

Methamphetamine and Infant Mental Health Challenges to Treating High-risk Mothers and their Infants

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Objectives

- Nature vs Nurture - intergenerational transmission of mental illness
- Co-morbidity of Mental Illness & Substance Abuse in Mothers using Methamphetamine
- Some early results of the effect of maternal methamphetamine and other drug use
- What we know from other research
- How, when and who needs treatment

Nature vs Nurture



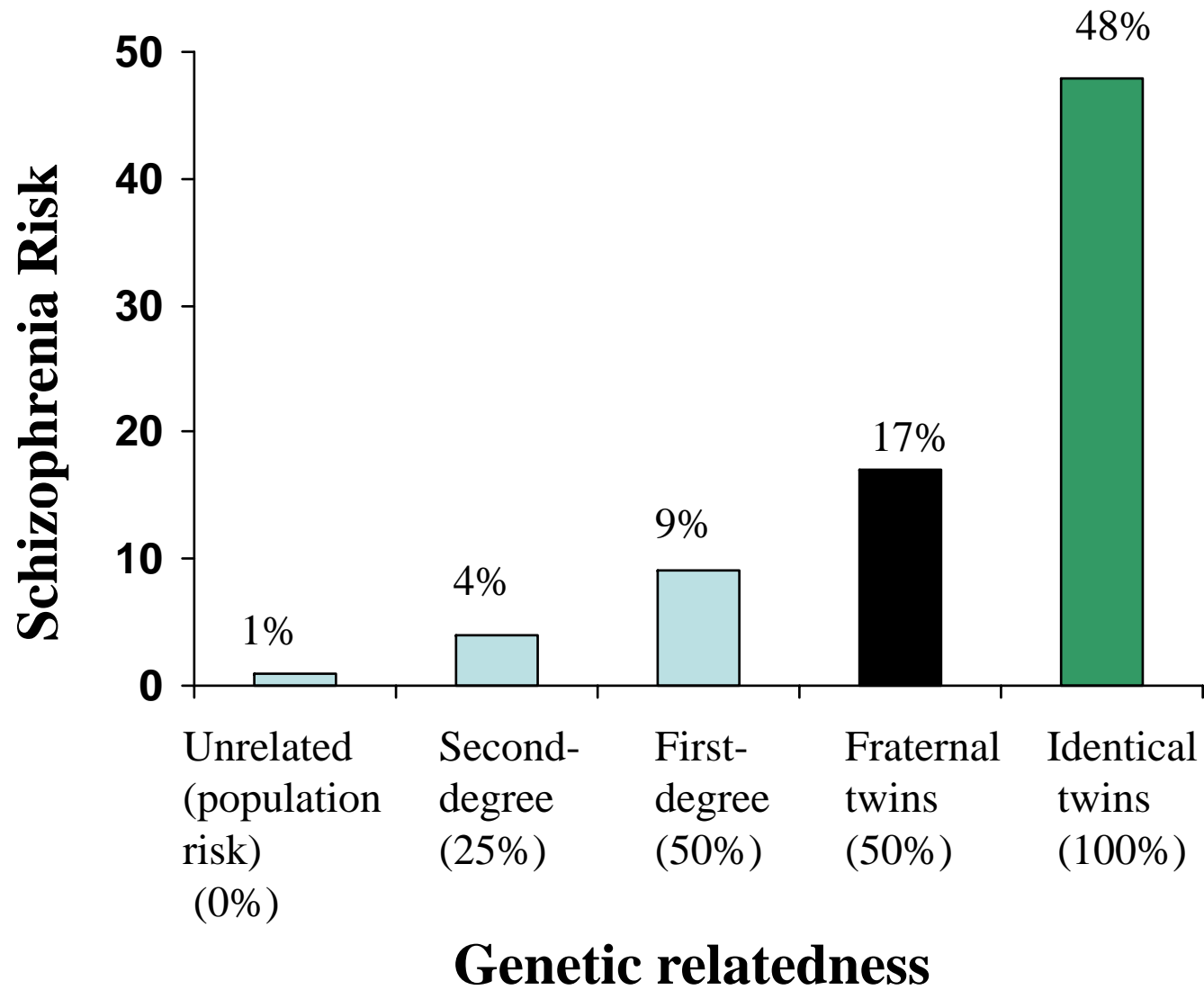
Identical twins (monozygotic, MZ)



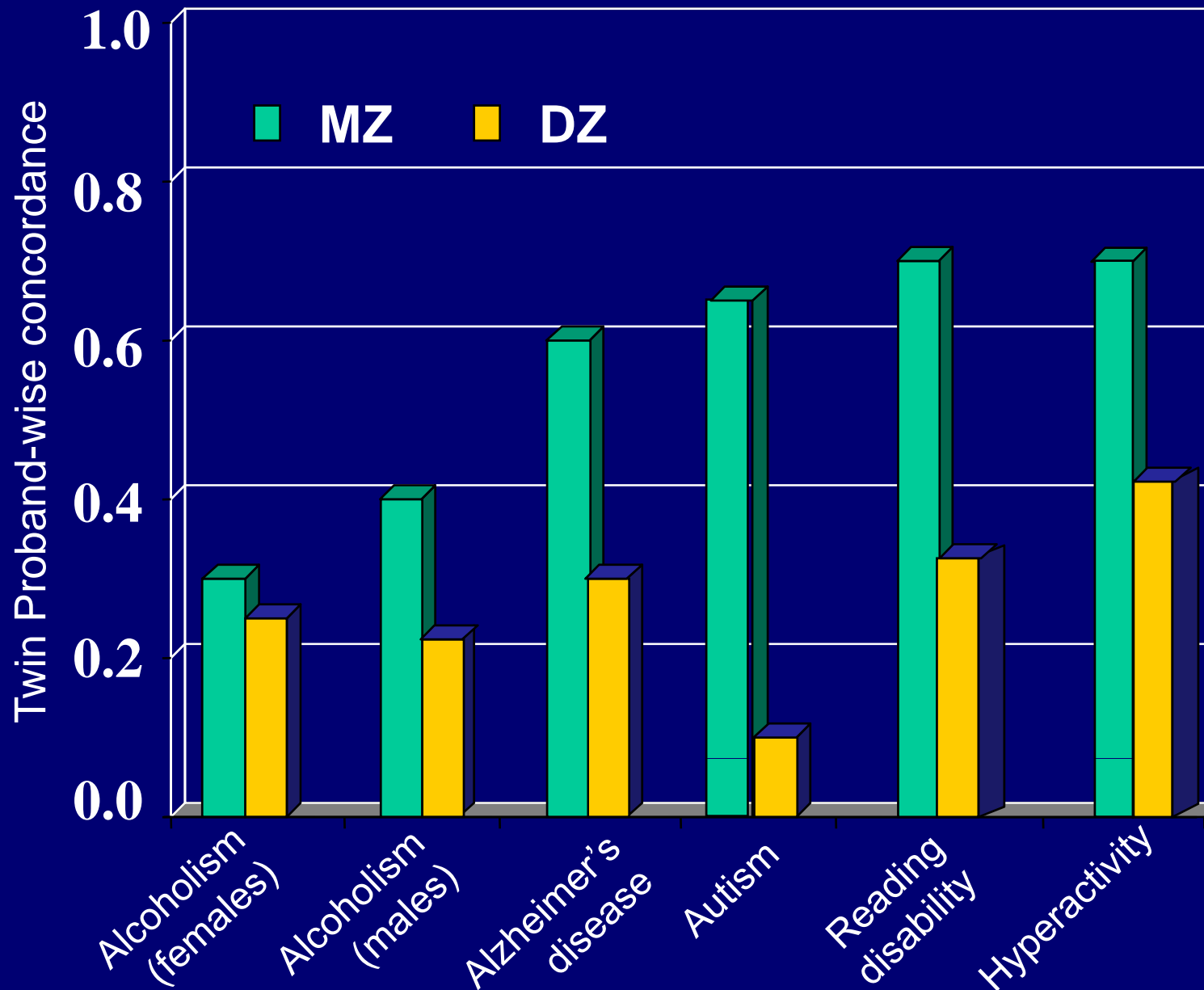
Non-identical, fraternal twins (dizygotic, DZ)

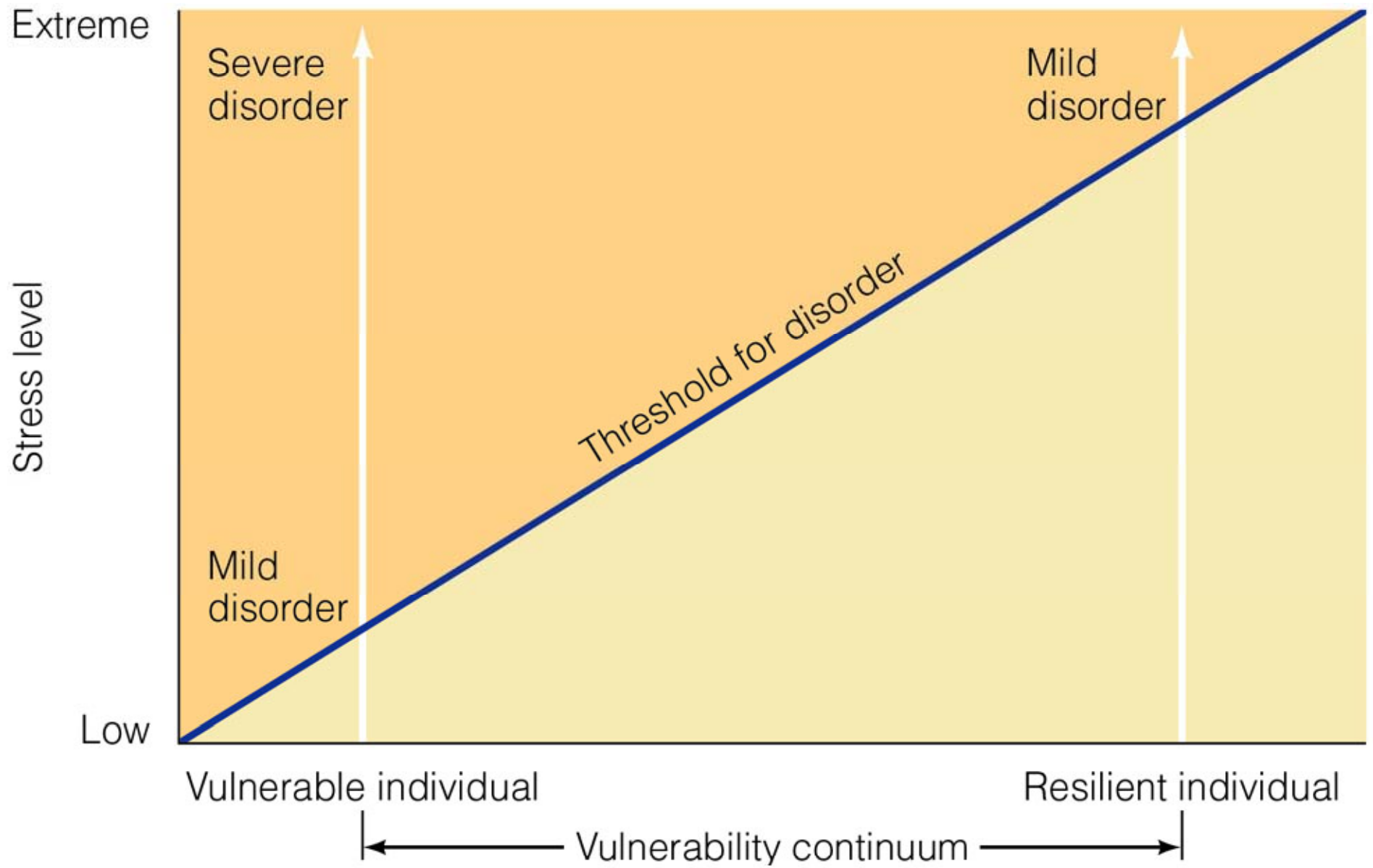


Genetics and schizophrenia



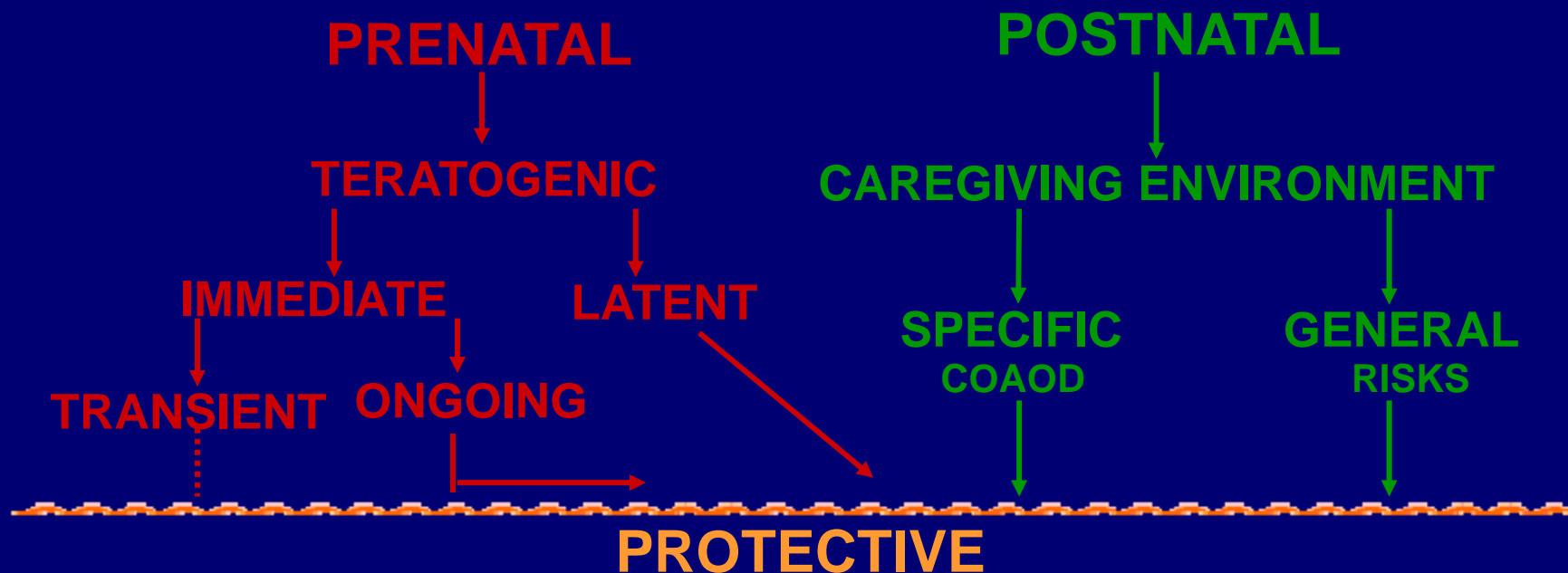
Twin studies of other mental illnesses





What about the timing and
chronicity of adverse events?

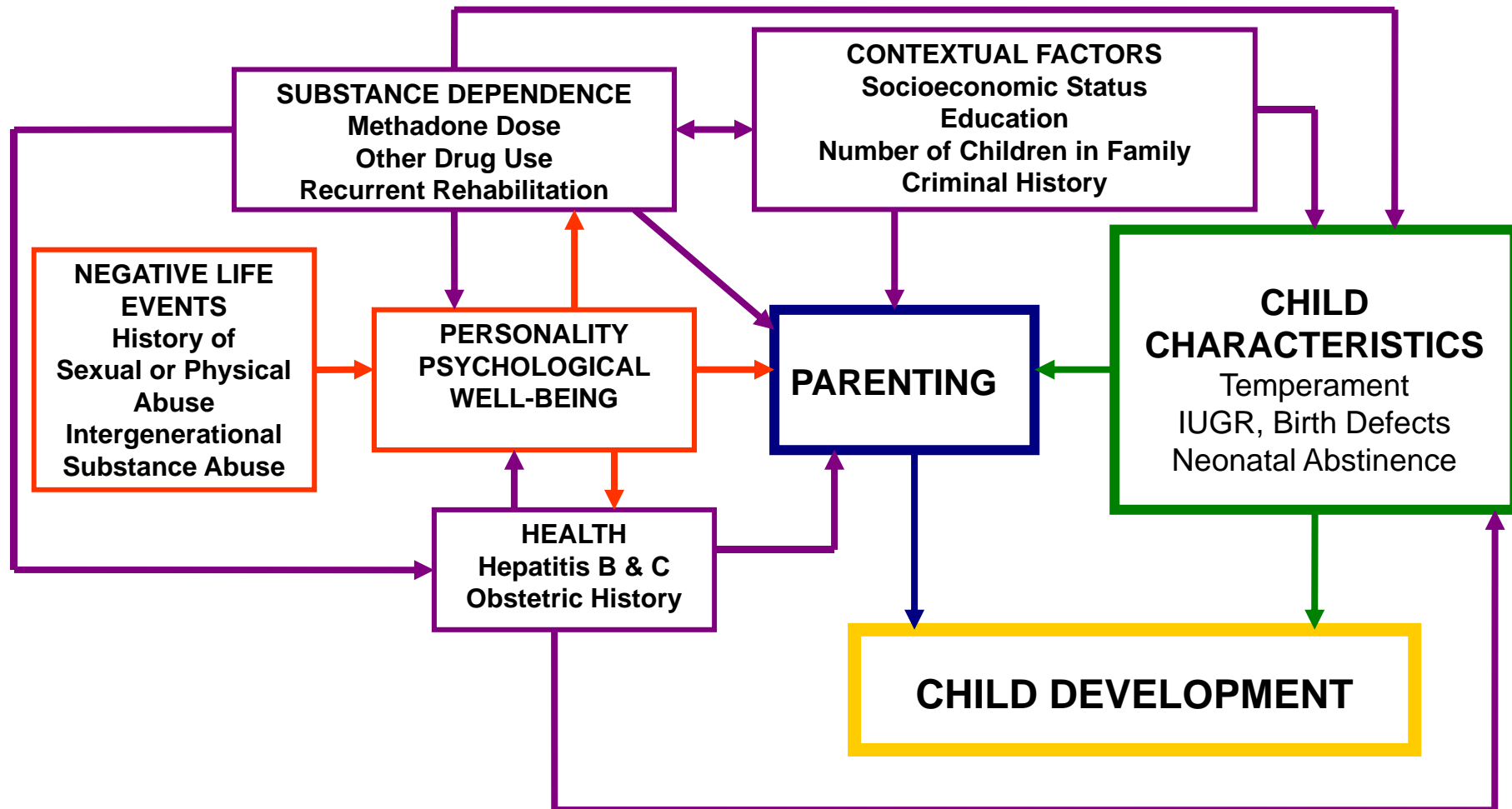
Maternal Drug Use During Pregnancy & Child Outcome



DEVELOPMENT

What are the environmental factors
that may affect Parenting?

MODEL OF POTENTIAL IMPACT OF ENVIRONMENT ON PARENTING & CHILD DEVELOPMENT



Model of Parenting in Substance Dependent Families
(Wouldes, 2001). Adapted from Belsky (1984)

Father, daughter among victims on Mt Cook A4

The New Zealand Herald

Auckland edition

Thursday, December 11, 2003

Monday - Friday \$1
Saturday - Sunday \$1.50

How Williams killed Coral after night on P

by James Gardiner

Like a ticking bomb, Steve Williams' life seemed destined to reach a ghastly climax.

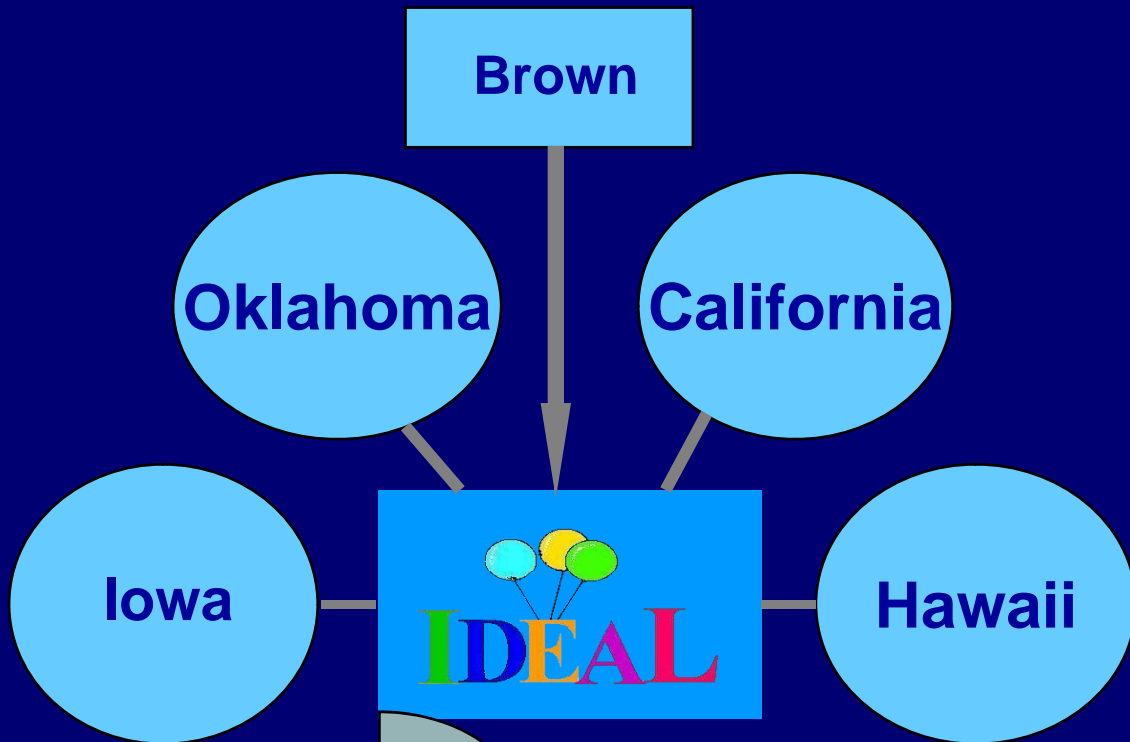
His notoriously short fuse had got him in trouble so many times that those who knew him were resigned to the fact it was going to get worse.



Infant Development Environment And Lifestyle Study

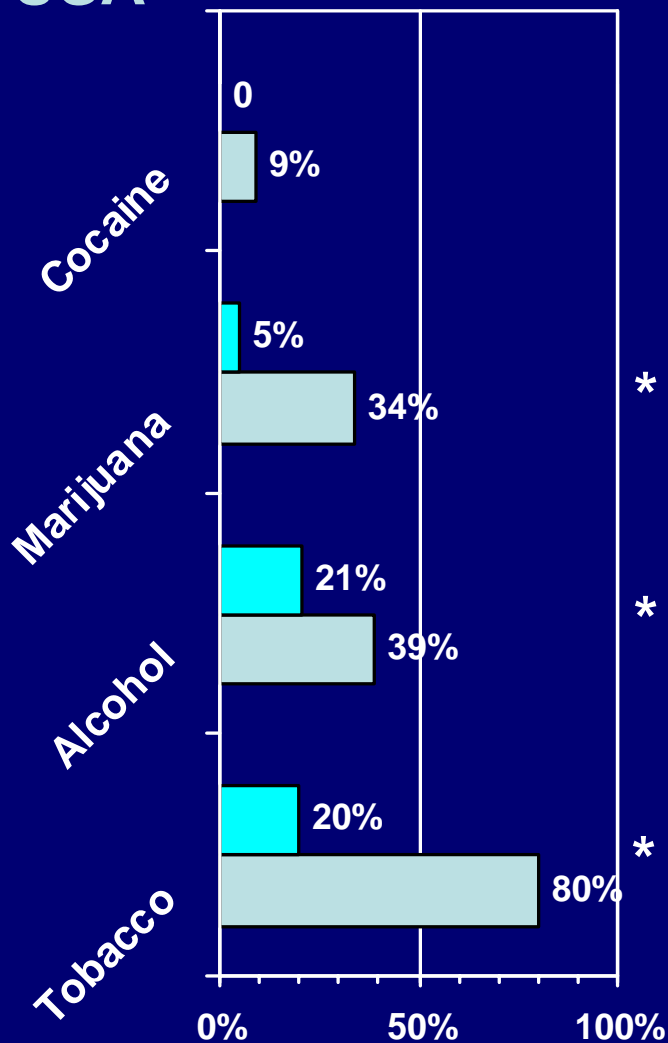


Auckland, NZ

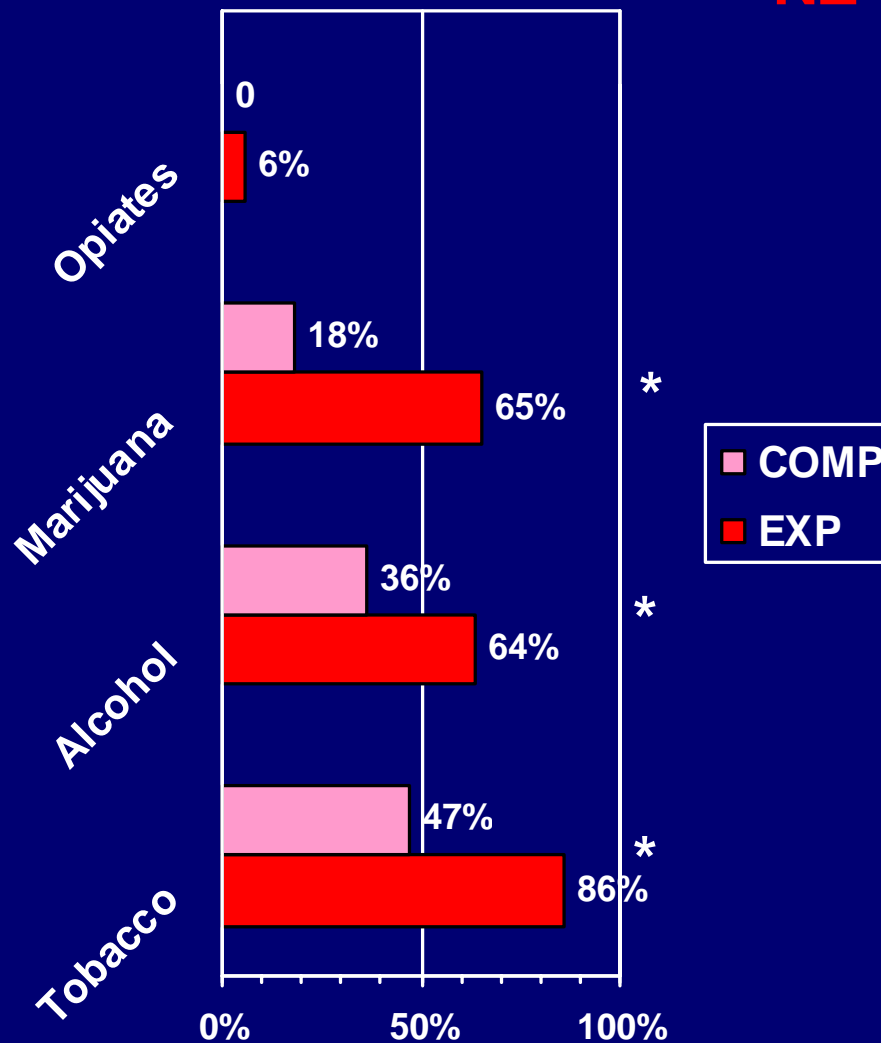


Prevalence of Alcohol and Other Substance Use During Pregnancy: USA and NZ

USA



NZ



* NZ has higher rates of marijuana, alcohol, tobacco use during pregnancy *

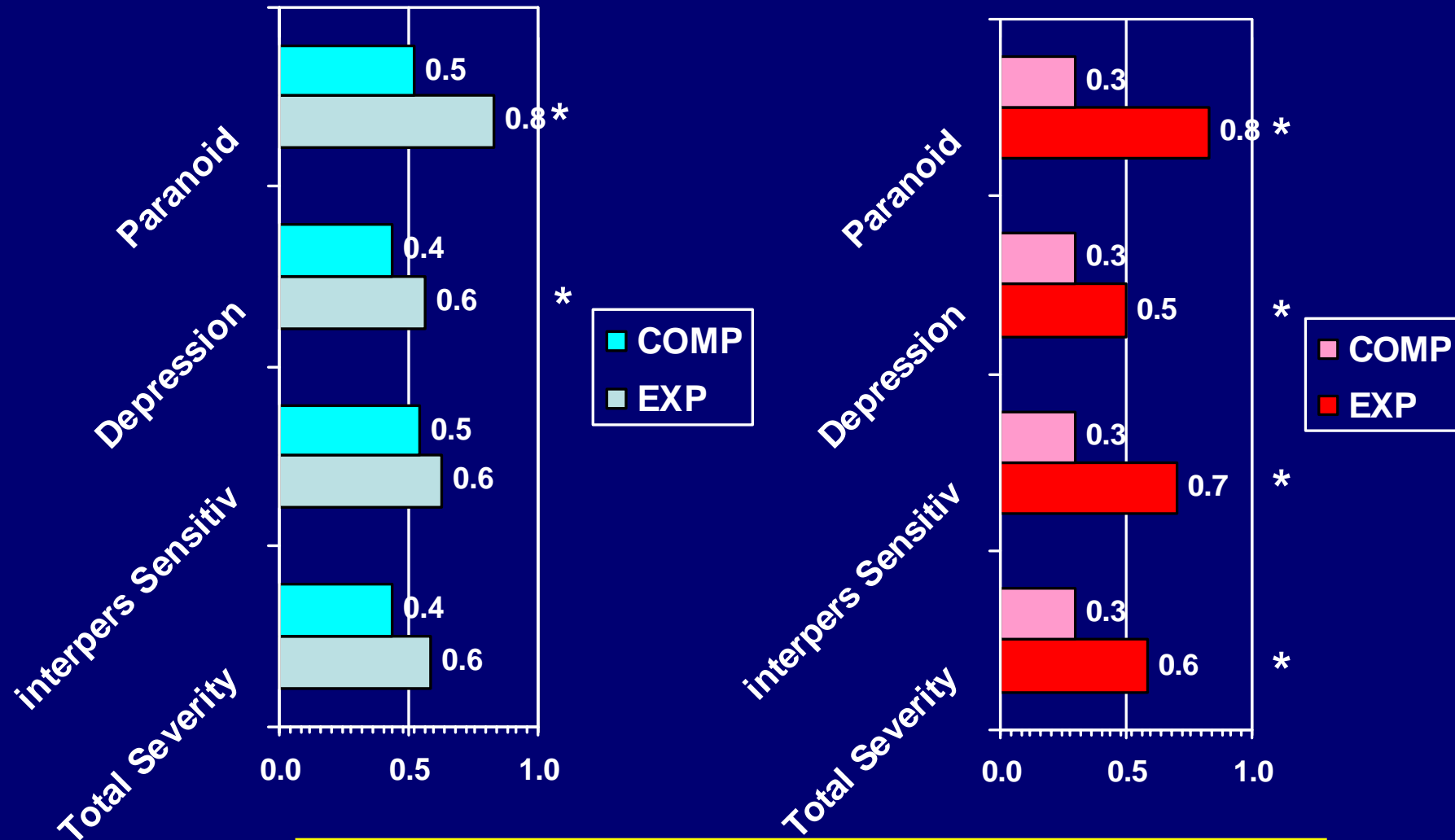
New Zealand – Prenatal Drug Use by Exposure Status

Prenatal Drug Use	Number (Percent)		P-value
	Exposed (N = 66)	Comparison (N = 55)	
Tobacco use	57 (86.4%)	26 (47.3%)	0.000
Alcohol use	42 (63.6%)	20 (36.4%)	0.003
Marijuana use	43 (65.2%)	10 (18.2%)	0.000
Hashish use	4 (6.1%)	0 (0.0%)	0.125
Methamphetamine use	60 (92.3%)	0 (0.0%)	0.000
Ectasy use	13 (20.0%)	0 (0.0%)	0.000
Amphetamine use	7 (10.8%)	0 (0.0%)	0.015
Benzodiazapine use	6 (9.1%)	0 (0.0%)	0.031
Barbiturate use	2 (3.0%)	0 (0.0%)	0.500
Heroin use	1 (1.5%)	0 (0.0%)	1.000
Methadone use	5 (7.7%)	0 (0.0%)	0.062
MSTI use	4 (6.2%)	0 (0.0%)	0.124
Other opiate use	4 (6.2%)	0 (0.0%)	0.124
LSD use	1 (1.5%)	0 (0.0%)	1.000

Prevalence of Psychiatric Symptoms- Brief Symptom Inventory: USA and NZ

USA (biological mothers only)

NZ



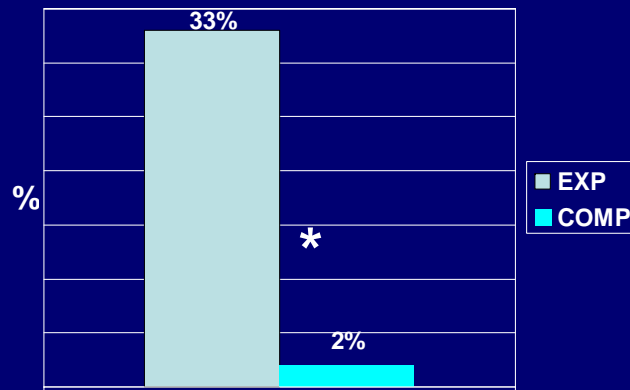
* Similar pattern of psychiatric symptoms in USA & NZ *

Child Protective Services at Discharge

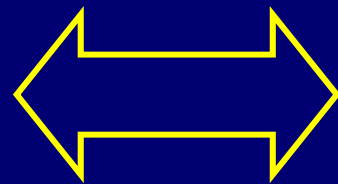
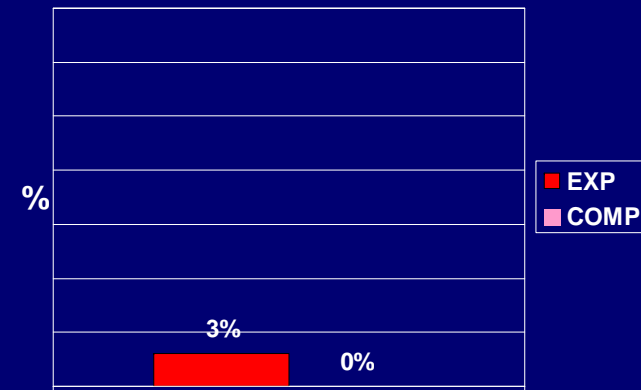
USA

NZ

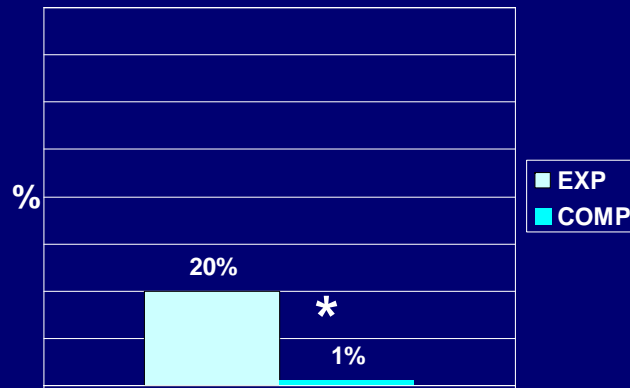
Out of Home Placement



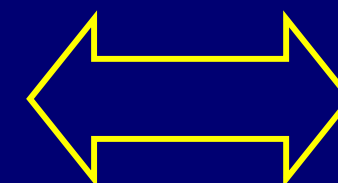
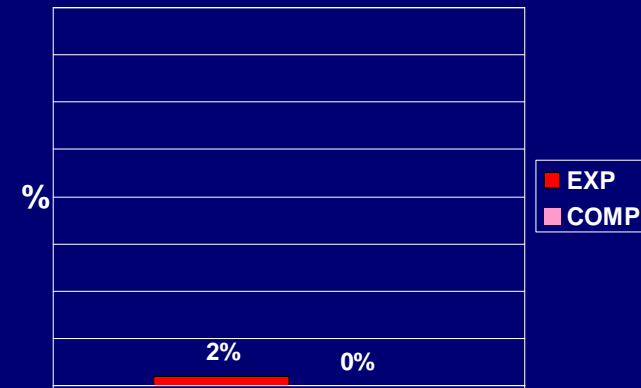
Out of Home Placement



Boarding at Hospital Pending Foster Care Placement



Boarding at Hospital Pending Foster Care Placement



(Derauf et al Am J of Drug & Alc Abus 2007)

What is the impact of maternal
co-morbid mental illness

and

substance use in the children
of these high-risk families?

Neurobehavioral (NNNS) Effects

USA

NZ

Newborn

EXP Increased Stress

Stress Signs

EXP increased Stress

EXP Poorer Movemt.

Quality of Movement

EXP Poorer Movemt.

EXP Lower Arousal

Arousal

EXP Lower Arousal

One Month

EXP Increased Stress

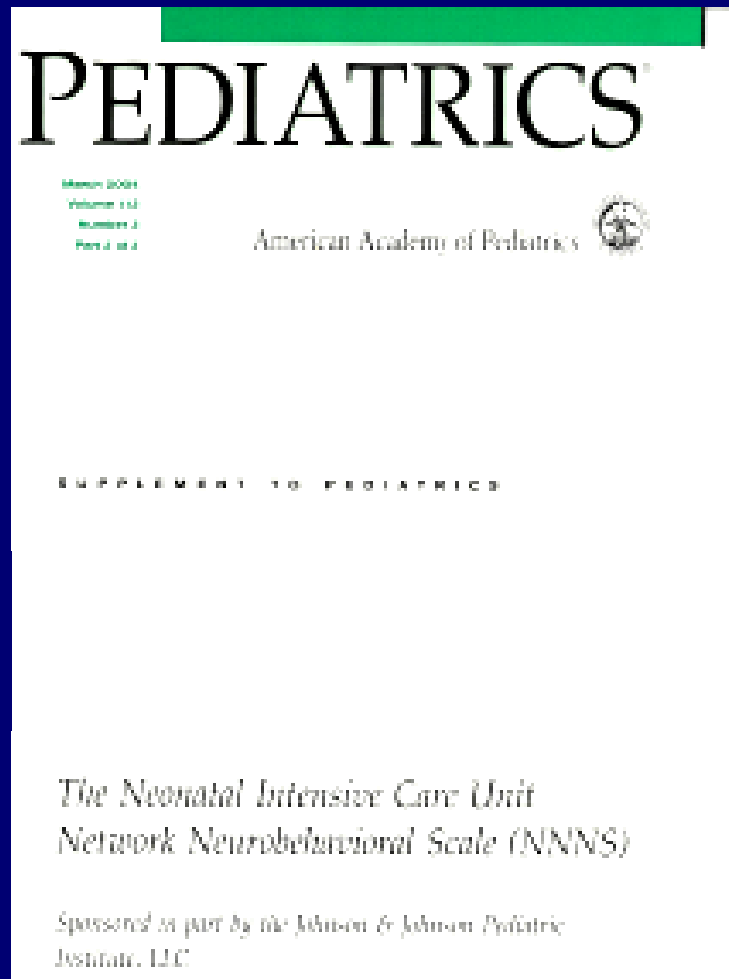
Stress Signs

EXP Increased Stress

* Similar newborn effects in USA & NZ *

(Lester et al 2008)

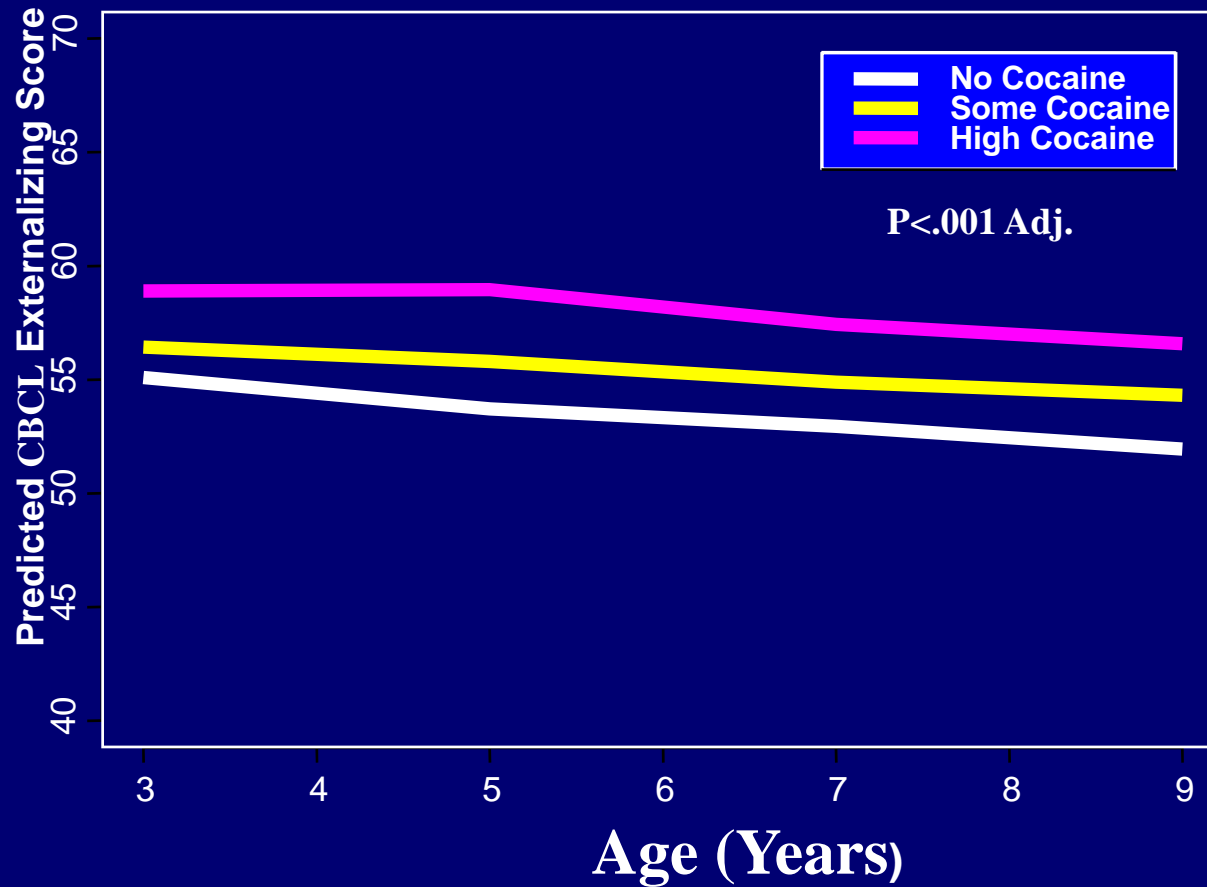
Neonatal Neurobehavioral Scale



Developed for the NIH
Selected for National Children's Study

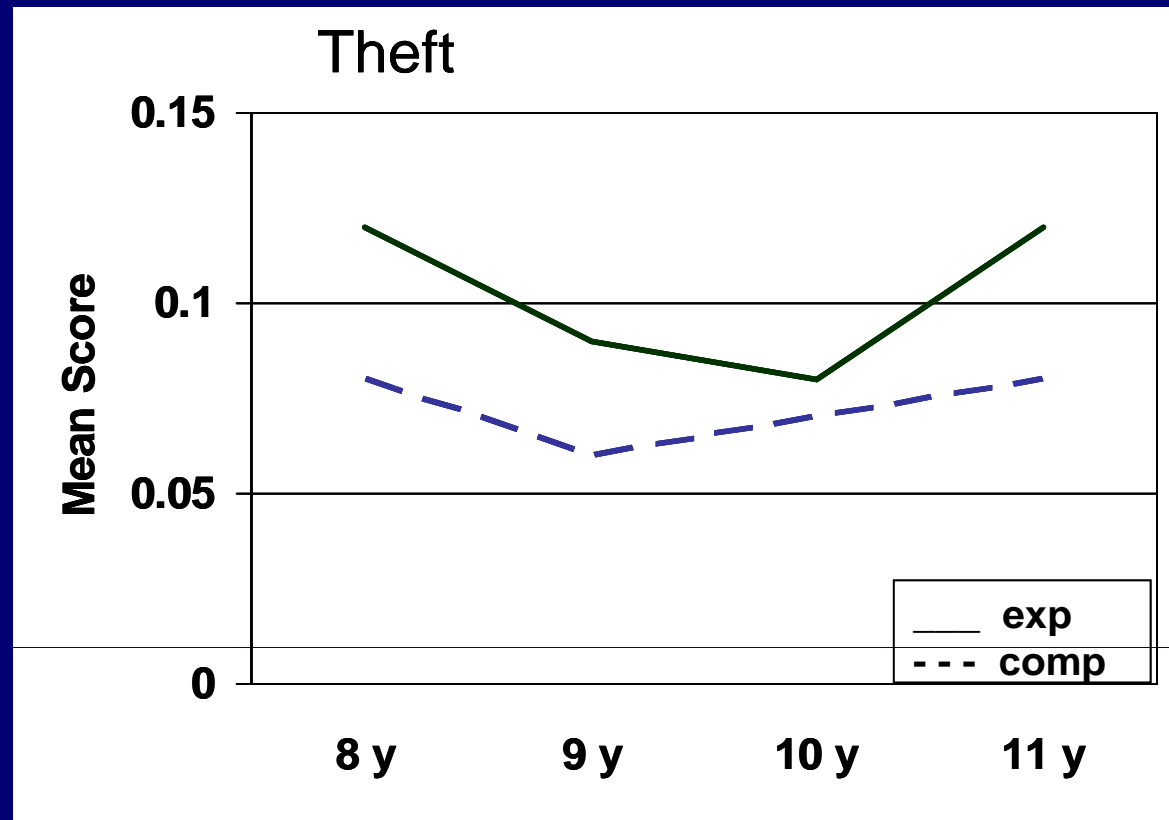
(Lester and Tronick 2002)

MLS - Externalizing Behavior



(Bada et al., 2007)

MLS - Antisocial Behavior



$P < .01$

MLS - Psychopathology

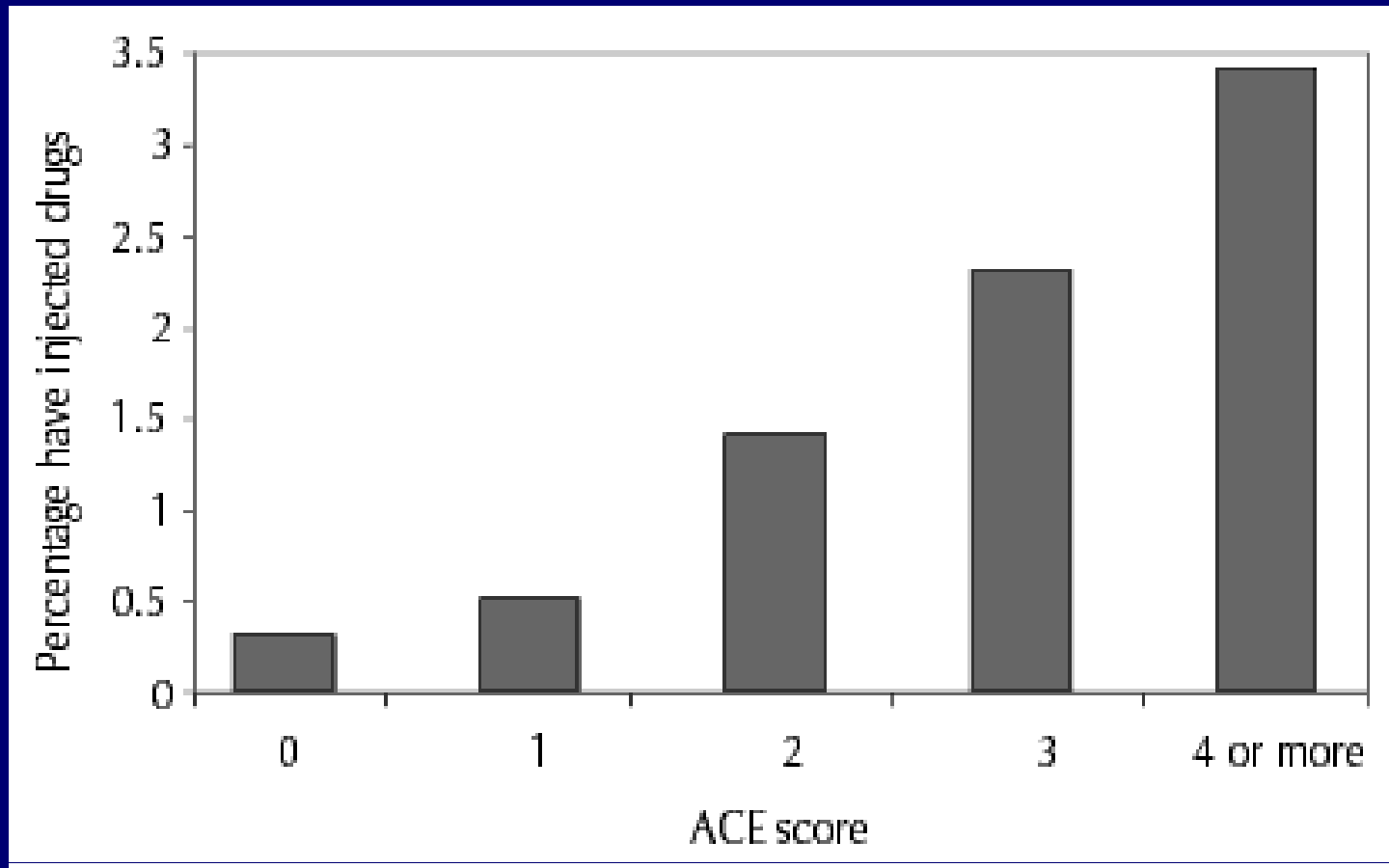
DISC Symptom Scores at Age 11

Measure	Mean (SD)		
	EXP	COMP	
ADHD	6.28 (5.69)	5.45 (5.44)	*
Depression	3.34 (3.53)	2.82 (3.14)	*
CD	2.31 (2.80)	1.60 (2.18)	*

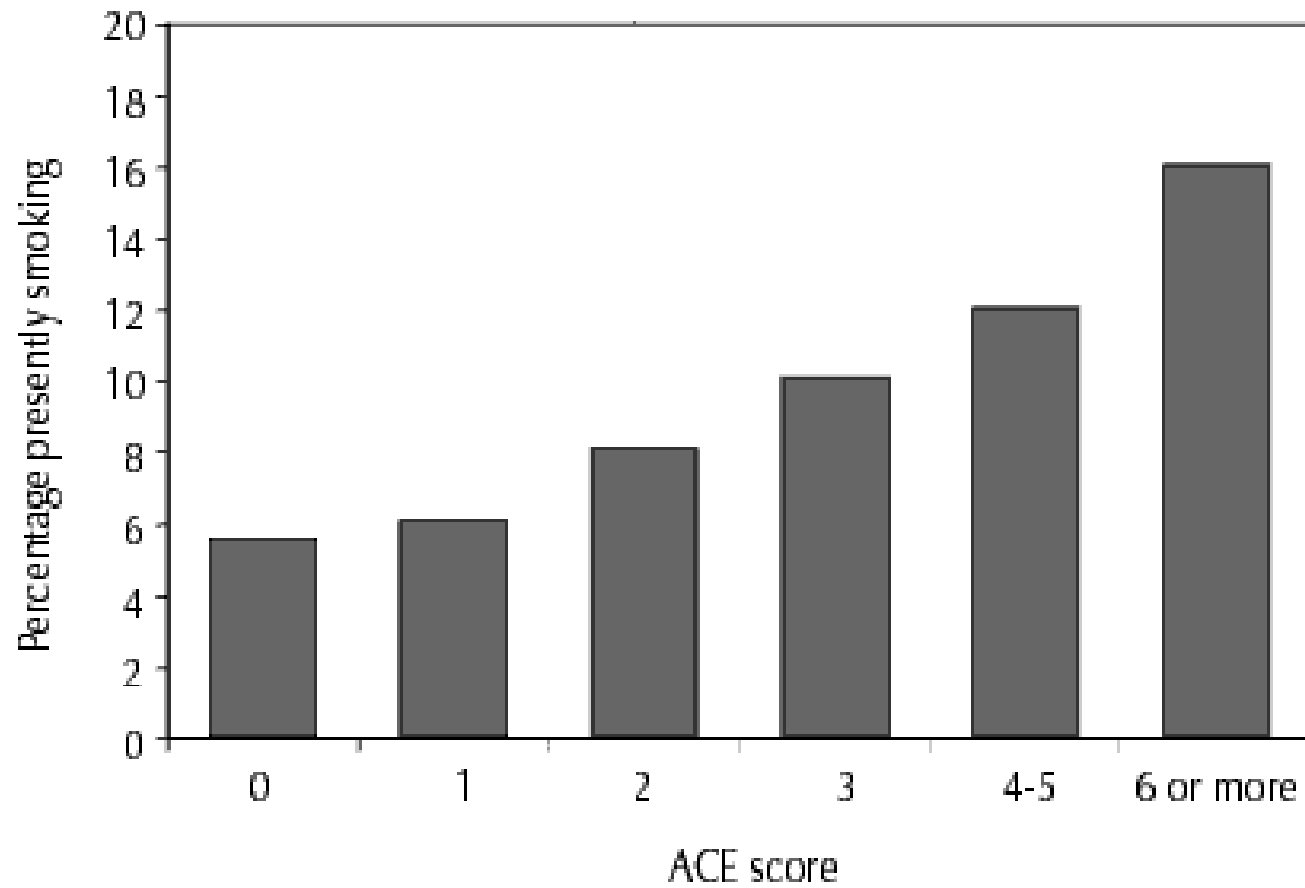
Adverse Childhood Events

- ACE Study (Filetti et al. 1998)
 - 17,000 adult member of U.S. Health Care Plan
 - Questionnaire asking about ACE
 - Family characteristics
 - Sexual Abuse
 - Physical Abuse
 - Psychological Abuse
 - Linear relationship between a number of adult health outcomes and ACE
 - 4 or more ACE compared to those with none
 - 2.2 times more likely to have Ischaemic heart disease
 - 1.9 times more likely to have any cancer
 - 2.4 times more likely to have had a stroke
 - 3.9 times more likely to have chronic bronchitis or emphysema
 - 1.6 times more likely to have diabetes

Injecting Drug Use



Percent Smokers



Are there intergenerational risks to children where there is parental substance abuse and mental illness?

YES, BUT:

Interaction is between genetics and environment not Nature over Nurture



Genetics + Environment



Poor Outcome

What Can Mental Health Professionals Do?

- Screen all women for Mental Illness & Substance Use/Abuse antenatally
 - Brief standardised measures available
 - Continue to monitor those at high-risk throughout pregnancy & infancy

What Can Mental Health Professionals Do?

- Develop interventions that start early and are ongoing
 - Develop a comprehensive programme tailored to the infant and family
 - Infants born to mothers who are dependent on drugs are likely to be exposed to a range of other lifestyle problems that individually have been associated with poor development including:
 - Domestic violence
 - Continued drug use by other family members
 - Poor neighborhoods
 - Lack of mental health and substance abuse treatment resources, particularly in rural areas

Interventions should include...

- **New child may be a “window of opportunity” -**
 - Treatment for maternal/paternal substance abuse and mental illness - beginning during pregnancy and ongoing support postnatally
- **Monitor infants born to high-risk parents**
 - Develop Parent-Infant Programmes that work with family courts and CYFS
 - Screen for developmental delay frequently and refer to appropriate programmes that address specific delays ASAP

Infant treatments should be...

- Multi-disciplinary
- Developmentally appropriate
- Address all developmental processes
 - Social-emotional - relationships & emotional regulation
 - Cognitive - learning, memory
 - Biological - growth, motor skills
- For these high-risk infants those interventions that include behavioural modification are likely to be important
- Accessible and persistent

Acknowledgements

Our parents & babies

Our funders

U. S. NIH - National Institute of Drug Abuse

Auckland Medical Research Foundation

NZ Child Health Research Foundation

University of Auckland

Jo Cliffe, MSc Public Health

Carolyn Ho, MSc Psychology

Gill Gee, BHSc Nursing

Jenny Rogers, BHSc Nursing

Heather Stewart, NZRN Midwife

Deanna Saunders, MSc Health Psychology

Julie Williams, BA Psychology

Trecia Wouldes, MA Psychology, PhD Health Psychology

DEPARTMENT OF PSYCHOLOGICAL MEDICINE - "WERRY CENTRE"

A.P. Linda LaGasse, PhD, Research Director

Professor Barry Lester, PhD, Director

THE BROWN CENTER FOR THE STUDY OF CHILDREN AT RISK

Professor Ed Mitchell, Director Child Health Research, Paediatrics

Dr Carl Kuschel, Medical Director Neonatal Services, Royal Women's Hospital, Melbourne

Dr Mariam Buksh, Neonatal Specialist, National Women's Health

Barbara Galland, PhD Physiology, Paediatrics, Otago University