



# Our future

*Research to improve the  
health and wellbeing of children*



PREVENTION  
INNOVATION  
DEDICATION

Annual Report **2007**

# Telethon Institute for Child Health Research

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## *Who we are*

The Telethon Institute for Child Health Research is Western Australia's only research facility dedicated to child health. Like the childhood illnesses and diseases we investigate, our team is diverse, consisting of some of Australia's, and the world's, leading experts in their fields.

We are housed in a purpose-built research facility on the edge of the Perth CBD and have close to 450 staff and students as well as around 70 honorary and visiting researchers throughout the year.

The Institute is a non-Government, not-for-profit organisation with strong affiliations with the State children's hospital and all the major WA universities.

## *What we do*

Our focus is on children, young people and their families.

We investigate the most complex, costly and devastating health problems facing our children in the 21st century. We approach these problems with dedication and innovation as we try to achieve our overall goal - prevention.

We work together. We work with others. We work hard to improve the life chances for all children.

You will find information about our broad range of research programs in the following pages.

## *Our mission*

To improve and to promote the health and wellbeing of all children through the unique application of multidisciplinary research.

## *Our aims*

- To conduct high quality research.
- To apply research findings to improve the health of children, adolescents and families.
- To teach the next generation of health researchers.
- To be an advocate for research and for children.



*“Children are one third  
of our population and  
all of our future.”*

Select Panel for the Promotion of  
Child Health, 1981

# Our future

*A child's future is being shaped even before they're conceived.*

*It's shaped by their family, their home, their community.*

*It's shaped by genetics determined at conception and then by what happens in the womb.*

*From birth, the influences are more obvious.*

*Nutrition and nurturing.*

*Emotional attachment and education.*

*Financial security and a safe home.*



*At the Telethon Institute for Child Health Research, our focus is on the whole child.*

*It's an innovative approach to child health research.*

*Since 1990, we've built a team of leading scientists from a range of different disciplines to tackle the most challenging and costly diseases and issues affecting young people today.*

*We are unpacking the complex pathways to childhood cancer, asthma, obesity, infectious diseases and disability. We're asking what leads to abuse and neglect, behavioural problems and the high rates of mental health issues? We're exploring the complex connections between environmental factors and genetics.*

*We know that many diseases and issues have their origins in early childhood, or even before birth.*

*We know that a society that is good for children is actually good for everyone – more nurturing, more tolerant, with better facilities and services.*

*And we know that children are **our future**. Future leaders, future workers, future artists, future thinkers, future parents, and future decision makers.*

*Child health research is a long term investment. **Our future** depends on it.*



# 2007 Highlights

■ Our total research income for the year was \$18.4 million.

■ In 2007, our researchers published extensively with 171 publications including research papers in national and international journals, books, book chapters, reports and special newsletters.

■ Our researchers presented their research findings at conferences and meetings around the world, including throughout Europe, North America and Asia as well as on home soil in major cities and regional centres across Australia.

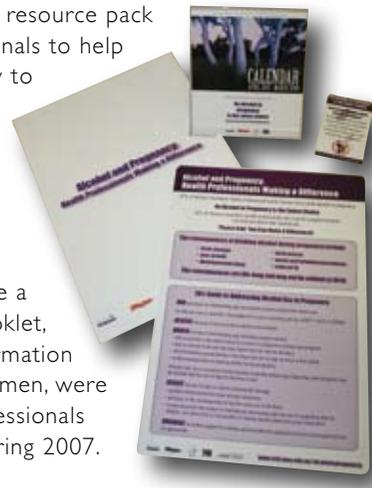
■ In 2007, we launched the **Children's Future Fund**, an endowment fund to support research at the Institute. The fund will allow us to grow a substantial capital base from which a sustainable income can be generated to underpin growth and respond quickly to opportunities. (see page 40)



■ We released results from the Australian Early Development Index (AEDI) which showed a significant improvement in **early child development** when compared with a similar study in 2003. The Index shows what proportion of children are developmentally vulnerable, that is, in the lowest 10 per cent of any domain. In the Perth suburb of Wembley, the percentage of children who were vulnerable in one or more domain dropped from 42 per cent in 2003, to 11 per cent in 2006. In neighbouring Floreat, the number dropped from 47 per cent in 2003 to 14 per cent in 2006. Community demands for better resources for pre-school children and their families in these areas resulted in the dramatic reduction in the number of

children at risk of developmental difficulties. We also announced results for the Pilbara towns of Karratha, Exmouth and Hedland. (see page 26)

■ We developed a resource pack for health professionals to help them to talk openly to women of child bearing age about the risks of **alcohol consumption in pregnancy**. The packs, which include a comprehensive booklet, fact sheet and information wallet cards for women, were sent to health professionals throughout WA during 2007. (see page 28)



■ Results from Perth trials of an Australian-developed pandemic influenza vaccine showed that adults, children and the elderly all produced strong immune responses against the H5N1 **bird 'flu** virus. The vaccine was well tolerated and the data have been submitted for registration of the vaccine with the Therapeutic Goods Administration for use in the event of a pandemic. (see page 22)

■ An Institute study found that the rate of **caesarean sections** in Western Australia almost doubled in a 20 year period to 2003. The research project looked at all births in Western Australia between 1984 and 2003 (more than 430,000 births) and analysed the mode of delivery. The study found that the rise could not be explained by increases in clinical reasons for caesareans, such as complications in pregnancy or labour/delivery, and was more likely due to societal factors. (see page 27)

■ After many years of advocacy and lobbying by our Institute, the Federal and State Food Regulation Ministers decided to make it mandatory for food to be fortified with folate. In 1989 the *Medical Journal of Australia* published a scientific paper by Professors Carol Bower and Fiona Stanley that showed the powerful effect of folate in reducing **neural tube defects** by up to 70%. The combined impact of voluntary fortification and education campaigns only reduced the rates of neural tube defects by about 30%. Mandatory fortification will mean better protection for women, particularly vulnerable groups including the young, people in remote communities with less access to fresh fruit and vegetables, Indigenous mothers, and for the 40 per cent of women whose pregnancies were unplanned. In 2007, Fiona Stanley and Carol Bower were recognised with Leadership Awards from the Flour Fortification Initiative for their continued lobbying and advocacy for folate for more than a decade.



above: Professor Carol Bower, Mr Lyall Thurston and Professor Fiona Stanley all received Leadership Awards from the Flour Fortification Initiative.

■ Our Children's Leukaemia and Cancer Research Division is looking at the genetic make up of individual tumours in children and then using that information to determine which form of treatment would be the most effective. The research aims to help doctors develop a more targeted treatment for each young patient and could help the hundreds of Australian children who battle **cancer** every year. (see page 19)



above: The 2007 Fiona Stanley Award is presented to Mr Kerry Stokes AO.

■ The **2007 Fiona Stanley Award** was presented to Mr Kerry Stokes AO in recognition of his outstanding contribution to child health research. Mr Stokes has been a strong supporter of the Institute since its inception, and chaired the first capital fundraising campaign in 1994. At Channel 7's 2007 Telethon, Mr Stokes announced a \$1 million grant from his company Australian Capital Equity for Aboriginal and environmental health research at the Institute. (see page 33)

■ We published research findings which showed that the prevalence of moderate-to-severe **hypospadias** in WA has almost doubled in the past 20 years. The prevalence of the birth defect, which occurs when the opening of the penis forms on its underside rather than its tip, rose 2 per cent per annum in WA infants between 1980 and 2000. (see page 28)

■ Just under 150 Perth women contributed to major international research that proved that the Cervarix vaccine provides broader protection against **cervical cancer**. The results show that while the vaccine provides effective protection against high grade cervical pre-cancerous lesions caused by Human Papilloma Virus (HPV) types 16 and 18, it also demonstrated additional cross protection against infections from other strains of HPV that account for another 10 per cent of cervical cancers. We also began a trial of a new vaccine that could provide women with protection against types of HPV which cause approximately 90 per cent of cervical cancer, and most cases of genital warts. (see page 23)



above: Samantha James is interviewed by reporters to help promote the HPV study.

■ Our research into **alcohol and pregnancy** showed that more than half of West Australian women surveyed drank alcohol during pregnancy, nearly half had not planned their pregnancy and 80 per cent consumed alcohol in the three months before conception. The findings are based on a survey of 4,839 women taken 12 weeks after delivery which represents a 10 per cent random sample of all non-Indigenous women giving birth in Western Australia. (see page 29)

■ Telethon 2007 raised a record \$6,527,576! Our Institute, along with the other **Telethon** beneficiaries, was again part of the expo where visitors found out more about our research and took part in activities. Our sincere thanks to Telethon for continuing their support of our Institute. (see page 33)

■ Our Rio Tinto Child Health Partnership hosted a national symposium called "ENHANCING INDIGENOUS CAPACITY: Building a Sustainable Future." The Symposium focused on strategies to help develop highly-skilled and well-resourced **Indigenous health workers** and on improving the health and wellbeing of Indigenous mothers and children. (see page 15)

■ We launched a new information pack designed to help anyone who is concerned about a friend or family member who is **distressed or suicidal**. The pack was developed after research showed that many people found it hard to access good quality information on how to recognise suicidal behaviour and what to do to support someone in distress. (see page 25)

■ The Institute developed a Statement of Commitment to Australian Reconciliation to reflect our organisational support for the process of **reconciliation** between the Indigenous and the non-Indigenous people of Australia. The full statement can be found at [www.ichr.uwa.edu.au/about/reconciliation](http://www.ichr.uwa.edu.au/about/reconciliation)

# 2007 Highlights



above: LOOKING at Language researchers Professor Mabel Rice, Associate Professor Kate Taylor and Professor Steve Zubrick.

Our LOOKING at Language study was awarded a US\$3 million grant from the USA National Institutes of Health to continue research into Specific Language Impairment. The funding will allow researchers to build upon the valuable information collected between 2002 and 2007 on **language development** in two to six year old children. The study will now follow the children until nine years of age and collect information on the vital early years of school as well as the molecular genetics of language, speech and reading disorders. (see page 20)

Two initiatives to help people **bereaved by suicide** were launched in 2007. ARBOR (Active Response Bereavement OutReach) provides timely counselling, peer support, support groups and referral advice to family and friends in the critical first few days of bereavement. The revised second edition of the *Information and Support Pack for People bereaved by suicide or other sudden death* was also released nationwide. (see page 24)

Research results from our Growth and Development Study showed that children of overweight or single mothers have a greater likelihood of being **overweight or obese**. The study also found that family conflict, negative life events, and parenting style are not likely to have an impact on whether a child becomes overweight or obese. (see page 21)

High school students throughout the Perth metropolitan area were invited to take part in a new study looking at what factors put young people at risk of unintended pregnancy and young parenthood. The study findings would give adolescent health care professionals a better understanding of what teenagers actually thought about relationships, **teenage pregnancy** and parenthood, and the important role of peer, social and cultural influences on early, unplanned pregnancies. The teenage birth rate in Australia has dropped significantly over the past 30 years although has changed little in the last 10 years. The national rate of 16 per 1000 births per year hides a much higher pregnancy rate and one of the highest abortion rates in developed countries.

Results from a study of the childhood hospital admissions of more than 270,000 children born in Western Australia between 1990 and 2000, showed that **infectious diseases** are the most common reason for admission. The results, published in the *Pediatric Infectious Disease Journal*, found that one in five non-Aboriginal children and half the Aboriginal children were hospitalised at least once due to an infection by the time they reached two years of age. (see page 23)

Natasha Nassar won the **2007 QANTAS New Investigator Award**. Natasha's research is looking at environmental factors in birth defects with a focus on a relatively common yet major condition called

hypospadias where the urethra doesn't develop properly and requires surgery to repair. (see page 28)

The Australian Cerebral Palsy Register was launched in 2007. The concept of a national register was pioneered by the Institute's Linda Watson who has run Australia's first State **cerebral palsy** (CP) register in Western Australia since 1979 after its initiation by Fiona Stanley in 1977. The coming together of registers from all States and Territories will mean Australia has the largest CP register in the world which will be a key tool for researchers to identify specific causal pathways. (see page 29)

The Institute welcomed the Labor Party Leader **Kevin Rudd** during the 2007 election campaign. The visit gave us the opportunity to talk to Mr Rudd about health and medical research and show him and his colleagues, Jenny Macklin and Stephen Smith, around our facilities.



above: Kevin Rudd and Fiona Stanley chat during the tour of the Institute.

# New Division of Genetics and Health

The Institute's new Division of Genetics and Health was formed in 2007 when Professor Jenefer Blackwell and her team were recruited from Cambridge in the UK. The team includes Senior Research Fellow Christopher Peacock, Research Fellow Sarra Jamieson, and Bioinformatician Richard Francis. For Jenefer, a graduate of UWA, the return to Perth fulfils a long-held dream to come home. For Christopher, Sarra and Richard, the move to Australia is an exciting new adventure.

The primary aim of the new Division is to build capacity to enable genetics to be applied as a tool in epidemiological studies that underpin much of the research of the Institute. Following the human genome project, genome-wide approaches to measuring human genetic variation has emerged as a powerful tool in understanding both genetic and modifiable environmental risk factors for disease. Specific projects in the new Division will build initially on the groups previous interests in genetic susceptibility to infectious diseases.

Jenefer completed her PhD in Population Genetics at UWA in 1974, then headed overseas for postdoctoral research at the London School of Hygiene and Tropical Medicine. There she established a career in tropical medical research, focusing largely on genetic studies of susceptibility to infections such as toxoplasmosis (a parasitic infection that can cause stillbirth or miscarriage in pregnant women as well as eye or brain disease in congenitally infected babies) and leishmaniasis (a major parasitic disease of the tropics that is transmitted by the bite of the sandfly). It was during her time in London that Jenefer first began working with Christopher to undertake studies of *Leishmania* parasites in the sandfly.

In 1991, Jenefer was recruited to the Glaxo Chair of Molecular Parasitology at the University of Cambridge and went on to become the Founding Director of the new Cambridge Institute for Medical Research. Christopher was

lured to Cambridge to head up a field project in Brazil to study genetic susceptibility to tuberculosis, leprosy and leishmaniasis. He studied leishmaniasis families for his PhD research, while Sarra was recruited as a student to study tuberculosis and leprosy families. Both continued in postdoctoral research in the Blackwell lab, and over the succeeding years the team established numerous international research projects on these infectious diseases that still include projects running in Brazil, pan-Europe, Hong Kong, India, Sudan, USA and Vietnam. Richard has played a major role in developing databases and providing bioinformatics support to underpin this human genetics research.

Today, Jenefer retains a position at the Cambridge Institute of Medical Research as an Honorary Senior Scientist and Affiliated Principal Investigator, to continue work on the analysis of DNA from 2000 Indian and 3000 Brazilian individuals in the visceral leishmaniasis study. This position has the added bonus of allowing Jenefer regular visits to the UK to see her children and grandchild.

At the Telethon Institute, major new projects have been initiated by Jenefer and her team including a study of otitis media in Western Australian children, which is cross-cultural and includes Indigenous and non-Indigenous family-based sampling.

"As part of this study, we are working in partnership with the Ngangganawili Aboriginal Medical Service in Wiluna and the Karalundi School in Meekatharra to map complex diseases onto the family trees of the major lineages of Indigenous people in this region of WA," says Jenefer.

"Building capacity in Indigenous populations that will allow Indigenous researchers to play a major role in the research is an important aim of this study."

A particular interest in studying Indigenous and non-Indigenous populations is the interplay between different



above: Professor Jenefer Blackwell, Dr Christopher Peacock and Dr Sarra Jamieson.

diseases, especially between infectious disease and non-infectious diseases like Type 2 diabetes. This forms the basis to an emerging collaboration with researchers in Thailand, which will use genetics to help to understand why Type 2 diabetes is a major risk factor for bacterial diseases like melioidosis (an infectious disease caused by bacteria found in soil and water) and tuberculosis (an infectious bacterial disease transmitted through the air that mainly affects the lungs). Jenefer says her team also hopes that many new collaborations will develop within the Institute.

"Sarra has recently linked up with Natasha Nassar in the Division of Population Sciences to assist in her research looking for gene by environment interactions that determine rising rates of hypospadias in Western Australia," says Jenefer.

"We will continue our research initiated in Cambridge looking at toxoplasmosis, and this will form the basis to expanding research on congenital diseases, building on the Institute's strong history of analysis of birth defects."

Overall, the team hopes that understanding genetic risk, and its interaction with environment, will contribute to the development of better therapies for both communicable and non-communicable disease.

See Sarra Jamieson's profile on page 36.

# Chairman's message



*Nothings pays off like hard work and in 2007, the Institute was the beneficiary of the intense preparation, planning and outcomes from the international review that was undertaken in the previous year.*

The Quinquennial Review (QQR) set out a number of goals and recommendations that provided a clear strategic focus for 2007. Through the Scientific Advisory Committee and the Executive, the Board has received regular reports on the implementation of major recommendations in a range of areas including:

- growth and the movement to a new site
- succession and career planning
- future directions in research programs
- data resources
- advocacy
- funding and infrastructure
- and governance issues.

In November 2007, the Institute hosted a further external review as required by the National Health and Medical Research Council (NHMRC) for the care and use of animals for scientific purposes. In the Triennial Review Report the panel was satisfied that the Institute operates effectively under the Australian Code of Practice. This was the first external review of this kind and the Institute is very grateful to panel Chair, Associate Professor Ian Robertson, Head of the Veterinary Clinical Science Department at Murdoch University, and to his fellow panel members for their dedication and commitment in undertaking this important review.

As Chair of the Institute's Appointments and Promotions Committee, and as a member of the Finance and Governance Committee of the Board, I have become increasingly aware of the great resource we have in the quality of the staff and students of the Institute. Conversely I am aware of the significant risks facing the Institute to ensure that this major resource can be sustained into the future. It was of no surprise to the Board that in a risk identification exercise major issues included the loss of key staff, the adverse reliance on key staff, and the need for effective succession planning.

We will continue to lobby the Federal Government to invest more into the NHMRC to ensure not only an increasing volume of grants and fellowships, but also to ensure that grants provide for salary parity across the university sector. This is a critical issue for our staff. We also believe that the State Government must meet its share by increasing the investment in the Medical and Health Research Infrastructure Fund (MHRIF).

We are also committed to the challenge of ensuring that the Institute can sustain realistic growth in staff and student numbers and with research productivity. Our senior researchers have been outstanding in their quest to obtain the research grants, fellowships, and research contracts

that reflect peer competitiveness. A further challenge for the Board is to ensure that research facilities and accommodation can meet the standards required for high calibre research and training. Given that we expect a new building will be some years away yet, every effort is being made to assess the options to meet the growing demands for suitable accommodation.

With almost 450 staff and students at the end of 2007, compared with 220 or so when the current building was commissioned just eight years ago, we are aware of the pressures on space and of the need for creative solutions.

Amid these practical challenges, we were inspired and uplifted by the generosity of our naming sponsor, Channel 7's Telethon. We congratulate Telethon on their 40 years of support for medical research in Western Australia. Our deep gratitude goes to Mr Kerry Stokes AO and Australian Capital Equity who used the occasion of the Telethon weekend to pledge an additional \$1 million to support the Indigenous Kulunga Research Network and the WHO Centre for Children's Environmental Health, both of which are based at the Institute.

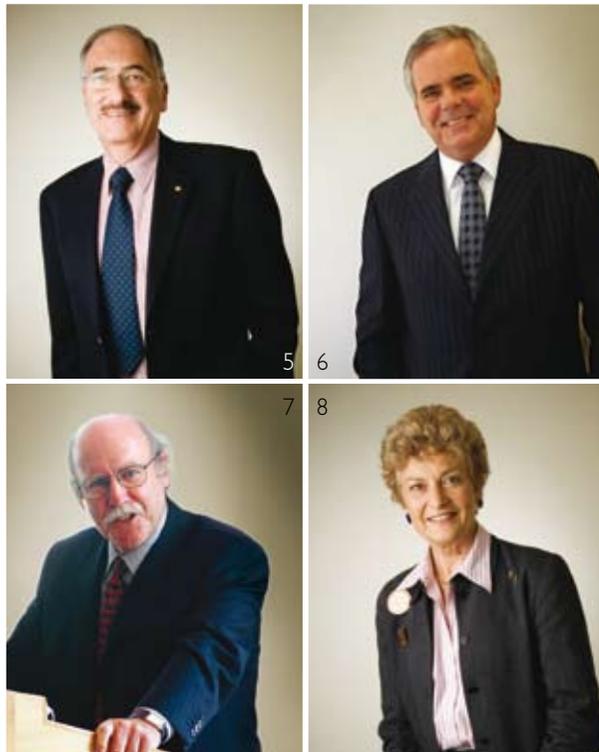
Since joining the Board in 1991, and as Chairman since 1994, I have always enjoyed the loyalty, enthusiasm, commitment and dedication of my fellow Board members. Again this year I thank all of the members of the Board for their enormous contribution to the Institute. In so doing may I also commend the members of the Institute's Council who support us as individuals in many different ways, and who come together at the Annual General Meeting as a sign of confidence in, and support for, the Board.

Congratulations once again to Professor Fiona Stanley and her outstanding team of staff and students for another successful year, and our best wishes for the year ahead.

**Kevin Campbell AM**

# Board of Directors

*The Board of Directors manages the overall business of the Institute and meets six times annually. Board members serve on a voluntary basis. In order to carry out business effectively, various committees support the Board by offering advice in specific areas (see page 46).*



1. Kevin Campbell AM, Chair, Telethon Institute for Child Health Research.
2. Jackie Huggins AM, Deputy Director, Aboriginal and Torres Strait Islander Studies Unit, University of Queensland; Co-Chair, Reconciliation Australia; Director, Telstra Foundation; Director, Australian Centre for Indigenous History, Australian National University.
3. Keith Jones, Board member, Deloitte Corporate Finance Pty Ltd; Managing Partner, Deloitte Touche Tohmatsu Western Australia.
4. Jenni Ker, President, Friends of the Institute.
5. Louis Landau AO, Emeritus Professor and Honorary Research Fellow, School of Paediatrics and Child Health, The University of Western Australia.
6. John Langoulant, Chief Executive Officer, Australian Capital Equity Pty Ltd; Member, Senate of The University of Western Australia.
7. Graham Mitchell AO, Principal and Chief Executive Officer, Foursight Associates Pty Ltd.
8. Fiona Stanley AC, Director, Telethon Institute for Child Health Research; Chair, Australian Research Alliance for Children and Youth; Professor, School of Paediatrics and Child Health, The University of Western Australia; Member, Prime Minister's Science, Engineering and Innovation Council; Australian of the Year 2003.

Retired in 2007 and not pictured: Harvey Coates AO, Senior ear, nose and throat surgeon, Princess Margaret Hospital for Children; Clinical Associate Professor, The University of Western Australia.

# Director's report

*It's not unusual for us to be questioned about why this Institute is based in Perth, Western Australia - certainly one of the most geographically isolated cities in the world. But over the past year, when I have travelled far more extensively than I would normally choose, I have come to understand even more strongly, the international implications of our work.*

We are, in fact, perfectly positioned. With ready access to our Asian neighbours, we are now partnering with the World Bank to assist Indonesia to develop their own Early Development Index to measure the effectiveness of new child development initiatives.

In Papua New Guinea we are providing hands-on mentoring and support to the PNG Institute for Medical Research while also conducting infectious disease research, via a Wellcome Trust grant.

We are building collaborations in India, China, Vietnam and Nepal through our WHO Collaborating Centre for Research into Children's Environmental Health to increase research capacity within those countries. This includes scholarships for health professionals to participate in our on-line Children's Environmental Health course offered in partnership with Curtin University of Technology. I was privileged to deliver the Ramalingaswami Memorial Oration in New Delhi in December, which gave me a marvellous opportunity to meet with colleagues first-hand about future collaborative work.

While the expertise we have in traditional medical research into disease and disability is of great value internationally, so too are the specialised skills

this Institute has in unpacking and understanding developmental pathways. Increasingly, developing nations are not only trying to enhance the health of their young people, but to increase education levels and community participation to boost their nation's overall capacity.

Similarly, we are finding great value in our international collaborations with other first world countries like Canada and the USA that share many of the social and economic factors that are driving poorer outcomes for young people.

Midway through the year, I was invited to review Canada's Human Early Learning Partnership, headed by Professor Clyde Hertzman. In many ways, Canada has been a leader in setting the early childhood agenda and it was inspiring to see what can be achieved when community and government are engaged and committed to putting the needs of children at the centre of decision making. What struck me most was the increasing understanding of the importance of two things for which the Institute is a champion – the need for the best data and evidence to guide research and decision making; and the need for true collaborations, across disciplines and across research, policy and practice.

Thankfully, the logic for investing in early childhood is now being seen by many governments around the world. With Professor Steve Zubrick, I attended the OECD World Forum on Measuring and Fostering the Progress of Societies in Istanbul. It was affirming to see some great economic thinkers grapple with and really understand the importance to the nation of maximising the health and wellbeing of children and youth. They questioned the wisdom of using GDP per capita as a singular measure of societal progress and forum attendees debated vigorously the need for other indicators, particularly those areas which support healthy child development. It is a message that we need to repeat loudly and often. Our young people are our future and must be a priority.

Of course, there is another reason for our Institute being successfully based in Perth – it is a wonderful place to live! And so it was particularly pleasing to welcome Professor Jenefer Blackwell back to her home city. Professor Blackwell has relocated her laboratory from Cambridge to our Institute and brought with her two outstanding staff members in Dr Christopher Peacock and Dr Sarra Jamieson. They now lead a new Division of Genetics and Health which adds a fantastic new capacity for the Institute to integrate genetics with epidemiology for

new knowledge about a range of common childhood problems.

If the Institute is to continue to attract research groups of such a high calibre, then it is imperative that we increase our funding base and receive a fair allocation from funding and grant organisations. In recent years, funding for salaries within research institutes has fallen significantly behind what is available in universities. This is a critical issue in terms of our ability to continue to conduct high quality research and to attract and retain scientists from overseas and interstate and just to keep our own staff in science. This deserves the highest attention from Federal and State governments. We will continue to actively lobby on this issue. Within the Institute, we have created an endowment fund called the Children's Future Fund to provide long term financial security for our research agenda.

We are very fortunate to have the support of Channel 7's Telethon which celebrated this year its 40th anniversary. As our naming sponsor, Telethon has underpinned much of our work and we appreciate their enormous commitment in raising much needed funds for medical research. We were overwhelmed this year when Mr Kerry Stokes AO and Australian Capital Equity committed an additional \$1 million dollars to support the Institute's Aboriginal and environmental child health research.

We remain grateful to the Western Australian community for their support of our research Institute. Thousands of families are actively involved in our longitudinal studies and vaccine trials. They are real heroes in the research process in that they give of their time so willingly. We also receive great guidance and feedback from our Consumer and Community

Council who help us to ensure that research is indeed a two-way street.

The Institute is indebted to our donors and volunteers. The Friends of the Institute, both in Perth and Margaret River, have continued to provide for the Institute invaluable professional funding support for staff and students as well as community advocacy. We enjoy wonderful relationships with the corporate sector and individual philanthropists who are such a vital part of our success.

As Director, I receive outstanding support and guidance from the Board. In the past year we have welcomed Jackie Huggins to that eminent group and look forward to her ongoing contribution. Our Chairman, Mr Kevin Campbell AM, has shown extraordinary commitment. He's ably guided the Institute's rapid growth and development since 1994 and for that, we are extremely grateful.

People are, as always, at the core of any successful organisation. I would like to thank the senior scientists for their leadership and support. I am excited by the calibre of students and post-doctorate researchers at the Institute and see many rising stars. It is with great sadness that we farewelled our much respected and valued Assistant Director Professor John Finlay-Jones and wish him great success in his new post. My personal thanks to Bruce McHarrie, Bob Ginbey and Kristy Le May for their wise counsel and great contribution to the day-to-day success of the Institute. I thank all the staff for their commitment and contribution to our organisation.

**Fiona Stanley AC**



*“Tomorrow’s world is already taking shape in the body and spirit of our children.”*

Kofi Annan





*In the following pages we provide a snapshot of some of the **major projects and studies** being undertaken at the Institute. Full reports for all projects can be found on our website -*  
**[www.ichr.uwa.edu.au](http://www.ichr.uwa.edu.au)**

# Aboriginal child health

Throughout this report, the term 'Aboriginal' is intended to include people from Aboriginal and Torres Strait Islander backgrounds.

	WA ABORIGINAL CHILD HEALTH SURVEY	OTITIS MEDIA	RIO TINTO CHILD HEALTH PARTNERSHIP
ABOUT	<p>A survey of Aboriginal children from birth to 17 years that provides a comprehensive epidemiological "snapshot" of the health, development and wellbeing of Aboriginal children in their families, their schools and their communities.</p> <p>The survey also identifies the factors which promote resilience in Aboriginal children, exploring both individual and environmental aspects of childhood development.</p> <p>The survey was designed to build a store of knowledge from which preventive strategies can be developed to promote and maintain the healthy development and the social, emotional, academic, and vocational wellbeing of Aboriginal children.</p>	<p>Otitis media (middle ear infection) occurs when infection causes inflammation of the middle ear (the space behind the ear drum) and the eardrum.</p> <p>Fluid can build up in the middle ear which can result in perforation of the ear drum. In severe cases of otitis media, grommets (small tubes) can be inserted in the ear drum to allow the fluid to drain.</p> <p>Otitis media can seriously affect childhood development, school performance and subsequent social and economic wellbeing.</p>	<p>Developed to deliver improvements in Aboriginal and Torres Strait Islander child and maternal health, the Partnership aims to achieve this through the delivery of three projects:</p> <ul style="list-style-type: none"> <li>• modelling the WA Aboriginal Child Health Survey for the NT and QLD</li> <li>• national fetal alcohol syndrome prevention strategy</li> <li>• enhancing Aboriginal workforce capacity.</li> </ul>
FACTS & STATS	<p>It is the most comprehensive survey of Aboriginal children ever undertaken.</p> <p>It took five years of planning and two years in the field.</p> <p>Information was collected on more than 5,200 Aboriginal children in Western Australia, from metropolitan Perth to the most remote communities in the State. This is about one in every six Aboriginal children and young people living in WA.</p> <p>Interviews were conducted with 2,000 families and details were also gathered from teachers and principals.</p> <p>We worked in close collaboration with Aboriginal communities and agencies.</p>	<p>Our Kalgoorlie Otitis Media Research Project was established in 1999 to investigate the causal pathways to otitis media and to identify demographic, socio-economic, environmental, microbiological and immunological risk factors for the disease in Aboriginal and non-Aboriginal children in order to develop appropriate interventions.</p> <p>We followed 100 Aboriginal and 180 non-Aboriginal children from birth to two years of age in the Kalgoorlie-Boulder region.</p>	<p>Partners include:</p> <ul style="list-style-type: none"> <li>• Rio Tinto</li> <li>• Alcohol Education and Rehabilitation Foundation Limited</li> <li>• Western Australian government</li> <li>• Northern Territory government</li> <li>• Queensland government</li> </ul>
OUR RESEARCH	<p>All four volumes of results from the Survey have now been released. Each volume tackled a different theme of research (physical health, social and emotional wellbeing, education, family and community) and makes recommendations to help improve the current circumstances in Aboriginal child health. Copies are available at <a href="http://www.ichr.uwa.edu.au/waachs">www.ichr.uwa.edu.au/waachs</a></p> <p>During 2007, we disseminated the results for Volume 4 (Strengthening the Capacity of Aboriginal Children, Families and Communities) to communities and agencies in nine regions across WA. We also presented results of the Survey to a range of audiences locally, nationally and internationally including at the OECD World Forum in Istanbul.</p>	<p>The clinical collection of data for this study has concluded and we are now focused on analysing the data and reporting results. We have found that rhinoviruses and adenoviruses are common in the nasal passages, more often in Aboriginal than non-Aboriginal children. These viruses are also frequently found together with the bacteria known to cause middle ear infections. This may be the result of interactions between viruses and bacteria in the nose or social and environmental factors may predispose children to carrying both bacteria and viruses or impaired immunity may lead to a greater chance of carrying bacteria and viruses. These findings are important to identify the best ways of preventing middle ear infections in children. Our study found that a hearing screening test (measurement of otoacoustic emissions) in Aboriginal children aged one to two months can identify those children at greater risk of getting middle ear infections before two years of age.</p>	<p>The five-year Rio Tinto Child Health Partnership concluded in 2007. The Partnership has allowed strong relationships to be forged between researchers, Aboriginal communities, health services, government agencies and departments and corporate Australia. The Partnership has generated significant benefits and outcomes including increased awareness of fetal alcohol syndrome, identification of the issues which inhibit Aboriginal health professionals, support for culturally-appropriate practices in primary health care and treatment services and increased skills of health and community workers in identifying and responding to risk factors during pregnancy.</p>

## NEWBORN ASTHMA & PARENTAL SMOKING

The Newborn Asthma and Parental Smoking (NAPS) project was a two-year, state-wide health promotion project managed by the Asthma Foundation of WA and funded by Healthway.

Our Kulunga Research Network was involved in the Indigenous component which looked at ways to promote the 'Care for my air!' message to pregnant Aboriginal women.

There are over 4000 poisonous chemicals in cigarettes and cigarette smoke. Second-hand smoke from cigarettes can linger for hours - even when you can't see it - on skin, breath, clothes and hair.

Cigarette smoke can harm babies in many ways including stopping lung growth, causing asthma, coughs and colds, increasing the risk of Sudden Infant Death Syndrome (SIDS), increasing the likelihood of ear infections and reducing birth weight.

Results from our WA Aboriginal Child Health Survey show that 49 per cent of mothers of Aboriginal children used tobacco during pregnancy.

Kulunga developed, trialed and evaluated a range of culturally-appropriate resources aimed at increasing awareness among Aboriginal mothers about the effect of passive smoking on the fetus and infant with a particular focus on asthma.

At least 50 per cent of Aboriginal Health Workers and Aboriginal Liaison Officers working in the Perth metropolitan and WA Wheatbelt region were involved in the project's information session, which helped to guide the content of the materials. Kulunga was also involved in distributing the resources to Aboriginal Health Workers and Liaison Officers for them to pass on to Aboriginal women.



Aboriginal health workers Amanda McInerney, William Gulf and Karen Murphy at the Woorabinda Health Service provide support to both mothers and fathers.

## SPOTLIGHT ON *Indigenous health workers*

A national symposium was held in Perth in 2007 to discuss strategies to help develop highly-skilled and well-resourced Indigenous health workers.

Hosted by the Rio Tinto Child Health Partnership, the symposium "ENHANCING INDIGENOUS CAPACITY: Building a Sustainable Future" focused on improving the health and wellbeing of Indigenous mothers and children.

Partnership founder Professor Fiona Stanley said workforce development was a critical issue in Indigenous health.

"We have to acknowledge how much the non-Aboriginal system has failed to deliver good outcomes for Aboriginal people," Professor Stanley said.

"Aboriginal health workers know much more about the circumstances and factors impacting on Aboriginal health and wellbeing than any other

health professionals. They live in the community and have knowledge that non-Aboriginal health professionals may not appreciate - they must be listened to and supported in their work if we are to make a real impact."

The symposium attracted international speaker, Canadian Dr Janet Smylie. As an Indigenous researcher and physician, Dr Smylie spoke about her experiences in Canada including the knowledge gained from her Indigenous Metis grandmother.

Rio Tinto Community Investment Manager Megan Crust said the company was very pleased to be supporting a Partnership that was tackling some of the more challenging issues in Aboriginal child health.

"Rio Tinto believes that Indigenous people who have a traditional interest in the land in which we operate should have every chance to benefit from our mining activities. A job with Rio

Tinto is just one way we can make this happen, but we're also very conscious that we need to support health and education in Indigenous communities so that they can take up these employment or community partnership opportunities," Megan said.

The Rio Tinto Child Health Partnership is an innovative collaboration which brings together the research expertise of the Institute and its Kulunga Research Network with corporate partners Rio Tinto Ltd and the Alcohol Education and Rehabilitation Foundation, and government partners through public sector agencies in Western Australia, Queensland and the Northern Territory. It aims to deliver improvements in Aboriginal and Torres Strait Islander maternal and child health by translating research findings into policies and health promotion programs that make a real difference to Indigenous communities.

# Asthma, allergy and respiratory disease

	ASTHMA	CYSTIC FIBROSIS
ABOUT	<p>Asthma is characterised by episodes of cough, wheeze and breathlessness. These symptoms are caused by the narrowing of the small airways in the lungs in response to triggers such as house dust mite, as well as inflammation and excess mucus production, which reduce airflow in and out of the lungs.</p> <p>We are recognised as a world leader in research for the prevention and treatment of asthma. We are focusing on how asthma develops, better ways to manage and monitor asthma and new treatments.</p>	<p>Cystic fibrosis (CF) is a genetic disease that affects a number of organs in the body (especially the lungs and pancreas) by clogging them with thick, sticky mucus.</p> <p>In the lungs, this mucus clogs the tiny passages in the lungs and traps bacteria. Repeated infections and blockages can cause irreversible lung damage and death.</p> <p>In the pancreas, mucus can prevent the release of enzymes needed for the digestion of food, resulting in people with CF having problems with nutrition.</p>
FACTS & STATS	<p>Asthma is the most common chronic illness in children.</p> <p>In Australia, asthma affects around 40 per cent of children and adolescents.</p> <p>There is no current way of preventing the development of asthma - all treatments are designed to control asthma symptoms once they have developed.</p> <p>The western world has seen a dramatic increase in the prevalence of asthma in the past few decades, and while there is no doubt that factors associated with the "western way of life" are involved, the precise cause of the increase remains elusive. As well as environmental and physical factors, psychosocial factors may also play a part.</p>	<p>Cystic fibrosis is the most common life threatening, recessive genetic condition affecting Australian children, with around one in every 25 people carrying the CF gene.</p> <p>Around one in every 2,000 babies born in Western Australia will have cystic fibrosis.</p> <p>There is no known cure.</p>
OUR RESEARCH	<p>During 2007, we continued recruitment of the first 50 children at high risk of developing asthma for a world-first international trial of an asthma vaccine. The trial is being led from Perth with other trial sites in Melbourne and New York and involves giving children drops under the tongue of a mixture of the three most important allergens known to be associated with asthma - house dust mite, cat and grass allergens. The aim of the vaccine is to educate the immune system to recognise these allergens as normal, rather than over-reacting. Results from the first 50 children to complete the 12-month dose of drops are expected in 2008 with the trial then expanding into Sweden and Germany with a further recruitment of 150 children.</p> <p>In 2007, we continued the 10-year follow-up of children in our Childhood Asthma Study. Two hundred and sixty three children at high genetic risk of asthma were recruited between 1996 and 1998 and closely followed until they reached five years of age. We've collected extensive data on early respiratory infections, wheezing and development of allergic diseases such as eczema and asthma. At the 10-year assessment, children undergo lung function, blood and skin prick testing to determine their allergic status and we also collect information about environmental pollutants such as pesticides and dietary information. The current follow-up will conclude in 2008.</p> <p>We have continued our research into the links between asthma and sunlight. The body's main source of vitamin D comes from skin exposure to sunlight. We have recently found that vitamin D can significantly increase the activity of cells able to regulate responses to allergens, including those that can initiate and sustain asthma responses. We know that exposure of skin to UV radiation can affect immune responses at other body sites. In 2007 we studied bone marrow cells of UV-irradiated mice and as part of a compensatory mechanism have found them deficient in immune reactivity.</p>	<p>During 2007, we continued our investigations in the area of early development of inflammation and infection in children with cystic fibrosis. This is run as a joint program with the Royal Children's Hospital in Melbourne. We have analysed information on cystic fibrosis and found that structural lung disease can be identified in children with cystic fibrosis as young as three months of age and is not uncommon (around 30 per cent) in children over three years of age. These data are currently being used to support an international collaboration for therapeutic interventions to occur in pre-school children, whereas current clinical trials are designed for children over six years of age.</p> <p>We continue our work on the development of a urine test that measures the destruction of lung tissue, investigating anti-inflammatory therapies to see if they help reduce levels of lung damage and are combining research results with clinical information on lung function and CT scans to predict the onset of early lung disease in order to develop preventative strategies.</p>

## ALLERGY

People can become allergic to natural, harmless substances in their diet or inhaled air. If this occurs they will develop harmful inflammatory responses to subsequent exposure.

The symptoms of food allergy can be itching, swelling, nausea and diarrhoea, and for allergy to inhaled substances they can be asthma attacks and the symptoms of hay fever. Serious allergies can cause anaphylactic shock, which is a sudden aggressive and potentially life-threatening reaction.

Allergies to food and inhaled substances have more than doubled over the last few decades.

About six per cent of children develop food allergy and 30 per cent develop respiratory allergy.

The most common inhalant allergies are to house dust mites, grass pollen and cats. The common food allergies are to milk, egg, soy, peanuts and tree nuts. Many children grow out of the milk and egg allergies in infancy, while allergy to nuts tends to persist especially for highly allergic children.

Our allergen studies are focused on house dust mite allergy, the most important source of allergy worldwide and in Australia, and cats, the second most important indoor allergen that causes asthma. We have identified and characterised a new cat allergen called BASE which was isolated from cat saliva. This allergen is important for the development of new therapies for those who are cat allergic. We are now working on identifying and characterising other cat allergens - research has suggested there are at least 10 important cat allergens - to determine their relative importance compared to known cat allergens.

Our house dust mite research is looking at the two most important species of house dust mites as well as the interaction between house dust mites and their distant relatives, the scabies mites.



## SPOTLIGHT ON *WHO Collaborating Centre for Research on Children's Environmental Health*

We are all exposed to a range of environmental hazards throughout our lives. They can be found in the materials and chemicals that we use in our homes or at work. The quality of the water that we drink, the food we eat and the air that we breathe - all impact on our health.

While these hazards are of concern for adults, they're of particular concern for children.

Professor Peter Sly, who heads the new World Health Organization Collaborating Centre for Research on Children's Environmental Health at the Telethon Institute, says while these hazards are of concern for adults, they're even more worrying for children.

"Children are in a dynamic state of growth, with cells multiplying and organ systems developing at a rapid

rate," he said.

"At birth their nervous, respiratory, reproductive and immune systems are not yet fully developed. They are also more at risk because there are more pollutant pathways, either directly from the mother before birth, from breast milk, by inhaling or through skin absorption.

"In effect, they have a higher effective dose of pollutants for a given level of exposure, and their ability to detoxify is less because they have immature defensive systems."

But while we know there is a potential for damage, there is little scientific information available on the effects of multiple exposures or how economic and social factors influence exposure.

As the first WHO designated Collaborating Centre in Children's

Environmental Health, the team's initial focus will centre on respiratory diseases such as asthma. It will conduct high quality research into the mechanisms of environmental-based disease, foster international collaborations, provide tertiary education courses, advocate for intervention strategies and provide evidence to inform public policy.

"We know that pollution and chemical exposure triggers a range of chronic diseases such as asthma, which is the most common reason for children attending hospital in Australia," Professor Sly said.

"Our aim is to provide good quality evidence about environmental impacts so that effective controls are put in place to provide children with better protection and long-term health benefits."

# Cancer

	LEUKAEMIA	BRAIN TUMOURS
ABOUT	<p>Leukaemia is cancer of the white blood cells. These cells are produced in the bone marrow.</p> <p>In leukaemia, these cells undergo a malignant change and become cancerous. They divide uncontrollably and interfere with the ability of the bone marrow to produce normal blood cells. Large numbers of cancerous cells are released from the bone marrow into the bloodstream and travel around the body.</p>	<p>We are interested in primitive neuroectodermal tumours (PNETs), the most common type of brain tumour affecting children.</p>
FACTS & STATS	<p>Leukaemia is the most common form of cancer in children, accounting for around one third of all cases. Leukaemia affects around one in every 2,000 children in Australia and it is more common in boys than girls with a 1.4 to 1 ratio. There is a peak incidence in children aged between two and four years.</p> <p>Survival rates for children with leukaemia have reached up to 85 per cent for patients of standard risk.</p> <p>Our leukaemia research Division is a member of the US-based Children's Oncology Group, the world's largest study group into childhood cancers.</p>	<p>Brain tumours are the second most common form of cancer in children.</p> <p>Survival rates are between 50 and 70 per cent.</p>
OUR RESEARCH	<p>Despite the high cure rates, a significant number of patients with acute lymphoblastic leukaemia (ALL) continue to relapse and for these, the outlook is dismal due to the development of drug resistance. Over the past 20 years, our cancer laboratory has developed a panel of high-quality, childhood ALL cell lines which retain many of the critical features of the disease such as similar growth rates and drug resistancy. These cell lines enable us to accurately test chemotherapy drugs which has led to several new drug leads currently under test in our laboratory. The knowledge gained through this research has allowed us to predict relapse with more than 80 per cent accuracy enabling the tailoring of treatments to individual patients.</p> <p>We have completed the final year of our five-year population-based research into the possible genetic, environmental and dietary causes of ALL. Children newly-diagnosed with ALL between 2003 and 2006 are recruited and matched by age, gender and State of residence to 'control' children without leukaemia. We are now preparing to analyse the information collected which includes completed questionnaires from 387 families of children in remission and 870 control families, as well as DNA from 415 children in remission and 539 control children. Findings will be released in 2008.</p>	<p>PNETs are an aggressive type of tumour and five-year survival rates have remained in the 50 to 70 per cent range for the last 20 years. A significant proportion of patients do not survive and many of those who do, face serious post-treatment quality of life issues, as a result of brain surgery and chemotherapy or radiotherapy. Our laboratory is focusing on the molecular biology of PNETs as there has been little previous research in this area and the complex features of brain tumours are only partly understood. If we can gain a better understanding of the disease we can work towards developing safer and more effective drugs and treatments for PNET patients. We are also looking at the relationship between neural stem cells and brain cancer stem cells in the hope of identifying deregulated genes linked to tumour development. Our research has revealed several genes not previously linked to PNETs and these are of on-going interest to us as they represent promising new leads.</p> <p>During 2007, we continued to recruit families for a new study looking at the effects of genetic and environmental factors on the risk of childhood brain tumours. Families with a child with a brain tumour were invited into the study and we began collecting important information about diet, environmental exposures and occupational history as well as DNA samples. Control children will be matched to each child who had a brain tumour, with further recruitment of both groups of children continuing through to 2010.</p>

## SKIN CANCER

Skin cancer is predominantly caused by overexposure to the sun's ultraviolet radiation.

Skin cancer growth is also helped by the ability of ultraviolet rays to alter the immune system and its response to cancer.

Australia has the highest rate of skin cancer in the world with one in two people who spend their life in Australia developing some form of skin cancer.

Melanoma is the most serious of all skin cancers but is less common, accounting for around five per cent of all skin cancer cases.

The ultraviolet rays in sunlight not only cause sunburn, they can also suppress the immune system as well as turn a normal skin cell into a cancerous one. The effect on the immune system can result in a developing skin cancer avoiding destruction by an active immune response. Interestingly, these UV rays can penetrate only a few millimetres into the skin, yet their effects on the immune system are widespread in the body. We have identified some of the critical early events initiated in the outermost layer of skin which affect immunity. Currently we are identifying the changes that are made to cells of the immune system initiated by those early events. Our research has shown that these changes in immunity are important for melanoma and basal cell carcinoma, and probably all skin cancers.

An important consequence of UV radiation of skin is the production of vitamin D, which is not only important for bone growth, but it can also affect the immune system and may also affect cancer growth. Our current research is looking at the contribution vitamin D makes to the immune system changes following exposure to UV rays. With the relative abundance of sunlight in Australia, it's important to understand how to keep sun exposure at levels that provide the benefits and avoid the risks.



Jake Turner, who is in remission from leukaemia, with research assistant Renae Weller.

Photo reproduced courtesy The West Australian

## SPOTLIGHT ON *Leukaemia research*

Every year in WA, around 50 children are diagnosed with cancer. Almost half of these with leukaemia.

Professor Ursula Kees and her team of researchers are looking at ways to diagnose and treat children with cancer to help doctors develop a more targeted treatment for each patient.

They are combining their ability to grow high quality cancer cell lines with new microarray technology to identify the specific genetic makeup of individual cancers, to determine how a patient is likely to respond to the variety of treatments available.

Microarray technology allows researchers to rapidly screen thousands of genes at the same time. Professor Kees says this technology is being applied to specimens from patients at Princess Margaret Hospital (PMH) and to the cancer cell lines that

were grown in the laboratory from these specimens.

"We're now able to look at the genetic makeup of a tumour and identify specific genes which will indicate how well a patient is likely to respond to existing treatments," Professor Kees said.

"This adds a lot of information about the disease in each patient. The next step is to design more targeted therapies and then test those therapies within the laboratory.

"Our aim is to identify at the time of diagnosis the best type of therapy for the individual patient's specific cancer to ensure the best possible outcome."

"Identifying the most appropriate therapy for each patient's specific cancer at the time of diagnosis could spare some children from unnecessarily

aggressive treatments while ensuring those who are at highest risk of relapse are given intensive therapy straight away."

Professor Kees said these studies give insight into the critical features of cancer cells that can be exploited for new therapies.

"Because of our unique collaboration with PMH, we have cancer cell lines that are ideally suited for this work," she said.

Paediatric cancers comprise many diseases, however the most common malignancy in children is leukaemia, followed by brain tumours. In order to find better therapies for children with cancer, the Oncology Total Care Unit at PMH and the Institute are both members of the largest study group into these diseases, the US-based Children's Oncology Group.

# Healthy development

	WA PREGNANCY COHORT (RAINE) STUDY	CHILDHOOD OBESITY	SPEECH AND LANGUAGE DEVELOPMENT
ABOUT	<p>The Raine Study began in the late 1980's to examine how events during pregnancy and around birth influenced the subsequent health of children. Almost 3,000 women were enrolled at between 16 and 20 weeks in pregnancy and their children have been followed at birth, one, two, three, five, eight, 10, 13 and now 16 years of age.</p>	<p>Childhood obesity is a major health problem which can continue into adulthood and is associated with serious medical complications including Type-2 diabetes, cardiovascular risk factors, sleep apnoea and musculoskeletal pain.</p> <p>It is also associated with psychosocial problems such as low self-esteem, depression and problems with peer relations.</p>	<p>Specific Language Impairment (SLI) is a disorder where a child has markedly delayed language development but with no other developmental delay or disorder apparent. These children do not have a hearing or intellectual problem, but have a specific problem in developing language and later in learning to read.</p>
FACTS & STATS	<p>The study is one of the most extensive surveys of pregnancy and early childhood to be carried out anywhere in the world.</p> <p>The Raine Study represents a collaboration between the Institute, the Women and Infants Research Foundation at King Edward Memorial Hospital, The University of Western Australia Department of Paediatrics at Princess Margaret Hospital, Curtin University of Technology and the University of Notre Dame.</p>	<p>Australia-wide data suggest that 19 to 23 per cent of Australian school children are either overweight or obese.</p> <p>Obesity rates have trebled in children and young adults in Australia over the last 20 years.</p>	<p>SLI currently affects approximately seven per cent of single-born children with otherwise normal development. This equates to around 7,000 West Australian children in Kindergarten to Year Two with SLI.</p> <p>The rate of SLI in twins is not known.</p>
OUR RESEARCH	<p>During 2007 we continued assessments as part of the Raine Study 16-year follow-up. The teenagers in the study are now aged between 16 and 18 years of age with their complex schedules including tertiary entrance examinations, apprenticeships, workforce participation and active social lives. To aid the retention of teens to the study, the Raine Study Youth Reference Group, consisting of study participants, is working with the Raine Study staff and management to help ensure study materials and activities are suitable and relevant for teenagers.</p> <p>This phase of the study is collecting important information on a range of health issues including cardiovascular health, physical activity and fitness, blood pressure, adolescent brain development, non-alcoholic fatty liver disease, coeliac disease, nutrition, mental health and stress.</p>	<p>Our research aims to identify the various biopsychosocial factors that contribute to the development and persistence of childhood obesity, to allow us to develop appropriate prevention and intervention strategies for specific groups of children.</p> <p>Our study currently has 486 school-aged children taking part and we are collecting height and weight data and looking at a range of factors suggested to influence childhood obesity including biological, psychosocial and social/environmental factors. In 2007, we carried out a range of initial and follow-up assessments on 446 of the children including final three-year assessments with 188 of them.</p> <p>In 2007, we also began the collection of genetic information or DNA from the study children and their parents. This information will allow us to look for any genetic factors which may contribute to childhood overweight and obesity.</p>	<p>Our LOOKING at Language study is interested in genetic and environmental factors that influence language acquisition and Specific Language Impairment in twins and single-born children.</p> <p>The first stage of the study was completed in 2007 looking at language development in children aged two to six years. Results show that 13 per cent of children at two years of age were late talkers, boys were three times more likely to have delayed speech development, while a child with siblings was at double the risk, as were children with a family history of late talkers. The study also found that a mother's education, income, parenting style or mental health had no impact on a child's likelihood of being a late talker.</p> <p>In 2007, LOOKING at Language received further funding from the USA National Institutes of Health to extend the study for another five years. This will allow researchers to look at language development and literacy skills in children up to nine years of age.</p>

## DEVELOPMENTAL PATHWAYS IN WA CHILDREN

This project is looking at developmental pathways to health, education and delinquency outcomes in Western Australian children. The project takes a holistic approach to inform early intervention strategies that enhance wellbeing and life chances.

This project will be the first time that a State-wide, whole of population study involving a number of industry partners and government departments has been undertaken in Australia.

This research project is underpinned by the unique ability to link together longitudinal, population-based data from the Institute and government departments to create a powerful research tool. The de-identified linked data is used by researchers to identify multi-level and early determinants of developmental outcomes and the relationships between them. Some of the specific areas of focus for the project are:

- identifying the key individual, family and community factors that lead to good or poor literacy and numeracy
- developing a population measure of child abuse and neglect to enable the monitoring of population trends of both
- looking at the socioeconomic inequalities in child health and development outcomes
- investigating the extent to which childhood maltreatment contributes to the risk for mental health problems, self harm and suicide
- developing a better understanding of juvenile delinquency and the factors impacting on its development.



## SPOTLIGHT ON *Obesity*

Childhood obesity is a major health concern and is generally caused by lack of physical activity, unhealthy eating patterns, or a combination of the two, with genetics and lifestyle both playing important roles in determining a child's weight.

Institute research has shown that children of overweight or single mothers have a greater likelihood of being overweight or obese.

However, the study, published in 2007 in the *Medical Journal of Australia*, found that family conflict, negative life events, and maternal depression are not likely to have an impact on whether a child becomes overweight or obese.

Lead author and Institute psychologist Dr Lisa Gibson said that parenting style was not associated with childhood obesity.

"Previous indications of a link between poor family functioning and childhood obesity were based on studies without population-based data and without observations across a range of theoretically important factors," she says.

Dr Gibson said it is possible that parenting practices regarding children's food and exercise behaviour may play a role in managing children's weight problems.

"Children from single-parent families, particularly when there is a family history of obesity, may struggle to maintain a healthy weight in an obesogenic environment with restricted access to nutritious foods such as fruits, vegetables and wholegrain cereals and adequate facilities for recreational exercise," explains Lisa.

Dr Gibson said the association between

children's weight, maternal BMI (body mass index) and family structure confirms the need to find ways of targeting prevention and intervention efforts for childhood obesity at families with overweight parents, particularly under-resourced single parent families.

Dr Gibson said research had shown that 80 per cent of children with a weight problem had a mother who was overweight or obese.

"The role of the mother is really important," she said. "The best predictor of a child's weight is the mother's weight."

A treatment program for overweight mothers is now being run, with the aim of keeping their children's weight under control. The pilot program, which has eight mothers participating, deals with changing diet and exercise as well as attitudes to body image and eating to satisfy emotional needs.

# Infectious disease

	MENINGITIS	PNEUMOCOCCAL DISEASE	INFLUENZA
ABOUT	<p>Meningitis is the inflammation of the meninges (the membrane lining of the brain and spinal cord). It usually refers to infections caused by viruses, bacteria, fungi or parasites.</p> <p>Bacterial meningitis is the most common life-threatening type of meningitis and can cause death within hours. Most cases of bacterial meningitis in children and adults are now caused by meningococcal and pneumococcal bacteria.</p>	<p>Invasive pneumococcal disease caused by the bacteria called pneumococcus (<i>Streptococcus pneumoniae</i>) is a major cause of meningitis, pneumonia (inflammation in the lungs), septicaemia (blood poisoning) and severe ear infection.</p> <p>The pneumococcus is often carried in the back of the nose and throat of healthy children and adults. Many people naturally carry the bacteria in the back of their nose but only some fall ill.</p>	<p>Influenza, or the 'flu is caused by a highly contagious virus spread by coughing and sneezing.</p> <p>Symptoms of the 'flu develop one to three days after infection and include chills, sweating, headache, cough and general muscle and joint pains. In rare cases, 'flu may lead to serious complications such as pneumonia or inflammation of the brain or heart.</p>
FACTS & STATS	<p>Meningococcal bacteria can also cause septicaemia (blood poisoning) and in Australia, most disease is now caused by the B strain for which there is no licensed vaccine. In WA, over 80 per cent of meningitis cases are caused by the B strain.</p> <p>The introduction of Commonwealth Government-funded vaccines for Hib, pneumococcal and meningococcal C diseases has seen case numbers drop significantly.</p>	<p>Throughout the world an estimated one million children die annually from pneumococcal disease, the majority being in early infancy.</p> <p>In 2007, there were 123 reported cases of invasive pneumococcal disease and 22 deaths in WA.</p>	<p>The 'flu is often considered a mild disease, slightly worse than a cold, but the 'flu has killed millions of people, including children, around the world.</p> <p>Children are two to three times more likely than adults to get sick with the 'flu and be hospitalised.</p>
OUR RESEARCH	<p>During 2007, we continued studies into an exciting world-first trial of a new meningococcal B vaccine. The initial first-in-man study in healthy adults showed protective antibody responses to many Group B strains. Studies are now ongoing in toddlers and adolescents eight to 14 years of age. We are also involved in infant and toddler trials of combination vaccines against meningitis which hope to reduce the number of injections children need.</p> <p>The Meningitis Centre, which is housed at the Institute, is Australia's premier organisation for information about meningitis. The Centre has been working with the community and government since 1992 to raise awareness of all forms of meningitis and funding for vaccines. The Centre also provides support and information to families affected by meningitis and works to increase public awareness of, and foster research into, meningitis. The Meningitis Centre has taken an active role in the international Confederation of Meningitis Organisations (COMO), an organisation of medical and charity leaders from across the world united to increase the international profile of meningitis, with Centre Chairman Bruce Langoulant taking on the COMO President role. More information about The Meningitis Centre may be found at <a href="http://www.meningitis.com.au">www.meningitis.com.au</a></p>	<p>2007 was the final year that the Institute monitored invasive pneumococcal disease through the Vaccine Impact Surveillance Network, which collects and analyses information on vaccine-preventable diseases and evaluates the impact of vaccines. The WA Health Department is taking over this activity in 2008. From April 1, 1996 to December 31, 2007, a total of 1913 cases of invasive pneumococcal disease were recorded on the database. Patterns of invasive pneumococcal disease have been changing and may be the result of epidemics of non-vaccine strains, limited uptake of vaccines and changes in surveillance practices.</p> <p>We are also working with the Papua New Guinea Institute of Medical Research to assess the safety and immune responses to pneumococcal conjugate vaccine in young Papua New Guinean infants. The vaccine is being given to babies either at birth-one-two months or one-two-three months of age to see if immunisation in early life will protect them against pneumococci which causes acute respiratory infections and meningitis that can result in death. In 2007, recruitment was completed with 319 babies taking part in the study and completing their three-month follow-up and vaccination.</p>	<p>Avian influenza, or bird 'flu as it is more commonly known, is a contagious viral infection that can affect all species of birds and occasionally causes disease in humans. There are several types of bird 'flu and the strain involved in the current outbreak is called H5N1. The current strain of H5N1 has spread to many parts of the world by migratory birds and possibly through trade in poultry.</p> <p>Our Vaccine Trials Group has been involved in national trials of an Australian-developed bird 'flu vaccine with Perth adults, older Australians and children aged between six months to eight years taking part. In 2007, we announced results from the adult study which found study participants produced a strong immune response against the H5N1 bird 'flu virus. The vaccine was found to be safe and well tolerated and the data has now been submitted for registration of the vaccine with the Therapeutic Goods Administration. Whilst a H5N1 'flu pandemic has not yet occurred, the best preparation against bird 'flu is to have an effective vaccine available and to continue to monitor the situation.</p>

## HUMAN PAPILLOMAVIRUS (HPV)

Human PapillomaVirus (HPV) is a virus that infects the skin and mucus membranes of the human body. Most people who become infected with HPV will not have any symptoms and will clear the infection on their own.

There are more than 100 different types of HPV.

HPV is the main cause of cervical cancer in women, with approximately 70 per cent of all cervical cancers being associated with infection with only two types, HPV 16 and HPV 18.

Over 75 per cent of sexually-active women and men will be infected with HPV during their lives.

Cervical cancer is the second most common cause of death from cancer in women worldwide. The World Health Organization recently estimated that 510,000 women are diagnosed with cervical cancer and 288,000 women die from the disease every year.

Just under 150 Perth women contributed to international research which proved that the Cervarix vaccine provides broader protection against cervical cancer. Initial results from this trial were released in 2007 and showed that while the vaccine provides effective protection against high grade pre-cancerous lesions caused by HPV types 16 and 18, it also demonstrated additional protection against infections from other strains of HPV that account for another 10 per cent of cervical cancers.

Also in 2007, we launched a trial of a new vaccine that could provide women with additional protection against HPV types known to cause cervical cancer. Healthy women aged between 18 and 26 years of age were invited to join the study which will test a new vaccine designed to provide protection against types of HPV which cause approximately 90 per cent of cervical cancer, and most cases of genital warts.



## SPOTLIGHT ON *Childhood infection*

Infectious diseases are the most common reason that children under two years of age are admitted to hospital.

According to Dr Deborah Lehmann, who leads the Institute's infectious diseases research, the findings show that infection is an increasing concern in affluent countries.

"Infections are not often highlighted as a priority health issue but these findings show very clearly the need for all children to have access to good quality health care before these infections become so serious that they require hospitalisation," Dr Lehmann said.

"It also reinforces the importance of continued vaccine development and implementation, particularly for respiratory syncytial virus (RSV), rotavirus and influenza."

In the biggest study of childhood hospital admissions ever undertaken,

the research team analysed the admission records of more than 270,000 children born in Western Australia between 1990 and 2000.

The results, published in the *Pediatric Infectious Disease Journal*, found that one in five non-Aboriginal children and half the Aboriginal children were hospitalised at least once due to an infection by the time they reached two years of age.

Admissions to hospital with infection are increasing significantly in non-Aboriginal children, as similar studies in the US have also found. While there has been a decline in admissions of Aboriginal children for infections, they are still more than three times more likely to get admitted than non-Aboriginal children.

The most common causes of hospital admissions were respiratory infections such as bronchiolitis, pneumonia and otitis media (ear infections) followed by gastroenteritis.

Dr Lehmann said the research team discussed a number of possible reasons for the high rate of hospitalisation including young children generally mixing with many children at a young age due to an increase in use of day care and other organised activities for children.

"Other reasons included the reduction in bulk billing practices which has seen more children treated at emergency rooms which may increase the likelihood of admission into hospital and improved diagnosis of illnesses such as bronchiolitis," she said.

Researchers hope to develop a better understanding of why some children develop more severe infections than others and why these admissions are rising in non-Aboriginal children. This will help develop prevention programs and better treatments for those at greatest risk.

# Social and emotional wellbeing

	DIETARY PATTERNS AND MENTAL HEALTH	SUPPORT PACKS	ACTIVE RESPONSE BEREAVEMENT OUTREACH
ABOUT	<p>Fatty acids are a major constituent of the membranes of almost all cells in the body and account for around two thirds of the dry mass of the brain. Some forms of these lipids are not able to be synthesised within the body and must therefore be obtained directly through diet for the maintenance of healthy functioning.</p> <p>Significant changes have occurred in the 'average' diet of children in Australia and other developed countries over recent years. Until quite recently, there has been surprisingly little research into the role which these changes in dietary patterns may play in shaping children's outcomes in areas such as cardiovascular disease risk and mental health problems.</p>	<p>Family members and those with significant attachments to individuals who commit suicide are at increased risk for pathological grief reactions which may include clinically significant depression and suicidal behaviour.</p> <p>When a family member or friend is distressed or suicidal, the people around often do not know how best to support them.</p>	<p>The Active Response Bereavement OutReach or ARBOR service was developed to provide timely counselling, peer support, support groups and referral advice to people bereaved by suicide.</p> <p>The service was developed in 2007 and launched in October.</p>
FACTS & STATS	<p>Child and adolescent mental health problems are common and burdensome, affecting around one in six WA children in any one year.</p> <p>Depression has become more frequent in children and adolescents over recent decades. The average age of onset of these problems has also become progressively earlier over this period.</p> <p>One of the more striking aspects of the changes in the average western diet has been a substantial change in omega-6 and the omega-3 fatty acids intake.</p>	<p>Around 250 Western Australian families are bereaved through suicide each year. Family and close friends have very particular support needs in dealing with the acute distress and the longer-term complicated bereavement recovery process.</p> <p>While many people who attempt suicide are not treated in hospital, each year over 3,000 people are admitted to West Australian hospitals after a suicide attempt. Following discharge, these individuals are at higher risk of another suicide attempt in the first weeks and months after discharge.</p>	<p>For every death by suicide it is estimated that up to 10 people are intimately affected by the loss and many more through extended family networks, workplaces and social circles.</p> <p>People bereaved by suicide are more at risk of suicide themselves.</p>
OUR RESEARCH	<p>Investigating the relationship between nutrition and brain development in utero, during infancy and over the course of childhood is an important new focus of metabolic and neurodevelopmental research. Early findings on the relationship between dietary quality and mental health in the Raine Study showed that children with identifiable behavioural or emotional difficulties on the Achenbach Child Behaviour Checklist were more likely to have a lower diet quality as measured by our diet quality index. As their mean diet quality score increased, all areas of mental health improved, suggesting that healthy diets should be encouraged in adolescent children for the benefit of their mental health and wellbeing.</p> <p>Australian Rotary Health Research funding has enabled more detailed analysis of dietary factors and trajectories of mental health from infancy to adolescence. This has included new methods of dietary pattern analysis coupled with blood assays of essential fatty acids and other key nutrients to establish the extent to dietary patterns may contribute to adolescent behavioural or emotional difficulties when other socioeconomic and psychosocial factors are taken into account.</p>	<p>Addressing a need in the community for the provision of relevant information for those supporting someone who is distressed or suicidal, the Ministerial Council for Suicide Prevention together with the Office for Children and Youth, produced an information pack to help parents and carers better support those being affected by suicidal thoughts. During 2007, the <i>Information and Support Pack for those concerned about someone who is distressed or suicidal</i> was printed and distributed throughout Western Australia to health services and schools. In 2000, the Ministerial Council for Suicide Prevention, with support from people bereaved by suicide, developed an <i>Information and Support Pack for those Bereaved by Suicide or other Sudden Death</i> which provides important information to assist people in the bereavement recovery process. The pack was adopted nationally in 2003 and in 2007, funding was received to reprint a second edition of the pack. In WA, the pack is distributed by the State Coroner's Office.</p> <p>Both packs are available online at <a href="http://www.mcsp.org.au/resources">www.mcsp.org.au/resources</a></p>	<p>On average there are over 250 deaths by suicide each year in Western Australia, leaving at least 2,500 people grieving and many more affected by these losses. Most commonly if people bereaved by suicide try to seek help they find it difficult to navigate through both their grief and the lack of appropriate resources and services. This can be a very frustrating process as people are often referred from one service to another and then another.</p> <p>ARBOR aims to help those newly bereaved to access the support, resources and assistance they need while reducing the isolation often felt at this time. ARBOR accepts referrals from agencies in the Perth area and has an established referral relationship with the Coronial Counselling Service. Individuals and families can also refer themselves and/or a family member or friend. ARBOR will be evaluated on an ongoing basis to enable us to assess how well ARBOR is helping those bereaved by suicide and if shown to be effective, ARBOR could be extended to other communities.</p>

## STATE SUICIDE PREVENTION STRATEGY

Our Ministerial Council for Suicide Prevention led the development of a five-year State Suicide Prevention Strategy in collaboration with the Mental Health Division, the Office for Children and Youth, Regional Mental Health Services and Aboriginal Medical Services.

Self-inflicted injury (suicide and other undetermined intent) is the leading cause of injury death in Western Australia, ahead of motor vehicle and other transport injury deaths.

On average, each year in WA, around 250 individuals end their life by suicide.

Suicide is complex and rarely caused by one factor so its prevention needs a comprehensive approach that looks at the range of issues which can be associated with suicide such as depression, alcohol and substance abuse, family problems, the legal system, education, and poverty.

During 2007, the Statewide strategy was developed and presented to the WA Minister for Health. Eighteen community consultations were held around Western Australia, including several regional and remote locations, to identify local needs and challenges in preventing suicide. The strategy is also based on information from 3,773 suicides recorded over the period 1986 to 2002 which provides an insight into some of the factors commonly associated with suicide in WA. These include the association between suicide and alcohol and other drugs, the impact of precipitating major life-stress events, previous suicide attempts, diagnosed psychiatric disorders and access to mental health services.



## SPOTLIGHT ON *Preventing suicide*

According to the Chair of the Institute's Ministerial Council for Suicide Prevention Professor Sven Silburn, suicide is a complex issue and there are rarely quick fixes.

He says research has shown that many people find it hard to access good quality information on how to recognise suicidal behaviour and what to do to support someone in distress.

The Council has developed an information pack to help anyone who is concerned about a friend or family member who is distressed or suicidal.

"It's important that we take seriously any expressions of suicide and not assume the situation will cure itself," Professor Silburn said.

"The information pack gives lots of practical advice about different types of situations and importantly, contact

numbers for extra support."

Professor Silburn said a consultative group of family and friends who had helped a loved one when they were distressed or suicidal assisted in the development of the pack to ensure it addressed the key questions and issues that they faced.

"Sadly for every suicide another ten people are significantly affected by the loss," he said.

"While not every suicide can be prevented, our research has shown that men in particular are more likely to initially accept help from mates and family, rather than professional supports.

"Building up trust and communication in this situation is very challenging and the information pack gives some good strategies to assist someone to seek help."

The Office for Youth together with the Friends of the Institute for Child Health Research (Margaret River branch) helped fund the publication.

The Margaret River Friends of the Institute President Helen Noakes said the group also assisted in its development and were very pleased to support such an important publication.

"It's great to be able to support this pack which we know will be of great use to people in our own community and around Western Australia," Mrs Noakes said.

The information pack has already been widely distributed to health services around the State and is available from the Office for Youth or can be downloaded from [www.childrenandyouth.wa.gov.au](http://www.childrenandyouth.wa.gov.au) or [www.mcsp.org.au/community/carers\\_pack](http://www.mcsp.org.au/community/carers_pack)

# The early years

	AUSTRALIAN EARLY DEVELOPMENT INDEX	IMPORTANCE OF BREASTFEEDING
ABOUT	<p>The Australian Early Development Index (AEDI) project is enabling communities around the country to assess how their children are doing in terms of early development and readiness for school learning. A unique online data entry system allows teachers to complete checklists on five areas of child development: physical health and wellbeing; social competence; emotional maturity; language and cognitive skills; and communication and general knowledge.</p> <p>The AEDI project is a partnership between the Institute and the Centre for Community Child Health in Melbourne. It is funded by the Australian Government Department of Families, Community Services and Indigenous Affairs (FACCSIA) and Shell Australia.</p>	<p>According to the Australian Breastfeeding Association, breastfeeding:</p> <ul style="list-style-type: none"> <li>• protects your baby from illness and infection</li> <li>• provides the correct food for your growing baby</li> <li>• aids the development of your baby's eyesight, speech and intelligence</li> <li>• promotes a special loving bond between mother and baby.</li> </ul>
FACTS & STATS	<p>From 2004 to 2007 the AEDI was completed in 60 Australian communities on 37,420 children in the first year of full-time school by 2,157 teachers from 1,012 government and non-government schools.</p> <p>Each participating site ranges in geographical size and number of children, from single rural towns with small numbers of children to entire health services and local government regions.</p> <p>The AEDI is based on the Canadian Early Development Indicator (EDI) which was adapted and validated for use in Australia.</p>	<p>The World Health Organization recommends exclusive breastfeeding for six months, then introduction of complementary foods and continued breastfeeding thereafter. It is recommended that breastfeeding continue until 12 months of age and thereafter as long as mutually desired.</p>
OUR RESEARCH	<p>Following the completion of three years of trialing the AEDI in selected Australian communities, the program was expanded in 2007 to invite participation across the nation. With Federal government support for the project, the AEDI will now be rolled-out to all communities to help identify those areas of child development where improvements can be made.</p> <p>In 2007, we began adapting the AEDI for use in Indigenous populations. The project will determine the factors required for the AEDI to be inclusive of Aboriginal perspectives of children's readiness to learn at school and for it to accurately measure the early development of Aboriginal children in the five developmental domains. This project is funded by FACCSIA and Shell Australia from 2007 to 2009.</p> <p>A partnership project with BHP Billiton Iron Ore as the foundation and principal sponsor saw the AEDI implemented in the Pilbara region, in collaboration with the Communities for Children Initiative of the West Pilbara Consortium, The Smith Family, Resource Unit for Children with Special Needs (RUCSN) and Chevron Australia. The project involved completion of the AEDI checklist to provide baseline data for the region and training and support to Pilbara communities to allow them to identify, plan and implement local programs to improve early child development. With 100 per cent participation, this was the first time a region of this extensive size had wholly participated in the AEDI.</p> <p>We are also collaborating with researchers in Canada, where the Index was originally developed, to assist other countries to develop and implement an EDI. The Institute's current involvement is with Indonesia, Jordan and the Philippines. In Indonesia we will assist in the evaluation of a World Bank early child development program in 5000 of the poorest communities in Indonesia, with the EDI being one of the proposed evaluation tools.</p> <p>Further information about the AEDI can be found at <a href="http://www.australianedi.org.au">www.australianedi.org.au</a></p>	<p>Breastfeeding has a beneficial effect on overall childhood development and has been specifically implicated in childhood physical and cognitive development. We have been looking at the possible role of breastfeeding in modulating mental health status through childhood and into adolescence.</p> <p>Using data from the Raine Study, which initially recruited 2,979 mothers at 16 to 20 weeks in pregnancy and has followed these children since, mental health status was assessed by the Child Behaviour Checklist at ages two, six, eight, 10 and 14 years. Breastfeeding duration was included in the analysis along with other relevant factors including maternal factors such as age, education and marital status; pregnancy factors such as smoking, father living with family, life stress events; factors following birth including breastfeeding duration, postnatal depression; and infant factors such as gestational age and gender.</p> <p>We found that breastfeeding for less than six months compared to six months or longer was a significantly predictor of adverse mental health status through childhood and into adolescence. In other analyses, this relationship was supported by the results showing that babies who were breastfed for less time had a 30 per cent increased risk of having an adverse mental health outcome through childhood and into adolescence. We concluded that breastfeeding for six months or longer may be a significant predictor of positive mental health outcomes throughout the developmental trajectory of childhood and early adolescence.</p>

## CHILDHOOD DEATHS

Our WA Mortality Database describes the deaths of every Western Australian-born infant, child and young person.

It is important to understand why our children are dying so we can work towards improving programs and services aimed at reducing childhood death. The project also aims to identify more accurately Aboriginal births and deaths in large population datasets. It is important to identify this particular group within the total population so that patterns and trends of deaths among Aboriginal infants, children and young people may be identified and areas of critical need addressed.

The database describes the cause, location and circumstances of death for all infants, children and young people born in WA between 1980 and 2005 inclusive.

During 2007, we collected information on childhood deaths for the years 2004 and 2005, and began collection of 2006 data. We now have around a quarter of a century of comprehensive mortality information that describes the deaths of WA-born infants, children and young people. This database has the ability to provide comprehensive information that will enable the development of targeted policy and initiatives to prevent childhood deaths. An example of this is our work in the area of preventable deaths including deaths attributed to Sudden Infant Death Syndrome (SIDS) in the Indigenous population where we have used the database to develop interventions to prevent SIDS.

In 2007, we began the first-of-its-kind analysis of data to compare patterns and trends of deaths of Australian Aboriginal, Alaska Native and New Zealand Maori babies and children.



## SPOTLIGHT ON *Caesarean births*

Caesarean births are becoming more popular with the rate of caesarean sections in Western Australia almost doubling in the 20 year period to 2003.

But caesarean sections are still associated with an increased risk of maternal and infant death and health complications.

Report author Colleen O'Leary said the rise in caesarean births could not be explained by increases in clinical reasons such as complications in pregnancy, labour or delivery and was more likely due to societal factors.

"Even after adjusting for pregnancy and delivery complications and sociodemographic factors, the increases were significant," she said.

"Women in 1999 to 2003 were twice as likely to have a caesarean section, than women in 1984-88."

The analysis of all West Australian births between 1984 and 2003 (more than 430,000 births) shows that elective or planned caesareans have risen from six per cent to 13 per cent over the 20 year period and during the same time, there was a 70 per cent increase in the number of emergency caesareans.

Ms O'Leary says the analysis clearly shows that both maternal age and affluence are factors in the increasing rates of caesareans.

"Once you hit 40, you're 5.4 times more likely to have an elective caesarean section than women who are 25 to 29 years of age," Ms O'Leary said.

"And more first-time mums are choosing caesareans.

"The likelihood of first-time mums having an elective caesarean has been

increasing since the mid-1980's, with a two-fold increase in 1999 to 2003 compared to the previous five-year period."

When private medical insurance was included into the analysis, the research team found that women who had medical insurance were more than three times as likely to have an elective caesarean section.

"Women with private health insurance were also 1.34 times more likely to have an emergency c-section than those who were uninsured, even though pregnancy complications and obstetric problems which may need a caesarean section are higher in uninsured women," Ms O'Leary explains.

"The increase in caesarean rates has a significant impact on health costs in both the public and private sectors."

# Understanding disability

	RETT SYNDROME	ALCOHOL AND PREGNANCY	HYOSPADIAS
ABOUT	<p>Rett syndrome is a relatively rare but serious neurological disorder that usually affects girls.</p> <p>The clinical diagnosis has often been uncertain in early childhood as the symptoms may be confused with those occurring in other disorders such as autism, cerebral palsy and developmental delay.</p>	<p>Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term that describes the range of effects of maternal alcohol consumption during pregnancy.</p> <p>Fetal Alcohol Syndrome (FAS) is a diagnosis that is included in FASD and is characterised by physical defects and disabilities, the main features being cranio-facial abnormalities, prenatal and/or postnatal growth deficiency, and evidence of damage or dysfunction of the central nervous system. The consequences of FAS are lifelong.</p>	<p>Hypospadias is a urogenital birth defect that affects boys, where the opening of the penis forms on its underside rather than its tip.</p> <p>Hypospadias can be corrected with surgery.</p>
FACTS & STATS	<p>Rett syndrome affects around one in every 10,000 female births in Western Australia.</p> <p>Mutations in the <i>MECP2</i> gene on the X chromosome have been identified as a cause of Rett syndrome.</p> <p>There is no known cure for Rett syndrome.</p>	<p>FAS was first identified in the 1970's.</p> <p>It is a preventable condition.</p> <p>Data from the Western Australian Birth Defects Registry suggest a birth prevalence of 0.18 per 1,000 live births:</p> <ul style="list-style-type: none"> <li>• 0.02 per 1,000 non-Indigenous live births</li> <li>• 2.76 per 1,000 Indigenous live births.</li> </ul>	<p>It is the second most common birth defect in Western Australia.</p> <p>One in every 118 West Australian boys is born with hypospadias each year.</p> <p>In WA, between 1980 and 2000, there were 1,788 cases of hypospadias and the rate increased by two per cent per year from 28 per 10,000 births in 1980 to 43 per 10,000 births in 2000.</p>
OUR RESEARCH	<p>Our AussieRett database includes information about all Australian girls born with Rett syndrome since 1976. We collect information about functional abilities, behaviour, hand function, medical conditions and the use of health and education services. Since Rett syndrome is a movement disorder, an extremely important and innovative source of information is video footage provided by the families of girls with Rett syndrome and during 2007, families provided a second round of video material to the AussieRett study.</p> <p>We have also been looking at scoliosis, a common orthopaedic complication that affects around 75 per cent of girls with Rett syndrome by 13 years of age. We have been collecting information from both clinicians and parents to develop a set of clinical guidelines for the management of scoliosis in Rett syndrome.</p> <p>InterRett, an international database which collects data from families and clinicians around the world, grew during 2007 and now contains 1,271 cases of Rett syndrome from 30 countries. This information allows us to investigate sub-groups of individuals who share the same mutation and compare them to groups with different mutation types.</p>	<p>In 2007, we distributed alcohol and pregnancy information packs to over 3,500 health professionals in WA. These packs will support their knowledge and advice to pregnant women and women of child-bearing age about alcohol use during pregnancy. An evaluation of the pack commenced with 1,900 health professionals with results expected in 2008.</p> <p>We also asked West Australian women about their knowledge, attitudes and practice regarding alcohol use in pregnancy. Five hundred women aged between 18 and 45 years of age were surveyed. One third of women were not aware of the consequences on the fetus and child of drinking alcohol in pregnancy and a quarter of them would continue to drink alcohol in a future pregnancy. The majority of women agreed that information about the effects on the fetus of alcohol during pregnancy should be available to women and that health professionals should ask women about alcohol consumption and advise them to abstain during pregnancy. These results will be used for future health promotion programs for women.</p>	<p>During 2007, we expanded our studies in this area to look at possible maternal, paternal and environmental risk factors, that may be associated with hypospadias. Our results showed there is an increased risk of hypospadias if the mother was exposed to heavy metals at work. There were no strong findings for the father's occupational exposures except for those working in the plastics industry or with polychlorinated organic compounds from electrical waste by-products, who were more likely to have an affected son. Rates of hypospadias were, on average, slightly higher in urban compared with rural areas and women living in particular high prevalence areas had more than three times the risk of having a son with hypospadias compared with those living in a low risk area. There may be some underlying environmental factors influencing rates in certain areas of WA and need to be examined and residential location taken into account. Siblings of affected cases had an almost seven-fold increased risk of hypospadias which suggests genetic and/or shared environmental effects.</p>

## CEREBRAL PALSY

Cerebral palsy refers to a collection of diseases with the common clinical features of motor impairment resulting from damage to the brain before birth, around birth or in early childhood.

Cerebral palsy can be accompanied by epilepsy, defects in intellect, vision, hearing, speech and spacial awareness, and musculo-skeletal problems.

Cerebral palsy is the most common physical disability in children.

For every child under the age of 18 years diagnosed with cancer, there are three with cerebral palsy.

For most, the cause is unknown. There is no pre-birth test. There is no known cure for cerebral palsy - it lasts a lifetime.

The need for larger sample sizes to improve knowledge regarding the extent and distribution of cerebral palsy across Australia resulted in the formal launch of the Australian Cerebral Palsy Register in 2007. This national register is a collaboration of cerebral palsy registers in all States and Territories in Australia, with only the Northern Territory still seeking funding. The coverage of the Australian register has grown from 45 per cent at its inception in 1992 to almost 100 per cent today. A website ([www.cpreregister-aus.com.au](http://www.cpreregister-aus.com.au)) provides information about cerebral palsy and provides facilities for each State to enter data into the register and also allows members of the public to directly contribute their information.

The national register is modelled on our Western Australian Cerebral Palsy Register, one of the longest-standing cerebral palsy registers in the world, which we continue to manage. We collect data to monitor the occurrence of cerebral palsy and to carry out research to investigate its causes and evaluate treatment strategies.



## SPOTLIGHT ON *Alcohol in pregnancy*

Complications due to drinking alcohol during pregnancy can range from the very serious Fetal Alcohol Syndrome to the often less severe but more common Fetal Alcohol Spectrum Disorders which include behavioural and developmental difficulties.

Institute research published in 2007 found that more than half of West Australian women surveyed drank alcohol during pregnancy.

The report, published in the February issue of the international journal *Alcoholism: Clinical & Experimental Research*, also found that nearly half had not planned their pregnancy, and 80 per cent consumed alcohol in the three months before conception.

Report author Lyn Colvin said the findings have important implications for health promotion.

"Binge drinking among women of child

bearing age is of particular concern," she says.

"The findings that 14.2 per cent of women surveyed consumed five or more standard drinks per occasion during the three months prior to pregnancy, and that almost half of the pregnancies were unplanned pregnancies, indicate that many women may have exposed their babies to high levels of alcohol before they were aware of their pregnancy.

"It's important that women understand that there is no known safe level of alcohol consumption during pregnancy.

"We recommend not drinking as the safest option because the impact of alcohol on the fetus depends on so many factors including the stage of pregnancy, the frequency of consumption and the type of beverage consumed," explains Lyn.

Ms Colvin said it was encouraging that many women who drank alcohol reduced their consumption in the first trimester of pregnancy.

"It suggests to us that with appropriate education, more women will reduce or abstain from consuming alcohol when they are pregnant or might soon become pregnant," she said.

"It's also important that while we raise awareness that we don't generate undue fear or guilt. Most pregnancies are healthy, but women also have a right to know about the risks to a baby from alcohol and, if they are drinking, they need to take precautions to prevent unplanned pregnancies."

The findings are based on a survey of 4,839 women taken 12 weeks after delivery. It represents a 10 per cent random sample of all non-Indigenous women giving birth in WA.

# Senior staff

**Jenefer Blackwell** BSc(Hons) PhD FMedSci

*Head of Division of Genetics and Health*

Professor, University of Western Australia. Professor Blackwell joined the Institute in 2007, after spending 17 years at the London School of Hygiene and Tropical Medicine and 17 years at the University of Cambridge. She was the founding director of the Cambridge Institute for Medical Research, and retains a position there as Honorary Senior Scientist and Affiliated Principal Investigator. Her primary goal at the Institute is to establish the use of genetics as a tool for epidemiological research.

**Carol Bower** MBBS MSc PhD FAFPHM DLSHTM

*Head of Epidemiology*

Clinical Professor, University of Western Australia. Professor Bower has been a research scientist at the Institute since its 1990 opening. She established the internationally recognised Western Australian Birth Defects Registry, is a Fellow of the Australian Faculty of Public Health Medicine and holds a Principal Research Fellowship from the National Health and Medical Research Council.

**Nick de Klerk** BSc MSc PhD

*Head of Biostatistics and Genetic Epidemiology*

Adjunct Professor, University of Western Australia. Professor de Klerk joined the Institute in 2000 after leading the Occupational Respiratory Epidemiology Group in the Department of Public Health at the University of Western Australia for 10 years. Before that he gained broad experience in biostatistics and epidemiology both in Western Australia and England.

**John Finlay-Jones** BSc(Hons) PhD FAIBiol FASM

*Assistant Director*

Adjunct Professor, University of Western Australia, and Emeritus Professor, Flinders University of SA. A science graduate of UWA, Professor Finlay-Jones spent 25 years at Flinders University, most recently as Head (Executive Dean) of the Faculty of Health Sciences, before joining the Institute in 2003. He has been President of the Australian Society for Medical Research (1990), the Australian Society for Microbiology (1996-1998) and the Australian Institute of Biology (1999-2001).

**Robert Ginbey** BA BEd Grad Dip Public Sector Mgt MACE

*Head of Division of Administration and Corporate Services, Company Secretary*

Mr Ginbey joined the Institute in 1995. He has taught history and economics in Western Australia and Papua New Guinea and has worked as a senior policy officer and senior manager of corporate services and strategic planning for both the commonwealth and state governments.



1. Jenefer Blackwell
2. Carol Bower
3. Nick de Klerk
4. John Finlay-Jones
5. Robert Ginbey

**Prue Hart** BSc(Hons) MSc PhD

*Head of Inflammation Laboratory*

Principal Research Fellow, NHMRC and an Adjunct Professor at the University of Western Australia. Professor Hart joined the Institute in July 2003 from Flinders University in Adelaide where she had been in the NHMRC Fellowship scheme since 1991. She has previously worked at University of Queensland (Royal Brisbane Hospital), Rigshospitalet in Copenhagen and the University of Melbourne (Royal Melbourne Hospital).

**Colleen Hayward** BEd BSc

*Manager, Kulunga Research Network*

Associate Professor, Curtin University. Associate Professor Hayward is a senior Noongar woman with family ties throughout the South-West of Western Australia. She has an extensive negotiation, advocacy, policy and management background in a range of government and non-government areas and was previously deputy Chief Executive Officer of the Aboriginal Legal Service of WA. Other experience covers areas including health, education, training, employment and housing.

**Pat Holt** PhD FRCPATH(UK) DSc FAA

*Deputy Director, Head of Division of Cell Biology*

Professor Holt established the Division of Cell Biology in 1990. He is currently Senior Principal Research Fellow, NHMRC and holds a Professorship at the University of Western Australia. Previous appointments include Acting Director, Clinical Immunology Research Unit, Princess Margaret Hospital for Children and Research Fellow, Institute of Environmental Hygiene, University of Gothenburg.

**Ursula Kees** Dip Phil II PhD

*Head of Division of Leukaemia and Cancer Research*

Adjunct Professor, University of Western Australia. Professor Kees has been a researcher at the Institute since its inception in 1990. She is interested in the molecular genetic mechanisms leading to cancer in children. In collaborative studies with the Oncology Total Care Unit at Princess Margaret Hospital for Children, she developed new methods for cancer diagnosis.

**Deborah Lehmann** MBBS, MSc

*Head of Infectious Disease Epidemiology Research*

Clinical Associate Professor, University of Western Australia. Professor Lehmann joined the Institute in 1998 after 18 years at the Papua New Guinea Institute of Medical Research where she headed a multidisciplinary Pneumonia Research Program. In November 2004, Deborah was appointed an Adjunct Associate Professor at Curtin University of Technology. She provides expertise in infectious disease epidemiology and Indigenous health.



1. Prue Hart
2. Colleen Hayward
3. Pat Holt
4. Ursula Kees
5. Deborah Lehmann



# Senior staff

## **Bruce McHarrie** *BCom CA*

### *Chief Financial Officer*

Bruce McHarrie joined the Institute in 1999. He was previously an Assistant Director in the Bioscience Unit at Rothschild Asset Management in London and before that was with Coopers and Lybrand, also in London. Bruce has financial and executive management responsibilities as well as develops the Institute's commercialisation opportunities.

## **Sven Silburn** *BSc(Hons) MSc(Clin Psych) MAPS*

### *Director, Centre for Developmental Health*

Professor Silburn joined the Institute in 1991. Professor and Director, Centre for Developmental Health, Curtin University of Technology, Sven completed his clinical training in South Africa and worked in clinical child psychology for the Health Department of Western Australia. He chairs the Ministerial Council for Suicide Prevention and is a member of the Consortium Advisory Group for the Longitudinal Study of Australian Children (LSAC) and the Steering Committee for the Longitudinal Study of Indigenous Children (LSIC).

## **Peter Sly** *MBBS(Melb) MD(Melb) DSc(UWA) FRACP*

### *Head of Division of Clinical Sciences*

Professor Sly established the Division of Clinical Sciences at the Institute in 1991. Professor Sly is currently Director of the WHO Collaborating Centre for Research on Children's Environmental Health and a Respiratory Physician, Princess Margaret Hospital for Children. He is also Professor, School of Paediatrics and Child Health, University of Western Australia and Adjunct Professor, School of Public Health, Curtin University of Technology.

## **Wayne Thomas** *BSc Hons PhD*

### *Head of Laboratory Sciences, Head of Division of Molecular Biotechnology*

Professor Thomas currently holds a Professorship at the University of Western Australia and is a Senior Principal Research Fellow, NHMRC. He has been division head since 1990. He has previously worked at the Medical Research Council, Clinical Research Centre London and at the Walter and Eliza Hall Institute for Medical Research in Melbourne.

## **Paul Watt** *BSc (Hons) D.Phil*

### *Head of Drug Discovery Technology Unit*

A top graduate from UWA, Adjunct Associate Professor Watt obtained a doctorate in Molecular Biology from Oxford University, before receiving postdoctoral training at Harvard and Oxford. His lab has developed a new class of peptide drugs known as Phylomers which hit a diverse array of targets with high affinity and specificity. These drug leads have been validated in pre-clinical models of inflammatory diseases and are being commercialised via the Institute spin-off company Phylogica Ltd ([www.phylogica.com](http://www.phylogica.com)).

## **Stephen Zubrick** *MSc AM PhD*

### *Head of Division of Population Sciences*

Professor Zubrick is a Senior Principal Research Fellow in the Institute and holds a Professorship at Curtin University's Centre for Developmental Health. He has worked in various mental health settings. He chairs the Consortium Advisory Group, National Longitudinal Study of Australian Children, sits on the Commonwealth Longitudinal Studies Advisory Group and is a member of the Federal Government Australian Council for Children and Parenting.



1. Bruce McHarrie
2. Sven Silburn
3. Peter Sly
4. Wayne Thomas
5. Paul Watt
6. Stephen Zubrick

# Telethon's 40 years

Channel 7's Telethon has been the biggest supporter of the Institute since its inception and we are proud to have them as our naming rights sponsor.

In 2007, Telethon celebrated a very special anniversary, marking 40 years of service to the WA community.

Thanks to the generosity of the people of Western Australia, Telethon 2007 doubled its previous record amount, raising more than \$6 million.

Channel 7 Chairman Mr Kerry Stokes AO announced a new corporate partnership initiative for Telethon, kicking it off with a very generous \$1 million donation to the Institute's Aboriginal and environmental child health research.

The Telethon weekend provides a wonderful opportunity for the Institute to showcase how these funds support medical research into the most common or devastating childhood diseases and issues.

As a major beneficiary, we congratulate Channel 7 and the Telethon team for their enormous contribution to improving the health and wellbeing of children everywhere.



*clockwise from above: Fat Cat entertains the Telethon studio audience; Jesse checks out the dust mites at our display while sister Aimee looks on; 2007 Telethon child Bridget; Institute researcher Leigh Pearce helps Caytlin make a DNA sequence bracelet.*

# Collaborations and joint ventures

## *UWA Centre for Child Health Research*

Established in 2001, the UWA Centre for Child Health Research facilitates closer collaboration with the University of Western Australia, providing access for staff in the Centre to relevant university services including administrative and research services and postgraduate student administration. The Centre for Child Health Research is located within the Faculty of Medicine, Dentistry and Health Sciences, and is closely linked with the School of Paediatrics and Child Health.

## *Curtin Centre for Developmental Health*

The Centre for Developmental Health is a joint venture between the Telethon Institute and Curtin University of Technology. This multidisciplinary centre brings together researchers in child and life-course human development with the aim of improving population outcomes in health, education and social wellbeing.

## *Princess Margaret Hospital for Children*

The Institute continues to have a close working relationship with the State's children's hospital. With the planned relocation of PMH within the coming decade, the Institute and PMH have been developing the concept of a contiguous research and education facility. The close working relationship between medical research, clinical practice and teaching is exemplified in the important area of children's cancer and leukaemia, infectious diseases and diabetes.

## *Phylogica*

Drug discovery company Phylogica (ASX:PYC) is the first commercial spin-out from the Telethon Institute for Child Health Research. Phylogica's innovative Phylomer® technology targets and blocks disease protein interactions, constituting a drug discovery engine designed to produce cost-effective therapies with fewer side effects than existing treatments.

## *Edith Cowan University*

The Institute has a number of collaborative studies with Edith Cowan University, mainly in the area of Population Sciences which has been formalised through the signing of a Memorandum of Understanding addressing joint research and postgraduate teaching opportunities.

## *Murdoch University*

The Institute hosts several Honours and postgraduate research students from Murdoch University, principally in the Division of Molecular Biotechnology. New collaborations in Biomedical and Clinical Sciences as well as Population Sciences are being developed. The relationship between the Institute and Murdoch was formalised in a Collaboration Agreement dated January 9, 2008.

## *Notre Dame University*

Researchers at Notre Dame University Australia have a collaboration with Institute staff on the WA Pregnancy Cohort (Raine) Study.

## *World Health Organization Collaborating Centre for Research on Children's Environmental Health*

In 2005, the World Health Organization (WHO) designated the Institute's Division of Clinical Sciences as a Collaborating Centre for Children's Environmental Health Research. The Centre is committed to making a significant contribution to research and education in children's environmental health.

## *Papua New Guinea Buttressing Coalition*

The Institute is proud to be a member of the Buttressing Coalition of the Papua New Guinea Institute of Medical Research (PNGIMR). Members share a common interest - to sustain and to strengthen the PNGIMR without jeopardising its integrity. Our Director, Fiona Stanley, is the current Chair of the Buttressing Coalition. We are involved in the Papua New Guinea pneumococcal conjugate vaccine project, and host PNGIMR staff and students for exchange visits.

# Colleen Hayward

## *Manager, Kulunga Research Network*

Winter is all about football for Colleen Hayward. She's a big football fan, more specifically, a Fremantle Dockers fan! And whilst they are still a young club and have only made the finals once, Colleen has high hopes for their future.

"One day the Dockers really will win the flag!" she says.

Her positive outlook for her beloved team, is also reflected in her working life.

Since 2004, Colleen has managed the Institute's Kulunga Research Network, which focuses on research, capacity building, information dissemination, and advocacy.

Colleen says Kulunga was borne from an idea that acknowledged the need for the Institute to relate positively to Aboriginal and Torres Strait Islander communities, especially in the context of the Institute placing such a high priority on research that improves the life circumstances of Indigenous people.

"My role is to lead the realisation of that agenda. We cannot do that without building the capacity of Indigenous people and communities as well as the people - Indigenous and non-Indigenous - who work with them, including in research endeavours."

Kulunga has grown significantly under Colleen's guidance and now has a varied research agenda comprising as many as 20 projects at any one time. Colleen is involved in all aspects of Kulunga's operations from managing corporate partnerships and attracting research funds to facilitating capacity building as well as direct research involvement.

"Three and a half years ago, when I commenced with Kulunga, I had a team of only three people and only one contract - we had to be underwritten by the Institute to enable us to run," Colleen explains.

"Now we have some twenty projects, have been highly successful in all our research projects, are well known with a reputation that serves to broaden our opportunities, have a staff of 15 including two cadets, and are recruiting even more staff. Our relationships with stakeholders are very positive and our future becomes more and more secure every day.

"None of us can underestimate the difference the Institute makes in our ability to undertake the work we do. That we have such fantastic support from all quarters - starting at the very top - enables us all to not only succeed but to excel."

Colleen started her working life as a primary school teacher but has also worked in industrial relations, human resource management and policy and program development and implementation. This has been across the full spectrum of Indigenous needs including health, education, training, housing, employment and law and justice.

Colleen is combining her extensive experience with the desire and need to make a difference.

"With the current disparity in outcomes for Indigenous and non-Indigenous Australians, I come to work every day knowing that everything we do makes a difference - a positive impact," she says.

"I'm passionate about making a difference in all aspects of my life. In terms of Kulunga's research agenda, it goes way beyond the research to enabling research to have meaning to the Aboriginal and Torres Strait Islander community.

"No matter the research focus, we have to be able to translate research findings in a way that is understood by the people whose story is being told - and in a way that empowers them."



In order to make this happen, Colleen says of immediate and ongoing priority is the building of capacity in research.

"Recruiting and training more staff is an immediate priority as is expanding our field of endeavour into the training and health promotion arenas.

"In the longer-term, my priorities take on board other elements associated with the building of capacity within Kulunga specifically and across the Institute more generally, such as securing more senior staff to assist in building our track record in terms of peer-reviewed publications and securing competitive grants."

Colleen would also like there to be a greater understanding of the need for communication and translation so research is not at a distance from the human element.

Apart from football, Colleen also loves gardening and home renovations, which seem to be never-ending, as well as spending lots of time with family and friends.

# Sarra Jamieson

## Genetics and health researcher

Sarra Jamieson is relishing her new life and job in Western Australia.

In 2007, Sarra and her husband Chris moved from the United Kingdom to Perth as part of the relocation of Professor Jenefer Blackwell's research team from Cambridge to the Institute.

Sarra had been working in genetic research with Professor Blackwell for the past five years so was a member of the core team which would establish the research laboratory in Australia.

As someone who loves to travel, Sarra jumped at the chance to move down under and says she now has a whole new continent to explore.

"I have been lucky enough to be able to travel quite widely in the past, both for work and pleasure, and we have already started to visit some new and amazing places since arriving here," says Sarra.

"Last year we were lucky enough to take a trip to Arnhem Land and to attend the Garma Festival of Indigenous Culture which was an amazing experience."

In her role in the Institute's new Genetics and Health Unit, Sarra will be responsible for two research projects.

The first is looking at the genetics of otitis media, a common disease of the middle ear, in West Australian children. Sarra says that otitis media is a complex disease where susceptibility is influenced by both environment and genetics.

"Whilst there has been significant progress made in understanding the environmental risk factors that influence susceptibility to otitis media, little work has been done on understanding the role played by genetics," explains Sarra.

"It is also important to consider the interactions that occur between environmental and genetic risk factors."

For the study, Sarra hopes to recruit 1,000 children who have had recurrent episodes of acute otitis media, and their parents, to try to answer these questions.

Sarra's second project will look at the role of genetics and epigenetics in the development of congenital defects following infections during pregnancy with pathogens such as toxoplasma or cytomegalovirus.

Genetic epidemiology, how human genetics can influence health and disease in the population, is an area which has always interested Sarra and her research has always focused on genetics and infectious diseases. Between 1999 and 2003, she completed her PhD in Human Genetics with Professor Blackwell at the Cambridge Institute for Medical Research with her research project investigating the genetic susceptibility to tuberculosis and leprosy in a Brazilian population.

She then continued at the Institute and grew her knowledge base by looking at infectious diseases in not only Brazil but also Gambia, China and various countries across Europe. This gave Sarra the opportunity to visit collaborators in Brazil.

"In Brazil, I spent some time teaching students in the lab and was able to meet study participants. Brazil is such an amazing place and my time there was a really rewarding experience."

Then came the big move to Australia.

"It is such a big change for us but we are loving every minute of it, especially living amongst the wildlife out in the hills."

Sarra's immediate research focus is to ensure her two projects get underway and to help get the laboratory's genotyping facilities firmly established.

"These facilities are new to the Institute but will allow other



researchers to start including genetic epidemiology and epigenetic research into their ongoing studies."

Sarra also hopes to learn new techniques, which means more travel.

"My work on epigenetics and infection in utero is seeing some new collaborations unfold in Sydney and I hope to be able to spend some time with one of these groups later in 2008 to learn some new techniques that will be important to my work."

Sarra says that like many researchers at the Institute, the main driving force behind her research is the hope that the knowledge this research brings will ultimately help to improve important health issues in our population.

And now Sarra has a whole new population and genetic and environmental factors to explore in her new home continent.

# Consumer and community participation

*Consumer and community participation is doing research with consumers rather than research on, about or for consumers. It is an active partnership between consumers and researchers.*

After its formation in 2006, the Institute's Consumer and Community Advisory Council met four times during 2007 with its main task being to establish its reporting processes and role within the Institute.

To enable the Council's nine consumer and community members to develop a greater understanding and knowledge of the research undertaken at the Institute, a half-day training session on basic research information was held. This training covered topics such as the grant application and funding processes, the ethics process and data linkage as well as presentations on the Institute's strategic planning and big issues for the future of the Institute.

The Council provided important comment and a community perspective on a range of Institute activities including:

- The Division of Population Sciences Confidentiality Policy
- The establishment of the Infectious Disease Research Group
- The proposed Mandurah Peel Study
- The recommendations from the Quinquennial Review
- The program and planning for the Involving People in Research Symposium

The Chair of Council, Mr Ben Horgan, presented to Institute staff at the 2007 Population Sciences Scientific Forum on the role and potential of the Council. Two

community members of the Council joined the steering group for the Child Development Study. Dr Garth Kendall, who was a driving force behind the establishment of the Council, resigned during the year and we acknowledge his contribution.

Tasks for the Council in 2008 will include the development of processes and strategies to evaluate the work of the Council and how to seek feedback from the community on research priorities.

The Institute's Consumer Resource Liaison Officer, Anne McKenzie, collaborated with Bec Hanley, a UK Consumer Advocate, to write about the experiences and work done by the Institute and The UWA School of Population Health to increase participation in its research programs. The book includes case studies of good practice examples of involving consumers and the community in research.



**top:** Professor Fiona Stanley introduces Labor leader Kevin Rudd to Ben Horgan and Anne McKenzie on his visit to the Institute during the election campaign.

**above:** Members of the Institute's Consumer and Community Advisory Council.

**left:** A highlight for 2007 was the publishing of a book on consumer and community participation.

# Corporate and community partnerships

## *How do you rate an investment that brings a lifetime of benefit?*

There is much evidence that good health and wellbeing starts in the womb.

And we know that early intervention is cheaper and more effective than waiting until an issue reaches crisis point - be it mental or physical health.

Despite this, much of the focus of health services is on treatment rather than prevention. While sick children deserve the very best of care, we believe there needs to be a greater focus on supporting research to prevent these diseases and disabilities.

Just look at how our folate research has reduced the rates of neural tube defects like spina bifida. Our vaccine trials have resulted in more effective immunisations against a range of diseases. The Institute's childhood cancer research has found a technique to identify which children are at highest risk of relapse which will help doctors to tailor their treatment. These are just a few examples of how investing in research can bring benefits to so many children. It reduces long-term costs to the health system and long-term suffering for families.

As a not-for-profit, non-government organisation, the Institute is dependent on donations from the community and the business sectors. This includes bequests, corporate partnerships, foundation and trust grants, fundraising events, personal donations or by providing pro-bono skills and goods-in-kind.

The Institute would like to acknowledge the partners who have provided crucial support to our activities - we highlight just a few of them.

## *Shell Australia: Australian Early Development Index Project*

Congratulations to our corporate partner Shell Australia for winning a Special Award for Impact on a Community in the 2007 Prime Minister's Award for Excellence in Community Business Partnerships. Shell has been the major corporate supporter of the Australian Early Development Index project for the past four years.

The AEDI measures how well children in a community are developing before they start school: it's like a census of 5-year-olds. Data are collected by teachers and measure five areas of child development: physical health and well-being, social competence, emotional maturity, language and cognitive skills, communication skills and general knowledge. Data provided back to the community helps identify areas of need and enables it to take steps to improve community support to foster healthy child development.

The AEDI is a joint project between the Telethon Institute for Child Health Research and the Centre for Community Child Health in Melbourne. Since it began, the AEDI has been undertaken in 60 communities across Australia, with data collected on more than 37,420 children. The project has had such an impact that the Federal Government has committed to a national roll-out of the AEDI.



## Stan and Jean Perron Charitable Trust

For more than 15 years, the Institute has received generous support from philanthropists Stan and Jean Perron. In recent years they have provided scholarships to assist exceptional postgraduate research students.

2007 Recipients include:

### **Misty-Lee Palmer**

Misty-Lee's PhD research has involved using cell lines as models to find out more about acute lymphoblastic leukaemia, the most common childhood cancer. Patients with this disease often do not respond well to chemotherapy due to drug resistance and Misty-Lee has been studying cell lines to try and identify the mechanisms responsible.

### **Monique Robinson**

Monique has been investigating how adverse conditions in pregnancy such as high blood pressure and stress could affect fetal brain development and explain the rise in behaviour problems in childhood and adolescence.

### **Angela Rate**

Angela's research is focussed on specialised cells in the air passages of the lungs and how they interact with the immune system. Children with asthma have an exaggerated and abnormal immune reaction to allergens, and this may be partly due to a problem with the interaction between these cells.

## Rio Tinto Child Health Partnership

After four years of work to improve outcomes for Aboriginal children and their families, the innovative Rio Tinto Child Health Partnership held its final National Advisory Committee meeting in December 2007.

The ambitious collaboration brought together the corporate strength of Rio Tinto, the Institute's research expertise and its Aboriginal-driven Kulunga Research Network along with the Commonwealth through the Alcohol, Education and Rehabilitation Foundation and the Western Australian, Queensland and Northern Territory governments.

An independent review found the partnership *"has been a successful initiative that has served to highlight significant Indigenous health issues and facilitate on-the-ground outcomes, create reputational gains for partners and encouraged different sectors to work together towards shared goals."*

The Partnership was formed in 2003 to:

- Improve wellbeing: through prevention and early intervention with a focus on reducing exposure to smoking and alcohol during pregnancy
- Build capacity: by training and empowering communities to shape and deliver child health initiatives through more health workers and community education
- Share knowledge: by adapting and applying research data across the states to get a better understanding of child health issues in each state.

While the Partnership has formally finished, a number of its child health initiatives will continue. Rio Tinto and the Institute have committed to an ongoing Partnership in Aboriginal child health and wellbeing.



# Children's Future Fund

In 2007, the Institute launched a major new fundraising initiative to build financial security into the future.

The Children's Future Fund is an endowment fund that will generate income to underpin growth and allow the Institute to rapidly respond to new opportunities and challenges.

Last year, the International Scientific Review of the Institute recommended that the Institute should grow its endowment fund to around \$100 million for the Institute to develop to its potential.

To date, the Institute has raised \$23 million through philanthropic donations from Telethon, corporate partners and the community – all of which is invested in a way to generate both income and further growth.

The Children's Future Fund campaign aims to grow the endowment fund to \$50 million by raising a minimum of \$30 million in the next three years.

The Children's Future Fund will:

- enable the Institute to continue to attract and retain the finest researchers
- nurture talented young scientists as they build a track record to qualify for competitive grants or fellowships
- support the establishment of new research teams to tackle emerging issues and diseases
- provide cutting edge technology and enhance the Institute's state-of-the-art scientific research facility
- generate seed funding for the scoping of innovative research before external grants are accessible
- ensure the continuity of long term research projects by providing temporary bridging funds
- leverage additional grants, often up to five times in dollar value
- facilitate future growth with funding for capital works
- operate at the highest ethical standards in everything it does.



*For more information about supporting the Children's Future Fund, please contact the PR Office on:*

**08 9489 7777 or email [pr@ichr.uwa.edu.au](mailto:pr@ichr.uwa.edu.au)**



# Tanyana Jackiewicz

## *Manager, Collaboration for Applied Research and Evaluation*

One of the Institute's four aims is to apply research findings to improve the health of children, adolescents and families.

Tanyana Jackiewicz is making sure that happens.

"I have a personal commitment to the application of research into policy and practice, particularly in community-based early years primary prevention programs," says Tanyana.

"I've worked both in government and research sectors and can see the potential value of having functioning working relationships between service providers, clinicians and researchers which can lead to the uptake and translation of available and new research findings.

"The translation and application of good quality research ensures health services are evidence-based and targeted at the people that need, and will benefit from, the service most."

Tanyana manages a team of researchers working on applied research projects for government and non-government organisations. Their research includes quantitative and qualitative projects in diverse areas including Attention Deficit Hyperactivity Disorder (ADHD), asthma, gestational diabetes, antenatal care for Indigenous women, early years programs, injury prevention and child abuse.

Translation of research is something Tanyana has been doing at the Institute since 2000.

She joined the Institute with a Bachelor of Science (with Honours) and a Master of Public Health, both from The University of Western Australia, and a background in basic science research in the university sector and health promotion, policy and marketing within the health system.

Tanyana says working at the Institute allows her to focus on many of the things she is passionate about.

"I'm passionate about child health, particularly for disadvantaged groups," she says.

"And I'm passionate and committed to a focus on the early years and a focus on supporting families in their parenting, and support of children to foster a positive sense of emotional, mental and physical health."

She hopes this passion will help her realise one of her long-term research goals.

"I'd like to see, from start to finish, the design, implementation, evaluation and subsequent rollout of a culturally-appropriate antenatal model of care for Aboriginal and Torres Strait Islander women."

In the more immediate future, she'd like to continue to facilitate a well-functioning relationship with clinicians at Princess Margaret Hospital for Children and King Edward Memorial Hospital as a direct conduit to the research needs of service delivery in the Western Australian children and women's health services.

"Good quality research that feeds directly into decisions made by those working in women's and children's health services is a best practice model of translating research into real outcomes for patients," she says.

Tanyana recently co-authored "*Healthy babies for mothers with serious mental illness: A case management framework for mental health clinicians*". The framework was designed to assist mental health clinicians in managing the reproductive and pregnancy needs of female clients with serious mental illness. This resource was an important component in a translational pathway that began with research conducted at the Institute that found that women with serious mental illness have greater obstetric and child health problems compared with women without the illness.

The publication is a highlight for Tanyana, along with co-writing a successful Healthway Health Promotion Grant for research into breastfeeding.

She's also proud of her contribution to the Institute's 2006



International Scientific Review.

"I consider my contribution to the Review to be a real achievement as I wrote the chapter on translating the Institute's research into policy and practice," she explains.

"The Review received excellent feedback from the panel members which made us all so proud to be involved."

Tanyana throws herself fully into her research and says it can be difficult when the research appears to be ignored.

"I have such a professional and personal commitment to my work so it is hard when the findings are not acted upon which does happen with so many other competing priorities for funding."

She also puts a lot of her energy into her son and nurturing his potential.

And when she's not working or being a mum, Tanyana likes to ride her road bike and run.

# Leigh Pearce

## *Asthma and allergy researcher and Commercialisation officer*

As a child, Leigh Pearce watched his brother battle to breathe each time he had an asthma attack.

"My brother suffered from severe asthma attacks so I can personally relate to the anguish which constant visits to the hospitals have on children and their immediate family," says Leigh.

"When the opportunity to work in asthma research arose, I was very keen to become involved.

"I was especially excited to work at the Institute as I was drawn to the building by the expansive windows facing down onto the street, where you can see the science happening behind the glass."

Asthma is the most common chronic disease in children and the prevalence of asthma in Australia is amongst the highest in the world.

Leigh says that while asthma doesn't have a high rate of mortality, it does affect a lot of children with around 40 per cent of Australian children and adolescents affected by the illness.

Working in the Institute's Division of Molecular Biotechnology, Leigh's research predominantly focuses on the construction and purification of recombinant allergens - these are allergens manufactured in the laboratory.

"Once we've made the allergens, it is then necessary to confirm that they have a similar structure and function to that of their natural counterparts," explains Leigh.

"We then test these man-made allergens using an immunological assay, to see if the allergens elicit an immune response in allergic and non-allergic people.

"This allows us to determine the role that each individual

allergen plays in relation to asthma and allergies."

Leigh says science is an arena that is constantly evolving and therefore keeps you on your toes.

"One of the frustrating and at the same time the most exciting aspects of research, is that the results of one experiment will undoubtedly result in more questions than answers," he says.

Leigh completed a Bachelor of Science with Honours in molecular biology from Murdoch University and then a Graduate Diploma in Business Administration.

He has always had fascination for life sciences and is now wanting to combine that closely with his business management skills.

Leigh hopes to position himself on the business side of science and already spends one day a week in a commercialisation role within the Institute's administration team.

"I'm mainly involved in the administrative management of the Institute's patent portfolio," he says.

Leigh is also assisting the Institute's Chief Financial Officer with commercialising the science conducted at the Institute.

"Commercialisation is a means of taking the science from the laboratory bench and applying it to the wider community," says Leigh.

"I want to gather as much experience as possible in the biotechnology sector and ultimately use that experience to help communicate the value proposition of biotechnology to potential investors.

"I'm also currently in the process of completing a Masters



of Business Administration and plan to have it finished by the end of 2008."

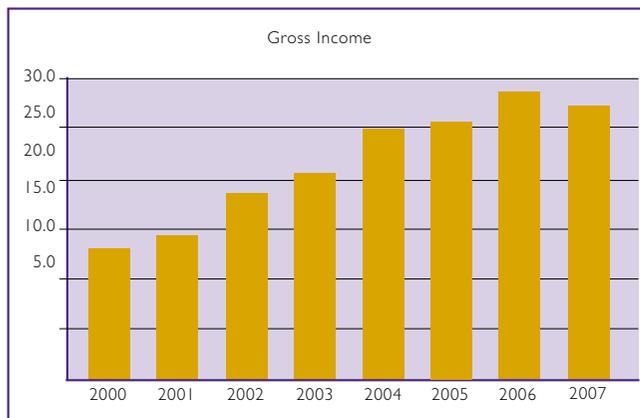
Between his busy work and study schedules, Leigh likes to spend his free time surfing, fishing or playing squash and enjoys relaxing in front of the television watching footy or cricket.

# Chief Financial Officer's report

2007 saw another strong performance that was consistent with recent years. Gross income at \$26.4 million was down marginally from 2006 primarily due to some one-off income items in that year. After allowing for those items, the graph below indicates that the Institute's gross income has been relatively stable in the mid to high 20 million dollar range since 2004. Gross income for this purpose includes research, operational and fundraising activities.

The levelling off of our income reflects the fact that our existing research facility is now fully occupied and our future accommodation needs and options are important matters that are currently under consideration by the Institute's Board and Management. To this end, our research links with the Princess Margaret Hospital for Children are significant to our activities and therefore the outcome of the State Government's deliberations on the future location of that hospital will be critical in our own planning.

The reference above to one-off items in 2006 included a significant contribution from the State Government



under its Centre of Excellence schemes. That funding in 2006 enabled us to acquire an important piece of research equipment, being a high-speed cell sorter. Such equipment is essential in remaining competitive in the quest to secure research income. It has benefited our performance in 2007 and will be relied upon in many grant applications going forward. In addition, the Centre of Excellence funding has boosted our bioinformatics capacity. Towards the end of 2007 we recruited two bioinformaticians both of whom started in 2008, with one moving here from the UK.

Remaining competitive is essential for any organisation and we are no exception. A major challenge in that regard, and one that is common to the research sector generally, is our ability to offer competitive remuneration arrangements to our existing and prospective employees. Granting agencies, notably the National Health and Medical Research Council, fall well short of funding the full cost of medical research. This ranges from the absence of any provision for research support to awarding grants based on salary levels that are significantly below comparable benchmarks. The consequence is the loss of bright young scientists from medical research in this country, and this will have significant consequences in the future for Australia's position in the world of scientific endeavour.

Both in our own right and together with the Association of Australian Medical Research Institutes, we are making every effort to bring this issue to the attention of the Federal Government.

As mentioned above and in previous year's reports, research grants typically do not provide for research support. Income for this aspect of research is obtained from a number of sources, a key one being the State Government's Medical and Health Research

Infrastructure Fund (MHRIF). Despite the contribution of the sector to the State in terms of income and employment and improvements to health and education, it is disappointing to report that the State Government has now for the third year in a row kept the quantum of funds available unchanged. Growth in the sector has therefore resulted in a dilution of funds distributed. This is another matter upon which we liaise closely with State Government.

With this background, it will be clear as to why our fundraising efforts are critically important to us. Over the years we have accumulated donations and bequests such that we can perpetually generate an annual income stream to help drive strategic initiatives linked to growth in research activity and capability, address to some extent issues such as that of remuneration levels noted above, as well as provide stability and backup to the research support requirements. We are of course indebted to our many supporters, notably Telethon, who have helped deliver our current fund of approximately \$23 million. Our aim is to increase that fund to \$50 million. During 2007, we launched our Children's Future Fund campaign and will be seeking the support of corporations and the community. This will be a significant undertaking and one that is essential to our overall success in meeting our aims.

Finally, thank you again to our excellent team of administrative and research support personnel who work seamlessly in enabling the Institute to deliver its research outcomes.

**Bruce McHarrie**

*See commercialisation and biotechnology report over page*

# Commercialisation and biotechnology

*Across the Institute we aim to translate our research findings into action. In some instances, liaison with industry is an appropriate way to achieve that aim, and that is the context in which we approach commercialisation opportunities at the Institute.*

During 2007, there was significant progress in the Institute's commercialisation endeavours with the lodgement of three new provisional patent applications. The new applications covered the fields of cancer and asthma and take the Institute's patent portfolio from 34 to 37.

In addition, of the patent applications lodged in previous years, four entered national phase and we lodged PCT (Patent Cooperation Treaty) applications for two others.

Steady progress was made with some of the existing commercial opportunities in terms of identifying and engaging with potential commercialisation partners. 2008 may well see some of those interactions convert into promising commercialisation agreements.

One of the key challenges in the commercialisation process is overcoming the "commercialisation gap". This refers to the financing gap that exists when a technology has progressed beyond the funding criteria of the Government's main medical research funding body, the National Health and Medical Research Council, but is too early in its development to attract typical venture capital funding. With the aim of targeting that gap, a new initiative called the Medical Research Commercialisation Fund (MRCF), was established during the year.

The MRCF is a nationally-focused investment fund formed with financing from two major superannuation funds and independently managed by experienced early-stage biotechnology investment managers. It was formed with investment opportunities from medical research institutes in mind and works on a membership basis to determine eligibility for putting investment applications forward. Institute membership also requires the financial support of the relevant State Government.

From Western Australia, this Institute along with the WA Institute for Medical Research joined the MRCF and we are very grateful to the State Government, via the Department of Industry and Resources, for being supportive of this national initiative. Apart from the possibility of attracting investment funds for commercial initiatives, membership of this fund provides another avenue of interaction between medical research institutes across the country and from a Western Australian perspective helps to keep us involved in the national scene. Our involvement with the MRCF will evolve through 2008.

A summary of the commercial opportunities and activities at the Institute is as follows:

## *Cancer*

Our division of Children's Leukaemia and Cancer Research (CLCR) headed by Ursula Kees, has identified a set of genes that discriminates pre-B ALL patients with a poor prognosis. The gene classifier predicts patient prognosis better than the current risk assessment factors of age and white blood cell count.

The division of CLCR have also developed a high-throughput real-time quantitative PCR method to detect very accurately a specific type of gene deletion which has traditionally been very hard to establish unambiguously. Gene deletion can indicate a predisposition to developing disease or be an independent indicator of prognosis.

## *Asthma / Allergy*

Researchers headed by Pat Holt in the Division of Cell Biology, have identified a suite of genes that could provide a method of diagnosing, predicting the development and monitoring the treatment of an allergic disorder. Additionally, these genes could provide a means to screen for potential agents to treat or prevent an allergic disorder or may be targets for the development of such agents.

### *Respiratory System Function*

Airway function is the focus of an invention being developed in the Clinical Sciences Division by division head Peter Sly and others. The invention is a device to measure airway activity and its purpose will be to detect the early development, diagnose and monitor the treatment of respiratory disease. As an added feature, it is expected that the device will have application to infants, enabling measurement of respiratory activity without sedation.

### *Viral Infections*

A large number of RNA viruses (including Hepatitis C) 'hi-jack' cellular translation machinery to prevent cellular protein synthesis and enhance translation of viral proteins. Existing drugs and vaccines are of limited use against RNA based viruses since the high rate of mutation can circumvent very site-specific treatment methods.

Researchers at the Institute have developed a method of screening for peptide inhibitors of viral translation that will interact over a large interface of the viral RNA, therefore reducing the chance of mutation based resistance.

### *Contract Research*

The largest component of our commercialisation activities would be classified as contract research. Of particular note are the activities of the Vaccine Trials Group, which has grown in significance over recent years.

The Vaccine Trials Group (VTG) was established in 1999 as a collaborative venture involving the Telethon Institute for Child Health Research, Princess Margaret Hospital for Children and the University of Western Australia School of Paediatrics and Child Health.

The VTG's role is to provide a coordinated approach to the development, delivery, assessment and promotion of

vaccines and allergy treatments in the community. It is involved in epidemiological studies, clinical trials of new and existing vaccines and in basic laboratory research necessary to design new vaccines.

The pharmaceutical companies involved with the VTG include Glaxo, Aventis, CSL, PPD and Wyeth.

### *Phylogica*

Institute spin-out company Phylogica, formed in 2001 and listed on the Australian Stock Exchange in March 2005, is focused on the development of drug candidates for the treatment of inflammatory conditions. The underlying technology aims at blocking the interaction of proteins at the cellular level that are involved in inflammatory conditions. The blocking of such interactions can be achieved without disrupting the healthy interaction of other proteins.

The Institute's current shareholding is approximately 16 per cent.

### *Advanced Diagnostic Systems*

Our second spin-off company is Advanced Diagnostic Systems Pty Ltd (ADS). Formed in 2003, ADS is focused on the development of an asthma and allergy prognostic and diagnostic system. To achieve this aim, funding was secured from a UK-based investor and the Institute assigned the relevant patented technology into the company.

The research work has concluded and the results have been very positive. The next major challenge is to translate those results into a commercially viable product and to that end we are collaborating with a major international diagnostics company. The current Institute shareholding is 45 per cent.

**Bruce McHarrie**



# Committees of the Board

## **Appointments and Promotions**

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Peter Dallas  
Nick de Klerk  
Julia Emmerson  
John Finlay-Jones  
Robert Ginbey  
Bruce McHarrie  
Elizabeth Milne  
Fiona Stanley AC  
Wayne Thomas  
Stephen Zubrick

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Harvey Coates AO (Chair)  
Sir James Cruthers AO  
Tammy Gibbs  
Robert Ginbey  
Fiona Stanley AC  
Thierry Venaille

## **Capital Fund**

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David Berinson  
Bryce Denison  
Robert Ginbey  
Rudi Gracias  
Bruce McHarrie  
Fiona Stanley AC

## **Development**

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Mark Ceglinski  
Harvey Coates AO  
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Hon Richard Court AC  
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Tammy Gibbs  
Trevor Hunt  
John Langoulant  
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Kevin Campbell AM  
Sheree Dixon  
Robert Ginbey  
John Langoulant  
Bruce McHarrie  
Fiona Stanley AC

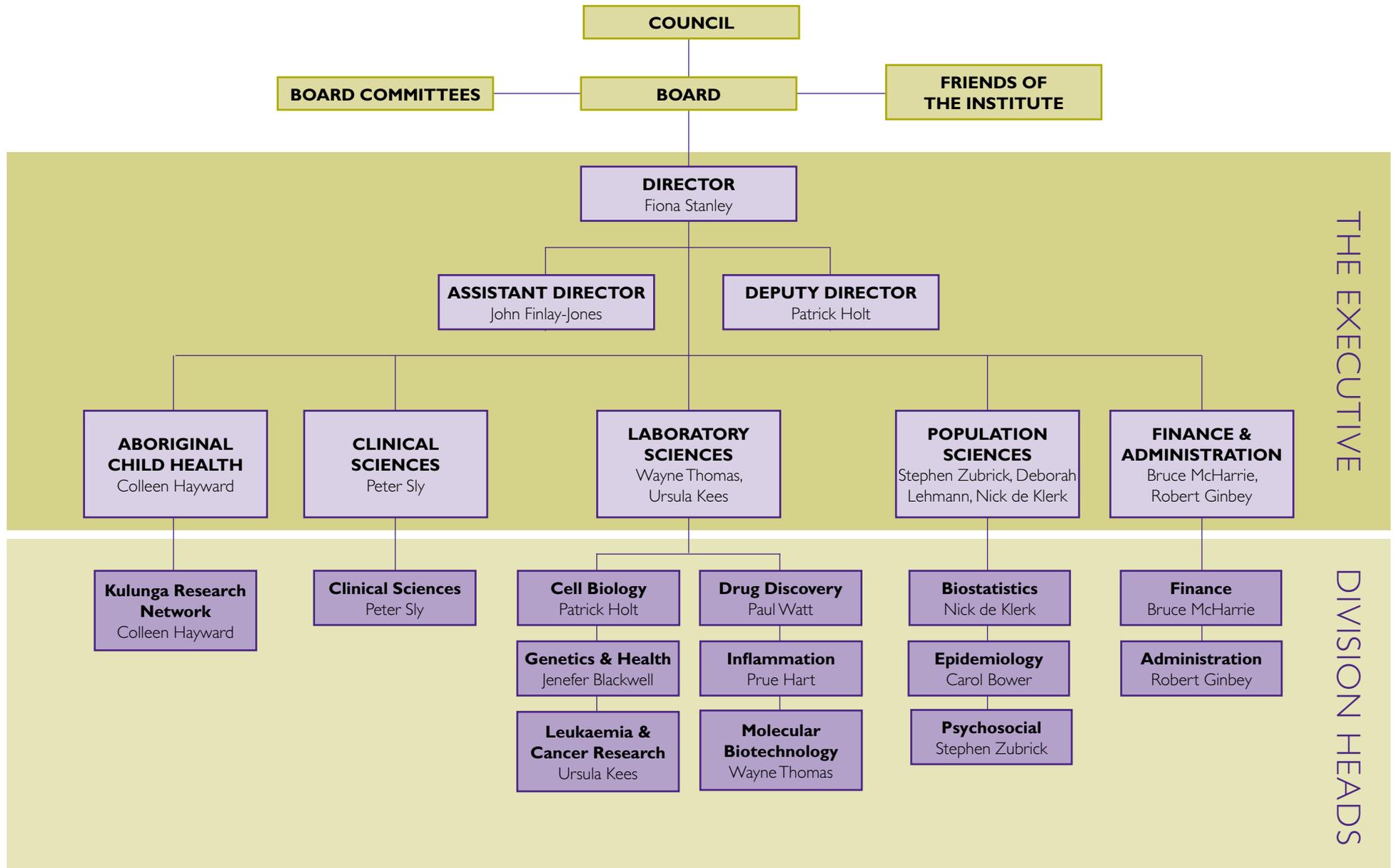
## **Intellectual Property/ Commercialisation**

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Stuart Boyer  
Simon Carroll  
Nick de Klerk  
Patrick Holt  
Bruce McHarrie  
Paul Watt

## **Scientific Advisory**

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Michael Garlepp  
Robert Ginbey  
Colleen Hayward  
Peter Le Souef  
Richard Loh  
Bruce McHarrie  
Susan Prescott  
Richard Prince  
Fiona Stanley AC  
Geoff Stewart  
Wayne Thomas

# Management/Operating structure



# Kathy Vial

## *Academic Services Manager*

Kathy Vial loves physical activities and the outdoors.

Upon completion of high school in Victoria, Kathy decided to build her career around this and completed a Bachelor of Education with a Physical Education major.

For the next 20 years, Kathy worked as a health and physical education teacher in Victoria and Western Australia before deciding on a change of career.

"I was looking for a profession that combined health, education and research," explains Kathy.

"I'd been working as Head of the Health and Physical Education Department at an independent school for the last 10 years, and it was time to try something different."

Kathy had completed a Masters of Educational Management at UWA and this change of career direction allowed her to use the skills and knowledge she obtained from this further study.

Kathy is the Institute's Academic Services Manager and she plays an important role in supporting students and staff and promoting research excellence.

One of the Institute's four main aims is to teach the next generation of health researchers and the Institute has a dedicated student program for its more than 70 postgraduate students, which Kathy manages.

"I'm passionate about supporting students throughout their candidature and increasing their profile in the Institute community," says Kathy.

"They are the researchers of the future so it's important that we listen to their needs as students and attract new students each year."

Kathy oversees all student activities including student orientation, the visiting speaker program and professional development.

"For both students and staff, there is a real need for ongoing professional development to broaden an individual's skills base, keep up with the challenges of a changing workplace, create opportunities for advancement and maintain interest and variety in the workplace," Kathy explains.

"My role is to identify professional development opportunities that will enhance both generic and research skills and make them accessible for staff and students.

"We provide a year-long calendar of events from writing and presentation skills to training on specific computer programs like EndNote."

One of Kathy's other tasks is to monitor research outputs, in particular, papers published in academic journals.

"Institute researchers publish almost 200 papers each year and it's important that we monitor publications and promote them.

"Publications are an important method of disseminating research findings to the scientific community as well as members of the general public."

In recent years, Kathy has further developed the Institute's privacy policy and works with researchers to ensure all projects meet our strict privacy requirements.

Kathy has exciting plans for the future of academic services at the Institute. She hopes to consolidate the student program, build resourceful intranet sites for students and researchers and develop the professional



development program to include a mentoring program.

"I'm also hoping that Institute staff and students will contribute to the professional development calendar by presenting seminars and workshops, as we have a great deal of expertise internally," says Kathy.

Away from the office, Kathy is working on her golf handicap and regularly plays club tournaments and pennant golf.

"I also hope to do some travelling in the next few years, especially to places where I can meet interesting people, snow ski and indulge my love of outdoor activities."

Kathy enjoys new challenges and is looking forward to tackling many in the near future, both professionally and personally.

# Administration and Corporate Services

*The Administration and Corporate Services Division strives to provide high quality services to support and enhance our research teams. The Division comprises approximately 12 per cent of the total population of the Institute, which now stands at almost 450 people.*

A priority for 2007 has been the consolidation of an administrative services structure to embrace the initiatives arising from the International Scientific Review.

The key to the success of this restructure has been the effective communication and liaison between central administration teams in finance, human resources, IT and computing, building and operations, occupational safety and health, compliance, public relations and the directorate and the staff working at divisional level.

This progressive change is consistent with the formalising of decision-making at divisional level, through intra-divisional senior management teams that in turn report to the Executive. The aim is that each of these teams in turn is supported by a divisional administration management structure providing both executive support and administrative advice.

A further reform has been the creation of an 'Academic Services' office, with a designated manager, to replace the former 'Information Services' office. Included in the responsibilities for this office are matters related to privacy, research publications, as well as coordination of the postgraduate student program and other academic services linked to the professional portfolio of the Assistant Director.

The Administration Managers' forum continues to grow in stature and achievement. During 2007 some of the initiatives undertaken by respective administration managers and their teams have included:

- The restructuring of the Appointments and Promotions Committee to give it a much wider focus to embrace all staff in the Institute
- The review and revision of the Institute's "Conditions Governing Research Practice", consistent with the Australian Code For The Responsible Conduct Of Research, 2007
- The Statement of Commitment to Australian Reconciliation
- The revision of the staff, student and visiting fellow orientation and induction procedures
- Support for the Institute Postgraduate Students group and related professional development activities for students
- The re-launch of the Institute web site
- The major overhaul of the infrastructure underpinning the Institute's complex array of computing servers
- The establishment of the staff Environmental Awareness Committee
- The planning and coordination of the Triennial Review of the Animal Ethics Committee.

A major priority for administrative services will be the review of accommodation needs for the coming five years, and preliminary planning for the relocation to a new site.

## **Robert Ginbey**



**above:** Colleen Hayward (Kulunga Research Network Manager), Fiona Stanley (Director) and Robert Ginbey (Head of Administration and Corporate Services) with the Statement of Commitment to Australian Reconciliation.

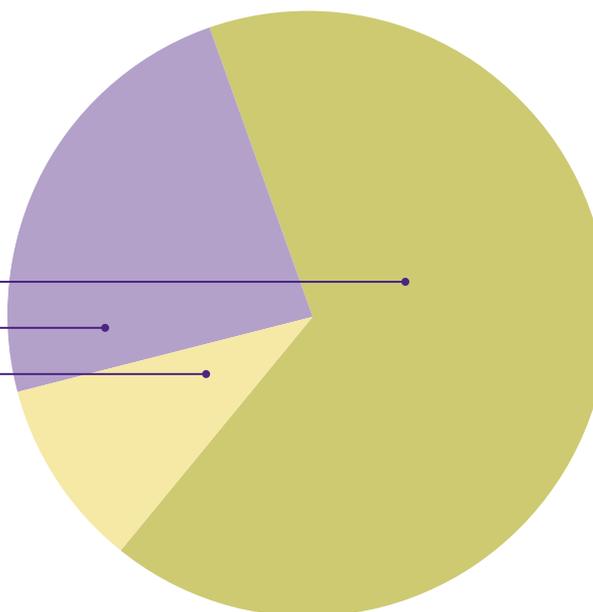
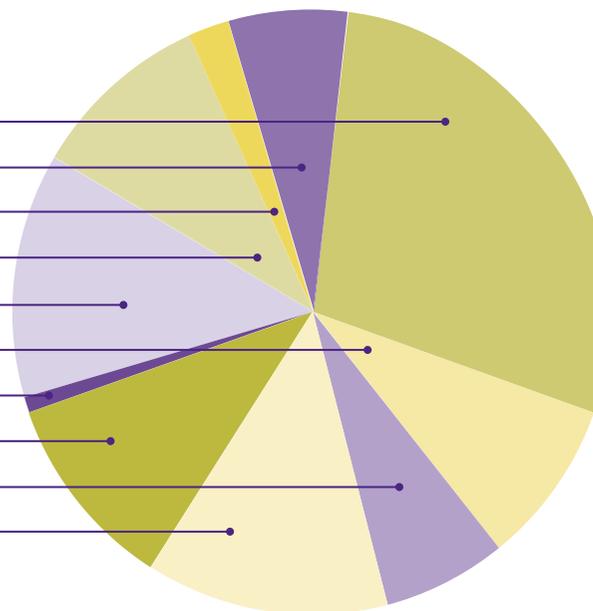
# 2007 - The year in brief

<b>INCOME</b>	<b>Amount</b>	<b>%</b>
Australian competitive grants	7,491,313	28.3
International competitive grants	1,670,010	6.3
Other competitive grants	632,694	2.4
Government contracts	2,541,371	9.6
Commercial income	3,444,436	13.0
Other grants	2,373,304	9.0
Miscellaneous income	239,331	0.9
Investment income	2,840,886	10.7
Donations and bequests	1,715,097	6.5
Research support	3,498,818	13.2

<b>Gross income</b>	<b>26,447,260</b>	<b>100</b>
Deferred income	(18,835)	
<b>Net Income</b>	<b>26,428,425</b>	

<b>EXPENSES</b>		
Scientific research	17,589,901	67.2
Research administrative and building services	5,985,064	22.9
Depreciation and provisions	2,600,514	9.9
<b>Total</b>	<b>26,175,479</b>	<b>100</b>

**NET PROFIT 252,946**



## Staff and students

Total number of staff as at December 31 (paid and seconded) - 351

An increase of 4.8% (up from 335) in 2006

Total number of postgraduate students during the year - 85

An increase of 13.3% (up from 75) in 2006

**Total staff and students in 2007 - 436**

**An increase of 5.8% (up from 478) in 2006**

Total number of honorary and visiting scientists during the year - 70

An increase of 2.9% (up from 68) in 2006

# Research income

<b>Australian Competitive Grants</b>			
Arthritis Australia	15,000		
Australian Research Council	234,740		
Australian Rotary Health Research Fund	56,741		
Cystic Fibrosis Association	64,526		
National Health and Medical Research Council	7,059,963		
National Heart Foundation Australia	60,343		
	<b>7,491,313</b>		
<b>International Competitive Grants</b>			
Cystic Fibrosis Foundation Therapeutics Inc	233,515		
International Rett Syndrome Association	86,376		
National Institutes of Health	1,029,679		
Wellcome Trust, UK	320,440		
	<b>1,670,010</b>		
<b>Other Competitive Grants</b>			
Asthma Foundation of Western Australia	48,557		
The Cancer Council Western Australia	145,092		
Child Health Research Foundation	89,563		
Healthway	249,733		
Ian Potter Foundation	1,075		
Raine Foundation	98,674		
	<b>632,694</b>		
<b>Government Contracts</b>			
<b>Western Australia</b>			
Department for Community Development	80,500		
Department of Corrective Services	60,000		
Department of Education and Training	59,811		
Department of Health	1,566,070		
Department of Indigenous Affairs	26,555		
Department of Industry and Resources	375,000		
Department of the Attorney General	36,714		
Disability Services Commission	51,402		
Miscellaneous	14,488		
<b>Federal</b>			
Department of Education, Science and Training	12,053		
Department of Family, Community Services and Indigenous Affairs	17,500		
Department of Health and Ageing	195,369		
Office for Aboriginal and Torres Strait Islander Health	45,909		
	<b>2,541,371</b>		
<b>Commercial Income</b>			
ALK-Abelσ A/S	88,000		
Baxter Healthcare Pty Ltd	13,636		
BHP Billiton	65,000		
Chevron Australia Pty Ltd	28,790		
CSL Limited	310,800		
Dynamic Microbials	150,140		
GlaxoSmithKline Australia Pty Ltd	427,316		
MedImmune Inc	40,000		
Merck	8,850		
Miscellaneous - Australian commercial	21,236		
Miscellaneous - Overseas commercial	1,500		
OM Pharma	43,997		
Phylogica Limited	1,120,913		
Rio Tinto	435,500		
Wyeth Australia	370,931		
Wyeth Pharmaceuticals Inc	317,827		
	<b>3,444,436</b>		
<b>Other Grants</b>			
Alcohol Education & Rehabilitation Foundation Ltd	328,772		
Australian Council of Educational Research	3,723		
Australian Respiratory Council	114,750		
Cerebral Palsy Institute	40,000		
Children's Leukaemia and Cancer Research Foundation	414,792		
Curtin University of Technology	183,148		
Edith Cowan University	5,500		
Friends of the Institute for Child Health Research	26,537		
King Edward Memorial Hospital	5,495		
Miscellaneous Income - other grants	29,179		
Miscellaneous Income - overseas grants	3,961		
Murdoch University	8,777		
PMH/Women & Children's Health Service	61,242		
Royal Perth Hospital	6,934		
St John of God Healthcare Inc	30,000		
The Smith Family	10,381		
The University of Western Australia	1,001,940		
The World Bank	20,673		
Thoracic Society of Australia and New Zealand	41,220		
Western Australian Institute for Medical Research	1,080		
Wunan Foundation Inc	35,200		
	<b>2,373,304</b>		
Miscellaneous income	239,332		
<b>TOTAL</b>			<b>18,392,460</b>

# Our supporters

*Our supporters share our vision to give every child the best chance to a **healthy and happy future**. And that's why they support our work - because together we can make a real difference to the lives of children everywhere.*

*We would like to sincerely thank the following individuals, clubs, corporations, schools and groups for their contributions that help our scientists conduct the best research possible to enhance the **future for every child**.*

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# Serena O'Neil

## PhD student, cat allergy research

For more years than Serena O'Neil has been alive, research on cat allergens has been focussed on the cat allergen known as *Fel d 1*.

But Serena knows that good research takes time. Her interest in cat allergens paid off when two years into her PhD, she isolated and characterised a new cat allergen known as BASE.

The discovery was an exciting highlight in Serena's career and a huge boost to international understanding of cat allergens.

"For the past 35 years, the main research focus of the cat allergen field has been on *Fel d 1* but there was evidence that other cat allergens exist and that people can react to more than one cat allergen," explains Serena.

"More needs to be known about the clinical importance of these other allergens so that improvements can be made to cat allergen desensitisation treatments.

"I'm really excited to be adding to the understanding of cat allergy because it does affect many people and is particularly important for those who suffer from asthma."

Serena began her PhD in 2005 after completing a Bachelor of Science degree with Honours at Murdoch University.

Working in the science field fulfils a general passion for learning and discovery for Serena.

"I'm really interested in the unknown! I always want to learn more about something that is unknown," says Serena.

"It would come as no surprise that what I enjoy about research is investigating new areas of research and filling in the gaps in order to complete the picture.

"My lab and I have already discovered one new cat allergen and now we're working towards characterising two new cat allergens and determining how they relate to the current research."

Serena says that finding new allergens allows researchers to determine how many people are allergic to cats as not everyone is allergic to the already characterised allergens.

She hopes the research she is doing will ultimately lead to improved diagnosis and treatment of cat allergy.

"I'd like to contribute to the identification of the full spectrum of cat allergens and to the comparison with known cat allergens.

"Having comprehensive information about all of the clinically relevant cat allergens will help improve the treatment of cat allergy and increase the understanding of the role these allergens play in cat allergy."

Serena is planning on publishing her results so she can share her work with the international research community. Her success in obtaining a UWA Postgraduate Convocation travel award will allow her to travel overseas in 2008, feeding her thirst for learning by attending conferences and visiting overseas labs.

"In going overseas, I'm hoping to learn more about the research of others and how we can potentially collaborate on future work," says Serena.

"I'm also approaching the end of my PhD candidature so I'd like to make contacts for a potential postdoctoral research position in Europe or the UK."

In the long term, Serena would like to stay in the field



of allergy, but branch out from cat allergens and look at allergens themselves.

"I'd like to understand why an allergen is an allergen.

"And I hope that any research I do in the future can be translated into practical solutions to help people."

Research has forced Serena to step out of her comfort zone and she is constantly growing as a result. She has already won an oral presentation prize, presented a featured poster at a large international conference and established the Institute's postgraduate student group.

"These experiences are developing my personal skills which will help me develop my career."

# Eugen Mattes

## *Social epidemiology researcher*

Eugen Mattes grew up in Switzerland, the oldest of 10 children in a working class family. When he was 16, they migrated to Perth, an experience which sparked Eugen's interest in social epidemiology, which investigates the effect of social factors such as poverty on people's health.

"As a migrant, I was made to feel stupid in school because of my difficulties in writing and understanding nuances in the English language," he says.

"We also had very little money when I was a child but my parents always instilled in us a keen sense of social justice. Every night we used to pray for the starving or disposed in Africa. So despite the lack of money, I never felt poor."

In Australia, Eugen embraced the educational options presented to him and studied medicine at the University of Western Australia.

Whilst working as a surgical research registrar at Fremantle Hospital, he completed a Masters of Public Health degree with a view to going into business developing ideas or inventions arising from medical research. But his passion for research got the better of him and instead he embarked on a PhD using innovation theory in economics to investigate the commercialisation of medical inventions and research in Australia. This gave him the opportunity to develop an invention to treat venous leg ulcers, for which patents were lodged and prototypes tested.

To supplement his PhD scholarship, Eugen decided to do locums in general practice. "I really enjoyed doing research and general practice together, so I decided to combine my understanding of economics, epidemiology and medicine and become a social epidemiologist and

to complete my training in general practice."

Upon completing his PhD, Eugen won a NHMRC General Practice Fellowship that enabled him to undertake a postdoctoral fellowship in social epidemiology at Columbia University in New York.

Time spent in New York holds treasured memories for Eugen. "One of the highlights of my life was going to Columbia University and living in New York for two and a half years," says Eugen.

"Whilst I was there, I learnt that Columbia University had over 70 Nobel laureates in the last 100 years, so I went to every lecture given by a Nobel laureate whether in economics or chemistry or medicine. What struck me about them as a group was their brutal honesty and passion for their science.

"The other thing I learnt was how good Australian medical research is especially given our lower levels of research funding compared to that available in the US."

Eugen was invited to be the first non-US citizen affiliate of their prestigious Health and Society Scholars Program which provided him with the opportunity to meet and investigate the work of leading US scientists examining social inequalities in health.

Moving back to Perth and the Institute in 2007, Eugen is now focused on trying to understand what factors during pregnancy and early childhood influence a child's brain growth, mental health and behaviour.

"At the moment I'm investigating the influence of sleep problems in early childhood on later behaviour such as aggressive and destructive behaviour. This work is suggesting that addressing sleep problems at the age of two may help prevent later mental health problems."



"Along with collaborators from the USA and Holland, I'm also involved in research on stress in early life and its influence on cognition and mental health in childhood and adolescence, and on how the stress hormone cortisol functions in adolescence. We suspect that abnormal cortisol functioning may increase the risk of later depression and other mental illnesses."

Eugen says he's very passionate about maximising every child's developmental potential, and none more so than his two daughters.

"My favourite pastime is telling night time stories to my two girls, aged nine and six, about a character called 'Simsalabim' who gets into all sorts of strife," he says.

"I also love cycling to work everyday, swimming when I can, family movie nights and reading fiction, history and science. One of my aims since coming back from New York is to get back into regular bodyboarding at Trigg Beach."

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