Closing the gap in early child development outcomes in the Northern Territory

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The recent past …

- *Little Children are Sacred* Report (Wilde & Anderson) 15 June 2007
- *NT Emergency Response* (Australian Government) 21 June 2007
- *Working Future* (NT Government) May 2010
- *NT Emergency Response* Redesign (Australian Government) 21 June 2010
- *Growing them strong – together*: Report of the Board of Inquiry into the Child Protection System in the NT (Bamblett, Bath & Roseby) 18 October 2010
- *Stronger Futures* – May 2012
National “Closing the Gap” targets

- **0–4 years**: Halve the gap in mortality rates for Indigenous children under five within a decade.
- **4–6 years**: Ensure access to early childhood education for all Indigenous four year olds in remote communities within five years.
- **4–16 years**: Halve the gap in reading, writing and numeracy achievements for children within a decade.
- **15–64 years**: Halve the gap in employment outcomes within a decade.
- **17–24 years**: Halve the gap for Indigenous students in Year 12 attainment or equivalent by 2020.
- **Overarching target**: Close the gap in life expectancy within a generation.
55% of NT Indigenous children score below the national minimum standard.
NAPLAN Yr 3 Total Score* by Attendance: 2010
(NT 20 ‘growth towns’ & matched ‘like schools’ in Qld & WA)

(* NAPLAN Total score + Reading + Writing + Spelling + Grammar + Numeracy)

(McKenzie & Silburn, 2011)
NT ‘growth towns’ and ‘like’ communities in WA & Qld

NAPLAN Yr 3 Total Score by % English only speakers

NAPLAN Yr 3 Total Score by % residents with Yr10+ education

(* NAPLAN Total score = Reading + Writing + Spelling + Grammar + Numeracy)

(McKenzie & Silburn, 2011)
NT ‘growth towns’ and ‘like’ communities in WA & Qld

NAPLAN Yr 3 Total Score by weekly household income

NAPLAN Yr 3 Total Score by number of people per bedroom

(* NAPLAN Total score + Reading + Writing + Spelling + Grammar + Numeracy)
Developmental vulnerability at age 5

AEDI total development scores: Australia, 2009

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National mean

25–50 %ile

50–100 %ile

10%ile

25%ile

Aust

Indig

Non-Indig
Developmental vulnerability at age 5

AEDI total development scores: Australia, 2009

[Chart showing development scores for NT and Aust by Indigenous (Indig) and Non-Indigenous (Non-Indig) groups, with percentiles indicated.]
Developmental vulnerability at age 5

AEDI total development scores: Australia, 2009
Improving trajectories of development

Human Capability

Period of maximum brain growth and development of skills

Birth

5-6 yrs

7-8 yrs

10-11 yrs

AEDI Developmental readiness for school learning

YR3 NAPLAN Literacy & numeracy

YR5 NAPLAN Literacy & numeracy

Current practice

Opportunity
Eco-biodevelopmental basis of human development

Evolution of human health and capability over the lifecourse

The Basic Science of Human Development

Biology
Physiological Adaptations and Disruptions

Ecology
The Social and Physical Environment

Neuroscience
Learning, Behavior, and Physical & Mental Well-being

Health & Development
Life Course Sciences
Biological embedding of early experiences

Foundations of Healthy Development and Sources of Early Adversity

Gene-Environment Interaction

Physiological Adaptations and Disruptions

Lifelong Outcomes

- Health-Related Behaviors
- Educational Achievement and Economic Productivity
- Physical and Mental Health

Source: Shonkoff, 2010
Early adversity & development of self-regulation

Self-regulation defined as “the primary volitional regulation of attention, emotion and executive functions for the purpose of goal-directed actions” (Blair & Ursache, 2011)
Childhood self-regulation and adulthood outcomes adjusted for SES & IQ

(Source: Moffat et al, 2011)
Early Childhood adversity and risks for adult morbidity


Number of adverse childhood exposures in 3 categories:

Abuse: a) Physical, b) sexual, c) psychological. Household dysfunction: d) Member of child’s household with problem drinking/alcoholism, e) used street drugs, f) had a mental illness, g) attempted suicide; h) Mother treated violently; Criminality: i) Household member was imprisoned
Family life stress events:
Darwin & Palmerston Town Communities, 2010

[Source: Danila Dilba, 2010]
Substantiations of child maltreatment notifications by age, state & territory

Source: AIHW, 2008–09, Child Welfare Series Number 47
Brain development before birth

- Neurulation
- Neuronal proliferation
- Neuronal differentiation
- Neuronal migration
- Synapse formation
- Programmed cell death
- Synaptic pruning
- Myelination

Gestation (weeks): 4, 8, 12, 16, 20, 24, 28, 32, BIRTH, Infancy
Key influences on foetal brain development

- **Smoking** – Infant survival, SIDS, infant & child respiratory health, infant & longer term sleeping patterns, cognitive development and behaviour
- **Alcohol** – FAS & FASD (no safe threshold)
- **Maternal stress** – risk of child behavioural and emotional problems especially ADHD (poor attention & impulsivity), emotional over-reactivity, and language delay
- **Antenatal & perinatal depression** - increased risk of child behavioural and emotional problems
- **Under-nutrition** – IUGR, LBW & later risks for insulin resistance & obesity
Child growth and nutrition

Children aged < 5 yrs STUNTED

Children aged < 5 yrs UNDERWEIGHT

Children aged < 5 years WASTING

Children aged < 5 years ANAEMIC
Australian Early Development Index (AEDI): NT, 2009
% of children developmentally vulnerable on 2 or more AEDI domains

ABS remoteness category

- Outer regional centre (e.g. Darwin)
  - Aboriginal: 25.1%
  - Non-Aboriginal: 9.8%

- Remote (e.g. Alice Springs, Katherine)
  - Aboriginal: 41%
  - Non-Aboriginal: 8.8%

- Very remote (e.g. Nhulunbuy)
  - Aboriginal: 53.9%
  - Non-Aboriginal: 10.1%
NT Early childhood series

Responsive parenting
- i.e. safety, interactive care, & monitoring, language & cognitive stimulation

Responsive family support & day-care
- i.e. parenting information & support with structured play & learning of pre-literacy skills

Responsive schools:
- Active community engagement
- Relevant & engaging curriculum
- Quality teaching
- High expectations & opportunities for skill development
- Recognition of achievements & participation
- Provision for students with special needs

Communities supportive of families & child-rearing
- i.e. Freedom from poverty & violence
- Access to health-care
- Availability of affordable & nutritious food
- High priority given to promoting the well-being of families & children

Quality of “experience-based” brain development

Readiness for school learning
- Physical health
- Social & emotional development
- Language & other pre-literacy skills

School engagement, academic & life skills
- Sense of belonging
- Problem solving skills
- Social competence
- Reflective awareness
- Autonomy & self-efficacy
- Sense of purpose

Health & participation
- Positive socialisation
- Adaptive coping skills
- Meaningful participation (social, civic & economic)

Good quality nutrition (pre-conceptually, in pregnancy, childhood & adolescence)

Conception
Birth
School entry
10 & 20 school
Workforce entry

Household stability

Carer employment

Home ownership

Family’s cultural, economic & civic participation

Family involvement with child’s school & learning

Responsive family
support & day-care

Human (child) development
Context of NT educational reform

- Self-determination & education
- Collins review (1999)
- Remote learning partnership agreement (2001 – 2011)
- Amalgamation of shires (2006)
- Northern Territory Emergency Response (2007)
- Transforming Indigenous Education (2008 -)
- Ludwig Sarra Review (2009)
- The AG Remote Service Delivery NPA & NTG ‘Working Future’
  - Education, care and training service delivery to Indigenous students in the 20 Territory Growth Towns and surrounding small communities, homelands & outstations.
  - 24% of the total NT student cohort, 60% of the total Indigenous student cohort, half enrolled in growth town schools and half in the surrounding small communities, homelands and outstations.
Guiding principles

• Children’s future life prospects are shaped markedly in their early years even before commencing school.

• Strong local education governance, representative of all community stakeholders, is crucial to success.

• Students learn best when they are amongst their peers and their needs, cultural background, perspectives and interests are reflected in the learning program.

• Place based variations to the model, negotiated between community and DET, are expected.

• Real job pathways must be available for students.
Critical elements of the SSBF model

Transformational change through:

1. Place-based, school-community partnerships
   - Enabling schools to become more responsive to community needs, priorities and aspirations (RLPAs & SCPAs)
   - Meeting DET and national priorities for remote service delivery to improve Indigenous education outcomes (e.g. NPAs)

2. A life-span human development approach
   - Learning for life (i.e. birth to jobs and/or further education)
   - VET in schools & jobs guarantee for students completing year 11
   - Lifelong learning (i.e. 3-9 program & VET)
Critical elements of the SSBF model

3. New administrative and business management model
   – Strengthening school leadership, staff and school-community partnerships
   – Facilitating school-community governance & planning
   – Enabling greater devolution of responsibility for decision making

4. Schools delivering and coordinating preventive early childhood services and family support
   – FaFT (Care for Child Development, nutrition, ear health & hygiene, preparation for transition to school etc.)
   – Child and Family Leaders positions and development of Integrated Child and Family Services

5. Improved staff selection, induction, training & support
   – Principals, teachers and investment in training and employment pathways for local staff
   – Stronger Smarter leadership training for key staff
Stage 1:
Jabiru/Gunbalanya, Groote Eylandt; Yirrkala; Elcho Island

Stage 2:
Ntaria; Warlpiri Triangle; Maningrida; Ngukurr; Galiwin’ku; Borroloola; Papunya; Kalkarindji/ Dagaragu

Stage 3:
Ramingining; Numbulwar; Milingimbi; Gapuwiyak; Elliot and Alekerenge.
**ACTIVITIES**

- Monitoring & surveillance
  - Identify key outcomes, appropriate measures & populations of interest
- Research & development
  - Identify the relevant enabling and impeding factors and consequences
  - Develop and test measures to address these factors
  - Create/identify best methods and models for change
- Capacity building
  - Support & develop the local school/community planning and data infrastructure
  - Identify skills & needs
- Communication
  - Identify correct channels, local protocols, forums and audiences
  - Respect key beliefs, cultural and language issues in communication
- Partnership
  - Identify and engage strategic partners
- Leadership
  - Engage local champions and convene suitable forums to advance the planning, action and evaluation agenda

**OUTPUTS**

- School-community progress monitoring systems established
- Regular community & DET reporting
- Evidence based models & practice are identified
- Strategies to implement new models and practice are developed
- Best implementation practice is put into action and supported
- Strong local champions support the school-community improvement and accountability agenda
- Performance measures and result monitoring processes are developed and implemented
- Web-based IT systems in place to facilitate data entry & reporting
- Training and technical support available to build local capacity
- Community feedback and joint local planning forums build shared vision and shared commitment in the school-community partnership
- Other community, NGO and government agencies actively engage in the results accountability processes

**OUTCOMES (RESULTS)**

- Intermediate
  - Changes in school practice are sustained
  - Changes in how schools work with other agencies and their communities takes root
  - Community involvement with children’s school learning is maintained
  - Access to leaders and involvement of key community groups

- Longer-term
  - Optimised use of locally available skills, community knowledge and other resources
  - Improved work satisfaction, retention and efficacy of school staff & leaders
  - Improved child and youth education, health, social and vocational outcomes
  - Improved community cohesion, cultural continuity and prosperity
DET System Level Evaluation
(Overview of implementation and outcomes of the Strong Start, Bright Futures roll-out)

Data to support NT reporting on National Partnerships funding for:
- a) Indigenous Early Childhood Development;
- b) Low SES School Communities;
- c) Improving teacher quality;
- d) Literacy & Numeracy;
- e) Early Childhood Reform etc

West Arnhem College (Gunbalanya/Jabiru)
- Place based school-community monitoring & planning system

Ngakwurra Langwa College (Alyangula/Angurugu/Umbakumba/Milyakburra)
- Place based school-community monitoring & planning system

Shepherdson College ...
Place based school-community monitoring & planning system
Place-based planning & evaluation

DET Information
(student, school & staffing data)

DH&F Information
(Health status)

DLG&H / Shires
/community infrastructure & housing

School Information
(From school admin, APIF, RLPA & other available school information plus brief staff questionnaire)

Students
(engagement and progress in school learning)

Community Information
(From ABS, RSDU, ROC etc)

Views of families & community
(Collected by household survey by Menzies)
Healthy pregnancy:

Quality of “experience-dependent” brain development

Children’s readiness for school learning

School engagement, academic & life skills

Health, wellbeing, employment, participation

Human (child) development

Conception  Birth  School entry  1st & 2nd school  Early adulthood
Carer employment → Household stability & housing security → Family’s cultural, economic & civic participation

Community characteristics and wellbeing, adequacy of housing & resources for families with children

Healthy pregnancy

Quality of “experience-dependent” brain development

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Health, wellbeing employment, participation

Communities supportive of families & child-rearing i.e. Freedom from poverty & violence; Access to health-care; Availability of affordable & nutritious food; High community priority given to promoting the well-being of families & children

Human (child) development

Conception

Birth

School entry

10 & 20 school

Early adulthood
% children born with low birth weight

% mothers having 3 or more antenatal checks

% mothers smoking during pregnancy

% pregnant mothers drinking alcohol

% children breastfed to 6 months

% infants aged <6 months hospitalised in past year
Housing circumstances

- % children in overcrowded houses (4+ people per bedroom)
- % children in housing needing major renovation
- % children living in households with rental stress
- % children in households where they are exposed to passive smoking
- % children in households where alcohol overuse is a household problem
- % children in households where gambling is a household problem

0% 20% 40% 60% 80% 100%
Family involvement with school & child’s learning

- % parents who actively make sure that their child gets to school every day
- % T-3 parents who regularly read or tell stories with their children
- % parents who assist with the school breakfast / lunch programs
- % parents who have met with their child’s teacher/AT in the last term to discuss their child’s progress & needs
- % parents who report they are made to feel welcome at their child’s school
- % parents who report that they feel the school is responsive to their child’s cultural background & heritage

Return to developmental pathway diagram
School participation and achievement (1)

- % year 1 students with 80% + attendance
- % year 2-3 students with 80% attendance
- % year 4-7 students with 80% attendance
- % year 3 students at NAPLAN benchmark in reading
- % year 3 students at NAPLAN benchmark in writing
- % year 3 students at NAPLAN benchmark in language conventions
- % year 3 students at NAPLAN benchmark in numeracy

Next chart
School achievement (contd)

% year 5 students at NAPLAN benchmark in reading
% year 5 students at NAPLAN benchmark in writing
% year 5 students at NAPLAN benchmark in language conventions
% year 5 students at NAPLAN benchmark in numeracy
% year 7 students at NAPLAN benchmark in reading
% year 7 students at NAPLAN benchmark in writing
% year 7 students at NAPLAN benchmark in language conventions
% year 7 students at NAPLAN benchmark in numeracy

Return to developmental pathway diagram
Transition to training work & further education

- % students proceeding to high school
- % students enrolled in VET in school
- % students completing VET in school
- % students proceeding to apprenticeship/ training programs
- % students completing year 10
- % students completing year 11
- % students completing year 12
% children born with low birth weight

% mothers having 3 or more antenatal checks

% mothers smoking during pregnancy

% pregnant mothers drinking alcohol

% children breastfed to 6 months

% infants aged < 6 months hospitalised in past year
National “Closing the Gap” targets

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4–6 years
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15–64 years
Halve the gap in employment outcomes within a decade

17–24 years
Halve the gap for Indigenous students in Year 12 attainment or equivalent by 2020

Overarching target
Close the gap in life expectancy within a generation