



WELCOME TO THE CRACKS IN THE ICE WEBINAR SERIES



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Matilda Centre

Effects of Ice use during Pregnancy on both the Mother and Baby

Dr Mark Greenhalgh

27/3/2019



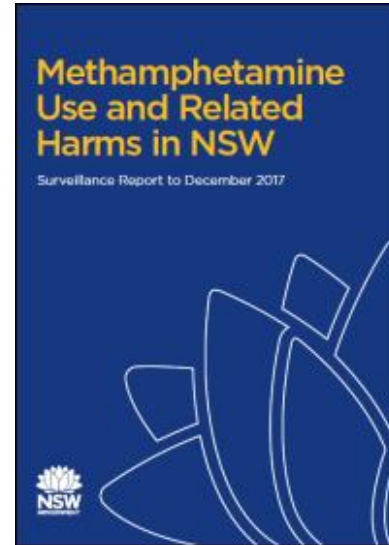
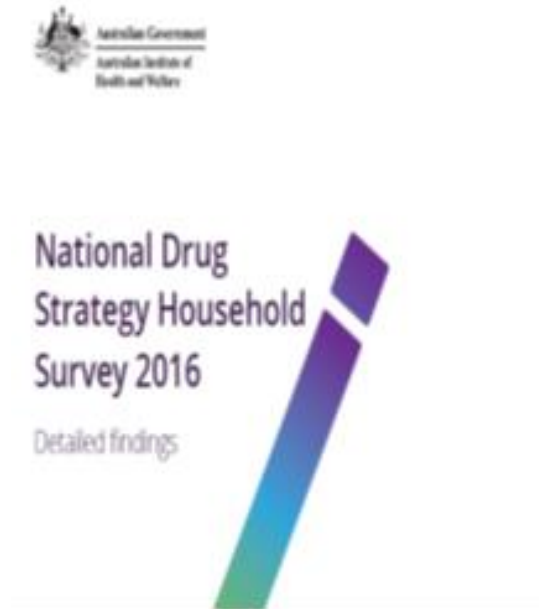
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- 1 How are pregnant women affected by methamphetamines?
- 2 What risks does prenatal methamphetamine use place on the newborn?
- 3 What are some management strategies for mother and baby
- 4 Q&A

Methamphetamines



Methamphetamines

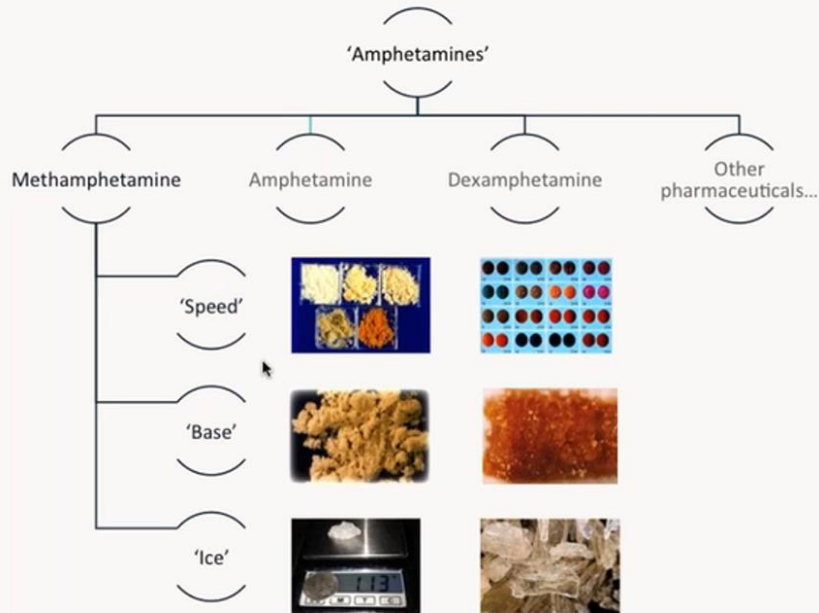
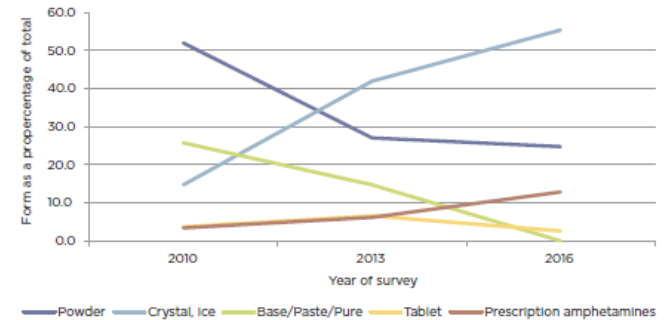


Figure 7: Form of methamphetamine or amphetamine recently used, NSW, 2010 to 2016



Source: National Drug Strategy Household Survey 2016

Methamphetamine use

Table 2.1: Recent drug use, people aged 14 or older, 2001–2016 (%)

Drug/Behaviour	2001	2004	2007	2010	2013	2016
Tobacco						
Current smoker ^(a)	23.2	20.7	19.4	18.1	15.8	14.9
Daily smoker	19.4	17.5	16.6	15.1	12.8	12.2
Alcohol						
Recent use ^(a)	82.4	83.6	82.9	80.5	78.2	77.5
Risk of lifetime harm ^(b)	20.5	20.8	20.7	20.5	18.2	17.1#
Monthly risk of single occasion harm ^(c)	29.2	29.5	29.3	29.0	26.4	25.5
Monthly risk of single occasion harm and risk of lifetime harm ^{(b)(c)}	n.a.	n.a.	n.a.	17.7	15.6	14.7#
Illicit drugs (excluding pharmaceuticals)						
Marijuana/cannabis	12.9	11.3	9.1	10.3	10.2	10.4
Ecstasy ^(d)	2.9	3.4	3.5	3	2.5	2.2
Meth/amphetamine (speed) ^(e)	3.4	3.2	2.3	2.1	2.1	1.4#
Cocaine	1.3	1.0	1.6	2.1	2.1	2.5
Hallucinogens	1.1	0.7	0.6	1.4	1.3	1.0#
Inhalants	0.4	0.4	0.4	0.6	0.8	1.0
Heroin	0.2	0.2	0.2	0.2	0.1	0.2
Ketamine	n.a.	0.3	0.2	0.2	0.3	0.4
GHB	n.a.	0.1	0.1	0.1	*<0.1	*0.1
Synthetic cannabinoids	n.a.	n.a.	n.a.	n.a.	1.2	0.3#
New and emerging psychoactive substances	n.a.	n.a.	n.a.	n.a.	0.4	0.3
Injected drugs	0.6	0.4	0.5	0.4	0.3	0.3
Any illicit ^(f) excluding pharmaceuticals	14.2	12.6	10.9	12.0	12.0	12.6

Meth/amphetamines

For people aged 14 or older in Australia in 2016

- 6.3% (or 1.3 million) used meth/amphetamines in their lifetime
- ➔ 1.4% (or 280,000) used meth/amphetamines in the last 12 months
- 2.8% of people in their 20s had recently used meth/amphetamines
- 5.5% had the opportunity to use meth/amphetamines in the previous 12 months.

Among recent meth/amphetamine users aged 14 or older in 2016

- ➔ 20% used meth/amphetamines at least weekly
- ➔ 62% had used crystal/ice in the previous 12 months
- 11.9% injected meth/amphetamines in the previous 12 months
- 34 years was the average age of recent meth/amphetamine users.



National Drug Strategy Household Survey 2016 (AIHW)

Table 6: Other select drugs used by people who used methamphetamine in the last 12 months, 2015

Substance used	NDSHS		DUMA		NPHDC	
	Number	Percent	Number	Percent	Number	Percent
Cannabis/marijuana	264,000	72	785	70	233	58
Heroin	8,000	*2.3	197	18	52	13
Ecstasy	42,000	55	262	23	56	14
Cocaine	201,000	40	237	21	42	11
Hallucinogens	149,000	25	158	14	14	4
Inhalants	90,000	13	42	4	9	2
Steroids	48,000	*3.2	56	5	8	2
Total	368,000	100	1,121	100	399	100

* Estimate has a relative standard error of 25% to 50% and should be used with caution

Note: Columns will not sum to total because more than one drug type may have been used

Sources: AIHW 2014, AIC DUMA collection 2013–14 [computer file], AIHW 2015a

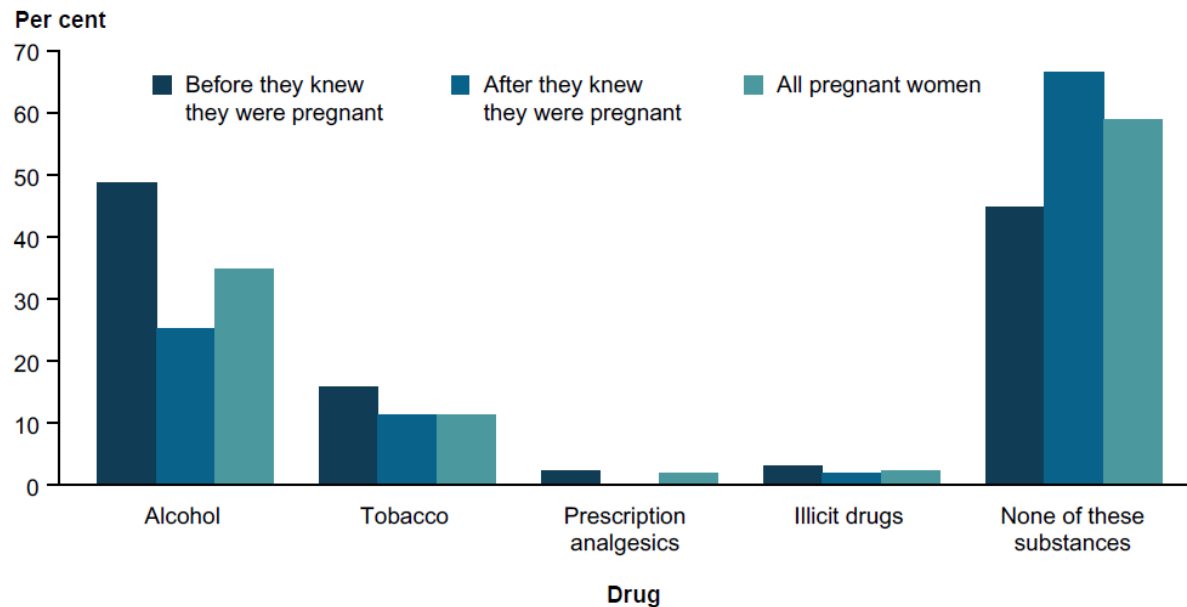
Ice use in Pregnancy

METHAMPHETAMINE ABUSE AND TREATMENT DURING PREGNANCY

maternal methamphetamine use may endanger
the health of the mother and be associated with
a possible increase of birth defects



- The Centre for Substance Abuse, Research's Infant Development, Environment and Lifestyle (IDEAL) study reported that:
5.2% of women used methamphetamine at some point during their pregnancy.



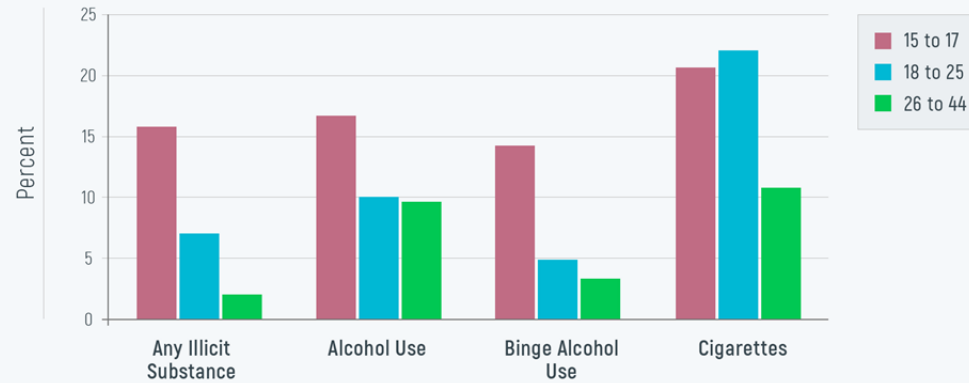
Note: Prescription analgesics and the illicit drugs estimates have a high RSE and should be interpreted with caution.

Source: Table 8.16.

Figure 8.13: Drug-taking behaviours before and after knowledge of pregnancy, pregnant women aged 14–49, 2016 (%)

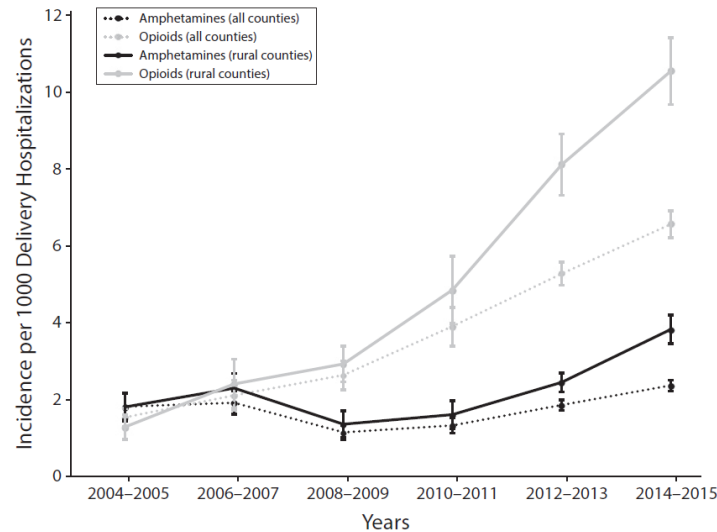
CURRENT SUBSTANCE USE AMONG PREGNANT WOMEN

Aged 15-44, by Age, 2008-2009 Combined



Source: SAMHSA, NSDUH, 2010

Conclusions. Increasing incidence of amphetamine and opioid use among delivering women and associated adverse gestational outcomes indicate that amphetamine and opioid use affecting birth represent worsening public health crises. (*Am J Public Health.*



Note. The sample size was $n = 47\,164\,263$. All data are survey-weighted and represented as rate per 1000 delivery hospitalizations. Whiskers indicate 95% confidence intervals.

FIGURE 1—National Trends in Amphetamine and Opioid Use Among Delivering Women: National Inpatient Sample, United States, 2004–2015



Admon et al., 2019 Amphetamine- and Opioid-Affected Births:
Incidence, Outcomes, and Costs, United States, 2004–2015.
American Journal of Public Health

One Hit Of Crystal Meth Causes Birth Defects, Affects Fetuses At All Stages Of Development

Date: July 27, 2005

Source: University of Toronto

Summary: A single prenatal dose of methamphetamine -- commonly known as speed -- may be enough to cause long-term neurodevelopmental problems in babies, say University of Toronto researchers.



Webinar Poll



A woman presents at 29 weeks for her first antenatal appointment with an unplanned pregnancy. She has a 18 month old who was removed at birth in view of active drug use. She has hepatitis C.

She discloses a recent lapse with use of crystal methamphetamines which she injected following a fight with her partner.

What is your gut feeling around what will happen after this baby is born?



Stigma of ice users

9

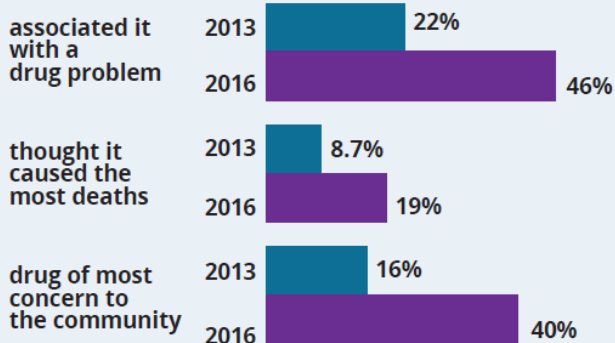
PERCEPTIONS AND POLICY SUPPORT



Community perceptions of drugs

Between 2013 and 2016, people's perceptions of **meth/amphetamines** changed considerably

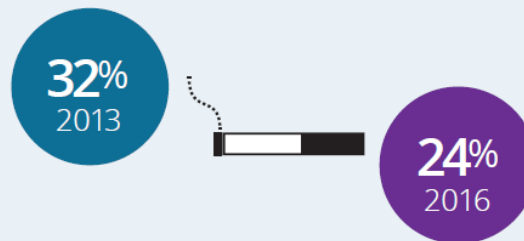
More people:



Excessive alcohol use no longer drug of most concern (declined from 42% in 2013 to 28% in 2016).

Alcohol remained the drug most commonly identified as causing the most deaths in 2016 (35%).

Fewer people thought **tobacco** caused the most deaths.



Meth Babies on the Rise: Long-Term Effects of Moms on Meth During Pregnancy

The term “[meth](#) babies” has become one that we hear all-too-commonly, as more and more babies in the U.S. are born addicted to drugs. One of the reasons more babies are born addicted to drugs is because of the opioid epidemic the country is facing, but opioids aren’t the only culprit.

According to the New England Journal of Medicine in a 2015 report, the number of babies in America born addicted to drugs quadrupled since 2004. There are studies showing that many of these increases are surprisingly seen among people with higher incomes who are insured, and there’s also research showing it’s taking longer to wean newborns off the drugs they’re born addicted to.

According to the same report, every 25 minutes a newborn is born and going through extreme withdrawal symptoms. In 2013, 27 per every 1000 new babies were born addicted to narcotics.



Crack Baby Syndrome

The **crack** baby syndrome occurs when the mother is regularly smoking crack while pregnant. **Smoking crack cocaine** while pregnant can have dire effects on a child. Children born under the influence of the substance are known as crack babies. Crack babies are often born with several issues.









Prenatal Methamphetamine Exposure: Maternal effects

- Less antenatal care
- Lower weight
- Poor nutrition
- Intercurrent infections (hep C)
- Miscarriage/ stillbirth

- Polydrug use
- Social concerns

Maternal effects: Increased complications

TABLE 2—Adjusted Health Outcomes, Health Care Utilization, and Expenditures Among Hospital Deliveries Complicated by Amphetamine and Opioid Use: National Inpatient Sample, United States, 2014–2015

Variables	Amphetamine Use (n = 18 050)	Opioid Use (n = 50 011)	Other Hospital Deliveries (n = 7 545 380)
Antenatal diagnoses, weighted % (95% CI)			
Preeclampsia	9.3 (8.2, 10.4)	4.4 (4.0, 4.9)	4.8 (4.7, 4.8)
Placental abruption	4.3 (3.6, 5.0)	3.1 (2.8, 3.5)	1.0 (1.0, 1.1)
Clinical outcomes, weighted % (95% CI)			
Preterm delivery (< 37 wk)	16.7 (15.3, 18.0)	12.6 (11.9, 13.4)	5.8 (5.7, 5.9)
Cesarean delivery	37.4 (35.6, 39.3)	34.5 (33.5, 35.6)	32.6 (32.3, 32.8)
Severe maternal morbidity or mortality	3.8 (3.1, 4.4)	2.4 (2.1, 2.7)	1.6 (1.6, 1.7)



Admon et al., 2019 Amphetamine- and Opioid-Affected Births:
Incidence, Outcomes, and Costs, United States, 2004–2015.
American Journal of Public Health

RANZCOG guidelines

Substance use in pregnancy

The following specialised modules of care may be undertaken as appropriate or concurrently:

1. Treatment of withdrawal, including pharmacotherapy if appropriate.
2. Provision of information about substance use, and encouragement to participate in decisions about care.
3. Involvement of the partner, family, the extended family and community according to the woman's preference and available supports.
4. Medical, mental health, psychosocial, pregnancy, and drug and alcohol management, and care of co-morbidities.
5. Pre-birth child protection notification to be made if appropriate.
6. Links to community or Indigenous health, mental health, drug and alcohol support services, midwifery and or neonatal nursing services, outreach services, general practitioner or Flying Doctor services should be established and maintained.
7. Pre- birth liason with paediatric colleagues to provide early counselling for parents of possible outcomes for baby
8. Management of Neonatal Abstinence Syndrome is provided if this occurs.
9. Information, counselling and support are provided to minimise the incidence of relapse.
10. Appropriate follow-up arrangements are made for both mother and baby.

Amphetamine withdrawal management

Withdrawal syndrome

The initial phase (crash) of withdrawal syndrome occurs as the stimulant effects wear off.

Symptoms include:

- prolonged sleeping
- depressed mood (although some irritability even in the initial phase)
- overeating
- some cravings (not usually severe in this initial phase).

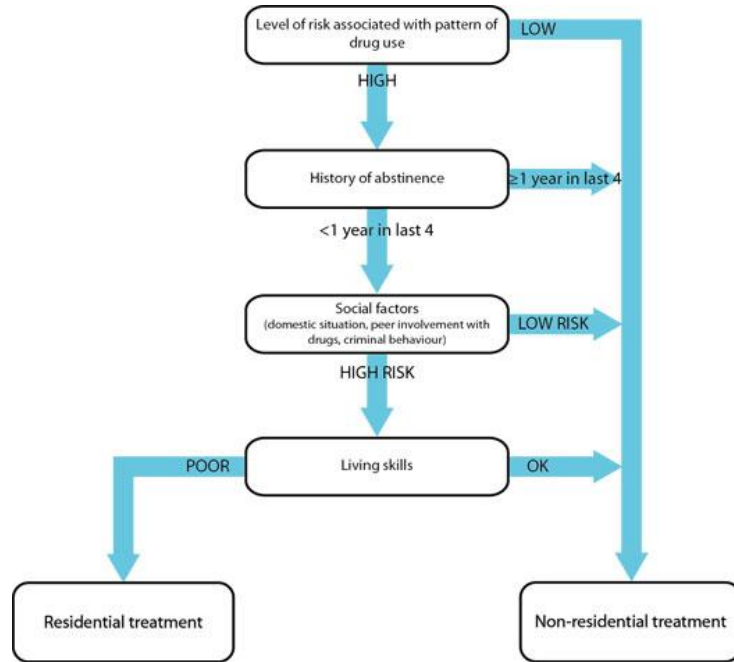
The initial phase may last one to two days and then is followed by a longer period of several days to weeks of:

- mood changeability (irritability, depression, inability to experience pleasure)
- cravings
- disturbed sleep
- lethargy.

Psychotic symptoms may emerge during the first one to two weeks, particularly if they were present during times of use.



Antenatal Maternal Management



- Multi-disciplinary CBT
- Supportive
- Counselling
- +/- meds (benzo's, SSRI's, anti-psychotics)
- Child Protection
- Ongoing till delivery and beyond



Prenatal Methamphetamine Exposure: Perinatal outcomes

Table 2. Perinatal Outcomes

Perinatal Characteristics	Methamphetamine Users (n=273)	Control Patients (n=34,055)	P*
Preterm delivery	139 (52)	5,627 (17)	<.001
1-min Apgar score less than 4	16 (6)	665 (2)	<.001
5-min Apgar score less than 7	16 (6)	328 (1)	<.001
Cesarean delivery	79 (29)	7,730 (23)	<.02
Neonatal mortality	11 (4)	325 (1)	<.001
Maternal obstetric + intensive care unit admissions	6 (2)	95 (0.3)	<.001

Data are n (%) unless otherwise specified.

* P from χ^2 test.

Prenatal Methamphetamine Exposure: Effects on the baby

Table 2

Birth Outcomes of MA-exposed pregnancies compared with non-MA exposed pregnancies

Outcome	All women (n=251)			Women with no other drug use (n=119)		
	Any MA use during pregnancy n=144	No MA use during pregnancy n=107		Only MA during pregnancy n=60	No drug use during pregnancy n=59	
	Mean ± SD	Mean ± SD	p-value	Mean ± SD	Mean ± SD	p-value
Gestational age (weeks)	38.5 ± 2.0	39.1 ± 2.1	0.048	38.8 ± 2.1	39.5 ± 1.6	0.043
Birth Weight (grams)	3159 ± 561	3168 ± 533	0.9	3103 ± 537	3321 ± 451	0.019
Head Circumference (cm)	33.5 ± 3.2	33.9 ± 2.9	0.42	33.2 ± 3.4	34.6 ± 1.5	0.01
Length (cm)	50.3 ± 3.0	50.6 ± 3.4	0.52	49.8 ± 3.4	51.3 ± 2.5	0.009
Cord pH	7.25 ± 0.1	7.27 ± 0.1	0.18	7.25 ± 0.1	7.27 ± 0.1	0.26
Maternal LOS (days)	2.7 ± 1.3	2.4 ± 1.2	0.12	2.52 ± 0.9	2.2 ± 0.8	0.02
Infant LOS (days)	3.9 ± 7.0	3.5 ± 4.7	0.62	4.3 ± 7.8	2.5 ± 1.9	0.1
First prenatal visit (weeks)	23.3 ± 9.5	17.7 ± 9.5	<0.0001	24.2 ± 9.4	17.2 ± 10.4	0.0009
Number of prenatal visits	7 ± 4.3	8.4 ± 3.9	0.018	7.5 ± 4.4	8.6 ± 4.2	0.22



Prevalence of Selected Infant Medical Outcomes by MA Exposure

Complication/Condition ^a	Prevalence (%)	MA-Exposed (n = 204), n(%)	Comparison (n = 208), n(%)	Unadjusted p Value	Adjusted p Value ^b
Autonomic stress symptoms	10.4	34 (16.7)	9 (4.3)	<0.001	NA
Poor suck	6.6	22 (10.8)	5 (2.4)	0.001	0.003
Jitteriness/tremors	5.1	20 (9.8)	1 (0.5)	<0.001	NA
Excessive suck	1.9	8 (3.9)	0 (0.0)	0.003	NA
Birth complications					
Admitted to NICU	12.1	35 (17.2)	15 (7.4)	0.003	0.003
Required oxygen	7.5	20 (9.8)	11 (5.3)	0.082	NA
Birth defects					
Cardiac defects	3.4	6 (5.0)	8 (6.6)	0.593	NA
Child abuse report					
Referred to CPS	27.8	109 (54.0)	5 (2.4)	<0.001	<0.001
CPS involved-maternal drug use	27.1	106 (52.5)	5 (2.4)	<0.001	<0.001
CNS symptoms at discharge	3.2	12 (5.9)	1 (0.5)	0.001	NA
Hypertonia	2.2	9 (4.4)	0 (0.0)	0.002	NA
Feeding preference					
Breast-fed	57.0	77 (37.7)	158 (76.0)	<0.001	<0.001
Respiratory symptoms	5.1	14 (6.9)	7 (3.4)	0.107	NA
Respiratory distress	3.9	11 (5.4)	5 (2.4)	0.116	NA

- Birth defects:
 - Cardiac
 - Cleft lip
 - Cerebral abnormalities

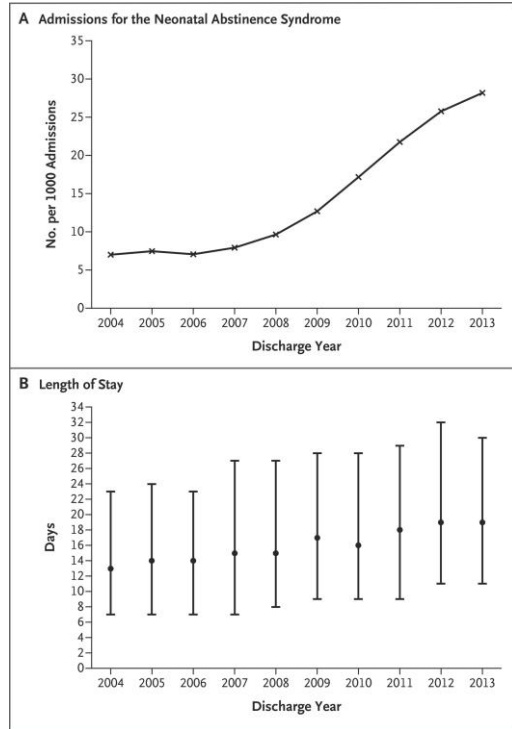
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Prenatal Methamphetamine Exposure and Short-Term Maternal and Infant Medical Outcomes

Rizwan Shah, M.D.¹, Sabrina D. Diaz, M.A.², Amelia Arria, Ph.D.³, Linda L. LaGasse, Ph.D.⁴, Chris Derauf, M.D.⁵, Eliana Newman, Ph.D.⁶, Lynne M. Smith, M.D.², Marilyn A. Huestis, Ph.D.⁷, William Haning, M.D.⁸, Arthur Strauss, M.D.⁸, Sheri Della Grotta, M.P.H.⁴, Lynne M. Dansereau, M.S.P.H.⁴, Mary B. Roberts, M.S.⁴, Charles Neal, M.D.⁵, and Barry M. Lester, Ph.D.⁴



Acute withdrawal



- Neonatal abstinence
- Recent maternal use
- Unsettled, high pitched cry, poor attachment, poor feeding, loose stools
- Finnegans
- Eat/sleep/ console

Family Centered Care

- Less breast feeding
- Higher rates of child protection involvement
- Higher rates of assumption of care

Prevalence of Selected Infant Medical Outcomes by MA Exposure

Complication/Condition ^a	Prevalence (%)	MA-Exposed (n = 204, n (%))	Comparison (n = 208, n (%))	Unadjusted p Value	Adjusted p Value ^b
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Birth defects					
Cardiac defects	3.4	6 (5.0)	8 (6.6)	0.593	NA
Child abuse exposure					
Referred to CPS	27.8	109 (54.0)	5 (2.4)	<0.001	<0.001
CPS involved—maternal drug use	27.1	106 (52.5)	5 (2.4)	<0.001	<0.001
CNS symptoms at discharge	2.2	12 (5.9)	1 (0.5)	0.001	NA
Hypertonia	2.2	9 (4.4)	0 (0.0)	0.002	NA
Feeding preference					
Breast-fed	57.0	77 (37.7)	158 (76.0)	<0.001	<0.001
Respiratory symptoms	5.1	14 (6.9)	7 (3.4)	0.107	NA
Respiratory distress	3.9	11 (5.4)	5 (2.4)	0.116	NA



Shah et al., (2012) Prenatal Methamphetamine Exposure and Short-Term Maternal and Infant Medical Outcomes American Journal Perinatology

Management of baby

- Aim to keep mother + baby together
- Breast feeding (negative urines/ well engaged/ rehab)
- Intensive midwifery support
- Single room/ 5 day stay
- Monitoring for withdrawal
- Head ultrasound

Keeping mum and baby together

- Multi-disciplinary support
- Mother baby unit
- Support and encouragement





Prenatal Methamphetamine Exposure-Children

Increased long term risks:

- Physical

- Learning and cognitive effects

- Behavioural

- Emotional



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Psychiatry Research: Neuroimaging 132 (2004) 95–106

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Smaller subcortical volumes and cognitive deficits in children with prenatal methamphetamine exposure

Linda Chang^{a,b,*}, Lynne M. Smith^c, Christine LoPresti^{b,d}, M. Lynn Yonekura^e,
Jennifer Kuo^c, Irwin Walot^{b,f}, Thomas Ernst^a

- Smaller brain volume on MRI
- Correlation with poorer attention and delayed memory



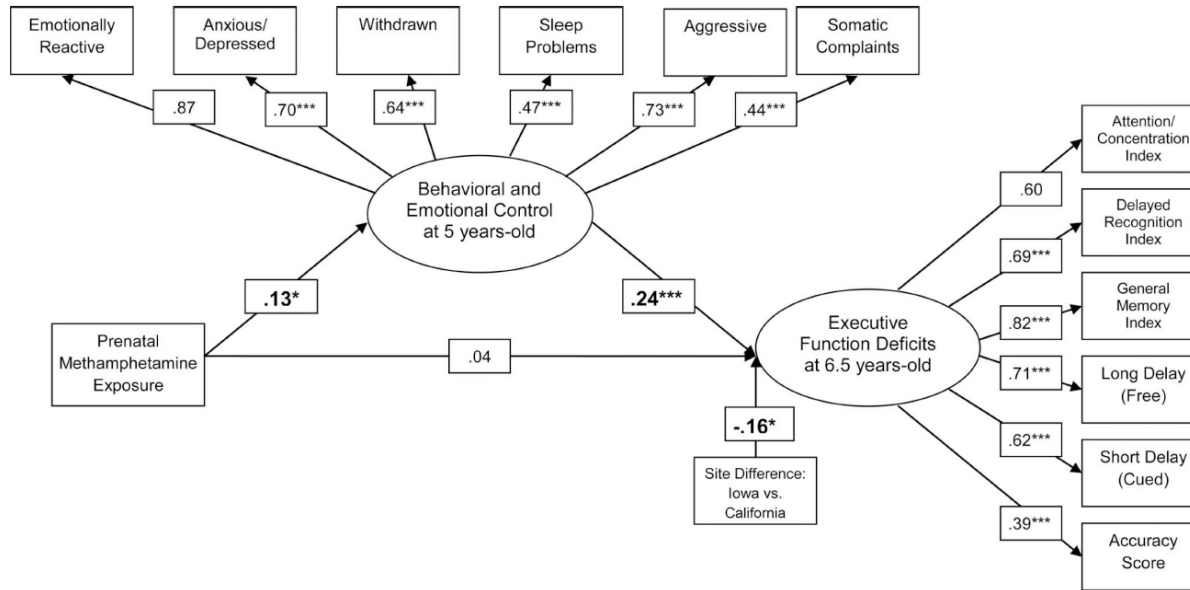


Figure 1.

Summary- Effects of ice use during pregnancy on both the mother and baby

- Amphetamine use in pregnancy continues to occur
- Stigma around this patient group can affect the provision/ acceptance of best practice care
- Prenatal methamphetamine exposure can:
 - harm the mother and unborn baby
 - Cause long term consequences to the infants development
- These families need support, follow up and strategies to encourage change

Addiction and Pregnancy: A Guide for Mothers

Pregnancy should be an exciting and empowering time in a woman's life.

Unfortunately, addiction and mental health problems can compromise a woman's safety and well-being. There's hope for recovery, though. Help is available for pregnant women who are suffering from addiction.



Q & A

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