A ‘virtual’ brain bank for schizophrenia research

MRI brain images from eight separate studies will be processed for precise comparisons

Together with the Centre for Mental Health Studies, and the Laboratory of Neuro Imaging (LONI) of UCLA, NISAD is supporting the establishment of an MRI brain data collection, based at the James Fletcher Hospital, Newcastle.

Using the new imaging technique developed by Prof. Paul Thompson of LONI, more than 250 brains will be analysed and catalogued over the next three years. The images will be contributed from eight different studies currently underway, and subjects will include schizophrenia sufferers at various stages of their illness, cannabis users (with and without psychosis), and healthy volunteers.

In the past, comparing and analysing such grouped brain MRI data has been difficult because each brain is different in its surface structure. Overcoming this difficulty, the LONI technique faithfully images the unique “wrinkles” in the cortex of each brain - allowing precise location of the areas where differences are observed.

Paul Bassett, NISAD’s Research Officer for brain imaging at the Centre for Mental Health Studies, will oversee this major task with the help of eight research assistants who will be trained to apply the LONI technique. Even with such training the processing of each brain image takes about 40 hours of hands-on computing by the research staff. The research team also includes A.Prof. Ulrich Schall, Pat Johnston, Gavin Cooper and Dr. Martin Cohen.

Once analysed, however, the brain images can be grouped together to reveal subtle regional changes in the structural integrity of the cortex with the highest accuracy. This provides the basis to investigate important research questions such as the effect of gender, age of onset, duration of illness, and cannabis use on cortex integrity in schizophrenia.

Using the LONI technique, the Virtual Brain Bank team will pinpoint the brain areas which perform abnormally in schizophrenia. The examples above show composite fMRI images of 10 schizophrenia subjects (S) compared to 10 normal control subjects (N). Images of brain activity were taken as each of the 20 subjects performed the same “Tower of London” puzzle task, designed to become increasingly difficult. As the puzzle became harder to solve, the red areas show where brain activity increased, and the blue areas show where brain activity decreased. Schizophrenia subjects did not adequately shut down parts of the brain as did healthy subjects.

1st International Grant for NISAD

Dr Carmel Loughland has been awarded a US$20,000 grant by the US-based National Alliance for Research on Schizophrenia and Depression (NARSAD) to extend her research into ‘Facial Expression Processing Deficits in Schizophrenia and First-Degree Relatives’. The grant will enable Dr Loughland to investigate whether such deficits are due to abnormal information processing and retention in the brain, and also whether the scalp abnormalities of schizophrenia subjects and their first-degree relatives may be used as a marker of genetic vulnerability to psychosis.

Sponsors and Supporters Lunch at AMP

Andrew Mohl, NISAD Board member and CEO of AMP provided a splendid venue for the Institute’s Annual Sponsors and Major Supporters Lunch held on 11 August.

After enjoying the birds-eye view of the Opera House and Harbour Bridge from the 25th floor of the AMP building on Circular Quay, around 90 guests sat down to hear a welcome address from NISAD Chairman Peter Dempsey, a research overview from Scientific Director Vaughan Carr, and a glowing endorsement of NISAD supporters from NSW Minister for Health Morris Iemma. Assisted by the event’s organisers Debbie Willcox and Lee Drury, the Minister presented 23 plaques and 12 Certificates to NISAD 3-year Sponsors and to other supporters who have made valuable contributions during 2003-2004.

The presentations ended with a rousing address from long-time NISAD champion Tony Bleasdale who, like many in the audience, had personal experience of how schizophrenia can disastrously affect a family member.

While enjoying the buffet lunch provided by AMP guests from the construction, banking, pharmaceutical, insurance, investment, telecommunications, Trades Unions, and Charitable Trust industries mingled to discuss further plans for ensuring a continuing flow of funding for the Institute.

More pictures on inside pages...
The Inner Voices of Depression

NISAD links to WA to investigate why “the voices” say negative things

Funded by a $30,000 grant from the Ron and Peggy Bell Foundation, NISAD is collaborating with the Centre for Clinical Research in Neuropsychiatry (CCRN) at the University of Western Australia to support a PhD scholarship study of emotions in auditory hallucinations (AH).

One of the most common, disabling and distressing symptoms of schizophrenia is “hearing voices”. These voices are usually negative and critical in tone, and may reflect a prevailing depressive or anxious mood. Related symptoms such as the belief that other people are reading your mind, or plotting to harm you are also involved with negative emotions.

Supervised by Dr Johanna Badcock and Dr Murray Maybery at CCRN, PhD student Georgina Paulik is investigating this connection between depression and AH, liaising with Prof. Pat Michie at the University of Newcastle. The 3-year study will examine the biological and psychological sources of AH, and may lead to improved diagnostic and treatment practices, as well as better strategies for suicide prevention.

Investigating the Causes of the Imbalanced Mind

Gamma-aminobutyric acid (GABA) is a chemical messenger that is widely distributed in the brain. Its natural function is to act as an inhibitory neurotransmitter, reducing the activity of the neurons to which it binds, thereby ‘muffling’ transmitted messages. Excitatory transmitters such as glutamate perform the opposite role of amplifying messages. So when we say, “the balance of the mind is disturbed”, or “spinning out”, we could be reflecting the interplay of these inhibitory and excitatory neurotransmitters.

Some researchers believe that one of the purposes of GABA is to control the fear or anxiety which can occur when neurons are overexcited. Anti-anxiety drugs such as diazepam (Valium), for example, work by enhancing the effects of GABA.

Since 1980, many studies have suggested that decreased GABA in the brain also contributes to some schizophrenia symptoms, such as delusional ideas and manic behaviour related to overexcited brain activity. More recent research has focused attention on the group of proteins which transport GABA across neuronal and glial cell membranes. Current thinking is that deficiencies in these GABA ‘transporters’ may be the cause of abnormal GABAergic brain activity.

At the University of Sydney, NISAD PhD scholar Sonja Schleimer and colleagues have examined postmortem tissue from the prefrontal cortex of schizophrenia-affected brains and from normal controls to distinguish any differences in GABA transporters.

After a year’s research, the NISAD team has reported that schizophrenia tissue contains levels of GAT-1 GABA transporter 45% less than control tissue, while the GAT-3 GABA transporter increased by 23%. The apparently complementary change in the levels of these transporters in schizophrenia is a promising path for future research.

The study* was supported by the Rebecca Cooper Foundation.


Memory Performance Measures the Family Link

Try remembering what happened at your last birthday party. Notice how your brain summons up a series of images and impressions, each one linked to many others, forming a network of connected memory nodes (called ‘schema’) around which your attention zooms like a very fast train. That’s long-term memory.

Now try remembering this sentence: “Julie Barlow’s phone number is 7216 8367.” Short-term memory is what you use to retain such information temporarily, before writing it down, for instance.

Memory dysfunction is a consistent characteristic of schizophrenia, and earlier studies have indicated that the illness causes particular deficits in short-term memory - whether applied to remembering auditory, visual or other information. As short-term memory performance depends upon the integrity of the brain’s prefrontal cortex, investigating the deficit may provide a clue to how the illness affects this important cognitive area of the brain.

At the University of Western Australia, NISAD-supported PhD scholar Aaron Kent and colleagues have measured the memory performance of normal control subjects, and compared it with the performances of people with schizophrenia, and of their siblings.

Different tests were used to assess auditory memory (by spoken information), visual memory (by showing pictures), and working memory (by number and letter sequences).

As expected, the performance levels of the schizophrenia group was found to be impaired, relative to siblings and controls, in all three testing methods. The siblings, however, achieved similar scores to the controls in the auditory and visual memory tests, but uniformly lower scores in the working memory test which used sequences of letters and numbers. Significantly, this test involved using mental mechanisms associated with the ‘executive function’ abilities of the prefrontal cortex, known to be affected by schizophrenia.

So consistent were the lower scores of siblings in this particular task that the study* suggests such tasks may be included in some future array of tests for schizophrenia risk in individuals.

The study was supported by the Rebecca Cooper Foundation.


$100,000 - from Car Parking!

Who would have thought that a large cement slab at the Bovis Lend Lease Jackson’s Landing construction site in Pyrmont could have been so valuable to NISAD?

After two years of collecting fees for daily parking on the slab, over $100,000 was handed over in aid of research.

Big thanks go to CFMEU delegate Ante Zadrilic, and Angus Wippell. The working memory deficiencies recorded in people with schizophrenia (S) are reflected to a lesser extent in their first-degree relatives (R) compared to the normal working memory performance of controls (C).

The seminar will feature presentations from world-renowned scientists in the fields of schizophrenia, bipolar disorder and anxiety disorders. See and hear the latest in cutting-edge research at this free seminar. Morning tea will be served, and audience questions will be welcomed at the end of scheduled presentations.
Construction Forestry Mining and Energy Union Continue Outstanding Support

On the day of the Sponsors Lunch, NISAD Chair Peter Dempsey along with Deb Willcox and Lee Drury paid a special visit to the NSW CFMEU Committee of Management Meeting to present an ‘Outstanding Support’ plaque for being such strong ambassadors for the Institute.

This support continues into 2004 with the CFMEU providing huge 10m x 5m banners for display on construction sites in Sydney. NISAD also thanks all construction companies who generously collaborate in what will certainly be the most visible schizophrenia research awareness campaign ever launched in Australia.

If you can arrange a prominent site for a 10 metre wide banner, please call Lee Drury on 9295 8162!

On the De Martin Gasparini site, Claude Sgroi and associates rally support. A big thanks to Mr Claude Sgroi who led the charge.

Saying it loud and clear

De Martin and Gasparini Builders Dig Deep

Motivated by the dreadful toll schizophrenia takes on our youth, the De Martin and Gasparini builders, whose pockets are not lined with gold, have demonstrated that their hearts are. Each builder pledged $50 from their pay packet for the second time to show their support. A big thanks to Mr Claude Sgroi who led the charge.

Roseville Memorial Club Raises $16,000

held on 26 June, the Roseville Returned Servicemen’s Memorial Club’s Annual Fundraising Dinner and Auction 2004 was dedicated to NISAD and the Schizophrenia Fellowship NSW, raising a hefty $16,000.

With State Member for Ku-ring-gai Barry O’Farrell in full support, NISAD’s Debbie Willcox and the Fellowship’s Rob Ranjan addressed a full house. The Club aims to raise additional funds for schizophrenia at their Ladies’ Lunch later this year.

Many thanks to the Club’s Directors, members; the local community, and especially to Liz Newman.

Every year, thousands more Australian teenagers become...

At Risk in the Danger Zone.

Fundied by NSW Health, NISAD is now finalising production of Australia’s first schizophrenia medical information poster – aimed at alerting parents to early onset symptoms.

Currently, the gap between early onset and diagnosis often extends for 2 years because parents do not recognise that their son or daughter is unwell.

Usually, by the time psychiatric help is requested, the patient’s symptoms and disability have become well-established and therefore less able to respond well to treatment. But even when young people are presented for early assessment, there are no definitive tests to confirm the diagnosis. Major global research efforts are now being aimed at improving early detection.

New NISAD Gold Sponsor: Macquarie Bank Foundation

NISAD is delighted to announce that Macquarie Bank Foundation has become a Gold Sponsor, donating $25,000 annually for 3 years - specifically in support of the NSW Tissue Resource Centre, and the ‘Gift of Hope’ Tissue Donor Program.

Mental Health an Election Issue

More good news for patients and carers arrived in June, when Senator Ursula Stephens made the opening address at the Canberra launch of ‘Parliamentary Friends of Schizophrenia’, a power group of MPs and Senators pledged to redress the shortfall in Australian support for mental health needs.

To join ‘Agents of Change’, please contact the Fellowship on (02) 9679 2600.

WHO IS NISAD?

NISAD is a non-profit Incorporated Association, the National Institute for Schizophrenia Advocacy and Development. We represent the interests of people affected by schizophrenia, their families and friends, and those who care for them.

NISAD is a registered charity under the Privacy Act (1988) and the Australian Taxation Law. NISAD was initially formed in 1980 when concerned parents and friends of persons with schizophrenia came together to campaign for the causes of schizophrenia research and care. NISAD’s official position is that adequate, accessible and affordable services are required in all communities of Australia. NISAD is independent of government, the media, treatment programmes and pharmaceutical companies.

NISAD is dedicated to creating a world where people affected by schizophrenia are able to lead productive, satisfying lives.

NISAD Chairman Peter Dempsey presents CFMEU NSW State Secretary Andrew Fergusson with an ‘Outstanding Support’ plaque.
New Directors Join the Board

NISAD owes a continuing debt of gratitude to the members of its Board of Directors for donating their time, expertise and influence to further the cause of schizophrenia research. The Institute has welcomed four new Directors since October 2003:

A Bachelor of Medicine, Bachelor of Surgery, and Fellow of the Royal Australian and New Zealand College of Psychiatrists, Dr Matthew Cullen is Co-President of McKesson Asia-Pacific Pty. Ltd. Dr Matthew Cullen is Professor of Neuropsychiatry at the University of Melbourne, and Director of the Melbourne Neuropsychiatry Centre (MNC). The aim of the MNC is to increase understanding of disorders of the brain and mind, and to help improve the quality of care for patients. Prof. Pantelis’s international reputation is based upon his cognition and neuroimaging research into schizophrenia. NISAD Board Member since April 2004.

Christos Pantelis is Professor of Neuropsychiatry at the University of Melbourne, and Director of the Melbourne Neuropsychiatry Centre (MNC). The aim of the MNC is to increase understanding of disorders of the brain and mind, and to help improve the quality of care for patients. Prof. Pantelis’s international reputation is based upon his cognition and neuroimaging research into schizophrenia. NISAD Board Member since October 2003.

Alexandra Rivers is a psychologist and former lecturer on special education at the University of Sydney; Vice President Schizophrenia Fellowship of NSW; Board member, Guardianship Tribunal, NSW; Board Member, Mental Health Council of NSW; Board Member, Aboriginal Education Council of NSW, Career; NISAD Board Member since October 2003.

Rita Mallia is a psychologist and former lecturer on special education at the University of Sydney; Vice President Schizophrenia Fellowship of NSW; Board member, Guardianship Tribunal, NSW; Board Member, Mental Health Council of NSW; Board Member, Aboriginal Education Council of NSW, Career; NISAD Board Member since October 2003.

Two New PhD Scholarship Studies

NISAD welcomes two new PhD students to contribute to schizophrenia research by accessing the expertise and resources at centres at the Universities of Sydney and Wollongong. The two new scholarships bring the total of PhD students currently supported by NISAD to 22.

Synapses in Sydney

Dr Takeshi Iwazaki has already completed important investigations into the role played by a polypeptide called chromogranin A (CgA) in the brain’s synaptic functions, and has found that CgA is significantly decreased in certain layers of the prefrontal cortex of schizophrenia-affected brains. As CgA is involved in the synaptic secretion of the neurotransmitters which allow brain cells to communicate, the observed deficit may be the cause of some schizophrenia symptoms.

Pursuing this line of research, Dr Iwazaki will use postmortem brain tissue from the NSW Tissue Resource Centre in the University of Sydney to further investigate evidence of synaptic dysfunction in schizophrenia.

The study will utilise advanced proteomics techniques. Most medications work by affecting proteins, and the science of proteomics may enable us to develop new clinical practices and better management of schizophrenia.

The 3-year scholarship is entirely funded by NISAD, and supervised by

Dr Mei Han

Assoc. Prof. Izuru Matsumoto.

Side effects at Wollongong

Despite the evidence that the new atypical antipsychotic drugs such as Olanzapine and Clozapine are better than the older medications, it is still not precisely known which brain areas they effect, nor why they are sometimes associated with side-effects such as obesity and subsequent diabetes.

With 11 years clinical experience in Shenyang, China, and 2 years working with Prof. Xu-Feng Huang at University of Wollongong, Dr Mei Han is well qualified to investigate which brain areas are targeted by the new meds, why these areas are involved with schizophrenia, and how they are associated with the observed side-effects.

Dr Han has been awarded a 3-year scholarship jointly funded by the University of Wollongong and NISAD. Her research will make good use of the cutting-edge technology in the Molecular Neurobiology Lab, particularly the new $200,000 Beta-imager donated to NISAD by the South Coast community last year.

NISAD IS SUPPORTED BY NSW HEALTH

To include yourself on the mailing list to receive free HeadLines, call (02) 9295 8407. Visit the NISAD website at www.nisad.org.au

Marilyn Mitchell Receives Award

Marilyn Mitchell, Patron of the NISAD ‘Gift of Hope’ Tissue Donor Program, and renowned consumer advocate and public speaker, was invited to Parliament House on 19 May to receive a Charity Volunteer Award in recognition of her work in raising awareness of schizophrenia, and support for NISAD research.

Hornsby Ku-Ring-Gai Takes an Active Interest

Many thanks to Judy Thompson and Brian Brooker for inviting NISAD Executive Director Debbie Wilcox to address the August meeting of the Hornsby Ku-Ring-Gai Action for Mental Health Inc. (HKG). A long-term supporter of NISAD, HKG provides a vital network of support to their local community, and its members take a lively interest in the Institute’s ongoing research and public awareness initiatives.
Yes, Minister!

Like previous NSW Ministers for Health Andrew Refshauge and Craig Knowles, Morris Iemma fully supports NISAD’s mission to raise schizophrenia research funding to the levels warranted by the huge number of families affected by the illness.

...and MANY THANKS to HeadLines Readers!

Please accept this ‘virtual’ plaque in grateful recognition of more than $30,000 you have generously donated via NISAD’s December 03 and June 04 mailed appeals.

THANKS TO EVENT PHOTOGRAPHER Giselle Martins of zoomproductions.com.au

NSW Clubs Tee Off for $15,000!

The Club Managers Assoc, Australia; Clubs NSW; The Leagues Clubs Assoc. of NSW; The NSW Golf Association, and the Services Clubs Assoc., supported by major sponsor Paynter Dixon Hospitality initiated the Annual NSW Clubs Team Championship at Camden Valley Golf Resort on 21 April. 25 teams of four competed, raising $15,000 for NISAD.

THANKS TO EVENT PHOTOGRAPHER Giselle Martins of zoomproductions.com.au
MessageBox: a community message from TELSTRA

Headlines doesn't usually accept advertisements, but in this case we are happy to make an exception because this new service from Telstra may help many of our readers to stay in touch with family members.

In addition to the valuable support provided to NISAD over the years by the Telstra Foundation, and by Telstra Friends, Telstra has funded the extra cost of printing this edition in colour.

Keep in touch with Telstra MessageBox

People who are on the move and don’t have a working phone can now stay in touch with family, friends, employers and support services with Telstra’s new free MessageBox service.

For many people on low incomes, the phone is very important for maintaining social contact, for finding work, and for accessing support services.

People who are homeless, unemployed, or are dealing with illness such as schizophrenia or drug addiction face additional challenges if they can’t be contacted by phone.

MessageBox allows people to choose when and how they can be contacted in a way which protects their privacy and preserves their dignity.

Developed by Telstra as part of its Access for Everyone program, which creates options and services for people on low incomes, MessageBox is a free service.

Telstra is distributing MessageBox cards to welfare agencies across Australia, who are able to give them to people who want to be contacted but don’t have access to a secure phone.

For the person using the MessageBox card to retrieve messages from Telstra payphones or private fixed line phones, and for participating welfare agencies handing out cards, there are no costs or charges.

How it works

MessageBox uses two numbers: a 1800 777 555 number for setting up a recorded message and for retrieving messages, and a 0417 777 555 number for people who wish to leave a message.

Once you have a MessageBox card, you call MessageBox on 1800 777 555 and use your unique 12-digit MessageBox card number (on the back of your card) to set up a recorded message.

You then decide who you would like to be able to leave you messages. Give them the MessageBox calling number 0417 777 555, and provide them with your personal MessageBox code, which is the last six digits of your 12-digit card number.

To get your messages, you simply ring the MessageBox 1800 777 555 number – a free call from most public or private fixed line phones (charges apply from mobile phones) – and key in your 12 digit MessageBox card number to hear the messages.

The person leaving the messages will be charged standard mobile phone call rates.

What welfare agencies are saying about MessageBox

"MessageBox has also been helpful for people seeking employment. Prospective employers can sometimes be concerned if they find that someone is homeless and without a contact number."

Blair Athol Accommodation & Support Program, Gold Coast.

"Since receiving MessageBox he has been successfully linked to counselling support...he has been able to apply for houses with real estate agents and for vans at caravan parks...his children leave him messages every day to let him know that they are thinking about him and that they love him."

Gippscare Victoria.

More information

To find out more about the Telstra MessageBox service, and other Telstra initiatives suitable for those on low incomes, visit our website at www.telstra.com.au/accessforeveryone

If your organisation would like to join the MessageBox program go to: www.telstra.com.au/accessforeveryone/access.htm#9 to read about the program and download the agency agreement and guidelines.

or contact:

Telstra Consumer Affairs Ph: 1800 804 591 Email: consumer.affairs@team.telstra.com