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NEWSLETTER OF THE TELETHON INSTITUTE FOR CHILD HEALTH RESEARCH

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2009 **ISSUE 2**

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HEALTHY DEVELOPMENT

Increase in drug-addicted babies

The number of newborns suffering serious drug withdrawal symptoms has been rising over the past three decades and is now more than 40 times higher than in 1980.

The research, published in the international journal *Pediatrics*, also found that these infants were at greater risk of neglect and of being taken into care.

Of the 637,195 live births in Western Australia between 1980 and 2005, 906 were diagnosed with Neonatal Withdrawal Syndrome (NWS). That's an average increase of 16.4 per cent in children born with the syndrome each year.

Report co-author and Institute Director, Professor Fiona Stanley, said the study identified a range of factors that should assist with the early identification of children at risk.

"It is clear that if we are to reduce the number of these children suffering from abuse and neglect, then there is a need to start working with their mothers before these babies are born, and ideally, pre-conception," Professor Stanley said.

"Our data show that the majority of the mothers had already had contact with hospitals for mental health and substance use issues which suggests there could have been numerous opportunities to intervene to prevent unplanned pregnancy and provide intensive support with antenatal care and substance abuse treatment."

Professor Stanley said the increase in babies suffering NWS reflected the overall rise in substance abuse within the community and the increased recognition of NWS by health professionals. While this study was in WA, it is likely that it reflects a national trend.

"We now have the situation where 4 babies out of every 1000 births are born suffering the effects of illicit drugs -- that is over 1000 newborns per year in Australia. This has serious implications for the child, the family and the whole community and is an issue that must be tackled well before

these children suffer potential harm."

The study was made possible by a groundbreaking agreement by the Western Australian Government Departments of Health and Child Protection that allowed health and welfare records to be linked and the de-identified information given to researchers for analysis.



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SOCIAL AND EMOTIONAL WELLBEING

Western diet = poor mental health

Research by the Institute has shown a link between Western-style diets and more mental health problems in teenagers.

The Institute's nutrition expert, Dr Wendy Oddy, said the results were based on detailed analysis of diet records and behaviour checklists that were collected from more than 1600 West Australian 14-year-olds in the Raine Study.

"Our analysis found that higher levels of behaviour and emotional problems were associated with a more Western-style way of eating, namely a diet high in takeaway foods, red meat, confectionary, soft drinks, white bread and unrefined cereals," Dr Oddy said.

"We also showed that these problems were less among teens with a more healthier style of eating, specifically those who ate more fruit and vegetables.

The results suggest that improving the overall diet of young people could be a good place to start to reduce the high rates of mental health problems.

"We know that since 1985, children and teenagers have been increasing their energy intake by consuming more soft drinks and processed foods. The number of overweight adolescents has doubled and obesity has tripled in that age group. At the same time there have been marked increases in sedentary behaviours such as TV viewing and computer use," Dr Oddy said.

"Investigating factors that influence mental health in young people must be a high priority. These findings show that there is a need to look at the overall diet, rather than concentrate on individual nutrients."

The results were published in the respected international journal *Preventive Medicine*.



New hope in Rett puzzle

Israel may be on the other side of the world to Australia, but a research collaboration between the Institute and researchers in Tel Aviv has identified a genetic variation that influences the severity of symptoms in Rett syndrome.

Rett syndrome is a rare neurological disorder that affects one in every 8,500 female births. It is caused by a mutation in the *MECP2* gene on the X chromosome and there is no known cure.

The Institute's Dr Helen Leonard, who heads the Australian Rett Syndrome Study, said new findings show that a variation of the *BDNF* gene appeared to influence the severity of the syndrome and this could become a target for treatment.

"We know that there is a wide range in the onset and severity of symptoms in patients with Rett syndrome but it has been difficult to give families a firm idea of how the disorder would progress," Dr Leonard said.

"This information is potentially helpful in predicting the clinical progression, but importantly, gives us another area to explore for potential therapies."

Dr Leonard said those patients with the normal *BDNF* genetic variant had less severe symptoms, with later onset and frequency of seizures.

"It may be that if we can stimulate BDNF within patients with Rett syndrome, there is a chance that we can delay the onset of seizures and reduce some of the more debilitating aspects of the disorder."

The research was supported by funding from the National Institutes of Health (USA), the National Health and Medical Research Council (Australia), the International Rett Syndrome Foundation and the Rett Syndrome Australian Research Fund.

The finding is published in the latest edition of the international journal *Neurology*.



Three-year-old Mikayla Kennelly and her family are part of our Rett Syndrome study. Photo courtesy The West Australian.

HEALTHY DEVELOPMENT

30% of children at risk of future heart disease

In a letter to the *Medical Journal of Australia*, Institute researchers have warned of the obesity epidemic after identifying almost a third of 14-year-old Australian children as being at future increased risk of heart disease, type 2 diabetes or stroke.

Co-author of the letter Dr Rae-Chi Huang said they identified children at risk of future cardiovascular disease with features of metabolic syndrome, a collection of disorders which increases the risk of heart disease, type 2 diabetes and stroke.

"We found that 29 per cent of children were in the high-risk category at the age of 14 years. Even at the age of eight years, 25 per cent of children were at increased risk of future obesity, cardiovascular disease and diabetes," Dr Huang said.

"Some people have said that the childhood obesity problem has been overplayed or exaggerated, but I don't think it's alarmist to say that we are actually experiencing an epidemic."

Dr Huang said the full effects of metabolic syndrome would not be seen until the current crop of teenagers reached adulthood and middle age, and started having heart attacks and strokes.

"When you consider that cardiovascular disease is already the biggest killer in industrialised countries, and then you add the fact that you've got these kids coming through, it's pretty frightening," she said.

The study examined data from the 14-year-old follow-up of children from the Raine Study which has been following almost 3000 children since before birth. They are now aged between around 17 and 20 years of age.

Rather than just looking at body mass

index (BMI), which has drawn criticism for describing some healthy children as overweight (and vice versa), Dr Huang also measured waist circumference, insulin resistance, blood pressure, levels of good and bad cholesterol and levels of protein CRP, linked to heart disease.

Dr Huang found that these risk factors tended to form 'clusters' so that when one risk factor was present, the others were much more likely to be present as well.

"The figures really need to speak for themselves," she said.

"If you think that 30 per cent are at high risk, you really can't ignore that. I really don't think we can sit back and be complacent about it."

From fashion and fine arts to PhD

Research Officer and PhD candidate Monique Robinson didn't always have a medical research career in her sights. In fact, it was the lure of the fashion world that saw her enrolling in a Diploma of Fashion whilst studying a Bachelor of Fine Arts degree. But Monique's dreams of seeing her designs paraded on the catwalks of New York and Milan were short-lived.

"It's true, I'm a fashion school drop-out!" explains Monique.

"I did six months of fashion at TAFE in the late '90s but dropped out after failing my sewing exam three times! So I figured there must be another career out there for me!"

After serious deliberation, Monique enrolled in a psychology degree at Murdoch which she thoroughly enjoyed, and followed it up with First-Class Honours. Her Honours project looked at adolescent self-concept and self-efficacy in times of stress, and this experience really piqued Monique's interest in pursuing further research in the children's health area.

"I felt that mental health was, and still is, under-researched and yet it represents a massive priority, particularly for children's health research," says Monique.

"I also liked the idea of doing research which was focussed on the prevention of mental health problems before they occur."

Monique says that after looking around at the various research programs on offer, the studies being undertaken at the Institute seemed like a perfect fit for her.

"I was really interested in the antenatal period as it is the beginning of the life cycle and the perfect place to target for early intervention, which seemed to be a common theme to all of the Institute's research."

Monique commenced as a Research Assistant in 2005 working on the Raine Study, a longitudinal study monitoring the development of over 2000 children from before birth to the latest follow-up at 16 years. The children and their families have provided environmental, developmental and health information, resulting in a unique and valuable resource for scientists to research a wide range of health areas.

Monique's PhD project, which she commenced in 2007, focuses on maternal factors during pregnancy and their influence on behavioural outcomes of the children through childhood and adolescence.

"It is becoming increasingly clear that the prenatal experiences of mums during their pregnancy can have a direct impact on the emotional health of their kids," explains Monique.

"For instance, factors such as smoking, stressful events and obstetric complications are likely to be early determinants of adverse behavioural outcomes and so interventions targeting negative prenatal, perinatal and postnatal influences can be expected to improve mental health outcomes for children in the early years."

During her PhD studies, Monique has already published three papers in international peer-reviewed journals and has presented



Monique Robinson

her work at a number of conferences including in Germany and Los Angeles. In November, Monique will head to the Developmental Origins of Health and Disease conference in Chile to present her findings.

"These conferences have enabled me to meet other researchers in the field from all over the globe and chat about my research with them, which has been great for getting feedback and also developing new directions for the study."

In addition to her PhD studies, Monique works as a Research Officer on another project spearheaded by Dr Wendy Oddy that also utilises the Raine cohort to examine the effects of diet on the mental health and wellbeing of adolescents. Monique sees this experience as invaluable, as she believes that looking at child mental health from as many different aspects as possible is essential to understanding the reasons behind why some children suffer from conditions such as anxiety or depression.

Despite her already full schedule, Monique is also completing her Masters in Clinical Psychology part-time (which she plans to submit at the same time as her PhD) so she can use her knowledge to treat young children and adolescents in the clinic.

So does Monique have any regrets about giving up her fashion design aspirations for a career in research?

"Not at all! I love what I'm doing and it's great to work alongside others who feel equally as passionate about their job," says Monique.

"I would like to work for the Institute for the rest of my life and potentially the afterlife as well, I really like it here!"

The Institute's 2009 Prospective Postgraduate Student Evening

Thursday August 20 from 4pm to 6pm

Telethon Institute for Child Health Research
100 Roberts Road, Subiaco.

If you would like further information about the student evening or a copy of the project booklet, please email study@ichr.uwa.edu.au or visit our website at www.ichr.uwa.edu.au



Dream a dream, catch it, breath it, live it and love it

This was some of the advice given by the Institute's Dr Cheryl Kickett-Tucker to a group of Aboriginal students from Presbyterian Ladies College.

Dr Cheryl Kickett-Tucker (right) and Professor Fiona Stanley (centre back) welcomed the PLC girls and their teachers.

Cheryl is a post-doctoral research fellow and part of the Institute's Indigenous Capacity Building Grant.

Cheryl spoke to 15 PLC students about her path from school to studying exercise science before becoming Edith Cowan University's first Aboriginal PhD graduate. She also told the girls about some of the issues she faced as an Aboriginal woman.

"I've been there where they have been - at the crossroads of tough family life and realising the

opportunity and importance of going to school. It's about having a career at the end of school life, not just a job," said Cheryl.

The PLC visit to the Institute gave the girls a taste of scientific and medical careers. The opportunity to meet and talk with Cheryl and hear of her experiences was a bonus.

PLC has 19 students in its Indigenous Program with most of the girls coming from the Kimberley.

We conduct tours for individuals, corporate groups, clubs and schools.

If you are interested in a tour of the Institute, please contact the Public Relations Office.

Phone 08 9489 7779

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CORPORATE SUPPORTERS

Thank you acQuire

acQuire Technology Solutions has been a huge supporter of the Institute for the past five years. During this time, they have donated more than \$90,000 to us through company and staff donations.

The Institute's Fundraising Manager, Megan Keep, said that acQuire had shown outstanding philanthropic leadership in its support of the Institute.

"The donations from acQuire and its staff allow our researchers to remain at the cutting-edge of medical research by providing them with the latest equipment and resources to continue their ground-breaking work," she said. "We simply couldn't keep doing our important research without this kind of support."

We look forward to a continued relationship with acQuire over many more years.



The Institute's Fundraising Manager Megan Keep accepts a donation from acQuire Technology Solutions' CEO Warren Cocks.



OUR SUPPORTERS

Going once, going twice, sold!

At the St Georges Day Ball in November, there was some fierce bidding for a package of a tour and lunch with Institute Director Professor Fiona Stanley.

The winning bidder was Bob Bollen from Benz Industries and we were delighted to welcome Mr Bollen and his guests to the Institute earlier this year. The group received a personal guided tour of the Institute by Professor Stanley and enjoyed the opportunity to talk with Institute staff over lunch.

Professor Stanley said Mr Bollen has shown outstanding support for the Institute since the Ball and is a valued member of the Institute community.



Mr Bollen (back row, fourth from left) with his tour guests and Institute staff.

INFECTIOUS DISEASE

Vaccine hunt for last major cause of meningitis

Meningitis is a word that sends chills down the spines of most people. It's a disease that progresses rapidly and can cause death or major disability in just hours. The last major cause of meningitis for which a vaccine isn't yet available is Meningococcal B.

A group of Perth adolescents are doing their bit in the search for a vaccine by taking part in a Meningococcal B vaccine trial that could potentially provide protection against the most common form of meningococcal disease in Western Australia.

Head of our Vaccine Trials Group and study leader Dr Peter Richmond said there is no vaccine available currently to prevent the Meningococcal B strain of the bacteria that can cause meningitis and blood poisoning and can progress very quickly with devastating effects.

"Children between the ages of one month and one year are most at risk from meningococcal with a second peak in adolescents, so it's very important that we ensure that this vaccine is safe and effective in children."

Results from the study should be available next year with the hope of a licensed vaccine a few years beyond that.



Dr Peter Richmond gives a meningococcal B vaccine to volunteer Sarah McGovern (18).



IVF twins at higher risk

Twins Joel and Amy were conceived through assisted reproductive technology (ART). Like most babies conceived in this way, they were born healthy.

But some twins born as a result of ART (such as IVF) are more likely to be admitted to neonatal intensive care and to be hospitalised in their first three years of life than spontaneously conceived twins.

Institute researcher and study author Michele Hansen said the results, published in Europe's leading reproductive medicine journal *Human Reproduction*, were based on an analysis of hospital admissions for all twin children born in Western Australia between 1994 and 2000.

The study compared outcomes for ART twins with spontaneously conceived twins of different sex so that the results were not influenced by specific complications that can affect identical twins who share a placenta.

"We found that twins conceived following ART treatment had a greater risk of preterm birth, low birthweight and death compared with spontaneously conceived twins," Ms Hansen said.

"ART twins stayed in hospital longer after delivery and were 60 per cent more likely to be admitted to a neonatal intensive care unit. They were also more likely to be admitted to hospital in their first three years of life."

Ms Hansen said the findings should not alarm couples undergoing ART treatment as most babies are delivered healthy or with problems that can be easily addressed.

"The aim of this type of research is to identify any potential areas where techniques or care could be improved to ensure an even better outcome for babies and their parents," Ms Hansen said.

"We don't know the reason for the increased risks of health problems and preliminary analysis of specific diagnoses does not provide any answers. More research is needed to establish whether it could be due to the underlying causes of parental infertility and/or components of the ART procedure.

"However in order to reduce the problems associated with twin births, clinicians and couples should consider the benefits of opting for single embryo transfer."

AWARDS

Hedland scoops youth awards

In April this year, the WA Youth Awards were presented to recognise outstanding young Western Australians aged 13 to 25 years.

Congratulations to the Hedland Youth Leadership Council (HYLC), winner of the Citizenship (Group) Award. In addition, seventeen-year-old Tierra Clanton, one of the founding HYLC members, won the Individual Leadership Award.

The HYLC is part of our *Staying on Track* research project funded by BHP Billiton Iron Ore. The project, which is led by Associate Professor Roz Walker, aims to reduce substance misuse for Aboriginal young people in Hedland, Newman and surrounds. Associate Professor Walker is working with the Hedland Youth Stakeholder Action Group on a range of innovative activities such as Hip Hop and a youth festival to build leadership and empower young people. She will assist the HYLC to assess the effectiveness of these activities on youth decision-making around substance misuse and their social and emotional wellbeing.

Check out the Institute page on Facebook. If you are a member of Facebook, you can join our group to discover more about our latest news as well as invitations to events and seminars. www.facebook.com

ADOLESCENT HEALTH

Teen sex study

Teenage girls who lose their virginity when they are not ready, often at an earlier age, are more likely to feel disappointed and regret the experience.

Dr Rachel Skinner, from the Institute and UWA's School of Paediatrics and Child Health, interviewed 68 teenage girls aged 14 to 19, with the aim of better understanding the factors that influence sexual behaviour, including the first sexual experience in teenage girls.

Dr Skinner said the survey revealed that the degree of personal control over the situation that led to intercourse determined how teenagers felt about this experience.

"Those who were 'ready' were more likely to have delayed intercourse until they were comfortable with both when and with whom this occurred," Dr Skinner said.

"In contrast, we found that idealistic perceptions about sex and relationships, peer pressure, coercion from sexual partners and being drunk were common reasons for premature and unwanted first experience of sexual intercourse.

The median age of participants was 17, while the age of their first experience of intercourse ranged from 11 to 17 years, with a median age of 14.



Dr Rachel Skinner

"If they have sex at a young age, before they are ready, it is reflected on as an unpleasant experience which they regret. This is an undesirable outcome in itself," she said.

"From a public health perspective, we have been concerned for some time about why teenagers are having sex at young ages, certainly younger than previous generations. Early sexual activity is associated with a higher risk of unplanned pregnancy and sexually transmitted infections. This data goes some way to explaining the processes of early sexual activity in teenage girls."

Dr Skinner is a paediatrician and specialist in adolescent health who is now based at the University of Sydney.

COMMUNITY SUPPORTERS

Walk against depression

Over a weekend in May, a group of Australian Navy Cadets from the Training Ship Perth walked from Bunbury to Rockingham to raise funds for the Institute's research into depression and youth suicide.

TS Perth Cadets, supported by units from Bunbury and Mandurah, commenced their 130km walk in Bunbury on May 9 arriving at the HMAS Stirling Naval Base in Rockingham on May 11. Their massive effort raised \$4750 for the Institute.

Located in East Fremantle the unit has 30 male and female cadets aged between 13 and 18. The Australian Navy Cadets is a youth organisation supported and run by the Royal Australian Navy.

Commanding Officer, Lieutenant Andrew Carlson, said this was a great awareness-raising activity for the cadets as well as the chance to do a great community service and help a very worthy cause.

The Institute is delighted to have worked with the TS Perth Cadets as they undertook this epic adventure.



Community fundraising for the Institute

The Institute is delighted to have support from so many community groups who raise funds through various events and functions. We are indebted to supporters in community, social and corporate groups who choose the Institute to be a beneficiary of their fundraising activity.

If your community, social or corporate group wishes to raise funds to support the terrific work being undertaken by the Institute, please contact the Public Relations Office to obtain our Guidelines for Community Fundraising and a Registration Form or see our website for additional information and some fundraising ideas. Taking part in a fundraising activity can help raise both funds and awareness of the Institute while building a sense of team work and achievement.

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**www.childhealthresearch.com.au -
click on the community fundraising
link in the Support Us menu**



Our future

The Telethon Institute for Child Health Research is dedicated to improving the health and wellbeing of every child.

Our researchers investigate the causes and find innovative solutions to the most common or debilitating conditions - including childhood cancers, asthma and allergies, birth defects, mental health problems, infections and disability.

We have a strong focus on helping those with the greatest burden - indigenous families and children in disadvantaged communities.

But we need your help.

Your donation will make a real difference to the thousands of Australian children and families who rely on our research to give hope to their daily challenges.

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