WASHINGTON POISON CENTER
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E-Cigarettes and Marijuana Exposures in WA State and Child Health Concerns

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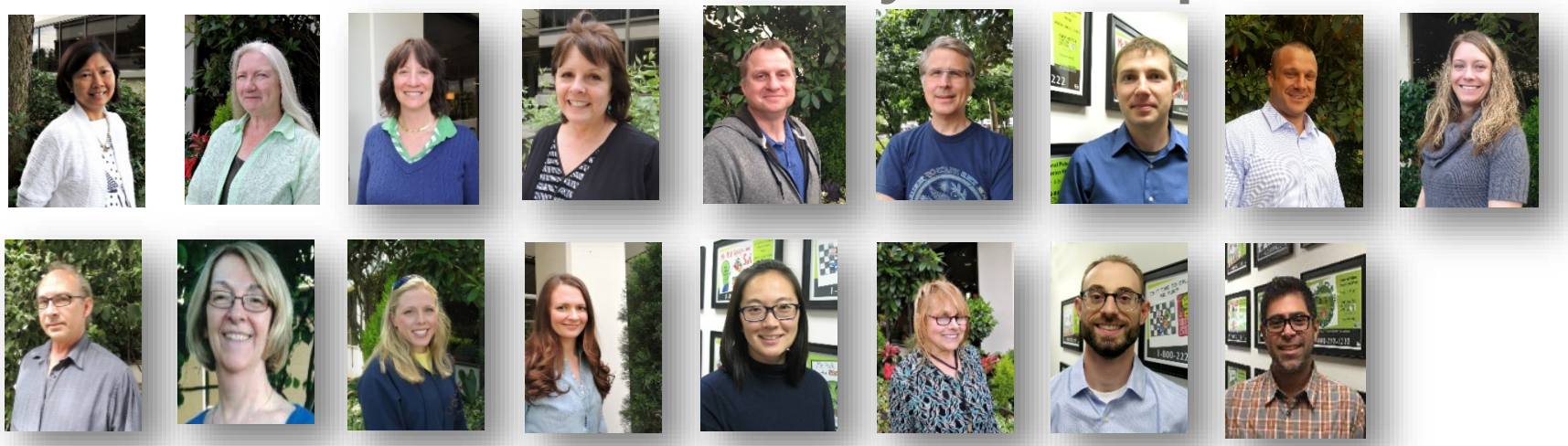

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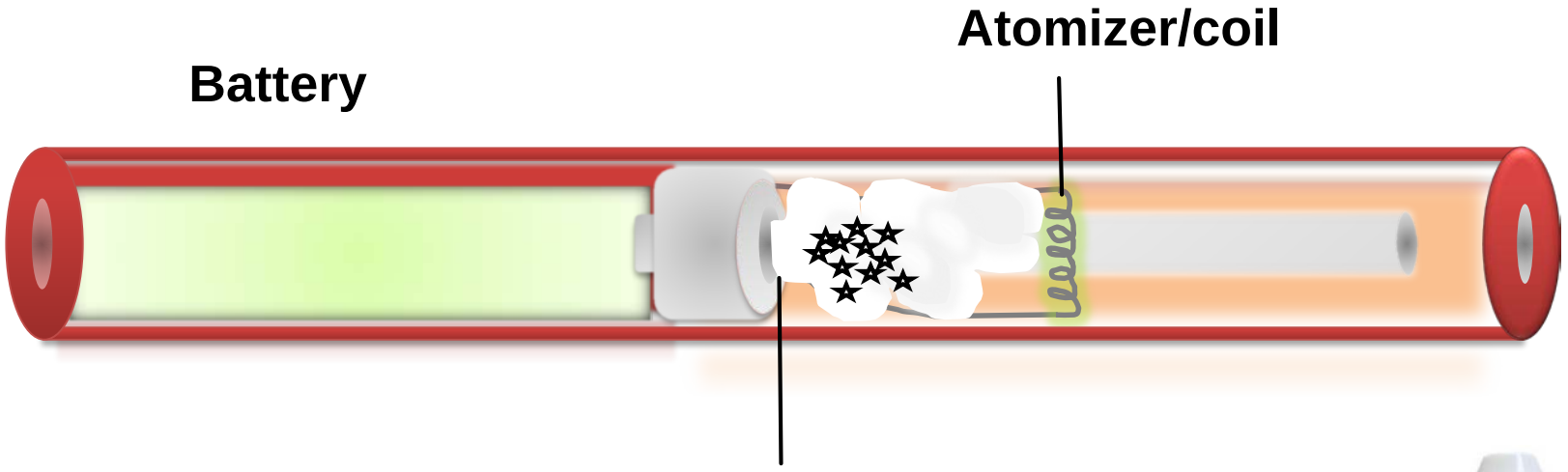
E-cigarettes?

What are E-cigarettes?

- Electronic Nicotine Delivery System (ENDS): battery operated device that vaporizes a liquid nicotine for inhalation
- Go by several names: e-cig, e-hookah, e-pen, vape pen, mod, vaporizer

What are E-cigarettes?

Nicotine aerosol



Absorbent material/cotton:

Nicotine
Propylene glycol
Vegetable glycerin
Flavorants

Various E-Cigarettes Available

$7-10

$10-40

$100-800

Various E-Cigarettes Available - JUUL

mango

cool
mint

virginia
tobacco

fruit
medley

creme
brulee

Explosive Dangers

Home destroyed after e-cigarette explodes in Turkey's Denizli

DAILY SABAH

•

ISTANBUL

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Published
December 25, 2017

Three people
overnight ex

Man suffers burns after E-cig explodes in his pocket

Posted: Dec 22, 2017 1:23 PM PST
Updated: Dec 22, 2017 2:03 PM PST

Posted By Brianna Owczarzak, Digital producer CONNECT

By Tiarra Braddock

SAGINAW, MI (WNEM) - Recent studies show vaping and E-cigarettes have become quite popular with younger generations, especially teenagers.

One Mid-Michigan man is warning about the potential dangers, not just to the inside of the body but to the outside as well.

Courtesy photo

tronic cigarette exploded inside a backpack on a Pinellas County bus,

noticed smoke — and
rom a backpack

Lithium Ion Fire Hazard

How does the internal battery temperature rise that the battery fires or explodes?

- Flammable electrolyte currently used in Li-ion batteries
  - The electrolyte is heated to its boiling point and the internal pressure in the battery builds to a point where the seal of the battery ruptures
- Maybe due to packing large amount of power into a small space
- Poor design
- Low quality materials
- Manufacturing flaws
- Improper use or handling or come into contact with other metals

E-Juices

- Liquids or “Juices” typically have 4 ingredients:
  - Liquid nicotine
  - Propylene glycol
  - Vegetable glycerin
  - Flavoring

Combustible vs E-cigarettes

Combustible Cigarettes	Low-dose E-cigarettes	High-dose E-cigarettes
12 mg nicotine/cig	6 mg/mL	36 mg/mL
20 cigarettes/pack	15 mL/bottle	15 mL/bottle
240 mg nicotine/pack	90 mg nicotine/bottle	540 mg nicotine/bottle

1 teaspoon of a 36 mg/mL bottle is a lethal dose for a 20 lb. baby

What does research say about the controversial points?

Pro-Vape Point #1

E-Cigarettes are less harmful and safe than combustible cigarettes.

Pro-Vape Point #1: Less Harmful and Safe

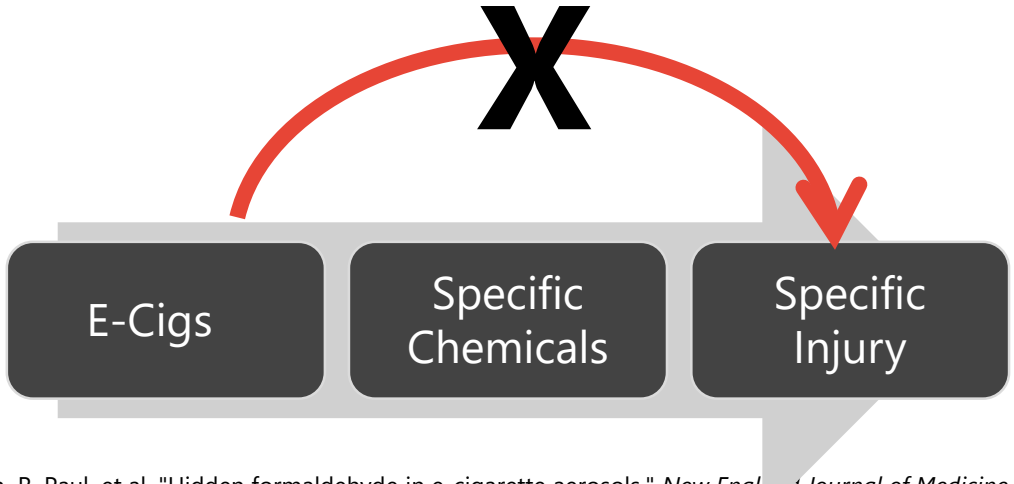
Response:

- Yes--Cigarette smoke contains > 7,000 chemicals, so vaping is *probably* not as harmful as smoking
- But– The information we have shows that safer ≠ safe

safer ≠ safe

Pro-Vape Point #1: Less Harmful and Safe

- Vape aerosols have been found to contain the following:
  - Formaldehyde releasing chemicals[1] (at high voltage)→ Cancer
  - Free Radicals[2] → Causes cellular damage → Cancer
  - Diacetyl[3] → Bronchitis Obliterans or "Popcorn lung" (form of irreversible lung damage)
  - **And more!!**



There has not been sufficient time to show a direct link to long-term health consequences

1. Jensen, R. Paul, et al. "Hidden formaldehyde in e-cigarette aerosols." *New England Journal of Medicine* 372.4 (2015): 392-394.

Pro-Vape Point #2

E-Cigarettes do not have secondhand harm

Pro-Vape #2: No Secondhand Harm

Similar Response:

- Yes—Secondhand "vape" is *probably* safer than secondhand smoke
- But– We don't know for sure. The data we do have shows it's not just water vapor

safer ≠ safe

Pro-Vape #2: No Secondhand Harm

- Minimal but measurable levels in secondhand vapors:
- Measurable levels (albeit minimal) of nicotine found in secondhand vapors[1]
- Formaldehyde, acetone, isoprene, and acetaldehyde were also measured[1]
- Until we have the time and studies to directly study this, we don’t know for sure

Pro-Vape Point #3

E-cigarettes can be used as a smoking cessation method. Why are you preventing something that helps people quit?

Pro-Vape Point #3: Smoking Cessation

- Yes — some people have quit combustible cigarettes with this device
- But – it is not an FDA approved cessation device
- Questions as to whether the creation of an e-cigarette was intended as a smoking cessation product
- Cessation versus redirection
- Some adults do use the product to quit, but youth and young adults indicate predominantly social reasons for initiating use[1,2]

Harm reduction is great, but…

- If those already addicted to combustible cigarettes can shift to something that's not combustible cigarettes, GOOD!
- If someone using combustible cigarettes can quit smoking all together using this product, GREAT!

- **But this isn't the only thing going on…**

"Gatev

- E-cigs as ar
  - E-cigare
  - E-cigare later (9t
  - E-cigare later (yc
  - 32% of smoker
  - 1 year l
    - You like
    - You mo

1. Wills, Thomas A., et al. "E-cigarette use and willingnes
2. Leventhal, Adam M., et al. "Association of electronic c
3. Primack, Brian A., et al. "Progression to traditional cig
4. McMillen, R.C. *et al.* 2014. "Trends in Electronic Cigare
5. Miech, R. et al. (2017) "E-cigarette use as a predicto

Trajectories of E-Cigarette and Conventional Cigarette Use Among Youth

Krysten W. Bold, PhD,[a] Grace Kong, PhD,[a] Deepa R. Camenga, MD,[b] Patricia Simon, PhD,[a] Dana A. Cavallo, PhD,[a] Meghan E. Morean, PhD,[c] Suchitra Krishnan-Sarin, PhD[a]

BACKGROUND: Electronic cigarette (e-cigarette) use is common among youth, and there are concerns that e-cigarette use leads to future conventional cigarette use. We examined longitudinal associations between past-month cigarette and e-cigarette use to characterize the stability and directionality of these tobacco use trajectories over time.

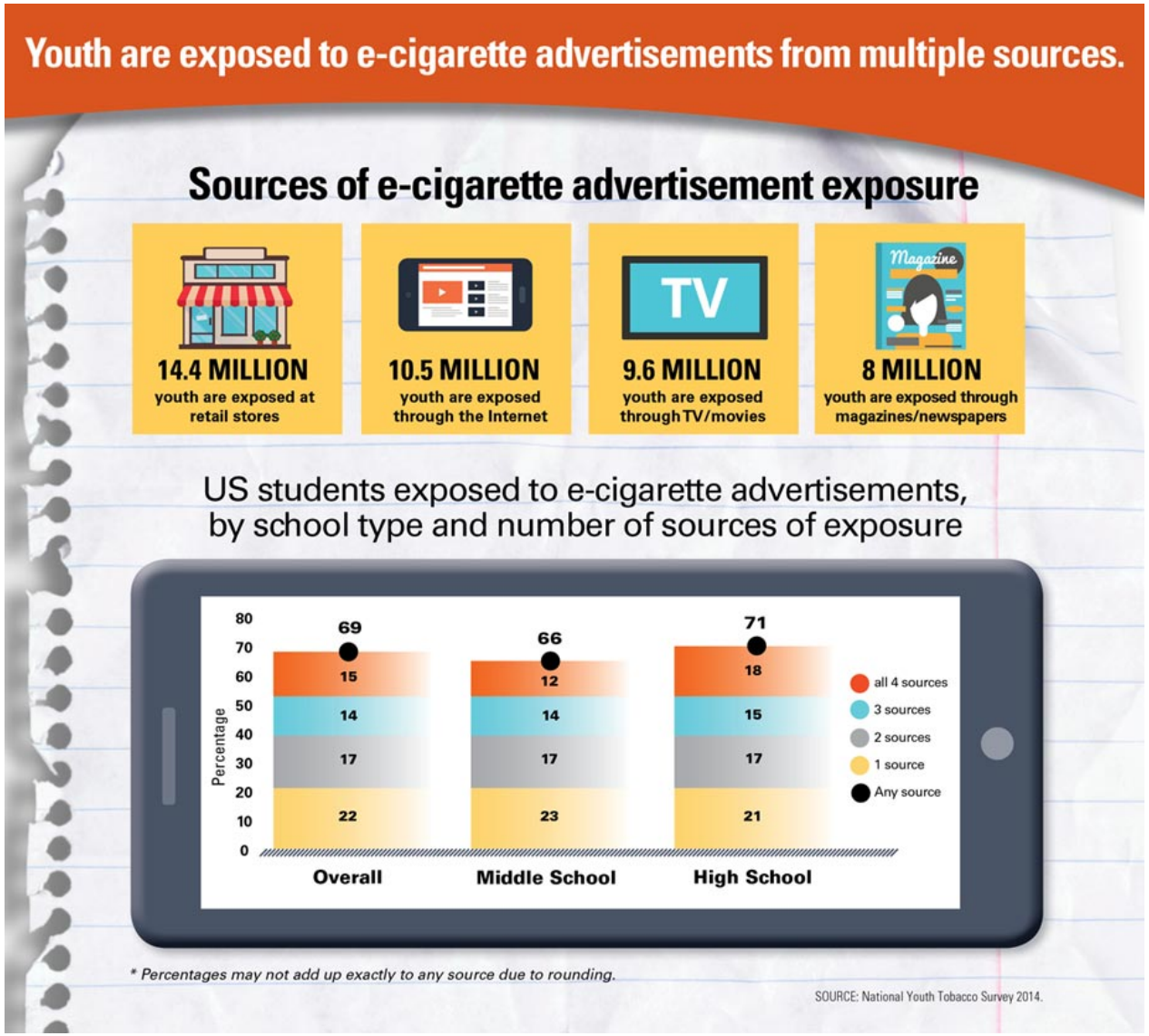
METHODS: High school students (N = 808, 53% female) completed surveys across 3 waves (2013, 2014, and 2015) in 3 public schools in Connecticut. Using autoregressive cross-lagged models, we examined bidirectional relationships between past-month cigarette and e-cigarette use over time. Models were adjusted for covariates related to tobacco use (ie, sex, race/ethnicity, socioeconomic status, and use of other tobacco products).

RESULTS: Past-month e-cigarette use predicted future cigarette use (wave 1–2: odds ratio [OR] = 7.08, 95% confidence interval [CI] = 2.34–21.42; wave 2–3: OR = 3.87, 95% CI = 1.86–8.06). However, past-month cigarette use did not predict future e-cigarette use (wave 1–2: OR = 2.02, 95% CI = 0.67–6.08; wave 2–3: OR = 1.90, 95% CI = 0.77–4.71). Additionally, frequency of cigarette and e-cigarette use increased over time. By wave 3, 26% of cigarette users and 20.5% of e-cigarette users reported using 21–30 days out of the past month.

CONCLUSIONS: E-cigarette use was associated with future cigarette use across 3 longitudinal waves, yet cigarette use was not associated with future e-cigarette use. Future research needs to examine mechanisms through which e-cigarette use leads to cigarette use. E-cigarette regulation and prevention programs may help prevent future use of cigarettes among youth.

Marketing Targeted Towards Youth

Marketing: blu



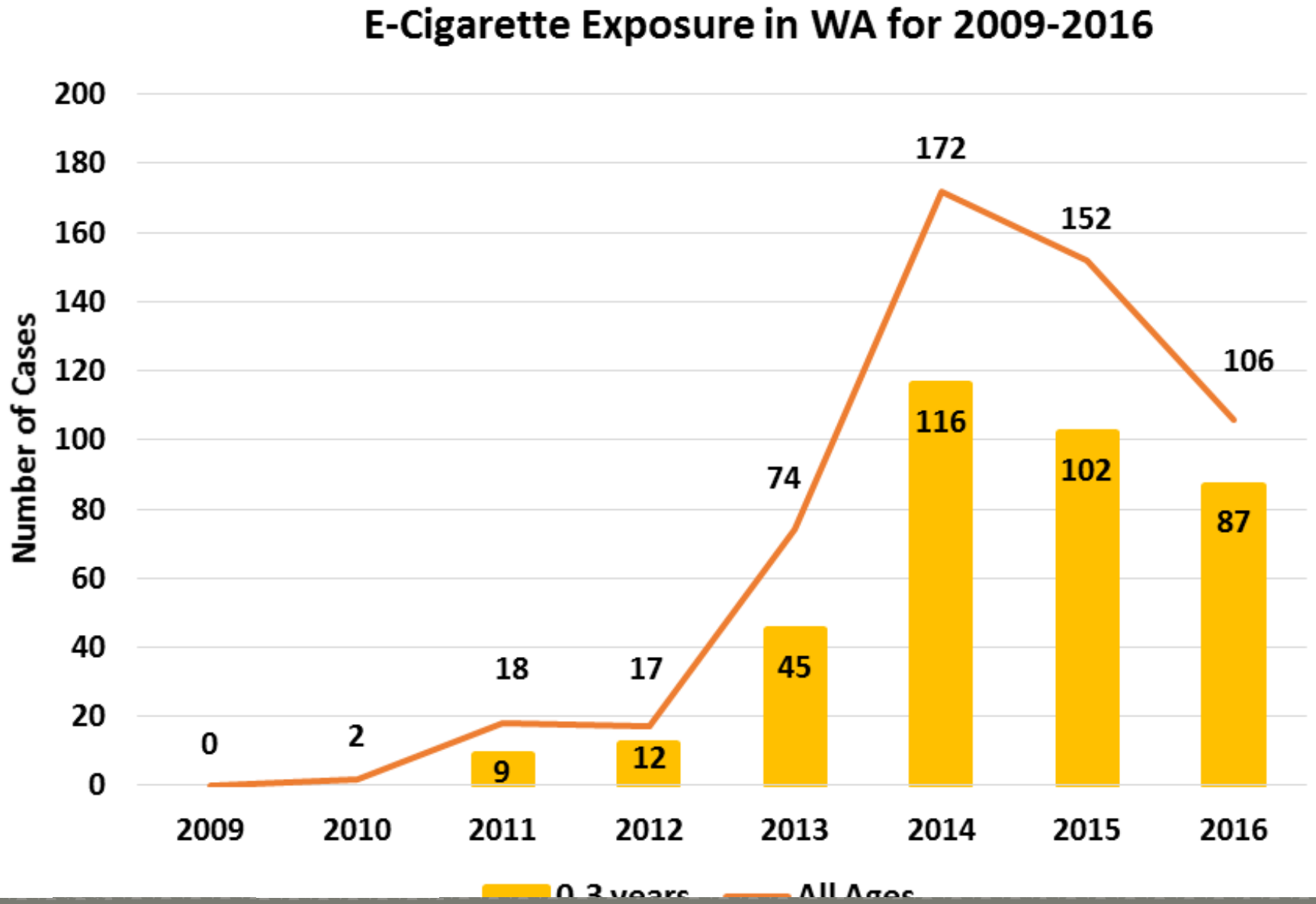
"In 2014, nearly seven in 10 (18.3 million) U.S. middle school and high school students reported exposures to e-cigarette advertisement from at least one source"[1]

--CDC's Vital Signs: Exposure to Electronic Cigarette Advertising Among Middle School and High School Students – United States, 2014


blu
Newport
CIGARETTES
MARKTEN
CLASSIC
E-CIG
FILTER CIGARETTES
Marlboro
VUSE
SOLO
DIGITAL
VAPOR
CIGARETTE
CAMEL
FILTERS
TURKISH & AMERICAN
BLEND
CIGARETTES

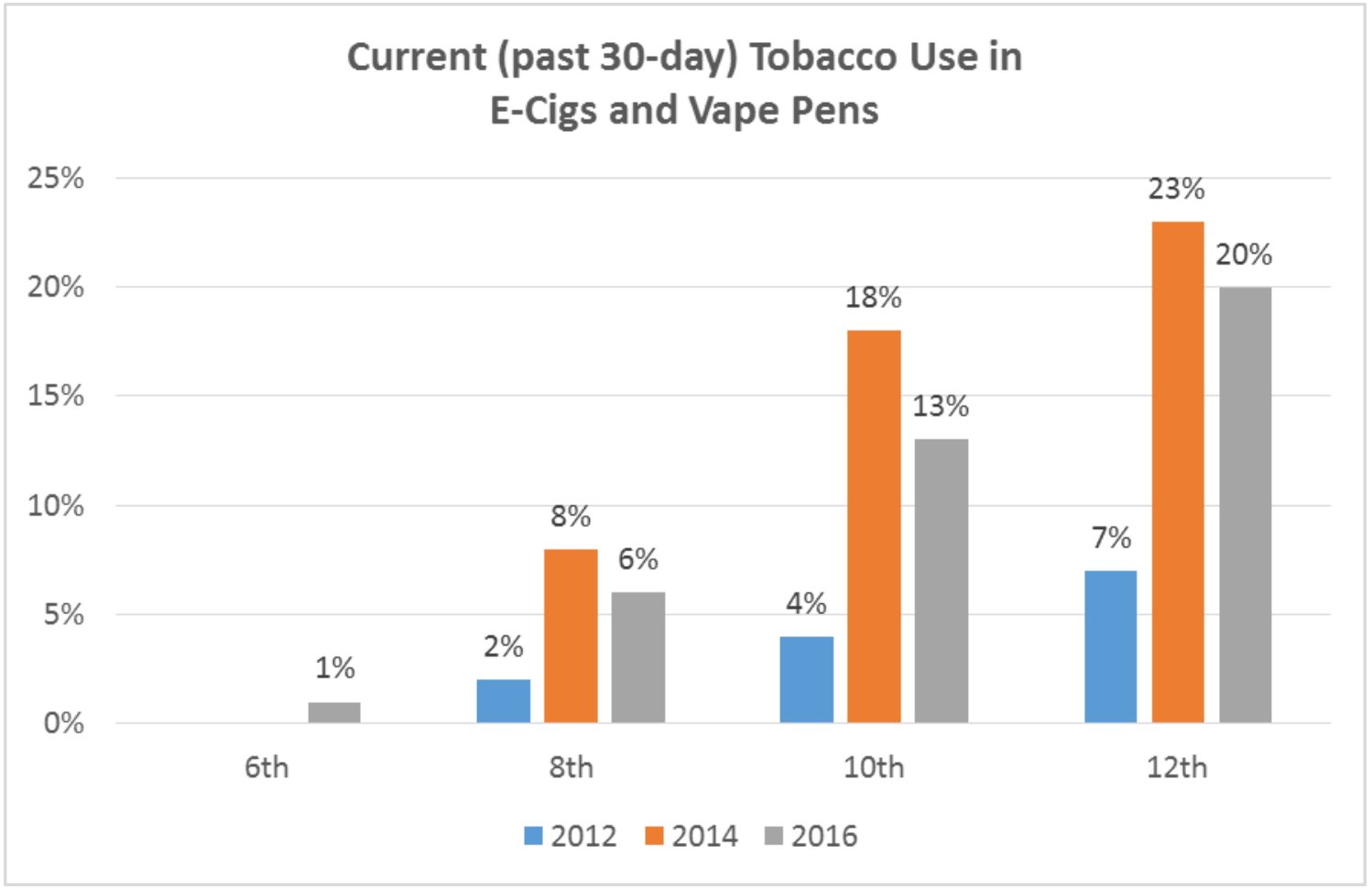
What are we seeing in Washington State?

E-Cigarette Exposure



Despite the overall decrease in calls, children ages 0-3 years are still disproportionately affected and account for about 82% of the total cases.

WA HYS Results – E-Cigarettes



Thank You!

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