

2002 Dissertation Summaries

Outcome of Tuberculosis Treatment in Queensland (Australia) and Mozambique from 1995 to 2000

Antonio Almajane

Tuberculosis is an infectious chronic granulomatous disease that occurs mainly in the lungs but can spread to other parts of the body. Mycobacterium tuberculosis kills more people than any other single infectious agent. Two billion people globally have latent tuberculosis infection, 7-8 million new cases occur each year and 3 million people, including 100,000 children die of tuberculosis annually. Tuberculosis accounts for 1 in 7 adult deaths and is responsible for one quarter of preventable adult deaths. In 1993 the World Health Organization declared tuberculosis a global health emergency.

This study describes the epidemiology, control, surveillance and treatment of tuberculosis in Queensland and Mozambique between 1995 and 2000, to identify measures taken in Queensland which could be used to improve the management of tuberculosis in Mozambique. It concludes that better results in Mozambique can be achieved if attention is paid to the size, nature, dynamic interactions and projections of co-infection of tuberculosis and HIV/AIDS, supply and distribution of anti-tuberculosis drugs and the role of the private health sector. Lack of funding for tuberculosis program expansion and their proper implementation and poverty are important barriers to tuberculosis control where dual disease is already present or is likely to arise.

Methadone Maintenance: Myth or Miracle?

Sue Ballantyne

Opioid dependence is a chronic relapsing condition characterised by a number of features, such as tolerance with increasing dose and withdrawal symptoms on cessation of opioids. Even with the recent introduction of new treatment modalities for opiate dependence, such as Buprenorphine, the mainstay of treatment in Australia continues to be Methadone maintenance. While in Methadone maintenance treatment, clients are less likely to continue to use illicit drugs, to be involved with crime, or to overdose and are able to make improvements in their lifestyle and general health.

The aims of the study were to examine the characteristics of the population of people registered on the Queensland Methadone Program, and retention rates and reasons for leaving the program in the years 1995-1999 and to investigate associations between population characteristics and retention rates. Retention was found to be unrelated to gender, type of prescriber (public or private) but related to age and dose of Methadone during treatment. Recommendations from the study include the review of the registration and deregistration data to make it more useful for future research, ongoing reporting of retention rates for individual services and state wide and encouraging prescribers through training to maintain clients at doses of 60mg or more.

A Study of the Perceptions of Efficiency and Effectiveness of the Queensland Public Health Forum

Belinda Burrows

The Queensland Public Health Forum is a public health partnership with aims to reduce inequities in health. It has been questioned whether this partnership has fulfilled its role in public health, enforcing the positive factors, disabling the negative factors that can affect its function. There is little literature on the benefits of partnerships, but it is recognised that key elements are its efficiency and effectiveness. A questionnaire was released to QPHF members, asking for their perceptions of efficiency and effectiveness of the QPHF compared to the organisation they mostly work for. Overall, participants believed the QPHF was less efficient and effective than their own organisations, but that this level was appropriate for this type of partnership and for the time it had been functioning. Conclusions were made on how efficiency and effectiveness could be improved in the future.

Self-Help Groups in the Hunter Region - a Qualitative Study of their role in Chronic Illness Management

Kay Coppa

This study is based on the premise that self-help groups make a valuable contribution to the achievement of chronic illness self-management initiatives by providing an important vehicle for supporting members. A qualitative approach involving in-depth interviews with leaders and members of five self-help groups was used to contribute to current understanding. Questions asked in this study are based on themes around membership motives and expectations, organisational aspects of self-help groups, benefits of group membership and the impact of group participation in self-management of chronic illness.

The study found that mutual support; information sharing and psychosocial benefits were the main reasons for on-going participation in self-help groups. Improved quality of life, increased confidence, a greater understanding of their illness and enhanced relationships with health care professionals contributed to self-management of chronic illness by the members. Results from the study indicate that self-help groups appear to be effective structures that provide tangible benefits to members and support self-management of chronic illness. Recommendations relevant to health policy and practice are made, along with suggestions for future research to advance recognition and understanding of the role of self-help groups in chronic illness management.

Valerian Versus Placebo Single Patient Trials for Management of Insomnia in General Practice: Pilot Experience

Peter Coxeter

Insomnia is a significant public health issue in Australia and other industrialised countries worldwide, and is associated with considerable morbidity, and indirectly, mortality. This pilot study investigated the effectiveness of Valerian in the management of insomnia presentations in general practice using SPT methodology. The objectives were to (1) compare the effectiveness of Valerian against placebo in individual patients attending general practice and as a group; (2) document the side effects of Valerian and placebo in individual patients and as a group; and (3) contribute a set of recommendations to inform a proposed expansion of the project in a wider GP community. Single Patient Trial (SP1) methodology enabled a comparison of Valerian (equivalent to 2000mg dry root and rhizome) and placebo. 21 people completed SPTs. Descriptive statistics showed no systematic differences across any of the key socio-demographic variables between those completing and not completing a trial, or those enrolled from GP or SPT recruited means. Similarly, no statistically significant differences were noted in insomnia

severity, duration, or current and prior sleep medication use. 'Energy level the previous day' was the variable that appeared the most likely to improve with treatment, followed in descending order by 'sleep quality', 'latency to sleep onset', 'morning refreshment', and 'number of night awakenings'. There appeared to be more side effects associated with Valerian, although, this was not statistically significant due to the small number of subjects enrolled in the study. Conclusion: Valerian was not shown to be substantially better than placebo. However, due to the limitations of the study further research is recommended.

Summary of an Examination of Registered Nurses' Willingness to Become Organ Donors: an analysis of the public health model of behaviour change.

Katherine Gillett

Framed by the Public Health Model of behaviour change this study examined registered nurses' level of knowledge, belief and attitude about organ donation and the utilisation of a set of public health promotion strategies designed to increase organ donation awareness. A sample of 54 registered nurses was randomly assigned to either the control or treatment intervention group to receive a package of health promotion materials. All participants completed the Matten (1991) Nurses' Knowledge, Beliefs and Attitudes Regarding Organ and Tissue Transplantation Questionnaire. The only significant result was that nurses who held strong

positive beliefs about organ donation were found to have higher level of commitment to register as an organ donor than nurses who held more negative beliefs. The implications of the results are discussed in relation to the efficacy of the Public Health Model of behaviour change.

The Efficacy of Topical Honey to Heal Wounds and Burns: Systematic Review and Meta-Analysis

Maureen Hendry

The study assessed the efficacy of topical honey as a healing agent when applied to infected wounds and burns. Four studies with a total of 265 participants with ages ranging from 3 years old to 62 years old were analysed. The general outcome measures for the four trials were the rate of wound or burn healing and the presence of bacteria. Specific outcomes included scar formation, wound appearance, length of antibiotic treatment, length of hospital stay and pain assessment.

The systematic literature review identified twelve randomised trials that were potentially relevant for the meta analysis. The study concluded that the use of topical honey is beneficial on both acute and chronic wounds particularly if applied to the wounds soon after the injury has occurred. The eradication of bacteria at the wound site is an integral stage of the wound healing process and honey, with both its anti microbial and anti-inflammatory properties, has been shown clinically to contribute to bacterial eradication. Other properties of honey have been shown histologically to increase the presence of granulation tissue and hence an increase in the rate of wound healing. The results from this systematic review and meta analysis suggest that further randomised controlled trials need to be conducted with larger sample sizes and on different types of wounds, such as diabetic ulcers, before honey can be considered an economic and viable wound product.

Screening for Diabetes Mellitus in New Zealand General Practice

Caroline Hird

Undiagnosed diabetes mellitus (DM) is often asymptomatic but is not a benign condition. At diagnosis, diabetic complications are frequently present. In New Zealand, 2.7% of the population is estimated to have known DM; the prevalence of undiagnosed disease is not known (Health Funding Authority, 2000). The prevalence of known DM in Australians aged 25 years and over was recently estimated to be 3.8%, with a further 3.8% having undiagnosed disease. Screening for DM offers potential for improved outcomes through early detection and treatment.

The New Zealand Diabetes Screening Study (NZ13SS) was designed to assess undiagnosed DM in patients attending their general practitioner, using the same screening process as the Australian Diabetes Screening Study (Welborn et al, 1997). Data from the NZ13SS were analysed to evaluate an opportunistic screening process conducted in patients of general practitioners and to assess the frequency and characteristics of those identified with previously undiagnosed disorders of glucose metabolism. Although the overall prevalence of undiagnosed DM detected in the study population was low, the combination of hypertension and overweight was strongly associated with disease. Both of these risk factors are potentially modifiable by exercise and dietary changes. Opportunistic screening for DM must be seen as complementary to, not alternative to, primary prevention through lifestyle changes on both individual and societal levels.

Ankle Brace Use Amongst Female Netball Players: prevalence and determinants of use

Barbara Hockings

Sports injuries affect one in seventeen Australians each year. Ankle injuries are the most common injuries in sport, and are particularly common amongst netball players. Netball is a popular sport in Australia with 280 000 players across the country. Hence, there is great potential public health benefit from a reduction in the incidence of ankle injuries in netball. Ankle braces and ankle strapping are two recognised means of preventing ankle injuries among netball players. Ankle braces have been proven to be equally as effective as ankle strapping tape in reducing the incidence of ankle injuries in sport, and are a more cost effective option than strapping tape. The literature suggests that wearing an ankle brace reduces the risk of injury, but little is known

about the prevalence of use of either ankle braces or ankle strapping tape, or the determinants of use. Knowledge of these issues is necessary to generate public health benefits through the promotion of increased prevalence of use.

The study indicated a low prevalence of the use of ankle braces or strapping tape for prevention of ankle injuries amongst netball players, despite the high incidence of ankle injuries in netball. Determinants of use for brace wearing reflect injury status and past netball experiences, indicating no further determinants beyond factors expected from existing literature. Recommendations are made to increase the prevalence of brace use amongst sports participants using specific health promotion programs, with evaluation addressing the associated relative risk reduction, and to establish the long-term effects on the individual and population of injury prevention for ankles through use of ankle braces.

A literature review concerning community participation and its measurement, with a case study of clean water source construction in rural Ethiopia

Kari Jarvinen

Community participation is a widely touted concept in donor guidelines and literature concerned with health care and development, particularly in the setting of developing countries. The Shebe Primary Health Care Project (SPHCP) is presented as an example of a multisectoral endeavour founded on participatory principles, for improving the health and living conditions of the poor, rural population in the Seka Cheqorsa District of S W Ethiopia. The systematised Project reporting framework enabled accurate measurement of relative participation by communities involved in clean water source construction activities. The impression of participation being inversely proportional to distance away from the long established Project site was tested statistically in the case study component of this work. The case study findings were critiqued against a literature search on the issues involved in community participation as well as attempts to measure this. It is evident that although the rhetoric of participation is commonplace, defining the construct is difficult, with diverse approaches being employed. The reviewed literature demonstrates the inadequacy of attempting to quantify complexities of participation by a single indicator, such as the SPHCP water source construction participation. This is further corroborated by the performed statistical analyses demonstrating a weak linkage between participation and distance, being confounded further by construction type. This study underlines the need for appreciating the rich literature on participation in conjunction with appropriate statistical analyses of impressions from field work.

Knowledge, Belief and Attitude towards Breast Cancer and Utilisation of Breast Screening Service by Non English Speaking Background (NESB) Women

Samina Khan

Breast cancer in women is a major health issue as it presents significant threats to the health of women. Breast cancer has received considerable attention within the last several years, particularly as the incidence has risen, with the latest figure estimated at about 1 in 12 women being diagnosed with breast cancer yearly. Substantial evidence exists that utilisation of breast screening service regularly is effective in preventing breast cancer. However Non-English Speaking Background (NESB) women continue to have relatively low breast cancer screening rates and the existing screening services are underused by many women from NESB. To examine the effects of knowledge, attitudes and beliefs about breast cancer, utilisation of screening services and also to examine the effects of socio-demographic characteristics on screening a study was conducted by distributing self-reported questionnaire to a sample of 167 NESB women aged 30 years and older.

The results of the study indicate that participants had relatively high levels of knowledge about breast cancer risk factors and effectiveness of other breast cancer screening methods and knew the benefits of early detection. Physician recommendation and family influence are the most important determinant of mammography participation. The study indicates that the use of mass media and language specific strategies are appropriate when health promotion is directed at the NESB women participation. Some cultural factors such as traditional views about health, body image and embarrassment and fear of diagnosis of cancer during screening

may be related to under-screening in NESB women. The findings help to indicate the priority groups, which should be targeted to increase breast screening and consequently reduce breast cancer. The data also provide good baseline information for comparison of rates of breast cancer screening by various socio-demographic and cultural factors.

A description of diet and dental caries of 11-12 year old school children attending a dental clinic in Holland Park

Tarik Khan

The study examined the association between dietary oral health behaviour and dental caries in 11-12 year old children attending the School Dental Service (SDS), who resided in (non fluoridated) Brisbane city. DMFT data were collected from clinical records to determine the severity of dental disease, and associations with dietary and behavioural variables. Assessment of dental health knowledge and beliefs was based on multiple choice questionnaire report of both parent and child. 41.1 % of children brushing twice daily experienced caries, whereas over half who brushed less often developed caries. Similarly, half of the children whose parents reported irregular checkups experienced caries compared to 41.5% of those who had regular check-ups. Children's self report gave similar results. It is likely that these reports exaggerate the frequency of desirable behaviour, reducing the apparent differences in caries rates. Considering ethnicity, 54% of non Caucasians experienced caries compared to about a third (39%) of Caucasians; and a child's use of ethnic language at home was strongly associated with the presence of caries. Children of parents who did not receive tertiary education were most affected by caries (56%) compared to those with tertiary education (36%), running twice the risk. Children who said lemonade was safe were more likely to have dental caries compared to those who considered it harmful, which was also true for cream crackers and potato chips. In multivariate analysis, the apparent effects of poor knowledge of food safety remained as did those for parental education and speaking other languages at home.

School-Based Helminth Reduction Program: Vietnamese Case Studies

Paulin Larsen

Helminth infection is a major problem in Vietnam. A number of school communities stated that they were addressing this problem by using the health promoting school approach. The overall goal of this dissertation was therefore to find out if, or to what extent selected primary schools in the Northern region of Vietnam were using the health promoting school approach when attempting to reduce helminth infections. The results showed that the approach had not been introduced in the schools. Helminth reduction could be a valuable entry point into the health promoting school concept but that requires conscious interventions and an understanding of the different components within the concept.

A Survey of General Practitioners' Knowledge and Perceptions of Q Fever and Barriers to Q Fever Vaccination in the South and Central West Region of Queensland.

Thea Lynch

Q fever is an acute febrile rickettsial disease of low mortality but significant morbidity. It is a zoonotic disease that can be transmitted from animals to humans. The organism is present in high concentrations in birth products, urine and faeces of infected animals and infection is usually spread by inhaling contaminated aerosols or dust. Due to the occupational nature of the disease, those most at risk are males aged between 20 and 50 years of age. Approximately 600 cases are reported in Australia annually and the highest incidence of the disease is reported in Queensland where there have been 7 deaths from Q fever since 1978. In Australia it is argued that up to 50% of all Q fever cases are not reported or diagnosed by health professionals and hence, the incidence may be grossly underestimated. The cost per year of treating an uncomplicated case of the disease is estimated at A\$7,000 and A\$50,000 for a complicated case. Despite the availability of an effective vaccine since 1989, the number of notified cases continues to increase each year. Q fever has been described as a disease not only concerning meat-workers, but one of the most important public health issues facing rural Queensland. This study investigated General Practitioners' knowledge and perceptions of Q fever and major

barriers which inhibit the successful administration of Q fever vaccination. The results indicate that GPs need further education on Q fever especially with regard to main symptoms, complications, interpreting serology results and vaccine contraindications. The cost of the vaccine appears to be a major deterrent to individuals' seeking immunisation. This finding supports the need for the vaccine to be made available at an affordable cost for individuals in selected, high risk groups. To gain a better perspective on Q fever in rural Queensland and validate the findings of this study further research is needed to ascertain the perceptions and knowledge of a broader range of GPs in rural Queensland.

Adherence to randomised drug regimens in the ANBP2 study: A description of the patterns of adherence and of factors influencing non-adherence

Suzanne Moore

Randomised controlled trials have become the gold standard in medical research, providing reliable data on the safety and efficacy of drug treatment to the medical community. However the data is only dependable if the research process has been stringently observed, through an accurate randomisation process and recruitment of adequate sample sizes. It is important, therefore, that ample numbers of participants remain adherent to study treatments for the duration of a study. A lack of adherence to study treatment may seriously diminish the power of a study to detect differences between drug treatments. The study aimed to describe the patterns of adherence and non-adherence to medication allocated to patients on the Second Australian National Blood Pressure Study (ANBP~2), to identify factors associated with non adherence and to explore patients' reasons for non adherence. The study found that a significant number of participants became non-adherent during AN13P2, side effects being the most common reason given for non-adherence in the Queensland cohort. The study was restricted by difficulties in establishing an accurate picture of adherence, due largely to both the standard of documentation in the GP records and in the limited data which had been entered into the AN13P2 database.

The Perceptions of the Queensland Participants of the Second Australian National Blood Pressure Study (ANBP@): the development of a questionnaire to measure the attitudes of older research participants

Suzanne O'Brien

insert abstract

The Attitudes and Beliefs of Oral Health Professionals Regarding Their Role in Health Promotion

Emily Proctor

Although the prevalence and incidence of oral diseases have decreased in many western countries including Australia, they continue to be of significant burden to these societies. An effective way of reducing the incidence of these lifestyle dependent diseases is through the prevention of disease and promotion of health using a primary health care approach. One strategy used to achieve this approach is to reorientate oral health services delivery. Many countries including Australia, have adopted a primary health care approach to oral health care, however, barriers to this method have been encountered on a national and state level. Such barriers include the structure of the oral health workforce, the educational preparation for practice as an oral health professional and the attitude of the health professionals themselves towards health promotion. The present study was designed to gain an understanding of health promotion from oral health professionals employed in the public sector. In particular, the study examined the issues relating to their oral health promotion role with the view to identifying perceived barriers and potential strategies that would inhibit or facilitate the adoption of a health promotion focus within their professional practice. The main findings of the study indicated that strategies to improve the adoption of the oral health promotion role within Queensland public oral health services include: regular in-service and education for all staff regarding health promotion issues; increased cohesion of the oral health team; inter-sectorial collaboration; a supportive district management and a refocus to public health concepts, facilitated through the development of performance indicators and policy conducive to the adoption of a health promoting role.

Diabetes in Indigenous Australians - a focus on North Stradbroke Island.

Catherine Quagliotto

Indigenous Australians have the fourth highest prevalence of type 2 diabetes in the world, which is up to four times the prevalence of the general Australian population. This group is also afflicted with the disease earlier in life and has poorer outcomes. North Stradbroke Island, 40 kilometres east of Brisbane, is the home of a local urban indigenous community of 400 members. Data from two studies relevant to type 2 diabetes was analysed and reviewed in an attempt to elucidate the extent of the problem, its associations and the effect of intervention on the Island. Study 1, from 1995 to 1996, employed a broad-ranging health questionnaire based on the National Aboriginal and Torres Strait Islander Survey. Study 2, from 1997 to 2002, was specific to diabetes, and actively sought to identify diabetics. Diabetes is a public health concern in the North Stradbroke Island indigenous community. The difference in prevalence estimates of the two studies highlights the extent of undiagnosed diabetes in the population. Optimistically though, there is evidence that positive differences in behaviour exist between the known diabetics and non-diabetics. Additional evidence suggests that intervention can increase detection and improve health and health behaviours of the diabetics. Increased awareness of the disease and its management strategies are the first steps to improved prognosis. Application of this knowledge in an environment conducive to achieving sustained change will ultimately ensure an excellent outcome both in terms of management for known diabetics and the well-being for those at risk of diabetes.

An Analysis into Geographic Regional Differences in Cancer Survival in Australia D+D217uring 1982-1997

Krystian Sadkowsky

Cancer is a group of life threatening diseases characterised by the proliferation and spread of abnormal cells through the body. On average, a little more than half of the population who develop cancer survive beyond 5 years after its diagnosis. Australia is a large and spacious country with a widespread population, where difficulties with accessing medical services have been identified as a factor affecting medical treatment. Relative survival from cancer by geographic region has been identified, in a number of cancer policy initiatives, as an appropriate measure of progress in cancer control across Australia. The aim of the study was to produce, analyse and describe the differences, if any, in relative survival, in metropolitan, rural and remote areas of Australia, for people diagnosed with cancer in the period 1982-1997. Using this data, a secondary aim was to conduct an ecological study comparing the survival rates against possible causal factors occurring in metropolitan, rural and remote areas of Australia for the purpose of providing information to the policy development process. During the analysis, distance, access to services, behaviour of individuals, health education, screening, proportion of Indigenous population, socioeconomic status and community social capital were found to influence or affect survival. Of these, distance to travel and access to services appears insolvable. The study recommends that better information and education services be established, in order that persons may become more familiar with the signs and symptoms of all cancers. Also, the education needs to focus on early detection and the importance of screening. In this way persons can become aware that early detection and treatment can lead to better outcomes in terms of survival.

The effectiveness of hormone replacement therapy in the treatment of depressed mood and depressive disorders occurring during the climacteric

Sharon Sanders

Depression is one of the most common mental disorders in the community, resulting in substantial disability, high direct and indirect costs and a heavy burden of human suffering. Worldwide, the prevalence of depressive symptomatology and major and minor depressive disorders in women is significantly greater than men. It is widely believed that many women experience depression during the climacteric and that hormonal fluctuation, in particular oestrogen decline, is a causal factor. However, the data supporting these assumptions is equivocal. Despite this, hormone replacement therapy (HRT) has been widely administered as a psychotropic agent to women in the climacteric. Though extensively researched, the effect of HRT on depressive disorders and

symptoms during the climacteric remains unclear. The results of original research are conflicting, and a recent meta-analysis has a number of important methodological limitations. A systematic review of randomised controlled trials was conducted, comparing HRT with placebo for the treatment of depressed mood and depressive disorders occurring during the climacteric. Meta-analyses were performed to obtain summary effects of unopposed oestrogen and oestrogen plus progesterone regimens versus placebo using standardised mean differences (fixed and random effects methods). Sensitivity analyses were undertaken to test robustness of the results. While the results of the pooled analysis presented in this review suggest a beneficial average effect of treatment interpretation of the results must remain tentative. There was substantial heterogeneity between the results of trials included in the analysis of unopposed oestrogen versus placebo analysis and the observed difference between oestrogen plus progesterone regimens and placebo is of questionable clinical significance. The possibility of publication bias and the methodological and reporting limitations of the included trials may also suggest a conservative interpretation of the results is appropriate.

Pollen and Asthma: a Temporal and Spatial Analysis

Liz Sedlak-Weinstein

Asthma is a highly prevalent respiratory disease affecting both children and adults, accounting for a considerable morbidity and mortality burden in the community. Clinically defined as reversible bronchospasm with audible expiratory wheeze, the condition is subdivided into intrinsic (with no identifiable triggering agents), and extrinsic (with known initiating allergen). It is the latter potentially preventable group that justifies environmental epidemiologic studies. The new ICD-10 (International Classification of Diseases) includes two additional categories of mixed or unspecified asthma and status asthmaticus and prompted comparison with previous ICD-9 classification data.

This study describes the demographic characteristics of asthma on the Gold Coast over a twelve months period from 1999 to 2000. Environmental variables, such as geographic location, predominant vegetation types and meteorologic factors were correlated with the disease burden. Within the five identified vegetation zones, a trend to increased seasonal admission incidence was detected within grassland and pine/exotic species predominance. While GIS technology has great potential, limitations experienced within this study were mostly confined to database inaccuracies including the lack of pollen data and inaccurate vegetation classification, characteristics of the public hospital client base and restricted software availability. Future objectives would include developing a predictive and dynamic model and recommending appropriate public health intervention measures, such as education of health care providers and clients, environmental monitoring, and possibly resource allocation to health care facilities.

Ngaanyatjarra Tjukurrpa Minyma Pirniku (Ngaanyatjarra stories for all the ladies) Antenatal and birthing issues for the women of Warburton.

Donna Simmonds

The purpose of this project was to enable the Ngaanyatjarra women of Warburton to publicly voice their concerns about antenatal and birthing services and, importantly, to develop appropriate solutions. The women have been vocal for many years, expressing discontent at the changes they have witnessed, the adaptations they have had to make and their inability to practice the Law. This project aimed to begin resolution of these concerns.

A participatory action research methodology was chosen for this project to ensure that the women had control over the data collection and storage and what was included in this dissertation. More importantly, participation was designed to ensure that the women involved in the project would benefit and that workable solutions would ensue. The major themes that emerged from the interviews revealed ways in which the western medical model often breaches Ngaanyatjarra cultural norms of pregnancy and birth. Furthermore, traditional methods of knowledge acquisition have been broken without adequate replacement. The result means that older women hold traditional knowledge, but do not understand contemporary western medical practices. Moreover, middle aged and younger women perceive that they have neither. The participants in this project acknowledge

the benefits of western medicine, but envisage that the western model can be adapted to incorporate cultural requirements without compromising the health and safety of childbearing women. Short-term benefits were enabled during the life of the project but time, commitment and funding will be required to enact the solutions identified in this project. The main recommendations were in providing discretion and choice to young women while enabling older women to maintain cultural requirements.

This research utilised data from the Mater Mothers' Hospital – University of Queensland Study of Pregnancy, a longitudinal study commencing with 7776 births between 1981 and 1984 in Brisbane, Australia. Risk factors from birth to five years for intelligence were examined for associations with lower mean Peabody Picture Vocabulary Test-Revised (PPVT-R) scores at five years of age. Younger maternal age, lower level of maternal education, larger family size, maternal depression, maternal anxiety, marital state changes, family poverty, parental conflict and life stresses were risk factors associated with lower PPVT-R scores. These risk variables were summed to create a risk score. On the basis of this risk score, subjects were divided into low, medium and high-risk groups. Higher risk scores were associated not only with the proximal outcome of lower PPVT-R scores at five years, but also the more distal outcomes of lower scores on Raven's Standard Progressive Matrices (a nonverbal test of reasoning ability) and the presence of learning problems at 14 years of age. Protective factors in the child (infant temperament), mother-child relationship (duration of breastfeeding), and community (perceived adequacy of support networks) were examined for their association with PPVT-R score at five years and the 14 year outcomes of Raven's score and learning difficulties. Longer duration of breastfeeding and adequate support networks were associated with better outcomes at five and 14 years. Infant temperament (as measured by parental reports of infant colic, sleeplessness, feeding problems and overactivity) was not associated with changes in outcomes.

No statistically significant interactions were found between levels of the protective factors and level of risk, for the five or 14 year outcomes. Limited differences according to gender were present. This research has highlighted the importance of family and social factors on child development, which in turn underscores the potential importance of early intervention for children at risk, to create better life pathways and outcomes.