Western Australian Mental Health Court Liaison Services For Indigenous Australians

Dr Marshall Watson
Psychiatry Registrar
Wellington Street Clinic
Introduction

- WA-CFMHS provides mental health court liaison to all courts in the state.
- High prevalence of mental illness of people in both prison and court population.
- Indigenous Australians make up less than 3% of the Australian population and between 20-40% of prison population.
Background

- Past and ongoing trauma translates into lower social determinants of health.
- PTSD, Psychosis, Personality disorders, Substance abuse, Self harm, Identity.
- Reduced access to appropriate health services.
- Culturally Diverse
Indigenous Australians

- Wary of Mental health and Justice services.
- Previous negative experience
- Kept “in house”, “Right of passage”, Shelter, food, accommodation, Family
- Significant medical co morbidity.
- Present end stage or in crisis
Court

- Impersonal
- Anxiety
- Cultural alienation
- Potential further dislocation
Court Liaison

- Involves the assessment of mentally ill offenders and making recommendations to the court with regard to mental health issues.
- Link with, broker and advocate for appropriate care.
- Broaden our scope to include family and community.
Violence and Mental Illness

Dr Adam Brett
March 2009
Smoking causes fatal lung cancer
Bad Parenting

1. The mother duck is leading her ducklings.

2. One of the ducklings is caught by the grate.

3. The mother duck is trying to save her duckling.
I hate it around here.
The crime, the violence, the drugs.
Funny, those are the things I like about it.
Mental Illness in Western Australian Prisons: A Mixed Methods Study of Staff and Male Prisoner Patient Experiences.

Presentation by Kate Hancock
Email: Kate.hancock@correctiveservices.wa.gov.au
Phone: 9264 1297
This PhD Research

Central Research Question:

What are the experiences of staff and prisoner patients in Western Australia in relation to mental health service provision and mental illness in the prison environment?

Research Objectives:

- To provide insight into the issues facing prison staff when working with prisoners who experience mental illness [1].
- To gain insight into the attitudes and feelings of staff in relation to current services, treatment and facilities.
- To explore the issues, experiences and needs of prisoners who are diagnosed with mental illness in custody in Western Australia.
- To develop an understanding of experiences, related to mental health and illness, in urban and regional prisons in Western Australia.

Mixed Methods Considerations:

- To what extent do the staff and prisoner patient findings support each other across the qualitative and quantitative phases? What insights can be generated, and meanings draw out, by merging and exploring both forms of data?

[1] That is, Prisoner patients identified by the Department of Justice as having a Psychiatric Alert on TOMS and as diagnosed in the DSM-IV.
**Methods**

**Phase One**

**QUAL data collection**
- Procedures: One-on-one Semi-structured interviews (n = 17)

**QUAL thematic analysis**
- Procedures: Transcription, Coding and Thematic development

**QUAL findings and results**
- Procedures: Consider themes/quotes as survey questions, Cut quotes for each question and overall design

**Phase Two**

**INTERPRET findings and develop/inform survey**
- Procedures: Postal staff survey (n=120), face-to-face with prisoners (n=48)

**QUAN data collection**
- Procedures: SPSS analysis

**QUAN data analysis**
- Procedures: Descriptives, ANOVA, Non-parametric

**QUAN findings and results**
- Procedures: Interpret findings, Summarise into results section

**Overall results, interpretation and integration**
- Procedures: Summarise findings, Integrate in discussion

**Products:**
- QUAL: Filed notes, coded text, Interpretation into Results section
- QUAN: Description of themes, Two survey’s - Prisoners and Staff, Numerical item scores, SPSS analysis print outs, Thesis results section

Diagram modified from Creswell and Clark (2007)
Phase One - Qualitative Key Themes

1. Resources and Funding
   - Staffing Issues
   - Enhanced Services

2. Education and Training
   - Officer Training
   - Other Staff Training
   - Prisoner Patient Education

3. Management and Consultation
   - Policy and Operational Guidelines
   - Management and Consultation

4. Current Service Provision and the Prison Experience
   - Institutionalisation
   - First Encounter with Services
   - Ongoing Access to Services and Facilities
   - Confidentiality, Trust, Surveillance and Control
   - Support Networks
   - Different Treatment/Bullying
   - Disciplinary Action
   - Assessment
   - Crisis Care and Observation Cells
   - General Issues, Problems, Experiences and Attitudes
   - Increasing Numbers of the Mentally Ill
   - Transition and Community Care
   - What Works?
   - Difference Treatment, Bullying and Punishment
   - Regional Prisons

Similar themes emerged from the staff and prisoner patient interviews.

Qualitative analysis organised into four overarching themes (these were then coded into additional themes).
Phase Two Quantitative Findings

Prisoner Patient Findings

- Over 90% of the sample –
  - strongly agreed or agreed that mental health education is very important.

- Over 80% of the sample –
  - strongly agreed or agreed that prison is becoming the new kind of institution for people with mental illness.
  - felt that people with mental illness are vulnerable in prisons.
  - The majority of the sample strongly agreed or agreed that it would be good to have counselling and art therapy.

- Over 70% of the sample –
  - agreed that for people who are unwell the current system is failing.
  - strongly agreed or agreed that medical staff are helpful and understanding.
  - strongly agreed or agreed that they would like to have more input into their treatment.

Staff Findings

- Over 90% of the sample –
  - strongly agreed or agreed that the prison they work in does not have the appropriate facilities to be managing Prisoner patients with mental illness.
  - felt it is important to make time to listen to Prisoner patients.
  - strongly agreed or agreed that the initial health assessment is sensitive to mental health.
  - strongly agreed or agreed that training in mental health is vitally important, and that all staff need more training.
  - strongly agreed or agreed that additional psychiatrists are needed.

- Over 80% of the sample –
  - strongly agreed or agreed that prison is becoming the new kind of institution for people with mental illness.
  - strongly agreed or agreed that new psychiatric hospital for clients needs to be built.

- Over 70% of the sample -
  - strongly agreed or agreed that the interface between health and justice needs to be reviewed.
Implications for Service Provision and Conclusion

Implications for Service Provision

- Need to link theory, research, policy and practice (and consideration for future research)
  - Some improvements are small in nature but will have large implications for services
    - i.e., recruiting and maintaining adequate nursing levels
    - i.e., providing education and programs to staff and prisoner patients
  - Others improvements require a committed response from government and government agencies to address the current deficiencies
    - i.e., a review of prisoner mental health services with a view to moving away from the current community model to an integrated correctional health module of service delivery.
    - i.e., new infrastructure and psychiatric facilities

Conclusion

- Mixed methods proved to be an insightful way to explore the topic -
  - Time consuming
  - Difficult to access participants and two stages of recruiting
  - Consideration for the participant population
  - Many findings were strongly supported in the research literature
  - Varying experiences
  - Multi-disciplinary and multi-faceted services required
Screening Prisoners

A potential research project

Alexandra Welborn

MBBS (UWA) DMJ(Clin) GradCert FBS  FRACGP  FRANZCP
Melbourne Assessment
Prison

- Over 5000 reception assessments per year
- Performed by Forensicare Mental Health nursing staff
- Triage the prisoners to a level of psychiatric care
  - P1 - Stay at MAP
  - P2 - May go to the MRC
  - P3 - Any Prison

Reference: Victorian Institute of Forensic Mental Health, annual report
Suicide and Self-harm in prison

- Remandees are overrepresented in inmate suicides.
- UK data - > 40% of suicides occurring within the first month
- Australia - (Dalton, 1999) 48% of prisoners were on remand at the time of death.
Clinical Forensic Medicine

- “Live” forensic work
- Examination of the body
- Bruises, abrasions, incised wounds, puncture marks, tattoos, signs of physical neglect
- Injury interpretation performed for medico-legal purposes
Hypothesis

- Combining the results of mental health screening on reception WITH the results of a clinical forensic examination may provide valuable information to indicate risks of adverse outcomes.
- Plan would be to prepare a pilot study to determine whether a larger prospective data-linkage study would be of benefit.
Reducing impulsive behaviour in repeat violent offenders using a Selective Serotonin Reuptake Inhibitor

A/ Professor Tony Butler  
(National Drug Research Institute)

A/ Professor Peter Schofield  
(Hunter New England Health)

Professor David Greenberg  
(NSW Justice Health)
Background - violence

- Violence is among the leading causes of death and disability for young people worldwide.
- Over 170,000 recorded assaults in 2006 in Australia.
- Cost of violence in Australia is considerable - assault costs approx. $1.4 billion (or $1,800 per assault).
- Link between impulsivity and violent crime is well established. Studies have found recidivists have higher impulsivity scores.
- Reduced levels of brain serotonin (a neurotransmitter) have been correlated with aggression and impulsivity in animal studies, young men with personality disorder, psychiatric patients, and violent offenders.
- Selective Serotonin Reuptake Inhibitors (SSRI) are a class of anti-depressants which regulate brain serotonin.
Feasibility study - 2008

- 30 patients recruited at 3 NSW local courts by Court Liaison Service
- Inclusion criteria:
  - men; >18 years; consent; >= 2 prior convictions for violent offences; >70 on the Barratt Impulsiveness Scale
- Administered Sertraline (Zoloft) up to 100mg/day for 3/12
- Assessed at 1, 2 and 3 months
- 17 completed intervention, 3 current, 10 dropped out
- Outcome measures:
  - Barratt Impulsiveness Scale
  - Beck Depression Inventory
  - Anger, Irritability & Aggression Questionnaire
“This medication has changed my life.....I wish I’d been on it years ago. I can now spend more quality time with my daughter and my relationship has improved. When my partner drives I usually swear and get aggressive, but the other day after a long drive we arrived home and both noticed that I hadn’t got agitated once. I’ve stopped smoking pot and have reduced my coffee intake from 15 cups per day to 1. My sleep has improved and I would strongly recommend this medication to anyone. I’ve experienced some side-effects but they are worth it for my current mental state and reduction in impulsivity.

(L17)
HoPE
Health of Prisoner Evaluation
A pilot study of Prisoner Health and Well-being
HoPE was designed to;

- Develop a standardised instrument for use in the regular reporting of national prisoner health;
- To complete a pilot prisoner health audit in a male and female Western Australian prison;
- To provide useable information for government and major stakeholders.
## Participants

<table>
<thead>
<tr>
<th></th>
<th>Indigenous</th>
<th></th>
<th>Non Indigenous</th>
<th></th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>(38)%</td>
<td>34</td>
<td>(62)%</td>
<td>55</td>
</tr>
<tr>
<td>Male</td>
<td>22</td>
<td>(24)%</td>
<td>69</td>
<td>(76)%</td>
<td>91</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td>(29)%</td>
<td>103</td>
<td>(71)%</td>
<td>146</td>
</tr>
</tbody>
</table>
Discrete Sections

- Prisoner Demographics
  - Age, gender, family situation, living and employment situation before incarceration
- General health and wellbeing
- Dental health
- History of illness and vaccinations
- Exercise and Injury
- Psychiatric and psychological history
- Suicide and self harm
- Alcohol and gambling
- Drug use and drug treatments
- Contact with family
- Sexual behaviour and attitudes
- History of sexual assault, sexual abuse and sexual violence
- Smoking
- Tattooing and body piercing
The Future

Short term Goals

- Flaws identified and rectified
- Funding for statewide audit

Long term goals

- Regularly audit
- Longitudinal data
- National audit of prisoner health
Exploring the pathways to contact with Juvenile Justice: developing a profile of the risk and protective factors to support a strategy for change
JUVENILE DELINQUENCY THEME: RESEARCH AIM

• To develop a profile of the developmental, health, socio-economic, racial and demographic factors associated with risk, protective and resilience factors that contribute to juvenile delinquency
OBJECTIVES

• Identify the health, social, educational, psychological and economic factors that increase the risk or protect a child’s potential to have formal contact with the juvenile justice system.

• Identify factors that have the potential to intercept the trajectory of a child’s progression to juvenile delinquency.

• Investigate the intergenerational affect of family violence, abuse and neglect.
  – Consider how parental experience and DCP family history contribute to delinquency
RESEARCH QUESTIONS

1. What are the parental and family characteristics such as parental health, mental health, family violence, social, and economic factors that influence a child being associated with the juvenile justice system?

2. What are the key individual health factors that are predictors of juvenile delinquency?

3. What is the pattern and interaction between the achievement of benchmark standards in literacy and numeracy, and delinquency?

4. Does the effect of school performance, attendance, suspension and school behaviour (victim/or perpetrator of bullying, assault) increase the risk of juvenile delinquency?

5. Does contact with child protection services (protection & care orders, child abuse and neglect) interact with other risk and protective factors associated with juvenile delinquency?
Data Linkage

Linking data from the following databases:

• Department of Health – Midwives database, Hospital morbidity data system, Mental health registry (mother & child information).
• Department of Corrective Services
• Department for Child Protection
• Department of Education
• WA Police
• TICHR – Disability database
METHODS

Cohort

• All births of all parents who identify as Aboriginal in Western Australia between 1980-1996, inclusive

• Children who have come into contact with the juvenile justice system from 1996 to 2007 inclusive, in Western Australia
METHODS

Qualitative

• Photo-voice – 10 young people (17 to 25 years of age) document their life experiences

Quantitative

Data linkage will be undertaken by the Data Linkage Unit

• Descriptive and analytical analyses
Considerations for therapy with Indigenous families and their children: The meeting of the dreamtime, reconciliation and systemic intervention.
Presentation Team

Phil Narkle, Aboriginal Team Advisor
MILO, MST Clinician
Family systems theory suggests that the individuals within a family form a complex pattern of interpersonal interactions that are dynamic in nature and which in turn govern the interactions of individual members (Minuchin, 1974).

Biopsychosocial Model (Bronfenbrenner, 1979). From this perspective an individual psychological health and adjustment is set within the interplay of biological determined characteristics, their stage of cognitive, social or emotional development, their interpersonal context (family or marital system) and broader community systems in which they interact.

These perspectives have a close fit to Aboriginal understanding of an individual imbedded in broader family, country and the dreaming.
About MST

The program treats known causes of juvenile offending behaviour:

The program uses the strengths in all these systems to facilitate change.
ISP working with Aboriginal people

- Cultural consultant (ATA) providing cultural training and guiding clinical practice
- Home based model of service delivery
- Small case load (4-6 families)
- Flexible working hours with 24/7 roster availability for support
- Small Teams – 1 x Supervisor; 3 x clinicians; 1 x ATA
- ATA vouches for program and clinician “relationship bridge”
- Empower parents to drive change (ID goals, strategies and barriers)
- Sustainability beyond welfare and individual change.
- Problem solving skills, Sequencing events and behavioural experiments
Harley offending
Harley has Tourette’s Syndrome and emphysema.
Daily drug binging (Solvents, Alcohol, Cannabis, Tobacco)
Borderline intellectual disability
Family Cultural dislocation and confusion
Mother complex PTSD (3X extreme DV incidents)
Spiritual Matters (Spiritual attack)
Daughter in DV spends time at house with 3 children
Father ongoing DV toward Mother (father lives around the corner).
Father uses children to engage with mum (stalking).
Father frequently intoxicated.
Diffuse Boundaries Sarah+children discuss problems.
Sarah manages Harley’s medication regime
Father & Harley have history of physical altercations.
Father provides Alcohol and cigarettes to Harley.
Father attempted suicide during intervention.
Daughter attempted suicide during intervention.
Dealing with Aboriginal Spiritual matters in an Urban Context

• Cultural Dislocation of Urban Aboriginal people.
• Diversity of ‘Aboriginal Culture’
• Borrowing spiritual meaning and practice
  • From other Aboriginal groups/country areas
  • From Christianity
• Mothers belief that spiritual matters were contributing to Harley’s condition, daughters and mothers condition. (Hearing sounds, seeing faces, Mumurri attacks, cutting of hair by Mobarn man).
Clinical Considerations

Existential clinical Practice. Working within a families understanding.

Use of cultural advisors. Collaborative relationships in clinical work.

Concrete relationship links within systemic levels (Morgan, et al., 1997).

Boundary Challenges in working systemically

  Clinician being an Uncle or Auntie (in the relationship network map)
  Case Closure but relationships continues.
  Woman’s and Men’s Business (jealousy, gender based topics, shame)

Clinician as an instrument of change

  Modeling & Situational learning (playing with children)
  The use of Stories, Metaphor and Art in clinical practice

Clinical Radar

  Assessing safety self and others
  Clear Targeting of Behaviour Outcomes and not getting lost in crisis.
From Broome to Berrima: Building Australia-wide research capacity in Indigenous offender health and health care delivery

Jocelyn Grace  Tony Butler  Ted Wilkes
Jocelyn Jones  Michael Doyle  Victoria Hovane
Steve Allsop  Dennis Gray  James Fetherston
National Health & Medical Research Council
Capacity Building Grant

• **Aims:**
  – develop research capacity in population health and health services research in areas of need;
  – develop capacity within teams of researchers by bringing in new expertise;
  – develop the capacity of less experienced researchers to become research leaders, particularly to increase Indigenous health research capacity.

• $2.3 million
• Five Year Programme of Research (2009 – 2013)

**Aims of this grant:**
• Increased research capacity in key health areas affecting the Indigenous offender population;
• Establish an Australia-wide health and criminal justice research network;
• Create better health services for Indigenous offenders;
• Improve the health and wellbeing of Indigenous offenders, and of those in the communities from which they come, and to which they return.
Multi-sited, Multi-disciplinary Collaborative Research

• Capacity building:
  – secondments to research centres
  – mentoring
  – collaborative research projects

• Indigenous and non-Indigenous Chief Investigators, Mentors and Team Investigator in various institutions in Western Australia, the ACT, New South Wales and Victoria:
  – NDRI, Institute for Child Health Research
  – AIATSIS, Winnunga AMS, NCEPH, AIHW
  – Black Dog Institute (UNSW), Hunter Mental Health
  – Onemda VicHealth Koori Health Unit
Areas of Research

• The impact of incarceration on Indigenous families and communities (WA, ACT)
• Antecedents of offending and juvenile offender health (WA, ACT)
• Models of care for Indigenous prisoners (ACT, WA)
• Blood borne viruses (national)
• Mental health (NSW, ACT, WA)
• Drug and alcohol use (WA)
• National prisoner health indicators project (national)
Sharing and Disseminating Findings

Sharing and disseminated findings to a wider audience through:

– annual symposia
– development of an on-line offender health research network
– publications in academic journals
– industry and community publications and other media (e.g. newspapers, TV).
Making the most of captivity

Marisa T. Gilles
Lizzie Swingler, Corryn Craven
Ann Larson

Department of Health
Government of Western Australia
Aim

Audit of all clinic records

- to assess quality of care provided against existing RACGP / other relevant healthcare quality standards
- to identify areas where health care might be improved
Method

- Cross-sectional paper based review of notes
- Focus STI, BBV chronic diseases
- Review of literature health care standards
- Analysis SPSS
Who are they?

- 90% male
- 86% Aboriginal
- 65% < 35 yrs
- 50% < 6 months
What is their health like?....

<table>
<thead>
<tr>
<th>Condition</th>
<th>Aboriginal inmates n=155</th>
<th>Non-Aboriginal inmates n=30</th>
<th>p-value, 95% CI</th>
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</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>28 (18)</td>
<td>3 (10)</td>
<td>NS</td>
</tr>
<tr>
<td>Diabetes</td>
<td>23 (15)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0</td>
<td>P&lt; 0.001 CI 0.03, 0.16</td>
</tr>
<tr>
<td>Asthma</td>
<td>17 (11)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5 (17)</td>
<td>P&lt; 0.001</td>
</tr>
<tr>
<td>IHD</td>
<td>16 (10)</td>
<td>1(3)</td>
<td>NS</td>
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<tr>
<td>Hepatitis C</td>
<td>7 (4.5)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6 (20)</td>
<td>P&lt; 0.001</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>5 (3.2)</td>
<td>1 (3.3)</td>
<td>NS</td>
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## Social determinants

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<tr>
<th></th>
<th>Aboriginal N0 (%)</th>
<th>Non-Aboriginal N0 (%)</th>
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<tbody>
<tr>
<td><strong>Prop doc smoking status n = 115 (62%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal n=95, 61% doc</td>
<td>85(89)*</td>
<td>14(70)</td>
</tr>
<tr>
<td>Aboriginal n=20, 67% doc</td>
<td></td>
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<tr>
<td><strong>Prop doc hazardously drinking prior to prison n = 119 (64%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal n=103, 66% doc</td>
<td>90(96)**</td>
<td>11(68)</td>
</tr>
<tr>
<td>non-Aboriginal n=16, 53% doc</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prop doc illicit drugs use n = 105 (57%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal n=83 54% doc</td>
<td>62(75)**</td>
<td>8 (36)</td>
</tr>
<tr>
<td>Aboriginal n=22, 73% doc</td>
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<tr>
<td><strong>Prop documented using IV drugs n = 105 (57%)</strong></td>
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</tr>
<tr>
<td>Aboriginal n=83 54% doc</td>
<td>21(34)</td>
<td>3 (38)</td>
</tr>
<tr>
<td>non-Aboriginal n=22, 73% doc</td>
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</table>
How did we do?

- **ID Screening**: >80% screened BBV/44% STIs within 4/52 – 71% within 1 yr

- **Hepatitis**: 23% of hep C - hep B vaccination

- **Vaccination**: 36% Fluvax 11% pneumovax
How do we compare?

What now?

- Issues are visible
- Focus on chronic disease management - care plans
- Electronic system introduced
- Focus on STI screening and vaccinations
Acknowledgements

- Department of Health and Ageing
- Dr Tim Moss, Dr Tony Butler, Liz Unwin
- Prison health staff- Heather Murray
- Dr Ralph Chapman

Balancing Drug Use and Parenting: Australian Data to Guide Expert Evidence in Family Court and Child-Protection Litigation

Greg Dear
Edith Cowan University
Target Areas of Justice System

• Areas of law:
  – Family Court litigation
  – Child-protection litigation
  – Family Violence Court (?)
  – Drug Court (?)

• Legal processes:
  – Judicial decision-making
  – Forensic process (investigation and testimony)
  – Trial consultancy
  – Preventing litigation (collaborative law, mediation)

• Support Services in Legal Context
Research Programme

• Mums on Speed:
  – Balancing the demands
  – Strategies used to minimise harm to children
  – Implications for expert evidence
  – Implications for support services

• L-T cannabis use in functional families:
  – Positive and negative impacts on parenting
  – Family processes
  – Implications for harm-minimisation
  – Implications for expert evidence

• Case Studies
Implications for Forensic Practice.

• Measuring harm minimisation practices and capacity for expert to obtain reliable data from sources other than the parent under examination.
• Evaluating social supports and Plan-Bs – social problem-solving competencies.
• Strategies for balancing against antisocial lifestyle.
• Level of dependence.
• Importance of emotional regulation competencies
• Partner – risk-assessment.
Aboriginal participation in court-based drug diversion in WA

• Identifying and Addressing Barriers

A Snapshot of preliminary research findings from an evaluation conducted for WA Diversion Program: Drug and Alcohol Office
WA Diversion Program (WADP)

- WA Diversion Program funded through the Council of Australian Governments Illicit Drug Diversion Initiative.
- Nationally Consistent approach to illicit drug diversion programs.
- Emphasis on early intervention illicit drug users.
- Opportunities to engage at all stages of the criminal justice process.
- Priority access to drug treatment.
- The programs include both police and court based diversion.
Indigenous people in the criminal justice system and WADP

- Research tells us that Indigenous people in the WA population are disproportionately involved in the criminal justice system.
- Despite this the number of Indigenous offenders entering diversion programs is relatively small.
- Why aren’t we seeing more Indigenous offenders in WADP programs?
- It is possible that barriers to successful program completion for Indigenous offenders exist?
The Research

• The research brief was to:
  – Investigate the barriers to Indigenous participation in the range of WADP court diversion programs, and;
  – Identify realistic and achievable actions that can be duplicated, implemented or developed at the state and local level to increase participation in the WADP by Indigenous offenders.

• The research was to be state-wide by region including Perth Metro area.
• In Sept 2008 Strategic Edge Consulting Australia were engaged by DAO
• The research captured < 70 consultants from a wide range of stakeholders

• Limitations:
  • sample relatively small as were sub samples.
  • Not possible to speak to offenders themselves.
  • Some stakeholders misinformed about WADP.
  • Availability of stakeholders sometimes limited
Preliminary research findings

*Emerging themes:*

- Client attitude and perception
- Stakeholder understanding and support
- Program staffing
- Cultural Factors
- Client circumstance and eligibility
- Program location, suitability and requirements
Need More information?

• Drug and Alcohol Office
  Lee Lombardi  A/Manager WA Diversion Program
  9370 0316  leelombardi@health.wa.gov.au
  Tania Lamond  Senior Project Officer
  9370 0342  tania.lamond@health.wa.gov.au

• Strategic Edge Consulting Australia
  9388 7778  mail@strategicedgeconsulting.com.au
OUTCARE
...providing a helping hand for a new beginning...

- Established in 1963.
- Provides support services for offenders, ex-offenders and their families.
- Our aim is to provide the opportunity for personal rehabilitation and to ensure individuals shall have the greatest opportunity for adjustment to the expectations of the community.
Blood Borne Virus and Sexual Health Program

STRATEGIES

- Develop collaborative working arrangements and links with health, justice and support agencies;
- Provide referral, advocacy and support services to ex-prisoners and their family in regard to issues linked to blood borne viruses and related diseases;
- Develop and/or distribute education and training resources for prisoners due for release, ex-offenders, and their family;
- Conduct education sessions for Outcare staff on blood borne viruses to highlight the importance of the program and encourage referral;
- Deliver blood borne virus and related topics education and training programs to prisoners due for release, ex-offenders, and their family;
- Refer clients to other Outcare services as appropriate to client needs;
- Co-ordinate a vaccination service at the Hakea Family Support Centre.
Emma Binnie (Project Officer) and Pam Pedersen (Immunisation Nurse);

- Vaccinations are offered on Tuesdays, 10:45 - 14:45;
- The vaccination service is offered free to clients;
- Accelerated program with Engerix, three vaccinations within a four week period (booster recommended in twelve months time);
- Service is private and confidential;
- Each client who is vaccinated is provided with an information pack, containing items such as a toothbrush, a razor, condom/lubricant, and various educational resources;
- The service has had 257 clients commence the program over approximately three years, with 55% of individuals completing all three vaccinations at the Hakea Family Support Centre.
- Individuals will approach vaccination staff to discuss other topics, such as mental health, domestic violence, child support issues and financial assistance. Clients are referred to the staff at the Family Centre for additional support and referral.
The vaccination puzzle: Piecing it together at Outcare

- All visitors to the prison must report to the Visitors Centre. Benefit of accessing a large number of individuals.
- Opportunity to interact with an often hard to reach high risk group of individuals.
- Ability to build rapport and encourage referral to other services and organisations.
- The service is free and confidential.
The vaccination puzzle: The pieces do not always fit

- Transient population – clients may move to another Visitors Centre before all three vaccinations have been completed;
- Often there are other priorities for individuals visiting the prison – health tends to be addressed last;
- There is a difficulty in approaching some individuals as it is a stressful and worrying time – we need to be aware of not imitating salesmen;
- Finding an immunisation nurse willing to work two days a week - Pam our current nurse can only attend once a week;
- Funding – vaccination program is purely funded by Outcare.
DUMA
Drug Use Monitoring in Australia Project
What is DUMA?

- DUMA in WA is a partnership between WA Police, ECU and the AIC

- Uses a voluntary and confidential self-report questionnaire to measures drug use among people who have been detained by police in preceding 48 hours.

- Data is collected from detainees over 3 weeks, 4 times per year, and participants are asked to provide a urine specimen to validate responses.

- Affiliated with International Arrestees Drug Abuse Monitoring Program - I-ADAM
Where is DUMA conducted?

- NSW: Bankstown and Parramatta
- Qld: Brisbane and Southport
- SA: Adelaide and Elizabeth
- WA: East Perth
- NT: Darwin
- VIC: Sunshine/Footscray
What is the data used for?

- To examine the relationship and correlation between drug use and specific offences
- To monitor patterns of drug use across time
- To help assess the need for drug treatment amongst the offender population.
- To provide police with a list of suburbs reported as containing drug markets (in WA)
Categories of information

• Past or current treatment for drug/alcohol abuse

• Establish degree of monetary earnings attributable to criminal activity

• Whether offences committed in previous 12 months are drug/alcohol related

• Weapons owned/possessed in previous 12 months
Additional information

• Addendums
  – Amphetamine use/amphetamine markets
  – Drug dealing
  – Drug driving/high speed pursuits
  – Gambling
  – Heroin
  – Stolen goods
  – Violence in the home
  – Weapons
  – Mental illness
  – Prescription drug abuse
  – Initiation into drug use
Background & Methods

- Determine the prevalence of HIV, Hepatitis B and Hepatitis C among Australian prison entrants
- Examine differences between prisoners and NSP survey participants
- Identify risk behaviors associated with exposure
- Determine the rates of hepatitis B vaccination
- Demonstrates national collaboration is possible
- Consecutive sample of reception prisoners over a 2 week period in May 2004 & October 2007
- All jurisdictions bar the NT
- Blood sample to test for HIV, HCV, HBV and risk behaviour questionnaire
History of IDU by state

<table>
<thead>
<tr>
<th>State</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>59%</td>
</tr>
<tr>
<td>QLD</td>
<td>59%</td>
</tr>
<tr>
<td>TAS</td>
<td>63%</td>
</tr>
<tr>
<td>WA</td>
<td>59%</td>
</tr>
<tr>
<td>Total</td>
<td>54%</td>
</tr>
</tbody>
</table>
HCV-Ab prevalence by state 2004 & 2007

<table>
<thead>
<tr>
<th>State</th>
<th>2004</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>42%</td>
<td>42%</td>
</tr>
<tr>
<td>QLD</td>
<td>29%</td>
<td>32%</td>
</tr>
<tr>
<td>TAS</td>
<td>48%</td>
<td>25%</td>
</tr>
<tr>
<td>WA</td>
<td>20%</td>
<td>21%</td>
</tr>
<tr>
<td>Total</td>
<td>37%</td>
<td>35%</td>
</tr>
</tbody>
</table>
HCV-Ab prevalence by state: prison IDU vs. prison non-IDU 2007

IDU

71% 53% 47% 37% 56%

non-IDU

3% 3% 6% 5% 3%

NSW QLD TAS WA Total

80% 60% 40% 20% 0%
HCV-Ab prevalence by state: prison IDU vs. community

<table>
<thead>
<tr>
<th>State</th>
<th>Prison</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>69%</td>
<td>68%</td>
</tr>
<tr>
<td>QLD</td>
<td>48%</td>
<td>50%</td>
</tr>
<tr>
<td>TAS</td>
<td>67%</td>
<td>57%</td>
</tr>
<tr>
<td>WA</td>
<td>33%</td>
<td>58%</td>
</tr>
<tr>
<td>Total</td>
<td>54%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Numbers of people: 124, 774, 75, 731, 18, 117, 48, 133, 265, 2422
## Hepatitis B Serology Results by State 2007

<table>
<thead>
<tr>
<th>State</th>
<th>No Evidence of Immunity</th>
<th>Vaccination Induced Immunity</th>
<th>Immune through Previous Exposure</th>
<th>Carrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>44%</td>
<td>27%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>QLD</td>
<td>49%</td>
<td>40%</td>
<td>8%</td>
<td>1%</td>
</tr>
<tr>
<td>TAS</td>
<td>64%</td>
<td>21%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>WA</td>
<td>54%</td>
<td>17%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>50%</td>
<td>28%</td>
<td>20%</td>
<td>2%</td>
</tr>
</tbody>
</table>

**Legend:**
- Blue: No evidence of immunity
- Green: Vaccination induced immunity
- Orange: Immune through previous exposure
- Red: Carrier

**Note:**
- NSW: New South Wales
- QLD: Queensland
- TAS: Tasmania
- WA: Western Australia
- Total: Combined results from all states
Treatment for Hepatitis C

- 15% of prison IDU had not been tested for hepatitis C (versus 7% in NSP survey)

- 12% of prison IDU had not been tested for HIV (versus 10% in NSP survey)

- Only 2 (1%) of HCV-Ab positive prisoners had ever received treatment for hepatitis C (versus 5% in the NSP survey)
Mortality in Western Australian offenders after release from prison:
a whole-population linked data study

UWA School of Population Health

WA Justice Health Research Forum, 2009
Acknowledgements

A/Prof David Preen
Prof Michael Hobbs
Ms Louise Stewart
Mr Steve Ridout
Ms Khadra Jama Alol
Dr Nita Sodhi

Dr Janine Calver
UWA Centre for Health & Ageing

Ms Anna Ferrante
UWA Crime Research Centre

Funding
National Health & Medical Research Council
Criminology Research Council
Western Australian Data Linkage System
(www.populationhealth.uwa.edu.au/welcome/research/dlu/linkage)

[Diagram showing data sets connected to a Master Linkage Key]

- Commonwealth Data
  - Pharmaceutical Benefits Claims
  - Medicare Benefits Claims
  - Aged Care

- WA core data sets
  - Electorat Roll
  - Births
  - Midwifes
  - Cancers
  - Mental Health
  - Deaths
  - Hospital Inpatients

- Other WA non-health data sets
- Health research databases

De-identified linked files of health data for research
Advantages of record linkage

• Allows study of large population-based samples
• Extensive longitudinal research possible
• Relatively time- and cost-efficient
• Reduces methodological problems relating to:
  - Loss-to-follow-up
  - Recall, selection, response and reporting bias
• Allows study of marginal effects of shift in practice
• Based on actual practice
• Improved privacy
Aims

- Describe the overall and cause-specific mortality of Western Australian adult offenders
- Examine whether there is excess mortality in adult offenders compared with the general WA non-offending adult population.
- Examine whether there is variation in mortality in different sub-populations of adult offenders based on:
  - Age & gender
  - Indigenous status
  - Socioeconomic status (SES)
  - Residential remoteness
  - Offence severity
  - Recidivism
  - Custodial setting
Study population

- Offender population
  - The offender study cohort consisted of 13,667 adult offenders released from prisons in Western Australia from 1994–2001 inclusive.

<table>
<thead>
<tr>
<th></th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous</td>
<td>887 (6.5%)</td>
<td>4,149 (30.3%)</td>
</tr>
<tr>
<td>Non-Indigenous</td>
<td>740 (5.5%)</td>
<td>7,891 (57.7%)</td>
</tr>
</tbody>
</table>

- Followed for a minimum of two years, to the end of 2003.

- Data
  - Imprisonment records
  - WA Mortality Register
  - Hospitalisations
  - Mental health registrations
Principal causes of post-release mortality in WA prisoners

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-inflicted injury</td>
<td>17.0</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>12.7</td>
</tr>
<tr>
<td>Diabetes</td>
<td>9.6</td>
</tr>
<tr>
<td>Alcohol &amp; drug dependence</td>
<td>9.6</td>
</tr>
<tr>
<td>Transport related</td>
<td>9.4</td>
</tr>
<tr>
<td>Other Injury or poisoning</td>
<td>6.9</td>
</tr>
<tr>
<td>Cancer</td>
<td>5.4</td>
</tr>
<tr>
<td>Hepatic &amp; renal</td>
<td>5.2</td>
</tr>
<tr>
<td>Respiratory</td>
<td>4.6</td>
</tr>
<tr>
<td>Homicide</td>
<td>2.5</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>1.5</td>
</tr>
<tr>
<td>Unknown</td>
<td>15.6</td>
</tr>
</tbody>
</table>

Total deaths = 531 (481 post-release)
Fig 1: Survival after release in Male and Female Aboriginal and non-Aboriginal prisoners
Standardised mortality ratios (SMR, 95%CIs) for all-cause mortality

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aboriginal</td>
<td>Non-Aboriginal</td>
</tr>
<tr>
<td>SMR 1</td>
<td>10.8</td>
<td>14.2</td>
</tr>
<tr>
<td>(95% CI)</td>
<td>(3.7 - 17.8)</td>
<td>(6.5 - 22.0)</td>
</tr>
<tr>
<td>SMR 2</td>
<td>3.4</td>
<td>17.8</td>
</tr>
<tr>
<td>(95% CI)</td>
<td>(1.2 - 5.6)</td>
<td>(8.1 - 27.5)</td>
</tr>
<tr>
<td>SMR 3</td>
<td>7.8</td>
<td>69.1</td>
</tr>
<tr>
<td>(95% CI)</td>
<td>(0 - 16.6)</td>
<td>(17.9 - 120.3)</td>
</tr>
</tbody>
</table>

SMR 1: Compared with general (non-offender) population
SMR 2: Compared with respective Indigenous and non-Indigenous (non-offender) populations
SMR 3: Restricted to 6 months post-release
Association between demographic and offence-related variables and post-release mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>HR</th>
<th>95%CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.955</td>
<td>(0.742 - 1.229)</td>
<td>0.719</td>
</tr>
<tr>
<td>Race&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.967</td>
<td>(0.810 - 1.156)</td>
<td>0.713</td>
</tr>
<tr>
<td>Age</td>
<td>0.993</td>
<td>(0.987 - 1.000)</td>
<td>0.038</td>
</tr>
</tbody>
</table>

**Socioeconomic status**

<table>
<thead>
<tr>
<th>Socioeconomic status</th>
<th>HR</th>
<th>95%CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (high)</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>2</td>
<td>1.177</td>
<td>(0.931 - 1.490)</td>
<td>0.174</td>
</tr>
<tr>
<td>3</td>
<td>1.066</td>
<td>(0.846 - 1.343)</td>
<td>0.586</td>
</tr>
<tr>
<td>4</td>
<td>0.984</td>
<td>(0.773 - 1.251)</td>
<td>0.893</td>
</tr>
<tr>
<td>5 (low)</td>
<td>1.417</td>
<td>(1.107 - 1.815)</td>
<td>0.006</td>
</tr>
</tbody>
</table>

<sup>a</sup>Women compared with men as the reference group.

<sup>b</sup>Non-Indigenous prisoners compared with Indigenous prisoners as reference group.
### Association between demographic and offence-related variables and post-release mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>HR</th>
<th>95%CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Offence severity level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (high)</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>2</td>
<td>1.027</td>
<td>(0.845 - 1.249)</td>
<td>0.786</td>
</tr>
<tr>
<td>3</td>
<td>0.676</td>
<td>(0.538 - 0.850)</td>
<td>0.001</td>
</tr>
<tr>
<td>4</td>
<td>1.223</td>
<td>(0.796 - 1.879)</td>
<td>0.359</td>
</tr>
<tr>
<td>5</td>
<td>0.703</td>
<td>(0.541 - 0.912)</td>
<td>0.008</td>
</tr>
<tr>
<td>6 (low)</td>
<td>0.912</td>
<td>(0.402 - 2.068)</td>
<td>0.826</td>
</tr>
<tr>
<td><strong>Number of incarcerations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>2</td>
<td>0.901</td>
<td>(0.734 - 1.105)</td>
<td>0.316</td>
</tr>
<tr>
<td>3</td>
<td>0.650</td>
<td>(0.496 - 0.852)</td>
<td>0.002</td>
</tr>
<tr>
<td>4</td>
<td>0.583</td>
<td>(0.401 - 0.846)</td>
<td>0.005</td>
</tr>
<tr>
<td>5+</td>
<td>0.458</td>
<td>(0.315 - 0.667)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Where to next?

- Morbidity (acute & chronic)
- Mental health
- Health service utilisation
- Health care costs
- Comparison to non-offending population
- Custodial vs. non-custodial
Thank you

For more information please contact:

A/Prof David Preen
Email: david.preen@uwa.edu.au
Ph: (08) 6488 1307

Prof Michael Hobbs
Email: michael.hobbs@uwa.edu.au
Ph: (08) 6488 1258

School of Population Health
The University of Western Australia
Patterns of offending over time, place and population: The contribution of record linkage to our understanding of criminal offending and schizophrenia

Frank Morgan¹ / Vera Morgan²

with G Valuri, A Ferrante, J Clare, D Castle, A Jablensky

¹ Crime Research Centre
² Neuropsychiatric Epidemiology Research Unit, School of Psychiatry & Clinical Neurosciences

The University of Western Australia

WA Justice Health Research Forum
Perth, 11 March 2009
## Sources of data and distribution of offending incl. minor offences

<table>
<thead>
<tr>
<th>Unlinked Mental Health data</th>
<th>Linked data N=52 091</th>
<th>Unlinked Offenders data</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA Mental Health register</td>
<td></td>
<td>WA Arrests database</td>
</tr>
<tr>
<td>N = 217 216</td>
<td></td>
<td>N = 388 082</td>
</tr>
</tbody>
</table>

### % within diagnostic category with at least one recorded offence (%, N)

<table>
<thead>
<tr>
<th>Selected diagnostic categories</th>
<th>% with offence record</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol &amp; drug related</td>
<td>48.5</td>
<td>22 046</td>
</tr>
<tr>
<td>Personality disorders</td>
<td>39.1</td>
<td>7 229</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>32.5</td>
<td>8 031</td>
</tr>
<tr>
<td>Affective psychoses</td>
<td>21.8</td>
<td>10 379</td>
</tr>
<tr>
<td>Neurotic disorders</td>
<td>16.3</td>
<td>34 437</td>
</tr>
</tbody>
</table>

### All diagnostic categories

| All diagnostic categories            | 24.0                  | 217 216 |

Sources of data and distribution of offending incl. minor offences:
- WA Mental Health register: N = 217 216
- WA Arrests database: N = 388 082
- Unlinked Mental Health data
- Linked data N=52 091
- Unlinked Offenders data
- Linked data N=52 091

Note: Unlinked data includes minor offences.
Is the justice system acting as a gate-keeper for the mental health system?

For the majority of persons with schizophrenia, onset of offending predated onset of illness - this proportion was increasing over time.

- Males contributed substantially to this trend.
- After a first arrest, first contact with psychiatric services was most likely to occur within a year of arrest and, in that year, the contact was most likely to occur within a week of arrest.
How does lifestyle impact on offending?

Routine activities

Routine activities of individuals with psychosis - very different from general population

Difficulties for those with psychosis
(National Survey of Low Prevalence Psychotic Disorders)
  n Marital status (64% single, never married)
  n Living alone (31%)
  n Employment (19% empl. at interview, 28% any time past year)
  n Govt. pension, other social benefits (85% past year)
  n Cannabis/other drug abuse/dependence
    (M 36% - pop 3%, F 16% - pop 1%)
  n Alcohol abuse/dependence
    (M 39% - pop 9%, F 17% - pop 4%)
  n Victimization (18%)

Source: Jablensky et al. ANZ J Psychiatry 2000, 34, 221-236
SOCIAL DISORGANISATION

- census measures of area-level
  - ethnic heterogeneity
  - mobility
  - disadvantage
  - inequality (all divided into quartiles)
- urbanicity (<8,000, 8,000 to 20,000, >20,000)

Figure 1. Arrest prevalence rate-ratios, 1985-1996.

Figure 2. Schizophrenia prevalence rate-ratios, 1985-1996.

Figure 3. Rate-ratios for the joint prevalence of schizophrenia diagnosis and arrest, 1985-1996.

Publ. in Morgan et al. (2008)
Trends and Issues in Crime and Criminal Justice
The use of linked registers has advanced our understanding of the relationship between offending and schizophrenia. From a psychiatric perspective, there are indications that early offending and/or a history of substance abuse may be early manifestations of schizophrenic illness confounding the determination of first onset of psychosis. From a criminological perspective, shared community factors related to social disorganisation may influence the timing and nature of offending, substance misuse and the expression of schizophrenia in those with vulnerabilities.
Investigating mental health in the WA adult criminal offender population

Dr. Nita Sodhi
PhD Candidate, School of Population Health, University of Western Australia

Supervisors: Dr. David Preen, Dr. Janine Calver & Prof. Matthew Knuiman
Funding body: National Health and Medical Research Council
RESEARCH AIMS

• Prevalence and incidence trends

• Associations between mental health outcomes & sentencing exposures

• Comparisons amongst offenders and with the non-offenders
  – Mental health outcomes
  – Mental health service use
STUDY DESIGN

• Longitudinal, whole-population, retrospective cohort study
• Data linkage between health and corrective services
• WADLS: MHIS, HMDS, Death, Electoral roll, Prison data
• ≥ 18 years
• Convicted in WA from 1985-1994
• Follow-up from first offence until 2007 or death
• Full electronic offending & medical history
• ~150,000 offenders
DATA ANALYSIS

- Descriptive analyses of demographics
- Multivariate regression analyses
- Potential confounders: age, sex, SES, residential remoteness & Indigenous status
- External comparison
- Internal comparison
UNIQUE FEATURES

• Comparison of pre- & post- sentence mental health outcomes and service use

• Internal comparison of subclasses of offenders

• Broad spectrum of mental illness

• Prolonged follow-up
FUTURE DIRECTIONS

• Potential policy implications for:
  – review of sentencing procedures
  – mental health screening at sentence
    • redirecting to alternative corrections or treatment
  – preparing for healthy release
    • rehabilitation/ education/ special skills/ life skills
    • pre-release health service contact & counselling services
  – intensive post-release health surveillance
    • short-term & long-term

• Designing effective interventions for:
  – improving post-release community integration
  – reducing recidivism
Does traumatic brain injury lead to offending behavior?

A/ Professor Tony Butler  
National Drug Research Institute

A/ Professor Peter Schofield  
Hunter New England Health

A/ Professor David Preen  
UWA, School of Population Health

A/ Professor Robyn Tate  
Sydney University, School of Rehabilitation Studies
Background

- Anecdotes from prison nurses in NSW & referrals to Hunter Area neuropsychiatry service
- Studies of offender populations suggest high numbers have histories of TBI
- TBI → “Trauma to the brain caused by an external force impinging upon the head and brain
- TBI can significantly affect many physical, cognitive and psychological skills
- Little recognition of neuropsychiatric influences in the criminal justice system
Hunter Forensic Head Injury project

- Screened 200 men on entry to prison
- 82% history of TBI of any severity (dazed/confused, LOC)
- 64% history of TBI with loss of consciousness (LOC)
- Median TBIs (any severity) was 3 (range 0-250)
- Assaults most common cause of TBI (37%)
- 52% reported some ongoing effect of the TBI
- TBI Associations*:
  - Illicit drug use in past 4 weeks (OR= 2.4, 1.1-5.1)
  - Expelled from school (OR= 2.5, 1.0-6.1)
  - Playing competitive sport (OR= 4.5, 2.0-9.8)
  - Psychosis (OR= 3.1, 1.1-8.5)
  - Depression (OR= 3.5, 0.99-12.78)

* Adjusted for age, education, drug use
Does TBI cause offending behaviour?

- Use WA Data-linkage system
- 5 year birth cohort (1970-1975)
- 30 years of follow-up
- Control for multiple social & health factors
- Outcomes of interest - offending, mental health, drug & alcohol
- 2 control groups – non-TBI individuals in WA, and family controls (sex, age)
- Importance – demonstrate need for early interventions to prevent trajectory to offending post-TBI
- NHMRC funded (2009-2010)
‘... a head injury leads victims to participate in more than half of the crimes that come to the attention of the police and that result in incarceration’

(Sarapata 1998)