



From the Executive Director
As 2011 draws to an end, it is valuable to reflect on the past year's successes and achievements. Our achievements are numerous and are a credit to the wonderful team around me. Here are some highlights.

Brainwave researcher, Keryn O'Neill, has led a small group reviewing, updating, referencing and documenting the science behind "The Early Years Matter", our

presentation on infant brain development. The information has been reviewed and approved by our scientific advisory group, chaired by Trustee Sue Younger, which includes paediatrician Dr Simon Rowley, neuroscientist Dr Cath Gilchrist, attachment specialist Lauren Porter and early childhood expert Nathan Mikaere Wallis.

This year we have extended our focus on the early years to include the exciting new discoveries regarding adolescent brain development. A team has searched and summarised the literature and prepared stimulating presentation materials. This research was supported with funding provided by the Ministry of Social Development. "Adolescence – the Second Wave of Brain Changes" was launched by the Honorable Paula Bennett at Parliament in September. The presentation provides useful information for people working in any capacity with adolescents, whether in a professional capacity or not. Bookings can be made now.

A new scientific DVD is hot off the press. "Why the Early Years Count" interviews an expert panel of people including Professor Sir Peter Gluckman, the Prime Minister's Chief Scientific Advisor, Dr Bruce Perry, child psychiatrist and neuroscientist and internationally recognised expert on children in crisis. The film is designed for people working with children and/or families with children. Brainwave is very grateful for the funding support from the Todd Foundation.

The Brainwave Schools Programme continues to go from strength to strength. Over 2,500 students have participated so far in South Auckland and the Manawatu/Wanganui region. We are very excited about the programme redesign currently underway. The modifications will make the information even more impactful with the expectation we will be able to bring about long term changes in attitude to parenting and an understanding of what infants and babies need.

There are so many people I would like to recognise by name, but room will not allow. However a huge thank you is due to every person who has contributed to Brainwave and its activities this year. To our funders and supporters thank you so much for your commitment to our important work and we look forward to continuing our activities with your support for the new initiatives planned in the New Year.

In the meantime, I would like to wish you a very Merry Christmas and may you have special times with friends and family over the holiday period.

Sue Wright

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Why the Early Years Count
A new DVD titled "Why the Early Years Count" has been produced and is now available for purchase.

Introducing two new Brainwave presenters . . .



Marion Angela
Nelson Marlborough Region

Marion is a part time music teacher and has trained in Integrative Psychology (Hakomi). She was involved in the research project Youth 2000 at Auckland University. Marion provides Brainwave presentations for the Nelson and Marlborough regions. In addition to Brainwave educational activities, Marion facilitates laughter yoga classes.



Maria McKenzie-Taylor
Wairarapa

Maria has a Masters in Educational Psychology and is a member of NZAC. She has worked in the education sector for the past twenty years as a counselor, resources teacher, advisor and classroom teacher. Most of her work has focused on supporting young people at risk. She has joined the Brainwave team in the Wairarapa area and is also involved in the school programme being delivered in the Manawatu and Wanganui region.

WIRING THE BRAIN

The following article is based on a recent presentation by Dr Rowley to the 2011 Family Law Conference



“At least one in five New Zealand children experience significant deprivation that compromise their health, their education, and their future”

stated Dr Claire Dale in a report published in September 2011.

We now understand much about how a child's brain develops and how it is affected by experience in either a positive or negative fashion. This development starts before birth and continues through the teenage years when adolescence adds further complexity to the young person's development.

This article focuses on some of the neurobiology of infant brain development and some of the more recent advances in our understanding of this topic.

The key to understanding the link between early childhood experience and subsequent behaviour is in the age-old nature versus nurture relationship. There is a complex interplay here that is at the core of human emotional development and behaviour.

Our genes are not a static blueprint; they can actually alter with experience in the sense that they can be 'switched on' or 'switched off'. Nature and nurture operate together to fashion our brains. This process occurs throughout our lifetime but it occurs at a much faster and more intense rate in childhood.

From the first few days of conception our brains begin to form from rudimentary cell tissue. As the foetus develops, in the brain, layer upon layer of nerve cells (or neurons) migrate to their ultimate anatomical positions. They send out their axons to meet each other and become connected enabling communication with each other. The organisation of our brain in this way is primarily genetically determined.



In later foetal life, and particularly from the moment of birth, experiences interact with our genes to 'switch on' our connections. Thousands of new connections occur as we develop synapses in response to the environment we find ourselves in. Each sensory experience modifies and 'sculpts' the thousands of surrounding neurons and in this way our brain becomes 'wired'. This

process occurs regardless of the post-natal environment but the subsequent pruning and refining of the pathways is environmentally determined.

All drugs, including alcohol that the mother ingests, will be received by the foetus. Many of these, including alcohol, can have direct harmful effects on the brain. In addition, there may be less obvious but equally important effects on brain connection formation that will cause the behavioural issues such as attention deficit and hyperactivity.

Touch is the first sensory modality to come 'on line' and has been labelled the 'mother of all senses'. Smell, taste, balance, hearing and vision follow in that sequence, and it appears that each sense needs to follow the sequential pattern for complete development. The type, the frequency, the intensity and quality, the order, and the number of experiences will all have an impact. The neurons 'talk' to each other via these connections and our brain becomes wired as axons and dendrites or spider-like projections reach out in all directions within the brain. They send their messages electrically with the

help of brain chemicals. Larger distances are covered by the formation of long projections called axons, which can form nerves.

Most nerves are eventually coated with myelin or white matter, which enables very rapid transmission of information. Myelin is particularly vulnerable to certain toxic insults in development especially excess cortisol. In most areas of the brain this process of 'connectivity' or synapse formation and subsequent myelination occurs over the first 2 to 3 years. After this time there is a process of pruning where only the pathways that are being used frequently are retained and the brain becomes a more efficient and less complicated structure in terms of its neural pathways.

Those connections that are not frequently being used are lost. The more mature brain is less sensitive to experience and less likely to change. It becomes harder for new patterns to develop. We are 'hard wired' according to the quality and amount of experience we have in those formative early years.

There are critical and sensitive periods in brain development during which rapid changes take place, and after which it becomes difficult if not impossible to re-capture those developments: learning a musical instrument is a good example of this. Attachment to a consistent care-giver is another. The connections that occur with an attachment relationship need to be made within the first 18 months before the window of opportunity is lost.

With failure of this to occur there are likely to be problems in many areas in later life as the child grows up unable to establish firm trusting relationships with other humans. Lack of early attachment has been shown to correlate with poor social competency, lower teacher ratings of educational competence and other outcomes in teenage years.

The experiences essential for activating neurons and promoting synapse formation need to be the right ones. When a child is nurtured, played with, sung to, cuddled and stimulated positively, he or she will be programmed in a positive fashion. This type of experience sets a child up for life.

If they are negative, then the hard wiring that takes place retains all the negative connotations including the emotional memory of the experience. This includes a triggering of the physiological and somatic sensations that accompany a negative experience such as a smack or witnessing family violence. Therefore if a child is repeatedly smacked, put down, ignored or abused they may become 'hard wired' for these emotions and after 2 or 3 years it becomes more difficult to change.

Lack of stimulation or neglect i.e. lack of positive input can be equally devastating. The connections will be weak or may never develop.

When negative interactions occur in infancy, the physiological associations that accompany the experience include the release of hormones including adrenaline and cortisol. This has been described as a 'fight or flight' reaction. Unfortunately cortisol, although a crucial hormone in normal amounts, when secreted at inappropriate times and at much higher levels can interfere with the developing brain and there may even be structural changes occurring that are irreversible, along with loss of myelin. The brains of chronically deprived and abused children have been shown to be smaller than normal.

The evidence for the link between early childhood experience and subsequent brain development comes from a number of sources and is still accumulating. Neuro-imaging techniques, animal studies, autopsy findings, and blood analysis of hormones can all support the hypothesis.



Up until now the focus has been on the brain changes occurring in the first few years. Brain development continues at different rates in different areas throughout life. Functional and structural MRI scans are showing us just what the extent of this brain development is, particularly in late childhood and adolescence.

It seems that there is a burst of neuronal activity, with increased connectivity and subsequent pruning of lesser used connections similar to that which occurs in the 1st 3 years, in the pre-frontal cortex, corpus callosum and in other parts of the brain. The pre-frontal cortex is the area of the brain that controls 'executive functioning' or reasoning and judgment.

Prior to 15 or 16 years of age we tend to make decisions based on our emotional ('gut reaction') rather than our rational thinking. This is based in the amygdala where emotional values are processed. Functional MRI scans show that teenagers use this part of the brain when making decisions. From the early teen years there is a transfer of decision making to the prefrontal cortex where decisions are more rational and objective, and consequences are thought through. The prefrontal cortex denotes social behaviour and knowledge and allows us to control impulsive behaviour. At the same time the corpus callosum (the bundle of fibres connecting the two sides of the brain) changes and grows. This allows problem solving and creativity to develop and assist us in planning.

Therefore, throughout adolescence we slowly become more reasoned, and our decision-making reflects the fact that we are using this important part of our brain in everyday life. Impulse control, planning and an understanding of the rules of conduct become incorporated into our thinking. There is a sex differential operating with boys lagging 2 or 3 years behind girls in this developmental process.

The implications of this are huge. Teenagers are not the same as adults in their ability to think rationally or make sound judgments.

The teen brain and the adult brain are therefore both anatomically and physiologically different. The forces that shape this adolescent brain development are unclear. Obviously this is biologically driven as part of puberty, but just how important environmental factors such as nutrition, parenting, education, physical activity, peers, drugs, infections and many other factors are not yet known.

It is likely that at least until our mid 20's these neurobiological changes which are occurring create potential for change and in some cases repair. More research will hopefully show just how we might both enhance cortical development and promote such repair.



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References

- Fergusson D (1998). Christchurch Health and Development Study; An Overview and some Key Findings. Social Policy J of NZ 10:154-176
- Fergusson D, Horwood L (1998) 'Exposure to Interparental Violence in Childhood and Psychosocial Adjustment in Young Adulthood'. Child Abuse and Neglect 22: 339-357
- Fergusson D and Woodward L (1999) 'Maternal Age and Educational and Psychosocial Outcomes in Early Childhood'. J of Child Psychology and Psychiatry 35 (3) 287-96
- Fox et al Child Development January/February 2010 volume 81, no.1 p 28-40 'How Timing and Quality of Early Experiences Influence the Development of Brain Architecture'
- Peter Huttenlocher; Developmental psychology, vol. 16, 1999 'Dendritic and Synaptic Development in Human Cerebral Cortex: Time course and Critical Periods'
- Ronald Prinz; Prevention Science, Vol 10 No 1 March 2009 'Population Based Prevention of Child Maltreatment: The U.S. Triple P System Population Trial'
- Silva P and McCann M. 'An Introduction to the Dunedin Study' in Silva P Stanton W (eds) (1996) From Child to Adult Oxford University Press New Zealand Auckland

The Family Trust behind the Brainwave Schools programme in Manawatu and Wanganui

Since even before the Brainwave Trust was registered in 1998, the Duncan family, through the Sir Thomas and Lady Duncan Trust, have been great and generous supporters of Brainwave Trust and its people.

The philanthropic vision of the Duncan family was formally established in 1948 when they formed the Sir Thomas and Lady Duncan Trust. This was led by their patriarch, Sir Thomas Duncan, known as T.A. who was an astute forward-thinking and successful farmer. T.A. and his wife Jeannie were deeply connected to the local community. In the 1950's the first task of the Trust was to fund the establishment of innovative polio hospitals in Silverstream and Wanganui.

The Trust depended on the fortunes of a rugged hill country farm called Otiwhiti, tucked into the hill country behind Hunterville in the North Island. Otiwhiti Station has been farmed since the 1880's by generations of the Duncan family. The pioneering generations broke in the land and built an impressive farm in difficult country.

During the last quarter of the 20th century it became harder to generate enough income to keep Otiwhiti as a working farm and continue to support their philanthropic activities. In 2005, the Trustees faced a cross road – to sell the farm and continue the Trust's activities or dissolve the Trust. The decision was to sell the farm and at a public auction, against spirited bidding, the Duncan family bought back their station again. The Trust now had the ability to continue its activities.

In the late 1990's, the Sir Thomas and Lady Duncan Trust assisted paediatrician Dr Robin Fancourt as a Duncan Fellow and provided funding for her to learn more of the brand new science about infant brain development, including spending time with Dr Bruce Perry at the Child Trauma Academy. This led to Robin bringing a group of like-minded people together to form Brainwave Trust.

The Duncan Trust then began to support various Brainwave projects, starting with the first two year's production of the Cuddlewrap. This soft wrap bears simple messages in four languages: "I love it when you sing to me. I love it when you talk to me. I love it when you cuddle me. I love it when you smile at me. Did you know you're building my brain when you do these things?":



T.A. and Jeannie Duncan

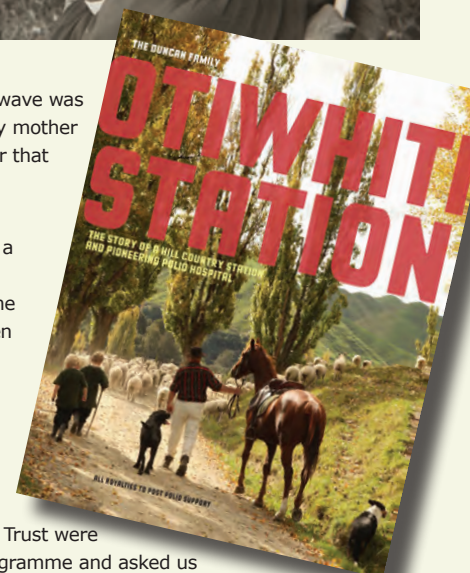
Thanks to the Duncan Trust, Brainwave was able to distribute the wrap to every mother of a new baby in New Zealand over that period.

The Trust has also provided funds for Brainwave to develop and pilot a programme for mothers who were currently in prison. The programme was warmly received by the women and has now become one of Brainwave's core programmes.

In 2009 Brainwave piloted an idea which was dear to the hearts of many of the trustees – getting the Brainwave material into schools.

The trustees of the Duncan Family Trust were excited by the potential of this programme and asked us to provide it to schools in the Wanganui and Manawatu areas. Their generous funding for three years has allowed us to further develop and refine the programme and deliver it to nine of the area's schools so far.

On the 13th November 2011 the Duncan family launched a book titled "Otiwhiti Station – The Story of a Hill Country Station and Pioneering Polio Hospital" about their pioneering history; all royalties go to Post Polio Support. Brainwave Trust is enormously grateful for the generosity of this philanthropic family.



Brainwave School Programme

Over the years Brainwave has consistently received feedback from audiences that our information should be made available to students at school.

After a successful pilot in March 2009 at De La Salle College, a large boys' school in South Auckland, Brainwave was fortunate to have the opportunity to extend the programme into more secondary schools thanks to funding provided by two trusts.

The Auckland Airport Community Trust provided funding for schools in South Auckland under the flight path of Auckland Airport. There are five potential secondary schools and this year Brainwave has presented to a wide range of students in four of the five schools. The Sir Thomas and Lady Duncan Trust provided generous funding for the delivery of the programme to schools in the Manawatu and Wanganui regions. This year students in nine schools participated in the Brainwave sessions.

To date over 2,500 students from a wide range of schools have participated in the programme. The schools range from public and private secondary schools to teen parent units and students from special schools for students who have struggled in the mainstream system because of reading and writing difficulties and behavioural problems.

Before presenting to the students our Brainwave presenters first present to the staff, which is a new aspect to the programme in 2011. This approach has immediately led to greater engagement from the staff and new learning opportunities. In one instance an English teacher, Stuart Meyer, encouraged his students to write a reflective piece on their Brainwave experience. Stuart sent Brainwave a letter describing why he felt the programme was of value to his students. Here is an extract from the letter:

As a teacher working in the English Department, I believe this programme has significant educational value, with two foci in particular.

Firstly, the essential message it conveys is undoubtedly important and relevant, addressing, as it does, an area of real concern in our community. The downstream effects of the failure to provide the proper environment for the youngest and most vulnerable members of our society are well documented and come at great cost, not only financially but also socially. Our students are tomorrow's parents and it is incumbent upon us to prepare them for what is ahead.

Secondly, the programme has genuine potential as a learning tool in the classroom. Perhaps the greatest impediment to learning is lack of engagement and it is my observation that this programme is particularly effective in capturing and retaining student attention and focus. This is due, I believe, to the method of delivery which addresses a range of learning styles; visual, aural and kinaesthetic. Once engaged, students are able to process the information they receive and, even more importantly, apply the core skills of reading and writing. This is evident in the essays my own year nine class wrote in response to the Brainwave presentation they received.

Stuart Meyer
English Teacher
Aorere College
Auckland

The feedback from students has been very positive and all the schools have asked Brainwave to return in the coming year. The one area for improvement identified was that there was so much content to deliver that it was hard to take it all in. In addressing this, and with support from the Sir Thomas and Lady Duncan Trust, we contracted an expert on programme development, Rawiri McKinney. Rawiri is working with Brainwave to redesign the programme so it aligns with three levels of learning at secondary school. The goal is to have unit standards that link the school curriculum with the Brainwave information. We are fortunate to have a working group of talented teachers who are assisting in this process.

From Term One 2012 we will be piloting the redeveloped programme, with more case studies and activities designed to engage the students at Levels 9 to 13. It will then be delivered to students in the regions for which we have funding. We have refined our evaluation process to ensure the effectiveness of the integrated learning process. Long term our ultimate goal is to achieve approval from NZQA for the course and its content for roll-out through New Zealand to all secondary school students.



Adolescence

THE SECOND WAVE IN BRAIN DEVELOPMENT

An exciting new presentation is available from 2012. This presentation focuses on the latest knowledge on the changes in brain development that occur during the adolescent years.

LAUNCH OF THE ADOLESCENT PRESENTATION

The research behind the adolescent presentation has involved hundreds of hours of reading and reviewing clinical papers as well as consultation with a number of experts. This was made possible with funding from the Ministry of Social Development.

The presentation was officially launched in September 2011 by the Honourable Paula Bennett at Parliament in front of 100 attendees representing various government agencies, NGOs and private organisations.

Judge Andrew Becroft, Principal Judge of the Youth Court, set the scene by asking the audience whether anyone could say they had never broken the law at some stage during their youth. He then eloquently described the challenge of judicial decision-making in the case of young people who are often impulsive and do not consider the consequences of their actions.

A short taster of the presentation content was then delivered by Nathan Mikaere-Wallis, Brainwave Trustee and presenter. He was followed by the Hon Paula Bennett who began with "I just love Brainwave" and proceeded to share her experiences in using the information that Brainwave has made available to New Zealanders.

The information will be available to all interested groups in New Zealand from April 2012 as either a presentation or a half day workshop.



Sue Wright, Brainwave; Judge Andrew Becroft, Principal Judge of the Youth Court; Hon Paula Bennett, Minister of Social Development; and Nathan Mikaere-Wallis, Brainwave.

THE PRESENTATION CONTENT

What was that teenager thinking???
Maybe she/he wasn't!

Recent research shows that there is a burst of neuronal activity in late childhood and adolescence that is linked with the risk taking and impulsive, emotional behaviours so typical of teenagers.

Consistent, nurturing and positive early experiences help to grow resilient, empathetic and successful adults. However, adolescents in New Zealand, relative to other developed countries, have a high rate of social morbidity¹.

In this presentation the audience will gain an understanding of the latest knowledge on the brain changes which help to explain the behaviours we observe as a child transitions through adolescence to adulthood.

Alcohol is the drug most commonly used by New Zealand adolescents. We explore this in our presentation on "Adolescence: The Second Wave of Brain Changes". Look for the article in our first 2012 newsletter where we will explore the evidence on the consumption of alcohol, and its effects on adolescent's behaviour and brains. The article will finish with some reflections on the evidence regarding what works to protect adolescents from harm including marketing and the role of parents and society.

The presentation/workshop looks at brain changes during adolescence in the context of the emotional adolescent, the risky adolescent, the sleepy adolescent, impact of technology, alcohol and other drugs as well as depression, then finishes with a review of resilience.

INTENDED AUDIENCE

This presentation is for people who care for or work with youth – parents, school teachers and Boards of Trustees, youth workers, foster and care providers and families; Corrections, CYFs, Police, health providers and anyone else who has contact with teenagers.

ACKNOWLEDGEMENT

Brainwave Trust wishes to thank the Ministry of Social Development for support to produce this presentation.

INTERESTED IN BOOKING A PRESENTATION?

Contact our Presentation Co-ordinator at Brainwave:
jane@brainwave.org.nz or **info@brainwave.org.nz**.

i Improving the Transition: Reducing Social and Psychological Morbidity During Adolescence. A Report from the Prime Minister's Chief Science Advisor. May 2011



6 OBSERVATIONS OF A FAMILY COURT LAWYER

1. Attachment

The co-creation of a secure attachment bond is the essential task of the first year of human life

Scientist, clinical psychologist and clinical neuropsychologist Allan Schore discussed the neuroscience of attachment in the Family Court Review in 2011.

"We now know that the evolutionary mechanism of attachment does more than just provide the baby with a sense of safety and security. Rather, attachment drives brain development, five-sixths of which happens postnatally. In fact the brain grows more extensively and more rapidly in infancy than at any other stage of life. It more than doubles by 12 months, and 40,000 new synapses are formed every second in the infant's brain. But, importantly, this brain growth is influenced by "social forces," and therefore is "experience-dependent." It requires not only nutrients, but the emotional experiences embedded in the relationship it co-creates with the primary caregiver.

There is now agreement in my field that the essential task of the first year of human life is the co-creation of a secure attachment bond of emotional communication between the infant and his/her primary caregiver. The baby communicates its burgeoning positive emotional states (e.g., joy, excitement) and negative emotional states (e.g., fear, anger) to the caregiver so that she can then regulate them. The attachment relationship shapes the ability of the baby to communicate with not just the mother, but ultimately with other human beings. This survival function—the capacity to communicate one's own subjective internal states to other human beings—is the basis of all later social relations. Thus, the major developmental accomplishments of infancy are the capacity to communicate emotional states, and subsequently the capacity for self-regulation, which is the ability to regulate emotional states".

Early attachment influences multiple facets of learning and emotional development. Attachment drives brain development, particularly the young child's growing capacity to know, express and self regulate their emotional world (McIntosh 2011).

2. Time is of the essence

The first years of a child's life are key years for shaping their brain. These impact our children's physical, social, intellectual and emotional development. As Dr Rowley explained there are critical and sensitive periods in brain development during which rapid changes take place, and after which it becomes difficult if not impossible to re-capture those developments.

3. Conflict and chaos is toxic to the developing brain.

The beauty of the science is that it evidences what we instinctively know to be true. Consistent nurturing and positive, rich experiences programme an infant's brain in a positive way. Conflict, chaos and neglect are toxic to the developing infant brain.

The fact is that exposure to conflict is harmful to children. Learning that excessive levels of the 'stress hormone' cortisol can interfere with the developing brain and may even cause irreversible structural changes, or that the brains of chronically deprived or abused children have been shown to be smaller is the sort of information that can trigger protective action by a parent, or by extended family members.

Many who have felt uneasy about a loved one's chaotic circumstances but have hesitated to interfere with the family unit on the basis of a baby being "too young to know what's going on" are armed with the information evidencing the need to act.

When we understand what happens to the developing infant brain when exposed to the prolonged stress of family violence, it is compelling to take action on behalf of the child.

4. Neglect is just as dangerous – but harder to identify and action

In December 2010 the Officer of the Children's Commissioner released a report Preventing child neglect in New Zealand by Dr Janine Mardani: www.occ.org.nz/publications. In the covering press release the Commissioner said:

"Most people are aware of neglect in its most obvious form – when children are left 'home alone' while their parents are out drinking or found living in homes turned into P labs. There have been a number of cases like this in recent months. But most neglect is less obvious and more prevalent than this. Most neglect is about continually failing to provide the basics needed for a child to develop and thrive, physically, psychologically and socially. That may not sound as damaging as physical or sexual abuse, yet the consequences from year after year of neglect can be disastrous."

Dr Mardani expands at p12 of the substantive report:

A growing body of evidence does, however, describe a cascade of negative impacts from early exposure to the toxic stresses of recurrent child abuse or neglect, severe depression, substance abuse or violence within a family (Center on the Developing Child at Harvard University, 2007). Such exposures can result in persistently elevated stress hormones that disrupt brain development...immune responses and metabolic regulatory functions. This in turn may result in increased susceptibility to multiple physical and mental health illnesses."

Some Child Youth & Family data culled from Dr Mardani's executive summary is of interest:

- Neglect is the second most frequent Child, Youth and Family child maltreatment investigation finding.
- Neglect is the sole maltreatment investigation finding for two in three (63.1 percent) children with identified neglect.
- Four in ten (41.7 percent) children with identified neglect were aged 0-4 years in the year to June 2009.
- Maori children are 4.5 times more likely and Pacific children 1.6 times more likely to have a finding of neglect, compared to European/Other children.
- Almost half of all children with identified neglect (45 percent) live in New Zealand's most deprived neighbourhoods (NZDep2006 quintile5).
- Family Court Orders are sought for one in thirteen (7.9 percent) children with findings of neglect.

Professionals are as slow to recognise neglect as the rest of the population and in being less proactive in seeking to intervene than when confronted with a child who has been physically or sexually injured. However the scientific evidence seems to indicate that we do so at our peril.

5. Early Childcare Centre vs Available Competent Parent

In February 2011 a report was released by the Office of the Children's Commissioner. This report is a comprehensive review of non parental care of under twos and found that "greater emphasis needs to be given to the particular needs of infants and toddlers. There should be more support for parental care of those under 12 months...". The fastest growing sector in early childhood education is for infants under two. The study found that approximately 25,000 babies under the age of one year were enrolled in non parental care services in New Zealand, which equates to about 40% of babies under the age of one. The report provides important information in a time where economic policies are developed to facilitate an early return to paid work rather than enabling the critical work of parenting babies and infants.

An often repeated word in the early childcare centre debate is "quality". All are agreed that a high quality centre provides better outcomes for infants than does a poor quality centre. However what is meant by high quality is seldom discussed. The Brainwave Trust Aotearoa website has a list of the sorts of questions to ask when identifying a suitable early childcare centre. www.brainwave.org.nz. Clearly the most important question is: Does the centre (or other non parental childcare arrangements) provide the opportunity for the child to form the kind of comfortable, secure relationship with an adult that will nurture their healthy emotional development?

6. Adolescents and Teenagers

The risk taking and impulsive, emotional behaviours typical of teenagers has perplexed adults for generations. It is only relatively recently that scientific evidence has been available about the burst of neuronal activity that occurs during adolescence, which goes some way towards answering the question What was that teenager thinking?

We now know that during adolescence our brain is 'rewiring' in a number of ways, including the transfer of the decision making process from the amygdala (where emotional values are processed) to the prefrontal cortex (which controls reasoning and impulses). This process is complete towards the end of adolescence, which is usually in about the mid-twenties.

"It's as if, while the other parts of the teen brain are shouting, the Prefrontal Cortex is not quite ready to play referee. This can have noticeable effects on adolescent behavior. You may have noticed some of these effects in your teen:

- difficulty holding back or controlling emotions,
- a preference for physical activity,
- a preference for high excitement and low effort activities (video games, sex, drugs, rock 'n' roll),
- poor planning and judgement (rarely thinking of negative consequences),
- more risky, impulsive behaviors, including experimenting with drugs and alcohol." (The Partnership for a Drug Free America)

Worryingly the propensity for risk taking behaviour such as experimenting with drugs and alcohol occurs at the very time that the teenage brain is more susceptible to harm than the adult brain from drug and alcohol use.

Lope Ginnen

Barrister & Chairperson of Brainwave Trust Aotearoa

References

Schore, A and McIntosh, J (2011) Family Law and the Neuroscience of attachment, Part I. Family Court Review, 49:501-512, doi:10.1111/j.1744-1617.2011.01387.x
Report by the Office of the Children's Commissioner "Through their lens: An Inquiry into non-parental education and care of infants and toddlers, Feb 2011. www.occ.org.nz/publications
The Partnership for a Drug Free America: A Parent's Guide to the Teenage Brain <http://teenbrain.drugfree.org/science/behavior.html> McIntosh 2011



From the Chair



This year marks the 30th anniversary of the Family Court as a specialist jurisdiction. It is also a year that has seen the restructure of the legal aid system underway and the beginning of a Government review of the Family Court.

It has been a challenging time for Family Court practitioners: a time of reflection about the purpose and functionality of the Family Court, and also a time of uncertainty about the future practice of family law.

It was an inspired choice then for the NZ Family Law Section to invite Professor Jeremy Waldron as the keynote speaker for the 2011 Family Law Conference, held in November in Auckland. Professor Waldron's theme was "dignity and respect within the family law – what does it mean?" He offered an expansive view that was refreshing in what has seemed to be a fiscally driven family law reform process. If we seek to honour and respect the human dignity of every man, woman and child before the Family Court, how would we proceed? What would we do differently? There is something about the

universality of human dignity as an essential element of the human condition that resonates with the work that Brainwave does.

The conference was an ideal forum for Dr Simon Rowley and I to present a paper about wiring the brain (parts of which are reproduced in this newsletter). Sharing the neuroscience of infant development illuminates what is already instinctively known and underscores the important work that the Family Court does in seeking to protect children from violence, psychological abuse and neglect.

Delay in the Family Court is a matter that the current reform process must address. Time is of the essence. We now know that the essential task in the first year of human life is to co-create a secure attachment with a loving adult. There is a critical time period within which to achieve this and if the process is interrupted (or prevented) by parental conflict, chaos or neglect the Court must be empowered to act quickly.

The complexities of attachment theory are not well understood by many Family Court practitioners, who are assigned with pulling together a workable care arrangement for children of stressed, grieving parents who are themselves caught in the upheaval of separation.

In that context it is helpful to consider a multi-disciplinary approach: in February 2012 the Infant Mental Health Association Aotearoa New Zealand is holding a 3 day practice-based conference at Te Papa. The aim is to examine the attachment relationship. Included is a workshop on the infant in the legal system, discussing ways to support infants and their families so courts can attend to their emotional health and relationship needs: www.imhaanz.org.nz.

The Family Court is 30 years old. When it was formed in 1981 we had far less access to the science of infant brain development than we have now. Thus we have an opportunity to utilise this information in the current review of the Family Court process. Indeed if we are to honour and respect the human dignity of our babies and infants who are forced into a Family Court process, it is essential that we do so.

Lope Ginnen

Brainwave Trust Aotearoa is a registered charity that educates the community about the latest research in early brain development from a diverse range of fields including neuroscience, genetics, epigenetics and psychology. We now know that a child's early experiences determine how their brain develops and whether they have the best chance of becoming capable, contributing, well adjusted adults.

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Thank You

A number of organisations have supported us with funding for projects or pro bono services over the last year. In particular we thank:

- ASB Community Trust
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- The Sir Thomas and Lady Duncan Trust
- The Tindall Foundation
- The Todd Foundation
- Thomas George Macarthy Trust

We also thank our wonderfully generous individual donors who make it possible for us to keep going.



Why the EARLY YEARS Count

A child's experiences in early life have a profound effect on the architecture of their brain and this helps to customise each child's brain to deal with the environment they grow up in.

A new DVD, "Why the Early Years Count", is available for purchase. The information is presented in a format that is suitable for people working with children and/or families with children. The viewer will gain an understanding of the latest findings from brain research and the important implications of this knowledge on the physical, social, intellectual and emotional development of our children.

An impressive group of experts present knowledge from the past decade of research into brain development. The group includes:

- **Dr. Bruce Perry**, child psychiatrist, neuroscientist and internationally - recognised authority on children in crisis the Senior Fellow of Child Trauma Academy in Houston, USA and adjunct Professor in the Department of Psychiatry and Behavioral Sciences at Northwestern University, School of Medicine in Chicago;
- **Professor Sir Peter Gluckman**, Chief Science Advisor to the Prime Minister and founding director of the Liggins Institute, University of Auckland;
- **Dr Simon Rowley**, neonatal paediatrician at Auckland City Hospital and in private practice;
- **Judy Bailey**, journalist, writer and broadcaster, Brainwave founder and Trustee;
- **Lope Ginnen**, Barrister and Chairperson of Brainwave.

The film is narrated by Mike McRoberts and produced by The Producers in association with Keirfilm Productions Ltd, TVNZ and expert input from Sue Younger.

Brainwave is grateful to the Todd Foundation who funded the production of this DVD and to the families that took part in this film.

The DVD price is \$30 incl. GST, packaging and postage.

To order, email info@brainwave.org.nz or go to www.brainwave.org.nz.

Donations

Please help us. Brainwave is a registered charitable trust (CC40312) and relies on your support. Your donation will help us to make a difference in the lives of our nation's children. We welcome all donations to support our work - thank you.

Donations over \$5 are tax deductible and will be receipted.
VISIT www.brainwave.org.nz & click to donate.