness to interact with members of the public and/or key external stakeholders.

Project Length: Honours/24 point MPH

Modelling 20 years of noise in WA mines: have noise levels reduced?
Dr Peter Franklin; Prof Jane Heyworth

Background: Prolonged exposure to high levels of noise can result in permanent and irreversible damage to hearing (noise induced hearing loss – NIHL). Noise exposure is prevalent in mining and is a generic hazard, to a greater or lesser extent, to all operations within mining. The mining industry has long been known to have one of the highest rates of occupational NIHL. A 2004 SafeWork Australia report used compensation claims (1998/99 to 2001/02 data) for NIHL to determine incidence of claims for different industries. Mining had the highest incidence of deafness claims (343/100,000 employees in 2001/02). In Western Australia (WA) there is a regulatory requirement for specific action to be taken when people are exposed to either an average noise level of more than 85 dB(A) for an eight-hour working day (LAeq,8h) or a peak noise level in excess of 140 dB(lin).

The WA Department of Mines, Industry Regulation and Safety (DMIRS) have a guideline for the management of noise in WA mining operations.

Despite this, noise measurements above the exposure standard were recorded for 93% of underground production employees, 73% of surface production employees, and 68% of ore treatment employees in mines between 1996 and 2009.

Outline: The aim of this study is to investigate noise levels in WA mines between 1996 and 2016 to determine; 1) the main contributing factors to elevated level and 2) if there have been reductions in noise over that 20 year period

Methodology: Noise data has been collected by DMIRS since 1996. We will initially model the determinants of exceedance of the full-shift workplace noise exposure limit (LAeq,8h≥85 dBA) using logistic regression analyses. Models will include the type of mine, place of collection (eg surface or underground), and activities conducted during collection. Trends over time will then be calculated

Project Specific Requirements:
Statistical competency (ideally biostats II)

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

Post-Wittenoom occupational asbestos exposures: Do they matter?

Dr Nita Sodhi-Berry; Dr Peter Franklin

Background: Workers from the Wittenoom mine and residents of the Wittenoom township have had the highest incidence rate of mesothelioma and lung cancer in the world from their exposure to high levels of blue asbestos (crocidolite). Exposure levels of both Wittenoom workers and ex-residents have been estimated through their employment records and residency, respectively. In epidemiological studies, only their Wittenoom exposures have been considered. However, some people had asbestos exposure after leaving Wittenoom.

We have full work histories for over 1300 Wittenoom miners and 1100 Wittenoom residents, and their post-Wittenoom exposures have been quantified through the Australian asbestos job exposure matrix, the AsbJEM.

Outline: The aim of this project is to estimate post-Wittenoom exposures in the Wittenoom cohorts to determine if these can make a significant contribution to the overall asbestos exposure.

Methodology: Using the data on Wittenoom workers and residents who had additional occupational exposure outside of Wittenoom, the student will understand the differences in the calculation of exposures through the two assessment tools. She/he will undertake a comprehensive literature review and prepare a research proposal, perform statistical analyses to calculate *incidence* rates and compare these, and prepare a scientific manuscript for publication.

Project Specific Requirements: Good literature reviewing skills. Good statistical knowledge.

Project Length: 24 point MPH

Quantitative assessment of occupational exposures in WA mines

Dr Peter Franklin

Background: Assigning quantitative and accurate exposure levels is key for deriving valid inferences from occupational epidemiological studies. Quantitative exposure assessment enables epidemiologists to express risks of a disease per unit of exposure and inform acceptable thresholds in the workplace. Accurate estimation of health risks arising from hazard exposure in the workplace require valid exposure quantification.

Measurement data along with information on how, why, when and where they measurements were collected is needed for this.

Levels of exposure to potentially hazardous dusts and chemicals in WA mines have been monitored by the mining industry and collated on an electronic database since 1986. This data will be modelled to describe the levels, determinants and variability of exposure to dusts, including specific carcinogens, and other hazards in the mining industry.

Outline: To estimate quantitative levels of exposure to various contaminants (e.g. respirable dust, CO, NOx, nickel, lead, arsenic, etc) for various jobs in the contemporary mining industry.

Methodology: The student will undertake a review the literature on a specific mining exposure (e.g. asbestos),

gain familiarity with the mining exposures database and prepare a research proposal, followed by statistical analyses and preparation of a scientific manuscript for publication.

Statistical analyses will include modelling of exposure measurements, describing time trends, identifying determinants of exposure and assigning quantitative exposure levels to individual miners.

Project Specific Requirements: Good statistical knowledge and skills, e.g. Biostatistics II essential.

Project Length: 24 point MPH

Health effects of mining exposures?

Dr Nita Sodhi-Berry; Dr Peter Franklin

Background: Mining activities are associated with exposure to harmful dusts and gases. Studies on mining cohorts have advanced scientific knowledge on causal relationships between these exposures and chronic respiratory diseases (e.g. pneumoconiosis and lung cancer). This has influenced regulatory changes over the past decades with improved respiratory health outcomes. However, ongoing assessment is required to determine if these changes are sufficient in protecting miners' health.

The WA miners' cohort includes over 150,000 miners who worked and lived in WA between 1996 and 2012. Their occupational histories have been decoded to assign quantitative exposure metrics for diesel and silica, two of the most common mining exposures. The cohort has been linked with administrative health records allowing assessment of various health outcomes. The overall aim of this study is to investigate the short- and long-term health effects of

modern-day mining exposures, specifically silica and diesel.

Outline: Are current mining emission regulations sufficient to preserve miners' health?

This project offers potential students the opportunity to choose from a variety of health outcomes (e.g. cancer, pulmonary, cardiovascular, renal, etc.). The scope of a project will be tailored to suit the candidate's goals.

Candidates will gain hands-on experience of applying core epidemiological concepts and understand how epidemiological evidence is generated and used to inform policy and planning of occupational health standards and guidelines.

Methodology: Students will undertake a comprehensive literature review on their chosen research question and develop a research proposal, followed by quantitative analyses of large linked datasets including the cohort's occupational and health histories. Analyses will include generation of disease frequencies, general population comparisons, time trends, estimation of risks and dose-response relationships, etc. Scientific manuscripts for peer-reviewed publication will be prepared.

Project Specific Requirements: Good literature reviewing skills and statistical knowledge, e.g. Biostatistics II essential.

Project Length: 24 point MPH

Building a robust Nursing workforce

Dr Ian Li; Mr Rory Watts

Background: The nursing workforce is an important component of the health workforce. However, research into the nursing workforce has been hampered by a lack of rich, representative data. At the same time, prior literature indicates that Australia is likely to face a lack of nurses to meet demands for the future. More recently, media reports suggest that newly qualified nurses are unable to secure appropriate employment within Australia, and have had to pursue nursing careers overseas. Shortages in the nursing workforce and the inability to secure appropriate employment, has come to be known as the 'nursing workforce paradox'.

It is thus imperative that more research is conducted into the education-work transition of nurses, from universities into the workplace.

Prior research looking at underemployment of nursing graduates over 2008-2015 has tackled some of these issues, however, this research has only focussed on short-term outcomes post-university completion. The proposed program of study will examine longer term outcomes.

Outline: The aim of the study is to examine labour market outcomes for nursing graduates from Australian universities. A time-series of data is available, and hence trends in the following research objectives can also be explored.

These outcomes include unemployment, earnings, underemployment, and contract type.

1. To examine the unemployment and underemployment rate of nursing graduates, and the transition from unemployment to employment in the longer term
2. To examine employment contract and permanency for nursing graduates
3. To examine earnings of nursing graduates in the short and long term, as well as the distribution of earnings.
4. To examine whether employment outcomes differ for nursing graduates with an undergraduate qualification, as opposed to a Masters entry-to-practice type qualification

Methodology: The analyses for this study will be primarily quantitative in nature. The analyses will utilise a national survey of Australia graduates available from 2010-2017, which also includes longitudinal follow-up of the survey respondents.

Project Specific Requirements:
Essential
*   Excellent report writing skills and proficiency in English.
*   Biostatistics I or equivalent.

Desirable
*   Biostatistics II or equivalent .
*   Competent in SPSS, Stata or equivalent.

Project Length: Honours/24 point MPH

How do unhealthy behaviours influence employment outcomes
Dr Ian Li

Background: Unhealthy behaviours and lifestyle factors are areas of focus for health policy. Thus far, most studies looking at these factors have focussed on their impacts on diseases and health outcomes. It has also been hypothesised that unhealthy lifestyles could also have further reaching impacts on employment outcomes. Consideration of the costs of adverse employment consequences would lend further policy weight in tackling unhealthy behaviours and lifestyles.

Outline: The aim of this study will be to look at several unhealthy behaviours derived from the literature and examine the causal impact of these behaviours with several measure of employment outcomes

Methodology: This study will use data from a nationally representative, longitudinal dataset called the Household Income and Labour Dynamics Australia (HILDA) study. The HILDA study commenced in 2001 and has an annual follow up, with the 17th wave of data being made available recently. Longitudinal analytical regression techniques will be used for this study.

Project Specific Requirements:
Essential
• Excellent report writing skills and proficiency in English.
• Biostatistics I or equivalent

Desirable
• Biostatistics II or equivalent .
• Competent in SPSS, Stata or equivalent.

Project Length: Honours/24 point MPH

The undergraduate public health student: Where do they come from? Where will they go?
Dr Ian Li; Mr Rory Watts

Background: Historically, the public health degree in Australia has been a Master of Public Health (MPH). However, much of the public health education taught is now at an undergraduate level, either through specific public health degrees, or through majors and units in other degrees (e.g. health science).

Similarly, most research about public health students is focussed on the MPH, leaving an important research gap about the outcomes that undergraduate public health students attain, and the value they add to the workforce.

Outline: The research project aims to answer the following questions about undergraduates of public health:
1. What are the employment rates in terms of underemployment, unemployment, part-time and full-time work, hours worked and contract type
2. In which jobs and industries do public health graduates work and do they feel this is a good-fit?
3. If undergraduates go on to further study, what do they study?
4. How have these changed over time?

Methodology: The analyses for this study will be primarily quantitative in nature. The analyses will utilise a national survey of Australia graduates available from 2007-2018, which also includes longitudinal follow-up of the survey respondents. Linear and binary outcome regression techniques will be used in the analysis of the data.

Project Specific Requirements:
Essential
• Excellent report writing skills and proficiency in English.

- Biostatistics I or equivalent).

Desirable
- Biostatistics II or equivalent .
- Competent in SPSS, Stata or equivalent.

Project Length: Honours/24 point MPH

Disentangling the influences on well-being on young lives in developing countries

Dr Ian Li and Dr Ishita Chatterjee (UWA - Business School)

Background: Well-being has been recognised as being an important measure for individuals, and encompasses various dimensions, including human function, mental health, meaning in life and life satisfaction. Well-being has also gained increasing importance in the perspectives of policy-makers, with many countries now prioritising well-being of their populations as a policy objective.

There have been substantial research efforts dedicated to the assessment of a plethora of outcomes for children in low and middle income countries, including assessments of their health status, educational attainment and cognitive ability. Much less research has been devoted to an examination of the influence of the well-being of children in developing economies. This is mainly due to a lack of quality data.

However, the holistic and multi-dimensional encapsulation of outcomes from examining well-being is of policy importance, and disentangling the factors that lead to improved well-being is of utmost importance.

This program of research will use longitudinal data on children from four low-income countries (Ethiopia, India (Andhra Pradesh), Peru and Vietnam) to examine the determinants of well-being. Other secondary outcomes that can be researched include self-efficacy, aspirations and hopes for the future.

Outline:
There are several research questions that can be examined:
1. How does changes in the economic situations of household influence well-being of the children in the household? Further, does the permanency of the changes in finances (i.e. one-off shocks contrasted with permanent income changes) have an effect on well-being?
2. How do childhood circumstances (including health and educational attainment) influence well-being in young adulthood?
3. How do major life events – such as natural disasters – influence well-being?
4. Other research questions can be developed in consultation with the Dr Li and Dr Chatterjee.

Methodology:
This study will use a multi-country, longitudinal survey of children and households called the Young Lives study. The analyses for this study will be quantitative in nature. Linear and quantile regression techniques that permit utilisation for the analysis of panel data will be used in this study.

Project Specific Requirements:
Essential
- Excellent report writing skills and proficiency in English.
- Biostatistics I or equivalent.

Desirable
- Biostatistics II or equivalent .
- Competent in SPSS, Stata or equivalent.

Project Length: Honours/24 point MPH

Projects under the Neuropsychiatric Epidemiology Research Unit

Survey of High Impact Psychosis (SHIP) projects

Prof Vera Morgan

The SHIP survey took place in 2010 and is one of the largest and most comprehensive face-to-face assessments of psychotic disorders undertaken in Australia and internationally. Its main aim was to collect prevalence and profile data on a representative Australian sample of men and women with psychotic illness in contact with public mental health treatment services and NGOs.

Over 1500 data items were collected from 1825 participants covering, among others: education, housing, employment, income; psychopathology; cognition; functioning and quality of life; service utilisation; medication use; and physical health (including fasting blood tests). Students interested in undertaking epidemiological projects using the SHIP data should contact Prof Vera Morgan for details.

The Raine Study

The Raine Study is a longitudinal pregnancy birth cohort and a rich resource for the study of genetic, phenotypic, behavioural, environment and social factors that affect health and development. 2,900 pregnant women were recruited between 1989 and 1991 and their offspring formed the Raine Study Gen2 cohort. Information was collected on the pregnant mother and subsequently both parents and the child. The Gen2 cohort participants have been assessed at birth, and then at 1, 2, 3, 5, 8, 10, 14, 20, 22, 27 and 28 years of age. Today the Raine Study has data on four generations of participants – Gen0 (grandparents of the main cohort), Gen1 (their parents), Gen2 and Gen3 (their children). Information available includes questionnaire data (demographic, developmental, psychological), clinical assessment information (anthropometry, DXA, physical fitness), genetics (GWAS, EXOME, EWAS) and biological sample analysis.

Information collected over the last 30 years has been utilised to obtain an understanding of how events during pregnancy, childhood, adolescence and adulthood affect health and development.

The Raine Study information can be used to examine complex causal pathways associated with health and social outcomes. Information has been prospectively collected 12 times over the life course of the Gen2 participants and provides a unique opportunity to examine longitudinal data to answer important research questions.

A range of research opportunities are available for utilising the Raine Study Dataset. Data is available on research areas including genetics; cardiometabolic; respiratory, immunology and inflammation; hormonal and reproduction; musculoskeletal; psychological; senses; bio; perinatal; built environment and social environment; and education and work. Detailed information on questionnaires and data collections are available on the Raine Study website rainestudy.org.au.

Enquiries: Aggie Bouckley - aggie.bouckley@uwa.edu.au

Projects under Vulnerable Groups

Family and Domestic Violence
Prof Colleen Fisher

There have been a number of research projects related to family and domestic violence that have been undertaken in the past, from exploratory research to program evaluation. We have also undertaken research with participants across the lifespan (from childhood to older age) and with mainstream and CaLD groups, including those from a refugee background.

There is opportunity to develop a research project in the area of family and domestic violence. This might be examining issues related to experiencing or using this kind of violence, human service, legal and health responses, policy development, prevention, or program intervention. There is also opportunity to undertake research on projects with relevant non-government agencies.

Projects are available at MPH and Honours levels. Interested students should contact Prof Colleen Fisher.

Dental care in a community setting
Prof Linda Slack-Smith; A/Prof Angela Durey; Julie Saunders

Background: For many people from marginalised groups, attending dental services and maintaining oral health is challenging- however it can make a life changing difference. Services are often costly or have long waiting lists. We are interested in whether providing dental care in environments responsive to the needs of disadvantaged community groups increases their access to care and confidence to manage their oral health. This project will explore one aspect of dental care in community settings. For example provide community centred care for Aboriginal adults OR perspectives of volunteers in such settings.

Outline: One or more projects to investigate important aspects of dental care in community settings, building on previous work.

Methodology: Qualitative interviews or online survey – may include policy searches, literature searches etc

Project Specific Requirements: Appropriate skills to work in community settings.

Project Length: Honours/ 24 point MPH

Perceptions and/or portrayal of sugar and/or oral health in the community and media

Prof Linda Slack-Smith; A/Prof Angela Durey

Background: Sugar has long been associated with poor oral health and obesity, yet it remains a common part of our diet. This project will conduct qualitative interviews to investigate community perceptions and/or investigation of the role of the media in promoting sugar despite evidence of its relationship to significant health problems.

Outline: Potential aims may include
- a Lit review to determine context in which sugar/oral health is portrayed in the media using quantitative and qualitative approaches (frequency of use, terminology used, contexts, related terms in text);
- determining community perceptions about the role of sugar in diet and meanings associated with it e.g. rewards in various groups such as parents/older adults/refugees etc (perceived risks, role in health etc);
- conducting a comparative analysis of similarities and differences between groups.

Methodology: There are options to undertake simple content analysis of news media or to undertake qualitative interviews depending on skills and preferences of students. News media would be analysed using Factiva or similar approaches

Project Specific Requirements: Qualitative interviews will require suitable skills such as ability to debrief. Analysis of media articles requires appropriate quantitative skills.

Project Length: Honours/ 24 point MPH

Stakeholder perspective on oral health for people in the community with mental health disorders

Prof Linda Slack-Smith; A/Prof Angela Durey

Background: We have undertaken research on dental professional and mental health worker perspectives on oral health for those with mental health disorders but it is really important to gain perspectives of broader stakeholder and consumer groups.

Outline: To determine stakeholder and consumer perspectives on oral health care for people in the community with mental health disorders.

Methodology: Qualitative.

Project Specific Requirements: Appropriate skills to undertake qualitative work in the community.

Project Length: Honours/ 24 point MPH

Projects on child dental admissions

Prof Linda Slack-Smith

Background: Poor oral health results in significant morbidity, particularly for the marginalised and underserved populations. Particularly vulnerable groups include young children and older adults.

See:
Slack-Smith L, Colvin L, Leonard H, Kilpatrick N, Bower C, Messer L (2009) Factors associated with dental admissions for children aged under five years in Western Australia. Archives of Disease in Childhood. 94(7):517-523.

Slack-Smith L, Read A, Colvin L, Leonard H, Kilpatrick N, McAullay D, Messer L (2011) Total population investigation of dental hospitalisations in Indigenous children under five years in Western Australia. Australian Dental Journal. 56:358-364.

Slack-Smith L, Colvin L, Leonard H, Kilpatrick N, Read A, Messer L (2013) Dental hospital admissions in children under two years – a total - population investigation. Child: Care, Health & Development.39(2):253-259.

Outline: There are a range of potential projects investigating dental hospital admissions for children in western Australia.

Methodology: Epidemiology of linked data.

Project Specific Requirements: Student needs appropriate background for these projects, statistical skills – likely at least Biostatistics 2.

Project Length: Honours/ 24 point MPH

Projects in oral health and inequities

Prof Linda Slack-Smith; A/Prof Angela Durey

Background: Good health including oral health is often unfairly distributed among different populations.Poor oral health results in significant morbidity, particularly for the marginalised and underserved populations. Especially vulnerable groups including young children and older adults. Our focus is on health inequities generally with a particular interest in viewing such inequities through the lens of oral health.

Outline: There are a range of potential projects investigating and addressing oral health and health inequities across the lifespan (including child or older adult) and in various groups: Aboriginal Australians, people with disability, people with mental health issues, young children, the aged, those in residential aged care refugee and migrant groups, rural Australians, homeless and those with co-morbidities.

Methodology: Project approaches include systematic reviews, quantitative, qualitative and policy/translation (including models of care).

Project Specific Requirements: Student needs appropriate background for particular projects, for example statistical skills for quantitative projects.

Project Length: Honours/ 24 point MPH

Projects with the Western Australian Centre for Rural Health

Disability and disaster management in the Pilbara
A/Prof Monica Moran; A/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 need 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
A/Prof Monica Moran; A/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

Assessing contributions of internataional students to rural Australia
Prof Sandra Thompson

Background: The Australian Government funds a number of rural academic centres as part of building the rural workforce (a program known as the Rural Health Multidisciplinary Training Program - RHMT).

The Western Australian Centre for Rural Health (WACRH) is part of the School of Population and Global Health and has its main office in Geraldton, plus offices in Karratha and Perth.

International graduates make a major contribution to the Australian workforce, and particularly in rural areas.

International students form a varying porportion of allied health and nursing cohorts. Support for international students is not encouraged under the RHMT.

WACRH has supported two major types of international students:
- those enrolled in health science courses with requirements for clinical supervision;
- those undertaking public health degrees or internships.

Outline:
1. To assess the contributions made by international students who have undertaken a placement with WACRH
i) to the health workforce;
ii) to the community and academic work of WACRH.
2. To explore the challenges and benefits experienced by people who were supported as international students by WACRH during their degree.

Methodology:

This is a mixed methods study anc can be adapted for the project length required.

WACRH maintains a student database which includes questions which students complete related to their placement. It includes student status (domestic or international) as well information such as name, demographics, contact details and student's self-reported satisfaction with their placements. There were 100 international students from 2010 to 2018 (~3% of WACRH's students)

For 1.i) data on all students for a period (say 2010 to 2019) to be analysed to assess the nature of international placements and any differences by category of student. Analysis of the type and nature of international student placements over time will be described.

Using the contact details in the database, attempt to contact previous students to find out their current location and work role. (Tracking can also use of the AHPRA public register and other information – this has limitations). Of particular interest is how many of the alumni are working in Australia and in a rural setting.
1.ii) Assessment of contributions to the community and academic centre will be assessed through interviews with:

• WACRH staff including academic supervisors
• Community and health service partners (purposive sampling)

The key focus here is on what value these students brought to the staff and the local community in which they were placed, and the nature of those contributions. (Staff may also have information on alumni)

Project Specific Requirements:
This requires basic quantitative analysis skills. And interest in interviewing and qualitative methods is essential. The work can be undertaken from Perth or in Geraldton.

Project Length: The project length can be adapted to any of the unit requirements by selecting indiidual components of the reserach.

Exposure and attitudes to violence in Geraldton - analysis and comparison of local and national data

Prof Sandra Thompson

Background: A Local Community Attitudes and Exposure to Violence Surey (LCAEVS) to assess community attitudes to gender inequality and FDV, and personal exposure to violence. The survey instrument has been developed, utilising and adapting questions from the National Community Attitudes Survey (NCAS) to simplify the survey. The population surey is open to adjults in Geraldton in October/November 2019. The dataset will be available for analsysis January 2020.

Outline:
1. To undertake analsysis of attitudes and exposure to violence by key demographic variables.
2. To compare reported attitudes and prevalence of exposure to violence reported in the NCAS.
3. To make recommendations on modifications to the survey to improve its useability and performance.

The survey will help map progress with local efforts to prevent family violence. The survey will enable comparison of the attitudes and norms of the local population

Methodology: The population based (LCAEVS) survey is being collected in Qualtrix in late 2019. Any hard copy surveys will be entered manually in 2019.
A detailed methodology of the NCAS is available https://www.anrows.org.au/publication/survey-redevelopment-and-implementation-of-the-2017-national-community-attitudes-towards-violence-against-women-survey-ncas-methodology-report/

The survey collects demographic factors, and has components that examine: Knowledge of violence against women; attitudes towards gender equality; attitudes towards violence against women; and bystander action.

- Undertake frequencies of items and comparisons by key demographic variables

- Assess validity of Composite Measures – that is groups of questions to measure an overall concept (such as Understanding violence against Women Scale, Gender Equality Attitudes Scale and scale themes; Community Attitudes Supportive of Violence Against Women Scale (CASVAWS) and scale themes; Intention to Act Construct (ITAC).
- Assess items/constructs from the LCAEVS with those of the NCAS where there are comparable questions.
- Use multiple linear regression analysis to measure the relationship between selected characteristics and dependent variables of interest

Project Specific Requirements: Quantitative data skills.

Project Length: Honours/24 pt MPH

Projects with the WA Department of Health (DOH)

Outlined are a number of projects provided by the WA Department of Health. These provide an excellent opportunity for students to add value to their degree by collaborating with the DoH and the networking opportunities that is provided.

If the projects are not necessarily what you are looking for, but you would like to explore other options please contact Dr Karen Martin.

Scholarship - *The Department of Health of WA Master of Public Health Research Dissertation Award [F17/3429] - The Government of Western Australia Department of Health has donated funds to The University of Western Australia (the University) to provide a scholarship co-funded by the School of Population & Globah Health to encourage and assist a high-achieving Master of Public Health student to undertake a research dissertation on a priority project for the Department of Health, Public Health Division. This will enhance the translation of empirical research findings to policy and practice in WA.*

Evaluation of Shiga Toxin *Escherichia coli (*STEC)

Dr Barbara Nattabi; Dr Nevada Pingault ((OzFoodNet Epidemiologist, Communicable Disease Control Directorate, DOH) - nevada.pingault@health.wa.gov.au

Background: STEC is a notifiable illness in Western Australia and is an infection that can cause severe illness. Environmental exposures or consumption of undercooked meat products are the main sources of infection. STEC cases are also at risk of developing a potentially life threatening condition called haemolytic uraemic syndrome. Historically the number of STEC cases notified each year has been low and each case is interviewed to try and ascertain the source of infection. With the increased use of culture independent diagnostic techniques (CIDT) the number of notified cases has also increased, which in turn has increased the case follow up workload. The majority of cases identified using CIDT do not appear to have the traditionally severe disease associated with STEC infection.

Outline: The aims of this project are to:
- evaluate STEC surveillance STEC in the era of CIDT.
- characterise the STEC cases notified pre and post introduction of CIDT
- provide recommendations for STEC case follow up in the era of CIDT

Methodology: Data on notifiable conditions and infections is held in the Western Australian Notifiable Infectious Diseases Database (WANIDD). STEC enhanced surveillance data from case interviews is held in an Excel spreadsheet. This project would involve extraction of data from WANIDD and manipulation of Excel data sheets to analyse risk factors for illness, provide descriptive epidemiological information on cases and assess severity of illness

Project Specific Requirements:
Proficient in use of Microsoft Excel

Project Length: 24 point MPH

Evaluation of the user experience and cost effectiveness of the Web mapping applications and mobile data capture system

Grace Yun (Manager Spatial Services, Epidemiology Branch, DOH)

Background: Over the last couple of years , the WADoH has developed more than 6 web mapping applications, a couple of them have been widely used across the health system, we have also developed a mobile data capture system for tobacco licence inspection team, since it went live on 1 July 2018, it has estimated to have more than 3 folds of the efficient saving.

Outline: Who is using the application? What is being used? Do they have issues with the application? What are the issues? What are the improvements needed? What is the really saving by using the mobile data capture system? Any issues and improvement needed?

Methodology: Analyse the system usage data; interview the users; survey.

Project Specific Requirements: Data analytics.

Project Length: Honours

The Western Australian Burden of Disease Study

A/Prof Tom Briffa in collaboration with Dr Laura Miller (WA DOH)

Background: Burden of disease (BOD) is a modelling technique combining multiple data sources to count and compare the total fatal and non fatal health loss from diseases and injuries in a population. In 2016, The Australian Burden of Disease Study (ABDOS) 2011 provided updated estimates for over 200 diseases and injuries in Australia and for the Aboriginal and Torres Strait Islander population for 2011.

Outline: The Epidemiology Branch of the WA DOH is currently conducting a project to create detailed, up-to-date estimates of disease burden for WA; the WA Burden of Disease Study (WA BODS). The WA BODS is a collaboration between the WA DOH, the Australian Institute of Health and Welfare and various disease experts from academia. This project involves analysis of linked data to either improve aspects of disease models used in the ABODS or refine estimates for the WA state and regional.

Methodology: A fundamental knowledge of biostatistics will be required as will a working knowledge of a statistical software package like SAS, STATA or SPSS.

Project Length: Honours/24 MPH