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New Mexico Poison & Drug Information Center



Presentation to Tobacco Settlement Revenue Oversight Committee

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Mission of NMPDIC



The mission of the New Mexico Poison & Drug Information Center (NMPDIC) is to improve the health of New Mexicans by reducing morbidity and mortality associated with poisoning, adverse drug interactions and medication errors.

Service Components

- Poison Information
- Drug Information
- DOH All Hazards

Poison Center Enhanced Data Collection Project

E-cigarettes

- Collect extensive brand name information
- Special attention to new RJR VUSE product
- Surveillance for new product designs
 - Vaporizer pens
 - Open vs closed systems
 - Flavorings
 - Bud cartomizers
- Concentration of nicotine

Electronic cigarette Facts



RJ Reynolds has asked poison centers to collect enhanced data on exposures

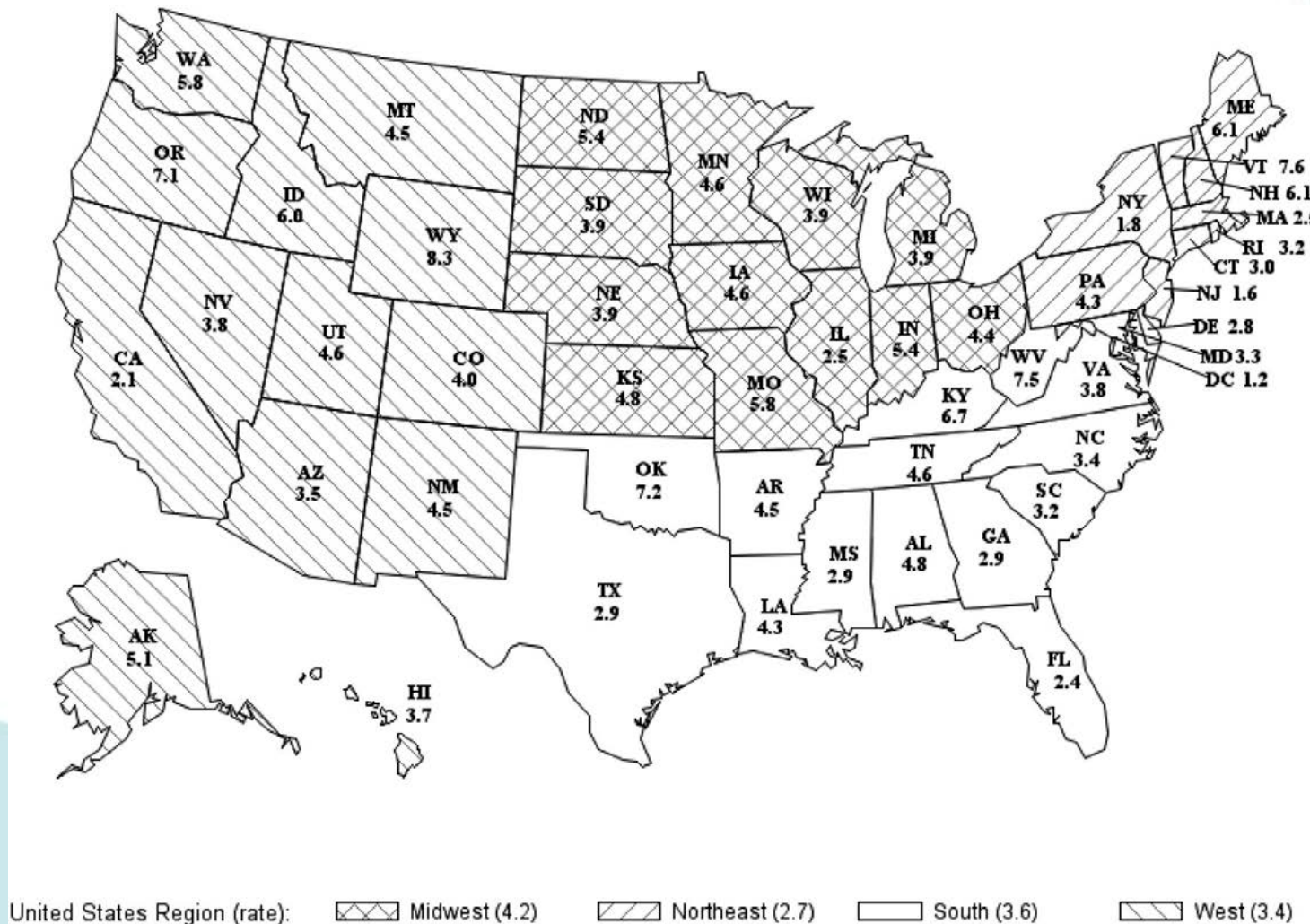
Tobacco/cigarette calls have increased 25% since 2014

- National explosion of e-cigarette calls to Poison centers
- 1 death in a toddler in NY
- NMPDIC calls increased 7-fold from 2010 to 2014 (9 to 61)
- NMPDIC calls decreased in 2015 (48) after passing of child-resistant packaging rules in NM
- NMPDIC calls in 2016 (41) and 2017 (18 YTD)

Background

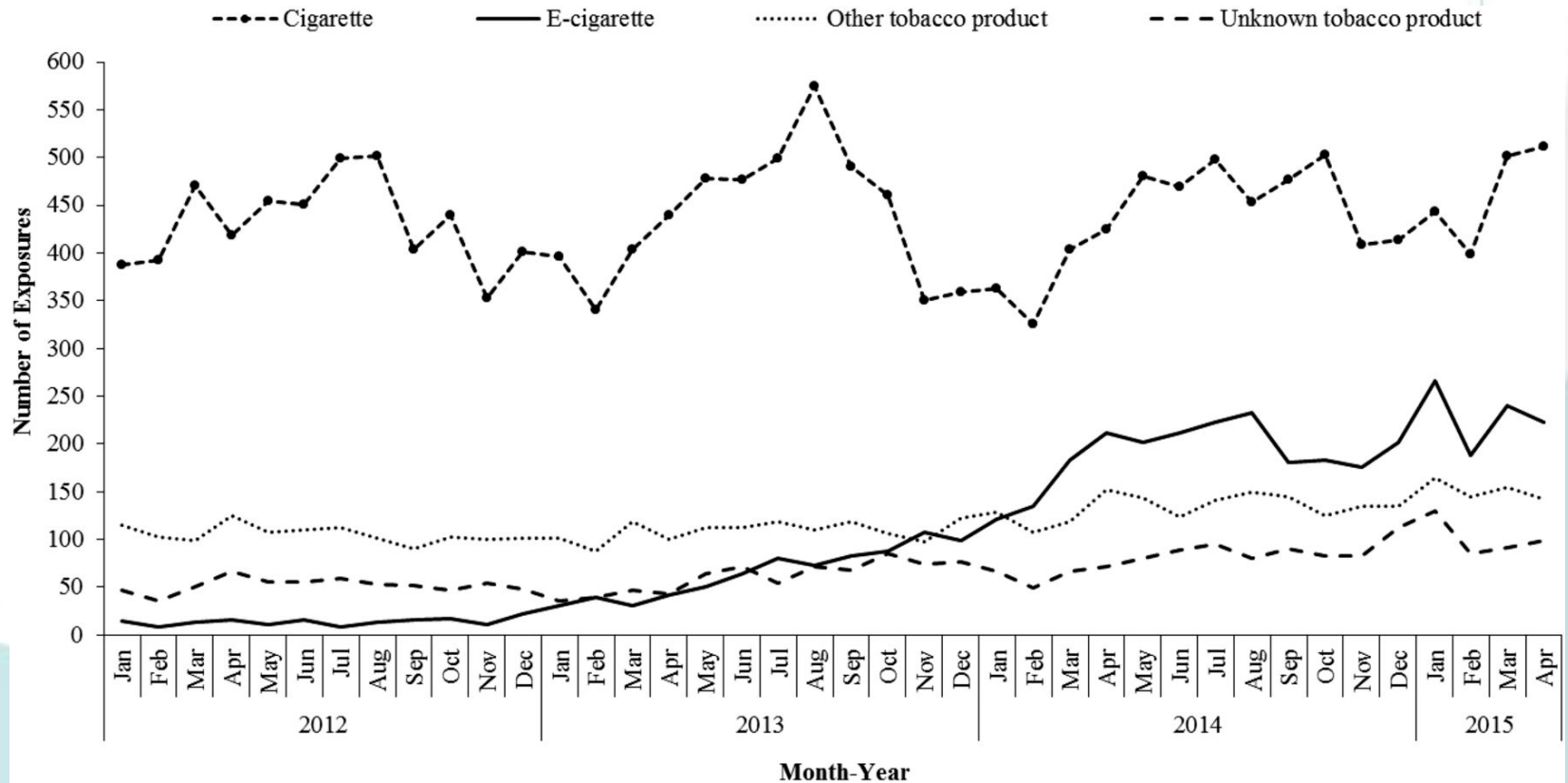
- Poison centers are reporting an increase in calls about exposures to E-cigarettes and the liquid nicotine used in the E-cigarette devices.
- In 2015, poison centers received reports of 3,590 exposures to electronic cigarettes and liquid nicotine (out of 2,231,381 total exposure cases).
 - Just over one-half of these reported exposures have occurred in children under the age of 6 years.
 - Decreased to 2886 in 2016

Nicotine and tobacco product exposure rate per 10 000 children younger than 6 years by state and region, NPDS, January 2012 to December 2014.



Alisha Kamboj et al. Pediatrics 2016;137:e20160041

Monthly number of nicotine and tobacco product exposures among children younger than 6 years by product type and year, NPDS, January 2012 to April 2015.



Alisha Kamboj et al. Pediatrics 2016;137:e20160041

Impact of Enhanced Coding on NMPDIC

- Acknowledged:
 - This is more work for poison center specialists
 - This requires more quality control time

However

- 1 case handled = 1 person helped
- 1 case coded correctly can = hundreds of people not poisoned in the future
- FDA will be very interested in our data
 - Medwatch reports can be submitted

Closed vs. Open Systems

- Closed systems typically:
 - Inexpensive, disposable, look most like cigarettes
 - Easiest to use for those new to E-cigarettes
 - Acts as an entry into the use of open systems
- Open systems add options:
 - Wider range of flavor choices
 - May be more attractive to children and teens
 - Can mix flavors
 - Can customize how the device works
 - More battery power, alterations in how liquid is vaporized
 - Add more heat to use non-nicotine liquids
 - Some would like to ban open systems – **Poison center data needed**

Nicotine poisoning dose-response

- **Adult lethal dose 0.5-1g (Mayer B. How much nicotine kills a human? Tracing back the generally accepted lethal dose to dubious self-experiments in the nineteenth century. Arch Toxicol. 2014 Jan;88(1):5-7.)**
- **Pediatric lethal dose 6-13 mg/kg**
- **Significant toxicity 3 mg/kg**
- **E-cig liquids contain 0, 3, 6, 12, 18, 24, 30, 48, 100 mg/mL**
 - In a 10 kg child 30 mg is the significantly toxic dose
 - 10 mL of the 3 mg strength
 - 0.3 mL of the 100 mg (6 drops)
- **There is one pediatric death reported in 18 month old**
 - Entire container of originally 100 mg strength, diluted to unknown
 - Product available with child-resistant cap, not purchased
 - Product left without lid on during chaotic move/packing



NMPDIC Exposures 2016-2017

- 57 exposures
- 41 in children (72%)
- 42 ingestions
- 10 skin
- 8 eye
- 30 required hospital (52%)

Concentration (nicotine mg/mL)

0.5	2	3	4	6	8	10	12	18	20	24	25	100
1	2	6	4	11	1	1	2	1	1	2	1	2

E Cigarette Device Type

- Liquid refills – 37
- Closed cartridges – 8
- Open System – 10
- Battery explosion – 2
- Local preparations – 4
- Commercial preparations - 53

NMPIC E-juice from occupational exposure

- 24-year old occupational injury got drops into her eyes

NMPDIC: vulnerable populations

- 59-year old mentally disabled, epileptic ingested 100 mL of 6 mg/mL juice
 - Multiple seizures, fast heart rate, low blood pressure, tremors, pneumonia, fever, severe acidosis, intubated on ventilator x 4 days
- 23-year old mentally disabled, swallowed an entire closed system device
 - GI removed part from his stomach, Battery and nicotine cartridge remained in intestine and retrieved via colonoscopy

NMPIC Sample exposures

E-juice from open systems

- 18-month old drank 6 mg/mL from ziplock bag (liquid had spilled from container)
 - Treated at hospital
- Adult had solution overflow while filling the device and ingested 1-2 tablespoonful
 - Vomiting, coughing, likely aspirated
- 2-year old unscrewed device and ingested liquid
 - Treated at hospital
- 18-month old sucked liquid from open device
 - Multiple seizures, vomiting, lethargy, admitted, toxicology team saw at bedside

NMPIC Sample exposures

E-juice from liquids

- 2-year-old found with container of 25 mg/mL (blend from local shop)
 - Vomiting, pallor, treated at hospital
- 7-month old ate cotton soaked in e-cig juice
 - Vomiting
- 14-month old ingested 2 mL of 100 mg/mL
 - Vomiting X 6, tachycardia, treated at hospital
- 3-year old ingested 100 mg/mL liquid from dropper of empty container
 - Vomiting, drowsiness, treated at hospital

NMPIC Sample exposures

E-juice from liquids

- 4-year-old licked finger; dad prepares his own vape juice
- 14-month old ingested 12 mg/mL
 - Dizziness, vomiting, treated at hospital
- Adult filled syringe with 12 mg/mL solution and placed under tongue because she did not know it contained nicotine
 - Nausea, vomiting, abdominal pain, treated in hospital

NMPDIC sample cases: Inhalation from closed system

- 2-year old turned on device and inhaled
- 28-year old put high strength patch then vaped
 - Agitation, palpitations
- 3-year old grabbed device 3 mg/mL and inhaled one puff - coughing

NMPDIC Skin exposures

- Adult spilled 1 mg/mL on skin
 - Numbness, difficulty breathing, chest pain, dizziness, treated at hospital

NMPDIC Eye exposures

- 18-month old got into 10 mg/mL bottle made at local store into hands and eyes
 - Tearing, red eye, irrigated at home
- Adult used unflavored e-juice instead of his eye drops
 - Red eye, irrigated at home
- Adult had corneal ulcer from gardening and used 8 mg/mL drops instead of antibiotic
 - Visual defect, pain, red eye

NMPDIC Battery Explosions

- Adult had battery explode in her hand with second degree burns on fingers and on chest, small fires in house, a lot of pain
- 32-year old had battery explode in his hand
 - 3rd degree burns from palm to fingertips, burned hole in carpet

NMPDIC sample cases: Brand names/Flavors

Elements Pink Lemonade 25 mg/mL (22-month old)

Purple Drank 3 mg/mL (2-year old)

Papa Smurf 12 mg/mL (14-month old)

Strawberry Kiwi 4 mg/mL (18-month old)

Mixed Berry 6 mg/mL (9-month old)

Smooth horchata 1 mg/mL (adult)

Gobstopper 4 mg/mL (15-month-old)

Phresh Nutty caramel 0.5 mg/mL (adult)

Cinnamon crunch 6 mg/mL (8-month old)

Giants blood English fog (4-year old)

Phresh Big Blueberry 12 mg/mL (adult)

Bavarian cream vanilla custard (adult)

Conclusions

- Majority of exposures are to liquid refills
- Local and home preparations results in high variety of concentrations and likely not child-resistant
- Vulnerable population providers need education
- Very young children (7-9 month old) are exposed
- Batteries do explode