

# *Retail Marijuana Public Health Advisory Committee & Occupational Health and Safety Workgroup*



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**COLORADO**  
Department of Public  
Health & Environment

# ***CDPHE and Retail Marijuana (C.R.S. 25-1.5-111 & SB-13-283)***

## **Retail Marijuana Public Health Advisory Committee**

"The Department shall appoint a panel of health care professionals with expertise in cannabinoid physiology to monitor the relevant information. The panel shall:

- Provide a report by 1/31/15 and every 2 years thereafter\*
- Establish criteria for 1) studies to be reviewed, and 2) reviewing studies and other data, and
- Make recommendations, as appropriate, for policies intended to protect consumers of marijuana or marijuana products and the general public.



# *Advisory Committee Members*

- Appointed by CDPHE Executive Director
- No more than 15 extra-departmental members
- At least one member from CDPHE, but not more than two voting members



# *Defined Expertise and Representation*

- Drug epidemiology
- Surveillance epidemiology
- Medical toxicology
- Pediatric Medicine
- Rocky Mountain Poison and Drug Center
- Psychiatry/Drug Addiction
- Pharmacology
- Pulmonary Medicine
- Obstetrics and Gynecological Health
- Local public health representative
- Colorado School of Public Health representative



# *Retail Marijuana Public Health Advisory Committee*

Mike Van Dyke, Ph.D. (Chair)	Epidemiologist	Colo Dept of Pubic Health & Env
Ken Gershman, MD, MPH	Public Health Physician	Colo Dept of Pubic Health & Env
Laura Borgelt, PharmD	Pharmacologist	University of Colorado Hospital
Russell Bowler, MD, PhD	Pulmonologist	National Jewish Health
Al Bronstein, MD	Poison Control Representative	Rocky Mountain Poison and Drug Center
Ashley Brooks-Russell, PhD	Health Risk Behaviors	Colorado School of Public Health
Heath Harmon, MH	Local Public Health Representative	Boulder County Public Health
Sharon Langendorfer, MB	Pediatrics	Denver Health
Bruce Mendelson , MPA	Drug Epidemiology	Denver Office of Drug Strategy
Andrew Monte, MD, MSc	Medical Toxicologist	University of Colorado Hospital
Judy Shlay, MD	Public Health Surveillance	Denver Health
Christian Thurstone, MD	Psychiatrist/Addiction Medicine	University of Colorado Hospital
George Sam Wang, MD	Pediatrician	Children's Hospital Colorado



# *Duties of Advisory Committee*

- Systematically review the scientific literature
  - Come to consensus on population health effects of marijuana use
- Develop public health statements
  - Come to consensus on translation of the science into simplified language
- Recommend public health related policies
- Recommend public health surveillance activities
- Identify research gaps important to public health



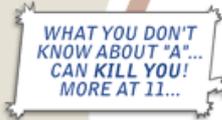
# THE SCIENCE NEWS CYCLE

Start Here



YOUR GRANDMA

...eventually making it to...



...and caught on ...



...then noticed by...



WWW.PHDCOMICS.COM

Your Research  
Conclusion: **A is correlated with B ( $p=0.56$ )**, given C, assuming D and under E conditions.



...is translated by...



**UNIVERSITY PR OFFICE**  
(YES, YOU HAVE ONE)  
FOR IMMEDIATE RELEASE:  
SCIENTISTS FIND POTENTIAL LINK BETWEEN A AND B (UNDER CERTAIN CONDITIONS).

...which is then picked up by...

**NEWS WIRE ORGANIZATIONS**  
**A CAUSES B, SAY SCIENTISTS.**



...who are read by ...

**THE INTERNETS**

Scientists out to kill us again.  
POSTED BY RANDOM DUDE  
Comments (377)  
OMG! i kneeeew itt!!  
WTH???????

title: "Science News Cycle" - originally published 5/18/2009



# Meeting Schedule

Date	Topic
May 12, 2014	Committee Introduction
June 16, 2014	Marijuana Use During Pregnancy and Breastfeeding
July 21, 2014	Potential Neurological and Mental Health Effects
August 18, 2014	Potential Health Effects on Youth and Unintentional Poisonings
September 15, 2014	Marijuana Dose and Drug Interactions
October 20, 2014	Potential Extrapulmonary Effects and Injuries
November 17, 2014	Potential Respiratory Effects and Lung Cancer
December 15, 2014	Committee Conclusion



# *Literature Review: Objectives*

- Develop well designed, systematic, unbiased criteria for selecting and evaluating studies
- Build a comprehensive review of existing evidence on the health effects of marijuana use
- Create a framework to add emerging evidence
- Facilitate expert conclusions regarding the body of evidence
- Facilitate the communication of these conclusions to a lay audience



# *Systematic Literature Review*

- Conduct a broad search of peer-reviewed publications(Medline)
- Download articles and relevant cited articles
- Rate each finding in the articles based on strengths and limitations
- Group findings into topics
  - Population
  - Exposure
  - Outcome
- Draft summary statements based on quantity and quality of evidence



# *Rating the Findings*

- Findings rated based on strengths and limitations of each study
  - Low, medium or high quality
- Based on the GRADE system, which is used by:
  - Cochrane Collaboration, British Medical Journal, American College of Physicians, World Health Organization, and many others
- Factors that impact the quality of evidence:
  - Risk of Bias
  - Precision
  - Directness
  - Key strengths
  - Consistency



# *Weighing the Evidence*

- **Substantial evidence:**
  - at least 1 high quality finding, plus supporting findings, with no opposing findings
  - at least 3 medium quality findings, with no opposing findings
- **Moderate evidence:**
  - a single high quality finding only
  - at least one medium quality finding, plus supporting findings with no opposing findings, supporting findings can include animal studies
  - mixed findings, heavily favoring one conclusion (opposing findings must be low quality)



# *Weighing the Evidence*

- **Limited evidence:**
  - a single medium quality finding only
  - two or more low quality findings in agreement
  - one low quality finding supported by animal studies
  - mixed findings, most favoring one conclusion
- **Insufficient evidence:**
  - a single low quality finding
- **Mixed evidence:**
  - mixed findings, with neither direction dominating
  - mixed findings, with a medium or high quality study on each side

# *Pregnancy & Breastfeeding Example*

## *Cognitive Function*

- We found moderate evidence that maternal use of marijuana during pregnancy affects cognitive function in exposed offspring.
  - 3 studies, 1 medium, 2 low quality
  - Medium quality
    - ❖ Wilford et al 2010 (MHPCD f/u age 16-18)
      - prenatal marijuana use was significantly associated with decrease in processing speed and interhemispheric coordination



# *Pregnancy & Breastfeeding Example*

## *Cognitive Function*

- Low quality
  - ❖ Fried et al 2003 (OPPS f/u age 13-16)
    - After adjustment, heavy users ( $\geq 6$  joints/week) had statistically significant slower response times on the Abstract Designs latency section (visual memory task) than none/light users ( $p \leq 0.05$ )
    - After adjustment, there was a significant negative association with performance on the Peabody Spelling assessment ( $p \leq 0.05$ )
  - ❖ Smith et al 2004 (OPPS fMRI f/u age 18-21):
    - there was a significant positive relationship between bilateral prefrontal cortex activity (mediates inhibitory functions) and the amount of prenatal marijuana exposure
    - increased prenatal exposure to marijuana associated with attenuation of activity in the left cerebellum during response inhibition
    - After adjustment, prenatally exposed participants had significantly more errors of commission than the non-exposed group



# Pregnancy & Breastfeeding Findings

<u>Moderate evidence</u>	<u>Limited evidence</u>	<u>Insufficient evidence</u>	<u>Mixed evidence</u>
Growth	Stillbirth	Psychosis symptoms	Preterm delivery
IQ scores in young children	SIDS (no association)	Breastfeeding and SIDS	Low birth weight
Cognitive function	Depression symptoms	Initiation of future marijuana use	Small for gestational age
Academic Ability	Delinquent behavior		Birth weight
Attention problems	Frequency of future marijuana use		Newborn behavior
	Isolated simple ventricular septal defects		Breastfeeding and infant motor development
			Birth defects (NTD, gastroschisis)



# ***Pregnancy & Breastfeeding Public Health Statements***

- There is no known safe amount of marijuana use during pregnancy.
- THC can pass from mother to the unborn child through the placenta.
- The unborn child is exposed to THC used by the mother.
- Maternal use of marijuana during pregnancy is linked with negative effects on exposed children.
- There are negative effects of marijuana use during pregnancy regardless of when it is used during pregnancy.
- THC can be passed from the mother's breast milk, potentially affecting the baby.



# *Pregnancy & Breastfeeding Public Health Recommendations*

- Data Quality Issues
  - Standardization of data collection on dose, amount, frequency and method of marijuana use
  - Separate and account for other drug use
- Surveillance
  - Better data on prevalence of marijuana use in pregnant and breastfeeding women
  - Enhanced surveillance for birth outcomes in mothers who use marijuana
  - Collection of reported marijuana use in EHR
  - Data collection to identify specific target populations for public health intervention (geography, income, race, etc.)
- Education
  - Education of health care providers
  - Education of pregnant women
  - Public education
  - Educational materials provided at dispensaries



# *Pregnancy & Breastfeeding*

## *Research gaps*

- Effect of CBD and other cannabinoids
- Effect of consumption of edibles or by vaping
- Contribution of smoking marijuana to health effects versus other method of use
- Effect on miscarriage
- Marijuana use and breastfeeding
  - Effect on growth and weight gain in infant
  - How long does THC remain in breast milk?
  - Replicate presence of THC in breast milk
- Pair self-report with biomarker testing in Colorado
- Impact of potency on health effects
- Reasons for marijuana use during pregnancy/breastfeeding



# *Occupational Health and Safety Workgroup*



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# OHSW: Goals



- Identify EHS issues in the marijuana industry
- Provide guidance to marijuana industry to prevent occupational injuries and illnesses
- Provide guidance to marijuana industry on hazardous waste and sustainability issues
- Identify best practices for nuisance odor control and remediation of former grow operations
- Identify surveillance data to follow injury and illness trends



# *OHSW: Participation*

- Multiple CDPHE divisions
- Colorado School of Public Health
- Center for Worker Health and Environment
- Colorado State University
- Local health departments
- Private consultants
- Industry representatives
- Federal agencies



# *Anticipated Outputs*

- EHS guide for the marijuana industry
- Surveillance report on occupational injuries and illnesses in the marijuana industry
- Marijuana industry meeting to share findings





Questions from local or state  
government officials?



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