Buprenorphine Data from The RADARS[®] System

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Statement of Disclosure

- The Researched Abuse, Diversion and Addiction Related Surveillance (RADARS[®]) System was initiated in 2002 and is owned and operated independently by Denver Health and Hospital Authority, a not-for-profit safety net hospital.
- The RADARS System is supported by pharmaceutical company subscribers.

Research Questions

- 1. What are recent time trends for buprenorphine misuse, abuse and diversion?
- 2. What are the consequences of concurrent buprenorphine and benzodiazepine misused and abuse?
- 3. What is the nature of accidental pediatric buprenorphine exposures?

About the RADARS® System

Six Views on Prescription Drug Abuse

Law Enforcement	 Drug Diversion Criminal justice perspective
Survey of Key Informant Patients	Dependent /addicted patientsHealth care provider perspective
Poison Center	 Acute incident – calling for care advice All ages and geographic regions
Opioid Treatment Program	Dependent / addicted patientsPatient perspective
Impaired Health Care Worker	Subset of all signal detection systemsEarly adopter group ?
College Survey	 Experimentation Early abuse perspective 5

Drug Dependence Pathway



Source: Chilcoat HD, Johanson CE. Vulnerability to Cocaine Abuse. Higgins ST, Ed. Cocaine Abuse: Behavior, Pharmacology, and Clinical Applications. San Diego, CA: Academic Press; 1998: 313-341. Institute of Medicine – Committee on Opportunities in Drug Abuse Research. Pathways of Addiction. Washington, DC: National Academy Press; 1996.

Time Trends in Buprenorphine Misuse, Abuse and Diversion

Data from The RADARS[®] System Poison Centers, Outpatient Treatment Programs, and Drug Diversion, 2002-2009

Buprenorphine Indicators RADARS PC Calls and DAWN ED Mentions



PC = poison centers; ED = emergency department; pop. = population

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Rates per 100,000/quarter



Rates per 100,000/quarter



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Rates per 1000 URDD/quarter

Unique recipient of dispensed drug (URDD)



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Population vs. URDD Rates RADARS[®] System Poison Centers



Buprenorphine and Benzodiazepines

Data from The RADARS[®] System Poison Centers, 2009 Intentional Exposure Calls

PC IE calls for Buprenorphine and Buprenorphine + Benzodiazepines Percent of calls by age group, 2009, N=1254

	0-5	0.2	0
	6-12	0.7	0
	13-19	12.4	9.1
Age Group	20-29	32.1	44.4
	30-39	19.8	21.8
	40-49	11.6	13.1
	50-59	8.4	6.3
	60-69	0.8	0.8
	70-79	0.2	0.4
	80-89	0.2	0
	Unknown child	0.2	0
	Unknown adult	11.4	3.6
		Buprenorphine	Buprenorphine with benzodiazepines

Associated Medical Outcomes

	Buprenorphine	Buprenorphine and Benzodiazepines	
Moderate effect, major effect, deaths	24.7% N=248	39.3% N=99	
Deaths	0.8% N=2	3.0% N=3	

RADARS[®] System Poison Center Program, Buprenorphine Intentional Exposure Calls <u>with</u> Benzodiazepines, 2009, N=252



Pediatric Exposures to Buprenorphine

Data from The RADARS[®] System Poison Centers All exposure calls, <6 years old

PC Pediatric Exposures Rates per 1000 URDD per Quarter, N=2281



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What are the associated medical outcomes of buprenorphine & methadone pediatric exposures to poison center calls?

RADARS[®] System PC, 2009, < 6 years old intentional/unintentional/other calls

	Buprenorphine N=1105	Methadone N=316
Minor, Self Resolving Conditions (no effect, not followed non-toxic, not-followed minimal clinical effect)	64.3%	56.3%
Moderate Effects	17.9%	14.2%
Major Effects	1.4%	5.7%
Death	0	0.6%
Unable to Follow, Judged Potentially Toxic	12.9%	19.0%
Unknown and other	3.4%	4.1%

Conclusions (1)

- Multiple cycles of buprenorphine misuse, abuse and diversion have occurred over the last 8 years, most recently in late 2008/early 2009
- Peaks in misuse, abuse and diversion of buprenorphine are not directly related temporally with large social events or regulatory changes
- Abuse of buprenorphine is detected earliest among enrollees in drug treatment centers, followed by callers to poison centers and then law enforcement
 - No immediate increases from generic Subutex

Conclusions (2)

- Co-ingestion of buprenorphine and benzodiazepines is occurring most among 20-29 years-olds, and is associated with more severe medical outcomes than buprenorphine alone or with other substances
- Pediatric exposures for buprenorphine have increased somewhat over time, but are not associated with a major burden of serious medical outcomes

Contact information

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See Also

N Dasgupta, JE Bailey, T Cicero, J Inciardi, M Parrino, A Rosenblum, RC Dart (2010). Post-marketing Surveillance of Methadone and Buprenorphine in the United States. *Pain Medicine*, IN PRESS.