HEADLINES

The Newsletter of the Neuroscience Institute of Schizophrenia and Allied Disorders. June 2002.

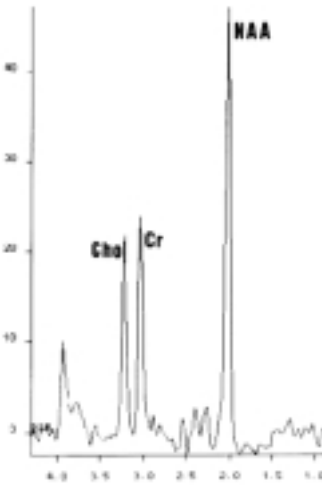
Exploring the Chemistry of Schizophrenia

NISAD supports two new investigations using Magnetic Resonance Spectroscopy.

Left: Structural MRI scans are used to identify the brain areas being investigated. MRS measurements are used to analyse the chemical components of the area targeted, as shown on the graph far right. In this study, the MRS scan was used to detect relative levels of:

Cho=Choline
Cr=Creatine
NAA=N acetyl aspartate

Levels of these chemicals may indicate abnormalities in neuronal membranes where neurotransmitter receptors are located.



NISAD is now supporting a new line of research involving a scanning technique called Magnetic Resonance Spectroscopy (MRS), which can identify the types and amounts of substances in specific brain areas.

This new research complements the ongoing fMRI studies which investigate changes in neuronal activity.

MRS Investigates Fish Oil Dietary Supplement

Following the NISAD Wollongong team's discovery of decreased fatty acid levels in schizophrenia brains (reported in HeadLines Jan 2001 issue), Ms. Sue Ellen Holmes and Dr. Brin Grenyer of University of Wollongong, Dr Lindy Rae of University of Sydney, Dr. Toos Sachinwalla of Rayscan at Liverpool Hospital, in collaboration with NISAD's Prof. Philip Ward, have used MRS to investigate the effects of a fish oil dietary supplement on schizophrenia patients. Fish oil was chosen as a rich source of the polyunsaturated fatty acids which compose the insulating membranes of brain cells.

Early results of this small 12-week pilot study indicate that the fish oil supplement increased the levels of fatty acids in the brain, and improved both schizophrenia symptoms and medication side effects.

MRS in First Episode Psychosis

NISAD supported a pilot study on the feasibility of using MRS to investigate the neurochemistry of first episode psychosis at the Dept. of Radiology, Westmead Hospital.

Dr. Lavier Gomes and NISAD-affiliated scientist Dr. Anthony Harris have so far studied the frontal lobes and basal ganglia in a group of healthy volunteers.

Earlier studies had noted that levels of N–Acetyl Aspartate (NAA) relative to Creatine (Cr) in the temporal and frontal lobes could be used to detect any abnormalities in neuronal membranes where neurotransmitter receptors are located.

The Westmead team will now apply the MRS methodology to subjects with first episode psychosis.

Bob Carr at the ALP Annual Conference.

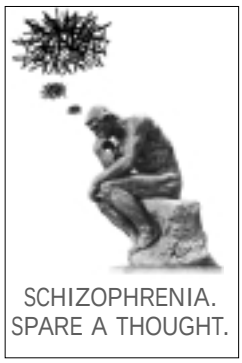
$20M Boost for NSW Mental Health Care

Relatives and carers will be the first to applaud Mr. Carr's announcement, made at the ALP Annual Conference on 25 May, of an extra $20M for new mental health beds.

"The extra funding includes 118 supported accommodation beds for mental health patients in the community, and 108 beds for hospital care," said Mr. Carr.

Strongly advocated by Health Minister Craig Knowles, many of the new hospital beds will meet the needs of acutely unwell patients who need longer stays in order to become properly stabilised.

The announcement will be particularly welcomed by the thousands of NSW families who have many times been through the distress of attending a Magistrate's court to support a Community Treatment Order, only to watch helplessly as their unwell relatives were prematurely discharged from hospital due to the demand for beds in acute wards.



Two images from the NISAD Schizophrenia Awareness Week campaign which included press ads, TV, radio, railway 'Streetvision', and posters. Left: the poster displayed in St. George Bank branches, where donations were made over the counter. Above: one of the press ads featuring the campaign theme of the scribbled 'think balloon' symbolising disordered thought.

Biggest Ever Awareness Week Campaign

Schizophrenia Awareness Week at the end of May saw the biggest campaign ever launched by NISAD. Organised by Executive Director Jackie Crossman, and with the valuable support of NISAD's new pro-bono advertising company Clemenger Proximity, and PR consultants Porter Novelli, the multi-media integrated campaign encompassed display press ads in the Sydney Morning Herald, Sun Herald, Daily Telegraph, Sunday Telegraph and Australian Financial Review; TV community service announcements; radio appeals, and 'Street Vision' railway station TVCs. Posters were also displayed at NISAD Gold Sponsor St. George Bank branches. Donations were made via a 1900 number, over the counter at St.George Bank branches, or via the NISAD website. Street Vision's support in particular has been enormous with 58,000 free screenings provided over the first two weeks of the campaign.

The launch Media Briefing was attended by 12 print and broadcast news reporters, the Minister of Police Michael Costa, consumer James Bosson, and Dr Maryanne O'Donnell of the Prince of Wales Psychiatric Unit.

The campaign received excellent coverage on Channel Ten News and other media, while NISAD featured in interviews and articles on SBS, 2GB, Triple J, ABC Radio, The Australian, and other newspapers. Supported by TMP Worldwide, Jackie Crossman is now extending the campaign with collections held at major Sydney Rail stations.

Prof. Xu-Feng Huang and NISAD PhD Scholar Kelly Newell accept the first St.George Foundation cheque for $25,000 from Julie Anthony.

St. George backs the brains to beat schizophrenia

NISAD's first Gold Sponsor, the St George Foundation, has pledged $25,000 per annum for three years, becoming a major supporter of the fight against the most stigmatised and misunderstood of all diseases.

On behalf of St George, Julie Anthony presented the first cheque to NISAD Director Don McDonald at the bank's Kogarah headquarters on 10 April. The money will fund a PhD scholarship at the NISAD Centre for Collaborative Brain Research at University of Wollongong, under the direction of Professor Xu-Feng Huang. The scholarship was awarded to Ms Kelly Newell, who will investigate possible impairments in neurotransmitter systems in schizophrenia.

The TV appeal drew attention to the 31,000 Australian children who are expected to develop schizophrenia after their 12th birthday.

VOLUNTEERS RESPOND TO TV APPEAL

Marketing Director Alan Tunbridge has warmly thanked all NSW TV channels for granting generous Community Service Announcement (CSA) airtime to the Schizophrenia Research Register appeal for volunteers.

Since the launch of the 30 second CSA in April, over 500 calls have been received, and over 200 new registrants have been signed up - with more to come as people complete and return their forms.

The Register's success has prompted other research groups such as Canada's Centre for Addiction and Mental Health, and the Hunter Medical Research Institute to consult with NISAD's Dr Carmel Loughland on creating their own database of research volunteers.

Following its wide exposure on NSW channels, the Register TV appeal will shortly be submitted to SBS for airing across Australia. NISAD is liaising with schizophrenia research groups in other States to arrange for appropriate respondees to be directed to them.

You can't get a brain transplant!

No matter how good transplant techniques get, there will always be one organ we simply can't swap. So let's find out how to look after it better.

Surgical organ transplant techniques are advancing so fast that pretty soon it will be possible to transplant any organ in the body - except the brain.

This most mysterious and miraculous organ is where we store all the information, memories and characteristics which make up ourselves. While spare parts can be provided for your kidneys, heart or liver, your brain is the only one you'll ever get. What's more, if serious mental illnesses are often biological in origin, it means that the brain is subject to more diseases than any other organ.

As public awareness of these facts increases, brain research is becoming a higher priority, and brain donor programs and storage centres are at last beginning to attract the attention and funding they deserve. Two such programs are currently underway in NSW, and NISAD is intimately connected with both of them.

Gough Whitlam Donates Brain

On 10 April at NSW Parliament House, the launch of the 'Using Our Brains' Tissue Donor Program was attended by former Prime Minister Gough Whitlam, Minister for Health Craig Knowles, 'Triple M' Radio's Amanda Keller, and Dame Leonie Kramer.

Launched under the aegis of the University of Sydney, the program will support the collection of brain tissue for the NSW Tissue Resource Centre (TRC) directed by Prof. Clive Harper, and will work hand in hand with NISAD's

Gough Whitlam at the 'Using Our Brains' launch.

schizophrenia dedicated 'Gift of Hope' program. The difference is that 'Using Our Brains' will seek to register a broad cross section of the population as donors. Such 'normal' brain tissue is invaluable to researchers for use as a comparison with tissue from diseased brains.

"You can have my brain, but only after my wife has picked over it!"

Craig Knowles
at the 'Using Our Brains' launch.

There have been a number of important medical advances arising from tissue-based research, including new drugs for Parkinson's disease. This is because scientists only now are able to carry out complex pathological, neurochemical and genetic studies on tissue to investigate the causes of brain disorders.

At the event Gough Whitlam signed up as a donor. Since then, the website at www.braindonors.org.au has received 150,000 hits, and more than 1400 people have asked for information. Please feel free to do likewise!

The 'Brain Bank' That's Worth More Than Money

The NSW Tissue Resource Centre (TRC) was the first initiative supported by NISAD when the Institute started operations in 1996.

Today, it stores 230 brains, including many collected from people who had schizophrenia or other neuropsychiatric disorders.

The May issue of the international journal *Pathology* features an article by NISAD scientist Dr Maria Sarris and colleagues, describing the TRC collection and how it is used.

Facts on the TRC include:

- *Brain tissue has been supplied for 27 schizophrenia research studies at 14 institutions in Australia, and for 3 international studies .*
- *9 scientific papers describing results from studies using TRC tissue have been published in national and international peer-reviewed journals.*
- *12 presentations on the TRC or NISAD's 'Gift of Hope' Tissue Donor Program, and 34 presentations on studies using TRC tissue have been given at scientific conferences.*
- *NISAD infrastructure support to the TRC was a critical factor in the award of 21 scientific grants to NISAD and affiliated scientists. These grants totalled $1.9M.*

If you would like information on NISAD's 'Gift of Hope' tissue donor program, please call (02) 9295 8398. The TRC can be contacted on (02) 9351 2410.

Can street drugs cause schizophrenia?

Schizophrenia patients are the heaviest users of illicit drugs of all medical demographic groups. A recent Australian study* of 194 outpatients reported a 59 percent lifetime prevalence, with alcohol, cannabis and amphetamines being the most commonly abused substances.

Many parents associate the onset of the illness with teenage drug use, but there is no hard evidence that such usage causes the illness. On the contrary: increasing use of illicit drugs among young people has been an item of major public concern for 30 years, yet the prevalence of schizophrenia has remained stable at around 1 percent of the population. Nevertheless, the very high incidence of 'street' drug use among patients clearly indicates a connection which should be investigated.

As preparation for such a study, the NISAD Clinical Measurement Research Panel has commissioned Dr. Nadia Solowij to comprehensively review all literature on the subject, and to provide a report by the end of July this year. This report will then be used by the Panel to identify gaps in the knowledge base, and thereby to design the most valuable research agenda.

Nadia is admirably qualified for her task, having recently published a paper in the leading international *Journal of the American Medical Association*, which focussed on cognitive functioning of long term heavy cannabis users. She has recently been appointed Research Fellow in the Dept. of Psychology, University of Wollongong.

Dr. Nadia Solowij.

** Ian L. Fowler, Vaughan J. Carr, Natalia T. Carter, Terry J. Lewin. Patterns of Current and Lifetime Substance Use in Schizophrenia.*

New PhD Scholar Nikola Bowden.

NIKOLA JOINS THE NEWCASTLE GENE TEAM

NISAD's Daren Draganic, Don McDonald and Dr. Paul Tooney were successful in obtaining $10,000 gifts from the Ronald Geoffrey Arnott Foundation, and the Perpetual Foundation, to initiate a PhD scholarship in schizophrenia research. NISAD's Neurobiology Research Panel has awarded the scholarship to Ms. Nikola Bowden.

Supervised by Dr. Paul Tooney, Nikola will join NISAD's other PhD student Judith Weidenhofer, and NISAD-affiliated scientists Assoc. Prof. Loris Chahl and Prof. Rodney Scott at the University of Newcastle. The team will use the new microarray or 'gene-chip' technology to study the changes to gene expression profiles in blood cells and skin cultures from patients with schizophrenia, their first degree-relatives, and healthy controls.

Prof. Neil McConaghy.

NISAD'S SCIENCE MENTOR STEPS DOWN

When NISAD was incorporated in 1996, the question of who would be invited to become Chairperson of the Scientific Advisory Committee (SAC) was easily answered. Everyone agreed it had to be Prof. Neil McConaghy, the inspirational researcher and lecturer who had mentored key scientists involved in planning and initiating the Institute.

Neil McConaghy was the first Australian psychiatrist to be awarded the degree of Doctor of Science, and was one of the first to champion the new neuroscientific techniques which would come to dominate psychiatric research. His career spans and exemplifies the period when psychiatry developed to encompass brain research.

During his tenure as Chair of the SAC, Neil played a vital role in formulating the research structure and procedures which have contributed to NISAD's growth from a fledgling organisation into the diverse and internationally recognised institute it is today.

On the occasion of Neil's retirement from the SAC, Scientific Director Prof. Philip Ward said:

"Neil McConaghy's contributions to the development of NISAD were a vital ingredient in the Institute's success. His generous nature and incisive intellect have contributed much to all those who have had the privilege of working with him."

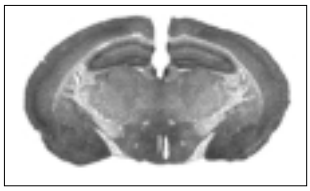
Philip Ward will now Chair the NISAD Research Council, the new committee constituted to advance the Institute's research agenda.

Bequest from Mr. Norman Webb

NISAD has gratefully received a bequest of $15,000 from the estate of Mr. Norman Webb of Sydney. Like so many NISAD supporters, Mr. Webb was involved with schizophrenia via a family connection. He was also a strong supporter of community care organisations in Australia and the USA.

Why NISAD Urgently Needs a Phosphoimager

Valuable advances in schizophrenia research are being blocked by lack of equipment.



The phosphoimaging machine and printout above could provide research results in days, rather than the months taken by older techniques.

For every person in Australia with HIV/AIDS, there are 8 with schizophrenia. For every death from SIDS, there are many more from schizophrenia induced suicide. Yet both the other illnesses receive millions more in public support for research.

Due to its prevalence of 1 percent of population, and its usual onset during teenage years, schizophrenia is the only illness which can be predicted to permanently disable over 30,000 Australian children currently under the age of 12. We have no way of finding out who they are, and no sure means of prevention, even if we did.

Despite the urgency of their mission, NISAD researchers have to stand in line to use essential MRI machines, and conduct other research using time-consuming equipment.

NISAD's University of Wollongong team is a typical case. Dr. Katerina Zavitsanou and Assoc. Prof. Xu-Feng Huang recently published important findings on neurotransmitter receptor abnormalities in schizophrenia. The autoradiography techniques used meant results took months to accomplish.

What is urgently needed to develop this promising line of research is a phosphoimaging machine which can produce better results, many times faster than the old process.

Unions lead the way for imager funding

Driven by Don McDonald, Director of the NISAD/NSW Health Partnership Project, the phosphoimager fundraising campaign is targeting $150,000 for purchase of the equipment.

The first $50,000 towards the total has been donated by the Mining Division of the Construction, Forestry, Mining and Energy Union (CFMEU). The Construction Division is also supporting the campaign by organising construction site meetings throughout the South Coast, involving workers and management. These meeting have so far raised $15,000.

The management of Joy Mining in Moss Vale, has joined together with their employee members of the Australian Manufacturing Workers Union, (AMWU) to raise a further $5,000.

The South Coast Labor Council has endorsed the campaign and is encouraging other unions to also give support.

Rotary, Lions, and the Mayoress lend a hand

Rotary Clubs of Wollongong, Illawarra Sunrise, Bulli and Albion Park, as well as the Lions Club of Kiama, are making donations towards the target of $150,000.

South Coast community clubs including RSL and League Clubs have been approached and are expected to donate towards the target.

The Lady Mayoress of Wollongong will dedicate her annual September Fashion Parade and Luncheon to the cause.

Don McDonald is now appealing to the South Coast business community to support the campaign.

If you can help, please use the special coupon on the back page, or call NISAD direct on (02) 9295 8407.

AUSTRALIAN BRAIN RESEARCH IS ON THE INTERNATIONAL MAP

NISAD scientists are spreading the word about Australian brain research, presenting original papers, and making fruitful new connections with other institutes at international conferences all over the world.

Human brain research is such a new and dynamic field that findings in any specialised sphere of mental health research can shed valuable light on any other.

Japan

8th International Conference on Functional Mapping of the Human Brain. June 2 - 6, 2002, Sendai, JAPAN.

Lagopoulos J, **Ward P**. An fMRI study of covert orientation of attention.

Little C, Hickie I, **Ward P**, Naismith S, Scott E. Functional magnetic resonance imaging correlates of implicit sequence learning in patients with depression.

Malhi G, **Lagopoulos J**, **Ward P**, Kumari V, Mitchell P, Parker G, Teasdale J, Sachdev P. FMRI of cognitive generation of affect in bipolar depression.

France

3rd Forum of European Neuroscience. Paris, France, July 2002.

Zavitsanou K, **Ward P**, **Huang XF**. Selective alterations in iontropic glutamate receptors in the anterior cingulate cortex in schizophrenia.

Denmark

3rd International Conference on Early Psychosis. Copenhagen, Denmark, 25 - 28 September 2002.

Johnston P, **Schall U**, **Ward P**, **Lagopoulos J**, **Rasser P**. An fMRI investigation of executive function in early psychosis.

EXTERNAL REVIEW APPLAUDS PROGRESS TO DATE

In December last year, NISAD was the subject of an external review conducted by two of Australia's leading schizophrenia researchers, Prof. Assen Jablensky (Director, Centre for Clinical Research in Neuropsychiatry, University of Western Australia) and Prof. John McGrath (Director, Queensland Centre for Schizophrenia Research).

Encompassing the 5 year period since receipt of the first NSW Health funding, the review summarised NISAD's progress as:

"NISAD has been remarkably successful in creating and establishing, over a relatively short period of time, an impressive research organisation with a strong potential for world-class research and a high public profile.

The latter, drawing on the strength of the NISAD Board and the dedicated effort of several individuals with demonstrated capacity for fund-raising, has resulted in a substantial increase in recurrent funding and a high visibility of the Institute to important constituencies, including consumers and carers, business circles, and politicians. The public face of NISAD is characterised by creativity, energy and an excellent marketing style.

The first few years have been successful in capacity building and the establishment of schizophrenia research in key departments and universities within NSW. This has resulted in a range of new research projects, collaborations across sites, and the involvement in schizophrenia research of an increasing number of postgraduate research students. Overall, we found the research momentum attained by the Institute impressive and worthy of continued support to ensure sustainability and productivity.

As highlights of NISAD's success story, we should like to single out several achievements:

- ***The Schizophrenia Research Register***
- ***The Tissue Resource Centre***
- ***The Neuroimaging Panel and network***
- ***The Neurobiology panel and network***
- ***The NISAD / UCLA Brain Atlasing Initiative***
- ***The Summer Student Scholarships: excellent initiative***
- ***The energy, scope and professionalism of NISAD's fundraising arm***
- ***The HeadLines newsletter"***

NISAD RESEARCH

Patron: Her Excellency, Professor Marie Bashir AO, Governor of NSW

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Sponsors being sought

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- *Marrickville Municipal Council*
- *Meriton Premier Apartments*
- *NSW Labor Council*
- *Rebecca Cooper Medical Research Foundation*
- *Ronald Geoffrey Arnott Foundation*
- *Rotary and Lions Clubs*
- *Sylvia and Charles Viertel Charitable Foundation*
- *Taylor & Scott Solicitors*
- *Tyrrell's Wines*
- *UBS Asset Management*
- *Westfield Design and Construction*

NISAD IS FUNDED BY NSW HEALTH

Please Help to Stop Schizophrenia

As the only schizophrenia research institute in NSW, NISAD needs ongoing public support in order to continue its work. Please consider appointing NISAD as your preferred charity, and help the fight against the most devastating of all mental illnesses.

Donation: Make a donation at any time by sending a cheque; by phoning us with your credit card details, or by visiting our website at www.nisad.org.au

Pledge: Pledge to donate a set amount on a date nominated by yourself (eg. 15th of each month, or annually, etc.)

❒ **Bequest:** Remembering NISAD in your will is a gift to the future. Please tick the box if you require further information.

❒ **Please tick if you wish your donation to help purchase the phosphoimager described on page 3.** Please call (02) 9295 8407 if you wish to discuss any of the options or need further information.

NAME:_____

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Please indicate your method of payment:

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Card No._____

Cardholder's Name:_____

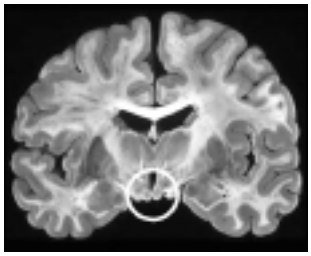
Expiry Date:_____ Signature:_____

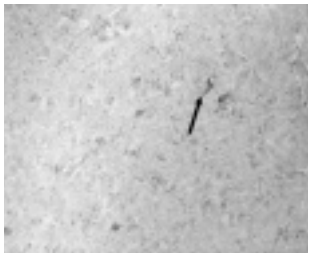
Post to: NISAD, 384 Victoria Street, Darlinghurst, NSW 2010.
Fax: (02) 9295 8415.
HL6/02

NEUROSCIENCE INSTITUTE OF SCHIZOPHRENIA AND ALLIED DISORDERS

PHOSPHOIMAGER

Investigating the Biological Causes of Forgetfulness





Left: A vertical section taken about halfway through the brain, showing the position of the mamillary bodies in the white circle. Right: Microscopic closeup of mamillary tissue showing GABAergic interneuron indicated by arrow. The actual size of the interneuron is about the same as the full stop at the end of this sentence.

Parents and carers of people with schizophrenia know all too well how difficult it is for patients to remember appointments, and perform everyday memory tasks which other family members take for granted. Although the details of such memory deficits vary between patients, their similarities indicate that many arise from some disorder in specific parts of the brain.

Earlier studies made in 1997 have indicated that the brain's mamillary region plays an important role in memory processing and learning. As these functions are often seriously affected by schizophrenia, other studies were made in 1998 to investigate if the mamillary regions of schizophrenia-affected brains showed reduced numbers of neurons. No such reduction was found. Nevertheless, the importance of this brain region to memory function warranted further investigation.

A collaborative team at Sydney University including NISAD scientists Dr. Maria Sarris and Dr. Gavin Dixon, NISAD-affiliated scientists Ms. Therese Garrick and Prof. Clive Harper have undertaken a research program aimed at investigating the mechanisms of memory dysfunction in schizophrenia.

As part of this program, NISAD summer student scholar Ms. Sinthu Sithamparanathan conducted a project aimed at comparing the mamillary bodies from cases of schizophrenia and controls - looking for any differences in numbers of GABAergic interneurons.

These interneurons were selected for investigation because they are known to play an important role in the regulation of complex behaviours.

The research team found a greater density of GABAergic interneurons in the schizophrenia group compared to controls.

Similar NISAD findings have been reported in other key brain regions such as the thalamus and frontal cortex, which are also involved in memory function.

As GABAergic interneurons exert an inhibitory effect on brain activity, these findings may offer a new clue to the puzzle of memory disfunction in schizophrenia.

A New Look for ARAFMI

The NISAD Board of Directors includes Ms. Dymphna Rees Peterson, State President of ARAFMI NSW (Association of Friends and Relatives of the Mentally Ill), and Mr. Bernard McNair of the Schizophrenia Fellowship of NSW.

NISAD has always maintained a close relationship with both organisations. For example the NSW Schizophrenia Fellowship was among the first to endorse the creation of a neuroscience-focussed schizophrenia research institute in NSW

As part of this relationship, NISAD Marketing Director Alan Tunbridge has designed a 'makeover' of NSW ARAFMI's image, and a marketing campaign aimed at recruiting new members to the organisation.

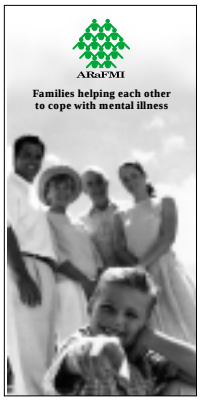
As Australia's longest-established mental health support organisation, ARAFMI's mission is to help families cope with the impact of mental illness, and to campaign for improvements in services on their behalf.

To further these aims, Alan Tunbridge is liaising with Dymphna Rees Peterson in designing a new logo, brochure, newsletter, and TV Community Service Announcement.

Initially created for the NSW ARAFMI, it is hoped that ARAFMIs in other States will adopt the proposals to generate a nationwide campaign.

ARAFMI NSW can be contacted on (02) 9887 5897.

ARaFMI



Visit the NISAD Website at www.nisad.org.au

HeadLines is edited, designed and produced by NISAD Marketing Director Alan Tunbridge.
The opinions expressed in HeadLines do not necessarily represent the views of all NISAD's participating scientists.

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