Bath Salts, Spice, and the kitchen sink. . .

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BTMC EMS Medical Director
October 6, 2011
Objectives

✧ Review calls
✧ Voluntary to pipe in if it was your call
✧ Ask questions
✧ Interrupt
✧ Learn
QA Process

- All agencies based with us have an established QA process which we participate in.
- Goal is to review run sheets/calls, discuss agency issues, identify items that need further education.
- QA is **NOT** punitive or a “witch hunt”.
- All agencies include some labor representatives.
- Considered standard of care nationally.
- NAEMSP encourages comprehensive QA process.
Question?

- Are the bath salts which people abuse the same as the bath salts I used in a tub with last night?
- No!!
Real Bath Salts vs. Drugs Parading Around as 'Bath Salts’

San Francisco Bath Salt Company sets the record straight on the differences between True Bath Salts and the 'Bath Salt' Drugs that have become cause for concern across the nation.

Published in PRWeb January 25, 2011

San Francisco Bath Salt Company:

“These are not your typical bath salts, or really even bath salts at all”
“Bath Salts”

- Mephedrone or MDPV (methylenedioxypyrovalerone)
- Designer drug
- Synthetic sympathomimetic
- Snorted, smoked, ingested, and injected
- Mixed in alcohol
- Have no legitimate use
  for bathing → intended for substance abuse
Bath Salts
Mephedrone

- “Bath salts”
- Synthetic sympathomimetic (stimulant)
- Similar effects to cocaine, methamphetamine, MDMA
- “designer drug”
- Comes in tablet or powder form
- Swallowed, injected, or snorted
On August 4, the Bay County Sheriff's Office received a 911 call. When they arrived, a man answered the door with a T-Shirt wrapped around his eyes and a butcher knife in his hand.

His behavior was the result of ingesting synthetic marijuana, or bath salts.

This is video of that incident.
Bath Salt Experience...

http://www.youtube.com/watch?v=U89DG2PJI1Q
“Bath Salts” Pathophys

- Sympathomimetic
- Releases neurotransmitters
  - Dopamine
  - Epinephrine
  - Serotonin
- Results in effects which are similar to meth, cocaine, and ecstasy
- Seems to cause more delayed paranoia than other drugs
Mephedrone
Pathophysiology

- Sympathomimetic drugs cause their physiologic and toxic effects by 5 different mechanisms.
- Different drugs work at different receptors and effect different neurotransmitters.
- However, clinical poisoning by one sympathomimetic drug cannot be distinguished from that of a second sympathomimetic drug with a different mechanism of action.
Sympathomimetic Toxidrome

- Agitated delirium
- Tachycardia
- Dilated pupils
- Hypertension
- Hyperthermia
- Diaphoresis
Bath Salts Signs & Symptoms

- Tachycardia
- Hypertension
- Hyperthermia
- Agitation
- Hallucinations/psychosis/paranoia
- Acute renal failure
- Rhabdomyolysis
- Seizures
<table>
<thead>
<tr>
<th>Names of Bath Salts</th>
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<tbody>
<tr>
<td>Ivory Wave</td>
</tr>
<tr>
<td>Ivory Snow</td>
</tr>
<tr>
<td>Vanilla Sky</td>
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<td>Ocean Snow</td>
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<td>Charge Plus</td>
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<tr>
<td>Red Dove</td>
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<tr>
<td>Blue Silk</td>
</tr>
<tr>
<td>Blizzard</td>
</tr>
<tr>
<td>White lightning</td>
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<tr>
<td>White Rush</td>
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NEW... Ivory Wave

1000mg CONCENTRATED SAMPLE SIZE

SOOTHING BATH SALTS

HIGH QUALITY BATH SALT
How are bath salts legal?

- Mephedrone is also sold as plant food, decorative sand, and toy cleaner
- Sold at smoke shops, truck stops, on the internet
- Labeled “not for human consumption” or “novelty only”
- Sold for $25-50 per 50 mg packet
- HB 2510 passed 3/2011 making them illegal
- As of October 1, 2011 = illegal
Find out which **BATH SALTS** (Legal Ecstasy) are the best!

- **bathsaltsreviews.com**

- Jan 11, 2011 – Reviews of the popular Bath Salts available, each with a detailed analysis and recommendations for the best ones!
Bath Salt Ban

“U.S. Drug Enforcement Administration issued a one-year ban on possessing and selling three chemicals commonly used to produce bath salts. During that time federal officials will study whether the chemicals should be permanently banned.”

Read more:
http://www.azcentral.com/news/articles/2011/09/07/20110907arizona-bath-salts-ban.html#ixzz1a0eDq8PV
“One smoke shop advertised a discount deal to buy one vial and get a second for 50 percent off through the end of September.”

Read more:
Bath Salt Experience

http://www.bing.com/videos/watch/video/what-s-a-bath-salts-hallucination-like/6q0cdjp
Pre-Hospital Treatment of Bath Salt Ingestion

- ABC’s
- EKG (12 lead) and cardiac monitor
- Accu-chek
- IV Fluids
- Cooling if hyperthermia
- Benzodiazepines (Excited Delirium protocol)
  - Ativan IV/IM
  - Versed IV/IM/intranasal
ED Treatment

- ABC’s
- Accu-chek
- Benzodiazepines
- Check core temp for hyperthermia → treat as indicated
- EKG → evaluate for dysrhythmia or ischemia
- CT Brain if focal neuro deficit or seizure
- Monitor electrolytes, renal function, CK
- IV fluids
Case study of 35 patients presenting to ED in Michigan with bath salt toxicity

Most common s/s:
- Agitation 66%
- Tachycardia 63%
- Delusions/hallucinations 40%
- 17/35 required hospitalization
- 1/35 was DOA
We don’t know the long term effects... Do you?
## “Bath Salt” Emergency

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Calls</th>
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<td>2009</td>
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<tr>
<td>2010</td>
<td>302</td>
</tr>
<tr>
<td>2011*</td>
<td>2,237</td>
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*Source: American Association of Poison Control Centers, data run by AAPCC on May 12, 2011. *Data reflect calls received and reported from January 1, 2011, through May 12, 2011.*
What is being done about it?

US Department of Justice National Drug Intelligence Center:

Situation Report  July 2011 Product Number 2011-S0787-004

Synthetic Cathinones (Bath Salts): An Emerging Domestic Threat
Can you test for mephedrone ("bath salts")?

- Yes
- Routine UDS will not detect it
- Usually self reported
- Comprehensive drug screen can
- Performed at Good Sam

- Recommended that clinical toxicologists test for it to produce data correlating toxicity with these drugs

Medline Abstract: Clin Toxicol 2010; 48(9):924-7
 Spice

- “Legal high”
- Designer drug
- Synthetic cannabinoid
- 5 synthetic compounds that mimic THC (marijuana)
  - JWH-018 = most common
- Sprayed onto herbs and smoked
JWH-018

- Chemical make-up is similar to THC
- But, it is much more potent
- Designed to be used in labs to study effects of marijuana on cannabinoid receptors
- Never intended for human consumption...

'Fake Marijuana' users showing up in Emergency Rooms. HealthyDay News Nov. 11, 2010
Spice

- Sold at head shops, gas stations, convenience stores
- $30-40 per 3 gram bag
- Marketed to cause relaxation and euphoria
- Packaged to look like pot, but high is more comparable to cocaine or LSD
Signs/Symptoms of Spice

- Agitation
- Tachycardia
- Hypertension
- Vomiting
- Seizures
- Hallucinations
- Paranoia
http://www.youtube.com/watch?v=H6JJeG1Aohl&feature=related
Can you test for Spice?

- Yes
- Not on routine urine drug screen (UDS)
- Test now available that detects 5 of the synthetic cannabinoids
Air Force Testing for Spice

- Feb/March articles in Stars and Stripes talks about Air Force beginning testing
- Currently able to test for 5 of the synthetic cannabinoids
- Military bans use of it
Miley Cyrus & Spice
Is Spice legal?

- March 1, 2011: DEA used emergency powers to outlaw 5 chemicals in spice
- Schedule 1 in Controlled Substances Act
- Places it in same category as heroin and cocaine
Why do synthetic compounds cause such severe reaction?

- Labeled “not for human consumption”
- Bypasses a lot of regulation
- Unregulated, unlicensed industry
- Unknown strength of the ingredients
- Consumers don’t know what they are taking
- Likely large variability package-to-package
EMS Treatment of Spice

- ABC’s
- EKG (12 lead) and cardiac monitor
- Accu-chek
- IV Fluids
- Benzodiazepines (Excited Delirium protocol)
  - Ativan IV/IM
  - Versed IV/IM/intranasal
“Kitchen Sink”
Rhabdomyolysis

- Breakdown of skeletal muscle (ie. Myoglobin)
- Causes release of toxic intracellular contents into systemic circulation (myoglobinemia)
- Kidneys try to filter out toxins → acute renal failure (ARF)
- Mortality = 5%
- Causes 8-15% of all ARF cases
Causes of Rhabdo

- EtOH abuse
- Methamphetamine/cocaine/bath salt/spice use
- Seizure
- Trauma
- Soft tissue compression
- Restraints/Excited delirium patients
- Excessive exercise
Less obvious causes of Rhabdo

- “Found down”
- “I’ve fallen and I can’t get up”
- “Lift assist”

- Frequently comes up in QA process
The MMC Experience

- Interesting Friday phenomenon
- Inmates play a card game, where numbers on cards correlate to # of squats they do
- Patients knowingly put themselves into rhabdo
- No releases from hospital to jail over weekend → 3 days of TV and hospital food
S/S of Rhabdo

- Weakness
- Nausea and vomiting
- Muscle pain
- Dark urine
- Tachycardia
Diagnosis of Rhabdo

- Elevated creatine kinase (CK)
- Urine dip positive for blood, but no RBC’s on microscopic urinalysis
EMS Treatment of Rhabdo

- IV fluid bolus
  - Better prognosis for patients who received IVF resuscitation from EMS!
  - Published in medical journal
- Cardiac Monitor – look for signs of hyperkalemia related to ARF
EKG Changes with Hyperkalemia?

- Peaked T waves (A)
- Widened QRS (C)
- Prolonged PR interval (A)
- Flattened P waves (D)
- Sine waves (E)
Rhabdo Pathophysiology

- ARF occurs in 30-40% of patients with rhabdo
- Myoglobin & uric acid crystals precipitate in renal tubules → decreases GFR (glomerulo filtration rate)
- IVF increases GFR (ie. amount of fluid getting pushed through the kidney’s filters)
  - this decreases toxins (ie. Myoglobin)
Gastric Decompression

- All intubated patients require gastric decompression
- Gastric distention will impede ventilation
- NG or OG for adults
- OG for pediatric patients
A patient’s oxygen saturation will generally ____ after albuterol SVN?

A) Increase  
B) Stay the same  
C) Decrease

“Paradoxical bronchospasm” is common after SVN treatment → results in hypoxemia

Mechanism is unknown
Summary

- **Bath Salts & Spice**
  - Accu-chek
  - Benzo’s
  - IVF
  - EKG/Monitor
  - Cooling

- NG/OG if intubated

- Think about Rhabdo!

- Use narcan with caution . . . Especially in co-ingestion cases


References


Questions are guaranteed in life; Answers aren't.