Mississippi State Department of Health

Mississippi Morbidity Report

Volume 31, Number 4 July 2015

Adverse Events Associated with the Use of Synthetic Cannabinoids—Mississippi, 2015

Key Messages:

- **Mississippi has recently experienced the largest recorded U.S. outbreak of adverse events related to synthetic cannabinoids (SC's) or "Spice", resulting in more than 1200 ER admissions.**
- **SC's are easily obtained, unregulated compounds with highly variable and unpredictable physical effects. The detection of future adverse events related to these compounds is likely.**
- **Mississippi providers should maintain awareness of these drugs and the potential adverse effects that accompany their use.**

Background: Synthetic cannabinoids (SC's), commonly referred to as "Spice," are man-made chemicals that target the same brain receptors as marijuana. These unregulated drugs are chemically unrelated to the psychoactive components of marijuana and the effects are unpredictable and frequently dangerous. SC's are typically sprayed onto plant material and smoked in a fashion similar to marijuana. These drugs can be sold in unlabeled bags or in packaging that suggests a false legitimacy. Common street names include "Spice," "Scooby Snax," "Mojo," "Toxin," and "Anthrax" among numerous others. Adverse clinical effects include hallucinations, a rapid heart rate, severe sweating, agitation, and in severe cases seizures, coma or death. There are numerous forms of SC's, many of which are chemically unrelated. They are not detectable on commercially available urine drug screens and are often falsely marketed as a legal analog of marijuana. All SC's are illegal substances in the state of Mississippi.

Outbreak of Adverse Events Associated with Use of Synthetic Cannabinoids: On April 5, 2015 the Mississippi State Department of Health (MSDH) Office of Epidemiology was notified by the University of Mississippi Medical Center Emergency Department of an abnormal clustering of illnesses related to the ingestion of "Spice". In response, MSDH issued a Mississippi Health Alert Network (HAN) alert on April 5, 2015 requesting healthcare providers to report any suspect case-patients to the Mississippi Poison Control Center (PCC). Enhanced surveillance, conducted in collaboration with the Mississippi Poison Control Center and emergency departments across the state, identified 1,243 emergency room (ER) admissions between 4/1/2015 and 5/31/2015. Outreach to other state partners within Mississippi, including the Mississippi State Medical Examiner, helped identify 17 deaths possibly attributed to SC's. Reported ER admissions peaked from mid-April through mid-May, dropping rapidly thereafter (Figure 1). Nationwide, adverse events related to SC's have increased markedly since March but Mississippi has been disproportionately impacted, accounting for 35% of all national reports in 2015; a finding likely due to a combination of the severe impact in Mississippi and enhanced surveillance efforts.

On April 22, 2015, MSDH requested Centers for Disease Control and Prevention (CDC) assistance in the investigation and response. A five member CDC team spent two weeks in Jackson with the objectives of better characterizing the outbreak, identifying associated deaths, determining risk factors for severe outcomes, and finding the source to stop the outbreak. A majority of counties reported at least one ER admission attributed to SC's, with a predominant impact on the southern half of the state. Spice admissions were identified in 54 of the 82 Mississippi counties.

Figure 1

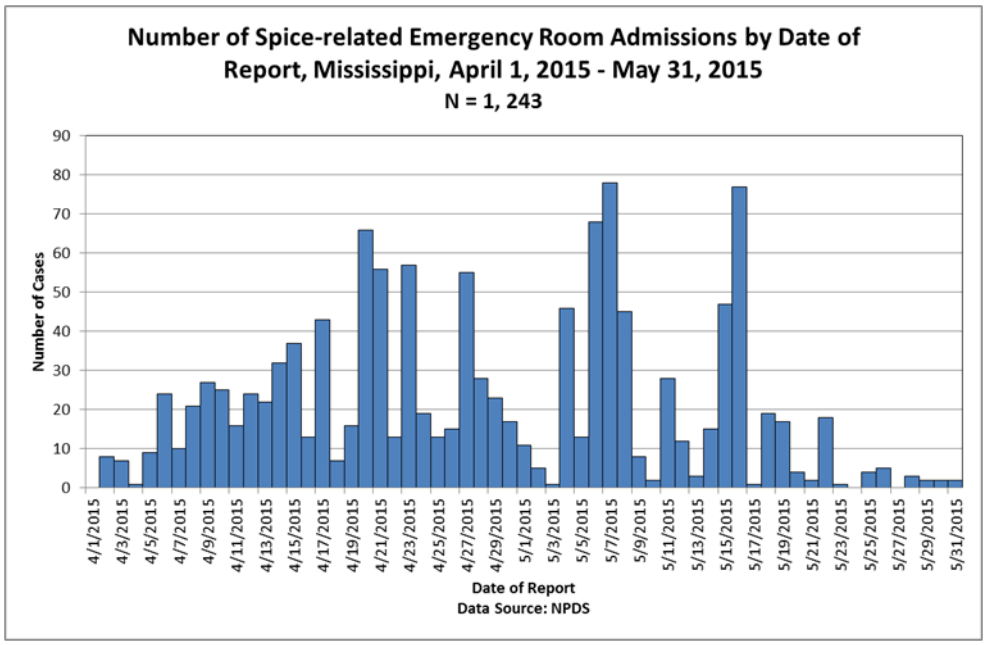
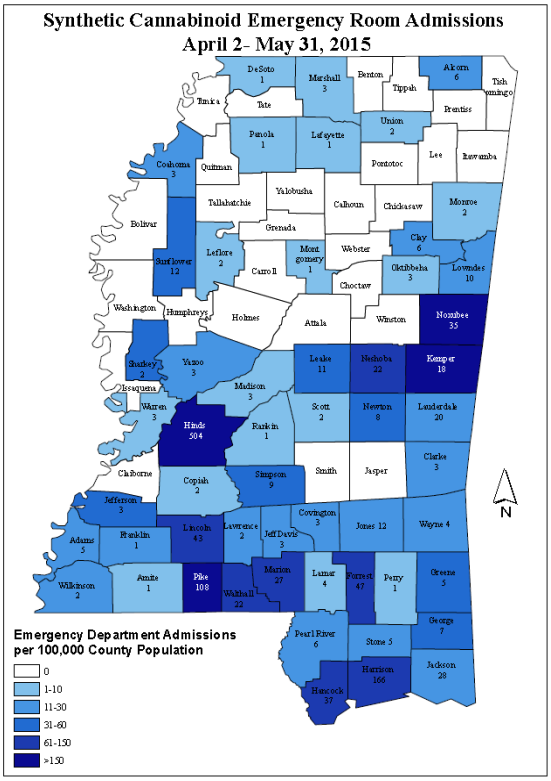


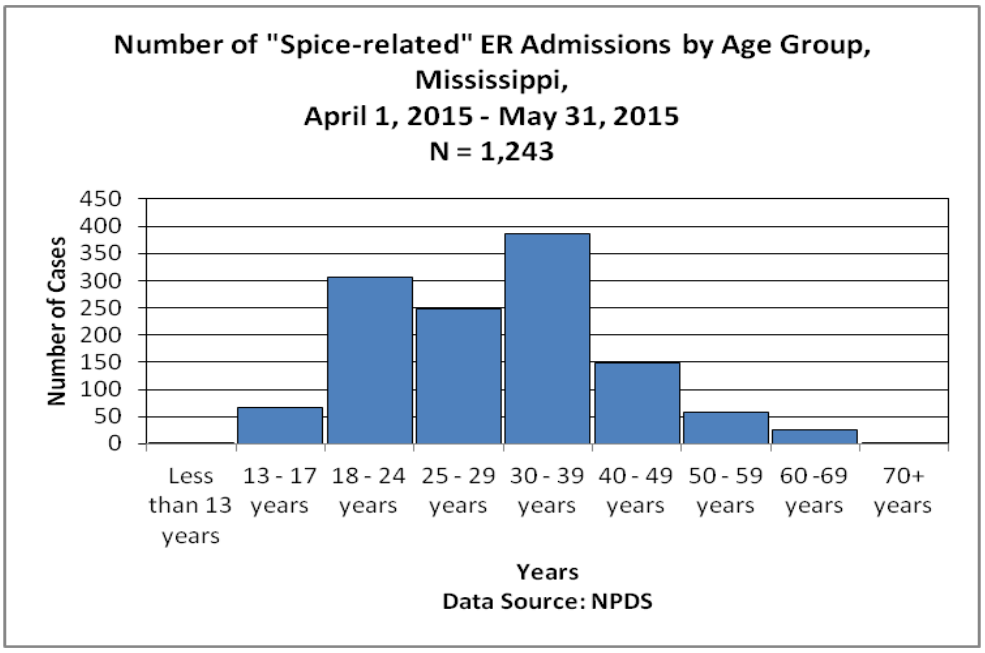
Figure 2 displays the rate of SC related ER admissions per 100,000 people based upon the population of the respective county. Hinds, Pike, Noxubee and Kemper counties had the highest rates in the state, all exceeding 150 per 100,000 population. The number displayed represents the total number of SC related ER admissions for the county. Forty-one percent (n=504) of all cases were reported from Hinds County. Harrison (13%, n=166) and Pike (9%, n=108) counties also reported a high percentage of total cases.

Figure 2



Of the 1,243 reported ER admissions, the majority were male (83%). There was a wide age distribution, ranging between 12 to 72 years, with a majority (76%) of cases between 18 and 39 (Figure 3). Common symptoms included agitation (30%), violent or aggressive behavior (36%), confusion (25%), somnolence (20%), and 16% were unresponsive on admission. Hypertension and tachycardia were common clinical findings. From a subset analysis of 119 cases, twenty-one percent required hospitalization; ten percent to an intensive care unit. Of the 31 cases with samples initially sent to the Clinical and Environmental Toxicology Laboratory at the University of California San Francisco, 16 had sufficient serum or plasma for SC testing. Ten (63%) had positive findings for MAB-CHMINACA, a recently recognized SC. Four samples were positive for other controlled substances, including benzodiazepines (3), opioids (2), phencyclidine (1), and mitragynine (1), a plant-based opioid. No other SC was identified and numerous additional samples have been submitted for testing.

Figure 3



Conclusions: Mississippi has experienced the largest recorded outbreak of adverse events related to synthetic cannabinoids (SC's) in the U.S. Evidence indicates that a relatively new SC, MAB-CHMINACA, was responsible for the adverse events reported. SC's are unregulated and have unpredictable physical responses, and the chemical concentration of any purchased product is likely to be highly variable. Future adverse events are likely given the popularity of these compounds. Providers should maintain awareness of these drugs and the potential adverse effects that accompany their use. All Mississippians, particularly young adults, should be educated that SC's are unregulated, unsafe, unpredictable and illegal.

School and Child-Care Immunization Requirements 2015-2016

Key Messages:

- **The list of required immunizations for school and childcare entry are promulgated annually.**
- **A Certificate of Immunization Compliance (Form 121) or a Certificate of Medical Exemption (Form 122) are required to enroll in any public or private kindergarten, elementary or secondary school or any licensed childcare facility in Mississippi.**
- **The child's pediatrician, family physician or an internist, duly licensed in the state of Mississippi, must complete and submit the Form 139 to request a medical exemption (www.healthyms.com/immunizations).**

The list of immunizations required for school entry is specified by the State Health Officer and is promulgated at least annually as directed by state statute (§ 41-23-37, Mississippi Code of 1972). All vaccines should be given at the appropriate age and intervals according to the Advisory Committee on Immunization Practices (ACIP) recommendations. Required immunizations for school entry and admission to child-care (age appropriate) are outlined in Table 1. Please visit the MSDH site www.healthyms.com/immunizations for additional information on vaccine preventable diseases and immunization requirements.

Table 1: Required Immunizations for School Entry and Child Care

School Entry	Child Care (age 0 -4)
Hepatitis B (HepB)	Hepatitis B (HepB)
Inactivated Polio (IPV)	Inactivated Polio (IPV)
Diphtheria, Tetanus, Pertussis (DTaP)	Diphtheria, Tetanus, Pertussis (DTaP)
Measles, Mumps, Rubella (MMR)	Measles, Mumps, Rubella (MMR)
Varicella (VAR; aka Chickenpox)	Varicella (VAR; aka Chickenpox)
Tdap*	Haemophilus influenzae type b (Hib)
	Pneumococcal (PCV)

*Students entering, advancing to or transferring into 7th grade will need proof of an adolescent whooping cough (pertussis) booster, Tdap immunization, before entry into school in the fall. Tdap vaccine given on or after the 7th birthday meets the school requirement.

Medical Exemption Policy: In order to enroll in any public or private kindergarten, elementary or secondary school in Mississippi, a student must provide the school with a Certificate of Immunization Compliance (Form 121) or a Certificate of Medical Exemption (Form 122). A medical exemption request form has been made available by the MSDH Office of Immunization. The child's pediatrician, family physician or an internist, duly licensed in the state of Mississippi, must complete Form 139 to request a medical exemption (available at www.healthyms.com/immunizations). Forms are also available through each District Health Department. Each form should be submitted to the District Health Officer for review (visit http://msdh.ms.gov/msdhsite/_static/19.html for contact information). The exemption will be granted unless there is a local or statewide occurrence of disease which would indicate that the exemption would cause "undue risk to the community."

Mississippi
Provisional Reportable Disease Statistics
June 2015

		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	June 2015	June 2014	YTD 2015	YTD 2014
Sexually Transmitted Diseases	**Primary & Secondary Syphilis**	-	-	-	-	-	-	-	-	-	†	†	†	†
	Early Latent Syphilis	-	-	-	-	-	-	-	-	-	†	†	†	†
	Gonorrhea	-	-	-	-	-	-	-	-	-	†	†	†	†
	Chlamydia	-	-	-	-	-	-	-	-	-	†	†	†	†
	HIV Disease	-	-	-	-	-	-	-	-	-	†	†	†	†
Myco-bacterial Diseases	**Pulmonary Tuberculosis (TB)**	0	0	0	0	2	0	1	1	0	**4**	7	27	30
	Extrapulmonary TB	1	0	0	0	0	0	0	0	1	**2**	0	5	2
	Mycobacteria Other Than TB	5	10	2	2	2	2	1	3	11	**38**	35	249	202
Vaccine Preventable Diseases	**Diphtheria**	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Pertussis	0	0	0	0	0	0	0	0	0	**0**	10	5	45
	Tetanus	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Poliomyelitis	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Measles	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Mumps	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Hepatitis B (acute)	0	1	0	0	0	0	0	0	0	**1**	4	26	21
	Invasive *H. influenzae* disease	0	2	0	1	2	0	0	0	1	**6**	1	25	12
	Invasive Meningococcal disease	0	0	0	0	0	0	0	0	0	**0**	0	0	0
Enteric Diseases	**Hepatitis A (acute)**	0	0	0	0	0	0	0	0	0	**0**	0	0	1
	Salmonellosis	6	9	0	4	8	2	2	6	7	**45**	98	266	261
	Shigellosis	1	2	0	1	1	0	0	0	0	**6**	18	49	120
	Campylobacteriosis	2	0	0	0	3	1	1	1	0	**8**	13	61	46
	***E. coli* O157:H7/STEC/HUS**	0	0	0	0	1	0	0	0	0	**1**	5	9	15
Zoonotic Diseases	**Animal Rabies (bats)**	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Lyme disease	0	0	0	1	0	0	0	0	0	**1**	0	1	0
	Rocky Mountain spotted fever	0	0	0	0	0	0	0	0	0	**0**	7	2	16
	West Nile virus	0	0	0	0	0	0	0	0	0	**0**	0	0	1

*Totals include reports from Department of Corrections and those not reported from a specific District.

†Data not available.