### Fetal marijuana exposure and health effects (1)—APPROVED STATEMENTS

<table>
<thead>
<tr>
<th>Evidence Reviews</th>
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<tr>
<td><strong>Institute of Medicine Review article, 1999 (pg 122-136)</strong></td>
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#### General
- No reference
- No reference
- No reference

There is no known safe level of marijuana use during pregnancy.
Marijuana use during pregnancy may have negative effects on the fetus, regardless of when it is used during pregnancy.

#### THC transfer to fetus
- No reference
- No reference
- THC crosses the placental barrier and directly affects the fetus

THC can pass from the mother to the fetus through the placenta.
The fetus can be exposed to THC used by the mother.

#### IQ and Cognitive Effects
- No lasting differences in language development, reading scores, and visual or perceptual tests. Moderate cognitive deficits found at 4 days old and 4 years old, but not apparent at 5 years of age.
- MODERATE evidence for association with decreased IQ scores, reduced cognitive function, and decreased academic ability in adolescence.
- Second trimester marijuana exposure associated with lower IQ scores
- First trimester marijuana exposure associated with poorer reading and composite scores on the Welscher Individual Achievement Test at 14 years of age

Maternal use of marijuana during pregnancy may be associated with negative effects on exposed offspring, including decreased academic ability, cognitive function and attention. These effects may not appear until adolescence. Scientific literature on this topic is limited.

**The Colorado report produced evidence statements which were classified by strength of evidence reviewed:**

- **SUBSTANTIAL** – evidence indicates robust scientific findings that support the outcome and no credible opposing scientific evidence;
- **MODERATE** – evidence indicates that scientific findings support the outcome, but these findings have some limitations;
- **LIMITED** – evidence indicates modest scientific findings that support the outcome, but these findings have significant limitations;
- **MIXED** – evidence indicates both supporting and opposing scientific findings for the outcome with neither direction dominating;
- **INSUFFICIENT** – evidence indicates that the outcome has not been sufficiently studied.
## Fetal Marijuana Exposure and Health Effects (2)—Approved Messages

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<tr>
<td><strong>Behavioral Effects</strong></td>
<td>Maternal use of marijuana during pregnancy may be associated with negative effects on exposed offspring, including decreased academic ability, cognitive function and attention. These effects may not appear until adolescence. Scientific literature on this topic is limited.</td>
</tr>
<tr>
<td>Institute of Medicine Review article, 1999 (pg 122-136)</td>
<td>Moderate evidence for association with attention problems(^{13,14,15,16})</td>
</tr>
<tr>
<td>Colorado Report Review article, 2014 (pg 75-86)</td>
<td>Associated with increased risk for aggressive behavior and attention problems in girls as early as 18 months of age(^{13})</td>
</tr>
<tr>
<td>Oregon--Washington County Review article, 2014 (pg 35-36)</td>
<td>Insufficient evidence for association with psychosis symptoms(^{22})</td>
</tr>
<tr>
<td>Lower ‘executive function’ scores for 9-12 yo after prenatal marijuana exposure. Mothers described children as more impulsive or hyperactive(^{8,12})</td>
<td>Limited evidence for association with increased depression symptoms and delinquent behaviors(^{20,21})</td>
</tr>
<tr>
<td><strong>Marijuana Use by Exposed Offspring</strong></td>
<td>There is conflicting research for whether or not marijuana use during pregnancy is associated with increased marijuana use in exposed offspring.</td>
</tr>
<tr>
<td>No reference</td>
<td>Mixed evidence for association with frequency of adolescent marijuana use(^{22,24})</td>
</tr>
<tr>
<td>No reference</td>
<td>Insufficient evidence for association with adolescent initiation of marijuana use(^{23})</td>
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### Fetal marijuana exposure and health effects (3)—APPROVED MESSAGES

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#### Still Birth
- No reference
- LIMITED evidence for association with increased risk of stillbirth
- Increased risk of still birth
- No reference

#### Preterm Delivery
- Except for adolescent mothers, there is little evidence that gestation is shorter in mothers who smoke marijuana
- MIXED evidence for association with preterm delivery
- Increased risk of preterm labor
- MIXED evidence for association with decreased birth weight, and being born small for gestational age
- Birth weight 90 grams/0.20 lbs. lighter than non-exposed offspring
- Increased risk of offspring being small for gestational age

#### Birth Weight
- Regular marijuana smoking during pregnancy associated with lower birth weight; relative contribution of tobacco use not known
- 3.4 ounces lower on average than non-exposed offspring; No difference when study used self-reported marijuana use
- MIXED evidence for association with decreased birth weight, and being born small for gestational age
- Birth weight 90 grams/0.20 lbs. lighter than non-exposed offspring
- Increased risk of offspring being small for gestational age

#### Growth
- No reference
- MODERATE evidence for association with decreased growth
- No reference

#### SIDS
- No reference
- LIMITED evidence that there is not an association with SIDS
- No reference
### Fetal marijuana exposure and health effects (4)—APPROVED MESSAGES

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<tr>
<td><strong>Birth Defects</strong></td>
<td><strong>Marijuana use during pregnancy may be associated with an increased risk of heart defects (isolated simple ventricular septal defects) in exposed offspring. Scientific literature on this topic is limited.</strong></td>
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- No statistically significant difference in congenital anomalies.26
  - “Newborns of mothers who smoke either marijuana or tobacco have statistically significantly higher mutation rates than those of nonsmokers.”50,51
- MIXED evidence for association with birth defects; including neural tube defects and gastroschisis.28,37,52,53,54,55,56
- LIMITED evidence for association with heart defects.57
- Rate of birth defects in exposed offspring “significantly higher than expected for 35% of defects including obstructive genitourinary defect, polydactyly, syndactyly, and reduction deformity of upper limbs.”52

Rate of birth defects in exposed offspring “significantly higher than expected for 35% of defects including obstructive genitourinary defect, polydactyly, syndactyly, and reduction deformity of upper limbs.”52
## Breast fed infants: Marijuana exposure and health effects (1)—APPROVED MESSAGES

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<td><strong>General</strong></td>
<td>Biological evidence shows that THC is present in the breast milk of women who use marijuana&lt;sup&gt;58&lt;/sup&gt;</td>
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<tr>
<td><strong>THC absorption</strong></td>
<td>Biological evidence shows that exposed infants absorb and metabolize the THC&lt;sup&gt;58&lt;/sup&gt;</td>
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<td><strong>Motor Development</strong></td>
<td>MIXED evidence for association with motor development in exposed infants&lt;sup&gt;61,62&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>SIDS</strong></td>
<td>INSUFFICIENT evidence that infant exposure (from breast feeding or marijuana smoke) is associated with SIDS&lt;sup&gt;63&lt;/sup&gt;</td>
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</table>

## REFERENCES

2. Fried PA. 1995. *The Ottawa Prenatal Prospective Study (OPPS): Methological issues and findings—it’s easy to throw the baby out with the bath water*. Life Sciences **56**:2159—2168.


