Marijuana secondhand smoke: Health and policy implications

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FDA Center for Tobacco Products, NHLBI, CA Tobacco-Related Disease Research Program,
NIDA, Elfenworks Foundation, AHA, Flight Attendant Medical Research Institute
1/2 mile from UCSF!
SF, 2017... REALLY!!!
(the return of a familiar problem)

“NOW SERVING CANNABIS FOR BRUNCH
In S.F., gourmet fare infused with artisanal weed offers medicated spreads to new connoisseurs”
– SF Chronicle 1/22/17
Tobacco secondhand smoke exposure impairs ability of arteries to \textit{vasodilate} when they need to pass more blood.

(Vasodilation: Arteries grow in diameter when necessary)

Important: Impairment is temporary, but repeated exposures lead to \textit{long-term} impairment.
1 minute of SHS exposure was enough to impair vascular endothelial function

n=8 for all groups

*P<.01 impairment vs. mean of pre-exposure and recovery

Pinnamaneni et al., 2014, Nicotine Tob. Res. 16:584-590

Liu et al., 2016, Tob. Regul. Sci. 2:56-63
Problem: General public avoids tobacco SHS but many think marijuana SHS is ok.

“No one said it ISN’T ok”

“There’s no nicotine”

“It’s natural”

“It’s medicinal”
2. Business Activity/Schedules

Your business activity is: RESEARCHER (I)

Please make any requested changes to your registered schedules below, and select Next to continue.

**DRUG SCHEDULES** [see schedules]

Select all that apply

- Schedule

Is the researcher human? ○ Both ○ Human Only ○ Non-Human Only

☐ Check here if you require order forms to only purchase Schedule I and II from suppliers.

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Impairment from one minute of marijuana SHS persists longer than impairment from tobacco SHS.

~670 µg/m³ particles (PM2.5)
Marijuana SHS for 1 minute lowered FMD for at least 90 minutes

“How long does it take for FMD to recover?”

1 minute exposure (THC-free)
“They totally smoke out the rats”

The smoke was invisible in the exposure chamber
Implications:

Public exposure to secondhand smoke should be avoided whether the source is tobacco or marijuana.

Wang et al., 2016, J Am Heart Assoc 5:e003858
Acute and long-term cardiovascular risk is unclear

Risk of MI goes up ~5-fold in the hour after marijuana use (Mittleman, 2001)

Mortality from MI may or may not increase in marijuana users (Mukamal, 2008; Frost, 2013)

No clear correlation between long-term marijuana use and cardiovascular disease later in life (e.g., Reis, 2017 CARDIA study)

…but, increased MI, heart failure, stroke reported for marijuana users relative to non-users (e.g., Kalla et al., Chami et al., 2017 ACC conference)
Policy Goals:
Change the perception and the dialogue
Policy Goals:
Change the perception and the dialogue

“No one said ‘It ISN’T ok’

“There’s tar and chemicals”

“It’s gross”

“It’s bad for you”

“No one said ‘It ISN’T ok’”
San Francisco Gets Serious About Smoking Rules

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San Francisco office workers are now within 15 feet of a door a minute to understand new smoking rules.

In March, the Board of Supervisors passed an amendment to the anti-smoking law, banning smoking in service areas and within 15 feet of entrances and exits of businesses.

Earlier this month, the Board of Supervisors softened The City’s smoking prohibitions to allow the Office of Cannabis to grant temporary waivers for marijuana smoking at events such as Hardly Strictly Bluegrass. (S.F. Examiner file photo)

Why is San Francisco encouraging people to smoke at outdoor events?

In 2005, the San Francisco Board of Supervisors voted to ban smoking in all public places, great outdoors included. Now, San Francisco is allowing marijuana smoking at the Hardly Strictly Bluegrass festival.
“Smokewar” by Rui Zheng, 2013
(the daughter of Xiaoyin Wang in my lab)