

REFERENCES

1. https://www.samhsa.gov/data/sites/default/files/report_2083/ShortReport-2083.pdf (Crane EH: Emergency Department visits Involving Narcotic Pain Relievers. The CBHSQ Report, November 5, 2015.) Accessed November 14, 2018.
2. Gummin DD, Mowry JB, Spyker DA, Brooks DE, Fraser MO, Banner W: 2016 annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 34th annual report. *Clin Toxicol (Phila)* 55: 1072, 2017. [PMID: 29185815]
3. Seth P, Scholl L, Rudd RA, Bacon S: Overdose deaths involving opioids, cocaine, and psychostimulants—United States, 2015–2016. *MMWR Morb Mortal Wkly Rep* 67: 349, 2018. [PMID: 29596405]
4. Boyer EW: Management of opioid analgesic overdose. *N Engl J Med* 367: 146, 2012. [PMID: 22784117]
5. Sporer KA: Acute heroin overdose. *Ann Intern Med* 130: 584, 1999. [PMID: 10189329]
6. Mell HK, Sztajnkrzyer MD: Clinical images in medical toxicology: heroin overdose with non-cardiogenic pulmonary edema. *Clin Toxicol (Phila)* 44: 399, 2006. [PMID: 16809144]
7. Sporer KA, Dorn E: Heroin-related noncardiogenic pulmonary edema: a case series. *Chest* 120: 1628, 2001. [PMID: 11713145]
8. Sterrett C, Brownfield J, Korn CS, et al: Patterns of presentation in heroin overdose resulting in pulmonary edema. *Am J Emerg Med* 21: 32, 2003. [PMID: 12563576]
9. Megarbane B, Chevillard L: The large spectrum of pulmonary complications following illicit drug use: features and mechanisms. *Chem Biol Interact* 206: 444, 2013. [PMID: 24144776]
10. Das PK, Warkentin DI, Hewko R, Forrest DL: Serotonin syndrome after concomitant treatment with linezolid and meperidine. *Clin Infect Dis* 46: 264, 2008. [PMID: 18171260]
11. Reeves RR, Burke RS: Tramadol: basic pharmacology and emerging concepts. *Drugs Today (Barc)* 44: 827, 2008. [PMID: 19180260]
12. Hoffman JR, Schriger DL, Luo JS: The empiric use of naloxone in patients with altered mental status: a reappraisal. *Ann Emerg Med* 20: 246, 1991. [PMID: 1996818]
13. O'Malley GF, Seifert S, Heard K, et al: Olanzapine overdose mimicking opioid intoxication. *Ann Emerg Med* 34: 279, 1999. [PMID: 10424936]
14. Moeller KE, Kissack JC, Atayee RS, et al: Clinical interpretation of urine drug tests: what clinicians need to know about urine drug screens. *Mayo Clin Proc* 92: 774, 2017. [PMID: 28325505]
15. Helander A, Stojanovic K, Villen T, Beck O: Detectability of fentanyl and designer fentanyls in urine by 3 commercial fentanyl immunoassays. *Drug Test Anal* March 12, 2018. [Epub ahead of print] [PMID: 29529707]
16. Griswold MK, Chai PR, Krotulski AJ, et al: A novel oral fluid assay (LC-QTOF-MS) for the detection of fentanyl and clandestine opioids in oral fluid after reported heroin overdose. *J Med Toxicol* 13: 287, 2017. [PMID: 28971325]
17. Schneir AB, Vadeboncoeur TF, Offerman SR, et al: Massive OxyContin ingestion refractory to naloxone. *Ann Emerg Med* 40: 425, 2002. [PMID: 12239500]
18. Weber JM, Tataris KL, Hoffman JD, Aks SE, Mycyk MB: Can nebulized naloxone be used safely and effectively by emergency medical services for suspected opioid overdose? *Prehosp Emerg Care* 16: 289, 2012. [PMID: 22191727]
19. Baumann BM, Patterson RA, Parone DA, et al: Use and efficacy of nebulized naloxone in patients with suspected opioid intoxication. *Am J Emerg Med* 31: 585, 2013. [PMID: 23347721]
20. Tataris KL, Weber JM, Stein-Spencer K, Aks SE: The effect of prehospital nebulized naloxone on suspected heroin-induced bronchospasm. *Am J Emerg Med* 31: 717, 2013. [PMID: 23380114]
21. Dowling J, Isbister GK, Kirkpatrick CM, Naidoo D, Graudins A: Population pharmacokinetics of intravenous, intramuscular, and intranasal naloxone in human volunteers. *Ther Drug Monit* 30: 490, 2008. [PMID: 18641540]
22. Ashton H, Hassan Z: Best evidence topic report. Intranasal naloxone in suspected opioid overdose. *Emerg Med J* 23: 221, 2006. [PMID: 16498165]
23. Doe-Simkins M, Walley AY, Epstein A, Moyer P: Saved by the nose: bystander-administered intranasal naloxone hydrochloride for opioid overdose. *Am J Public Health* 99: 788, 2009. [PMID: 19363214]
24. Chou R, Korthuis PT, McCarty D, et al: Management of suspected opioid overdose with naloxone in out-of-hospital settings: a systematic review. *Ann Intern Med* 167: 867, 2017. [PMID: 29181532]
25. Connors NJ, Nelson LS: The evolution of recommended naloxone dosing for opioid overdose by medical specialty. *J Med Toxicol* 12: 276, 2016. [PMID: 27271032]
26. Kim HK, Nelson LS: Reversal of opioid-induced ventilatory depression using low-dose naloxone (0.04 mg): a case series. *J Med Toxicol* 12: 107, 2016. [PMID: 26289651]
27. Clarke SF, Dargan PI, Jones AL: Naloxone in opioid poisoning: walking the tightrope. *Emerg Med J* 22: 612, 2005. [PMID: 16113176]
28. Wermeling DP: Review of naloxone safety for opioid overdoses: practical considerations for new technology and expanded public access. *Ther Adv Drug Saf* 6: 20, 2015. [PMID: 25642320]
29. Schug SA, Zech D, Grond S: Adverse effects of systemic opioid analgesics. *Drug Saf* 7: 200, 1992. [PMID: 1354445]
30. Christenson J, Etherington J, Grafstein E, et al: Early discharge of patients with presumed opioid overdose: development of a clinical prediction rule. *Acad Emerg Med* 7: 1110, 2000. [PMID: 11015242]
31. Willman MW, Liss DB, Schwarz ES, Mullins ME: Do heroin overdose patients require observation after receiving naloxone? *Clin Toxicol (Phila)* 55: 81, 2017. [PMID: 27849133]
32. Clemency BM, Eggleston W, Shaw EW, et al: Hospital observation upon reversal (HOUR) with naloxone: a prospective clinical prediction rule validation study. *Acad Emerg Med* 2018 Dec 28 [Epub ahead of print] [PMID: 30592101]
33. Sporer KA: Buprenorphine: a primer for emergency physicians. *Ann Emerg Med* 43: 580, 2004. [PMID: 15111917]
34. Hayes BD, Klein-Schwartz W, Doyon S: Toxicity of buprenorphine overdose in children. *Pediatrics* 121: 3782, 2008. [PMID: 18381506]
35. Love JS, Perrone J, Nelson LS: Should buprenorphine be administered to patients with opioid withdrawal in the emergency department? *Ann Emerg Med* 72: 26, 2018. [PMID: 29103795]
36. D'Onofrio G, Chawarski MC, O'Connor PG, et al: Emergency department-initiated buprenorphine for opioid dependence with continuation in primary care: outcomes during and after intervention. *J Gen Intern Med* 32: 660, 2017. [PMID: 28194688]
37. Butler B, Rubin G, Lawrence A, Batey R, Bell J: Estimating the risk of fatal arrhythmia in patients in methadone maintenance treatment for heroin addiction. *Drug Alcohol Rev* 30: 173, 2011. [PMID: 21355903]
38. Centers for Disease Control and Prevention (CDC): Vital signs: risk for overdose from methadone used for pain relief—United States, 1999–2010. *MMWR Morb Mortal Wkly Rep* 61: 493, 2012. [PMID: 22763888]
39. Shadnia S, Rahimi M, Hassani-Moghaddam H, Soltaninejad K, Noroozi A: Methadone toxicity: comparing tablet and syrup formulations during a decade in an academic poison center of Iran. *Clin Toxicol (Phila)* 51: 777, 2013. [PMID: 23972442]
40. Kapur BM, Hutson JR, Chibber T, Luk A, Selby P: Methadone: a review of drug-drug and pathophysiological interactions. *Crit Rev Clin Lab Sci* 48: 171, 2011. [PMID: 22035341]
41. Arora A, Williams K: Problem based review: the patient taking methadone. *Acute Med* 12: 51, 2013. [PMID: 23539377]
42. Martin JA, Campbell A, Killip T, et al: QT interval screening in methadone maintenance treatment: report of a SAMHSA expert panel. *J Addict Dis* 30: 283, 2011. [PMID: 22026519]
43. Miotto K, Cho AK, Khalil MA, Blanco K, Sasaki JD, Rawson R: Trends in tramadol: pharmacology, metabolism, and misuse. *Anesth Analg* 124: 44, 2017. [PMID: 27861439]
44. Nelson LS, Juurlink DN: Tramadol and hypoglycemia: one more thing to worry about. *JAMA Intern Med* 175: 194, 2015. [PMID: 25486516]
45. Spiller HA, Gormann SE, Villaloboa D, et al: Prospective multicenter evaluation of tramadol exposure. *J Toxicol Clin Toxicol* 35: 361, 1997. [PMID: 9204095]
46. Shadnia S, Soltaninejad K, Heydari K, Sasanian F, Abdollahi M: Tramadol intoxication: a review of 114 cases. *Hum Exp Toxicol* 27: 201, 2008. [PMID: 18650251]
47. Hassani-Moghaddam H, Farajidana H, Sarjami S, Owliaey H: Tramadol-induced apnea. *Am J Emerg Med* 31: 26, 2013. [PMID: 22809771]
48. Tashakori A, Afshari R: Tramadol overdose as a cause of serotonin syndrome: a case series. *Clin Toxicol (Phila)* 48: 337, 2010. [PMID: 20367390]
49. Taghaddosinejad F, Mehrpour O, Afshari R, et al: Factors related to seizure in tramadol poisoning and its blood concentration. *J Med Toxicol* 7: 183, 2011. [PMID: 21735309]
50. Shadnia S, Brent J, Mousavi-Fatemi K, Hafezi P, Soltaninejad K: Recurrent seizures in tramadol intoxication: implications for therapy based on 100 patients. *Basic Clin Pharmacol* 111: 133, 2012. [PMID: 22364547]
51. Fournier JP, Azoulay L, Yin H, Montastruc JL, Suissa S: Tramadol use and the risk of hospitalization for hypoglycemia in patients with noncancer pain. *JAMA Intern Med* 175: 186, 2015. [PMID: 25485799]
52. WHO Expert Committee on Drug Dependence: WHO Expert Committee on Drug Dependence. *World Health Organ Tech Rep Ser* 942: 1, 2006. [PMID: 17373571]
53. Challoner KR, McCarron MM, Newton EJ: Pentazocine (Talwin) intoxications: report of 57 cases. *J Emerg Med* 8: 67, 1990. [PMID: 2351801]
54. O'Donnell JK, Halpin J, Mattson CL, Goldberger BA, Gladden RM: Deaths involving fentanyl, fentanyl analogs, and U-47700 – 10 States, July–December 2016. *MMWR Morb Mortal Wkly Rep* 66: 1197, 2017. [PMID: 29095804]
55. Armenian P, Vo KT, Barr-Walker J, Lynch KL: Fentanyl, fentanyl analogs and novel synthetic opioids: a comprehensive review. *Neuropharmacology* 134: 121, 2018. [PMID: 29042317]
56. Prekupec MP, Mansky PA, Baumann MH: Misuse of novel synthetic opioids: a deadly new trend. *J Addict Med* 11: 256, 2017. [PMID: 28590391]
57. Ramban KA, Fleming SW, An J, et al: U-47700: a clinical review of the literature. *J Emerg Med* 53: 509, 2017. [PMID: 28911989]
58. Burns RS, LeWitt PA, Ebert MH, et al: The clinical syndrome of striatal dopamine deficiency. Parkinsonism induced by 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP). *N Engl J Med* 312: 1418, 1985. [PMID: 2581135]
59. Skowronek R, Celinski R, Chowanec C: "Crocodile"—new dangerous designer drug of abuse from the East. *Clin Toxicol (Phila)* 50: 269, 2012. [PMID: 22385107]
60. Ulbricht C, Costa D, Dao J, et al: An evidence-based systematic review of kratom (*Mitragyna speciosa*) by the Natural Standard Research Collaboration. *J Diet Suppl* 10: 152, 2013. [PMID: 2372528]
61. Singh D, Narayanan S, Vicknasingam B: Traditional and non-traditional uses of mitragynine (kratom): a survey of the literature. *Brain Res Bull* 126: 41, 2016. [PMID: 27178014]
62. Prozialeck WC, Jivan JK, Andurkar SV: Pharmacology of kratom: an emerging botanical agent with stimulant, analgesic and opioid-like effects. *J Am Osteopath Assoc* 112: 792, 2012. [PMID: 23212430]

63. Anwar M, Law R, Schier J: Notes from the field. Kratom (*Mitragyna speciosa*) exposures reported to poison centers—United States, 2010–2015. *MMWR Morb Mortal Wkly Rep* 65: 748, 2016. [PMID: 27466822]
64. Boyer EW, Babu KM, Adkins JE, McCurdy CR, Halpern JH: Self-treatment of opioid withdrawal using kratom (*Mitragyna speciosa* korth). *Addiction* 103: 1048, 2008. [PMID: 18482427]
65. Hassan Z, Muzaimi M, Navaratnam V, et al: From Kratom to mitragynine and its derivatives: physiological and behavioural effects relates to its use, abuse, and addiction. *Neurosci Biobehav Rev* 37: 138, 2013. [PMID: 23206666]
66. Singh D, Muller CP, Vicknasingam BK: Kratom (*Mitragyna speciosa*) dependent, withdrawal symptoms and craving in regular users. *Drug Alcohol Depend* 139: 132, 2014. [PMID: 24698080]
67. Cumpston KL, Carter M, Wills BK: Clinical outcomes after Kratom exposures: a poison center case series. *Am J Emerg Med* 36: 166, 2018. [PMID: 28751041]
68. Neerman MF, Frost RE, Deking J: A drug fatality involving kratom. *J Forensic Sci* 58(suppl 1): S278, 2013. [PMID: 23082895]
69. Kronstrand R, Roman M, Thelander G, Eriksson A: Unintentional fatal intoxications with mitragynine and O-desmethylnaloxone from the herbal blend krypton. *J Anal Toxicol* 35: 242, 2011. [PMID: 21513619]
70. Vakkalanka JP, Charlton NP, Holstege CP: Epidemiologic trends in loperamide abuse and misuse. *Ann Emerg Med* 69: 73, 2017. [PMID: 27823872]
71. Eggleston W, Marraffa JM, Stork CM, et al: Notes from the field: cardiac dysrhythmias after loperamide abuse—New York, 2008–2016. *MMWR Morb Mortal Wkly Rep* 65: 1276, 2016. [PMID: 27855148]
72. Wu PE, Juurlink DN: Clinical review: loperamide toxicity. *Ann Emerg Med* 70: 245, 2017. [PMID: 28506439]
73. Katz KD, Cannon RD, Cook MD, et al: Loperamide-induced torsades de pointes: a case series. *J Emerg Med* 53: 339, 2017. [PMID: 28755998]
74. Kosten TR, O'Connor PG: Management of drug and alcohol withdrawal. *N Engl J Med* 348: 1786, 2003. [PMID: 12724485]
75. Handelsman L, Cochrane KJ, Aronson MJ, et al: Two new rating scales of opiate withdrawal. *Am J Drug Alcohol Abuse* 13: 293, 1987. [PMID: 3687892]
76. Wesson DR, Ling W: The Clinical Opiate Withdrawal Scale (COWS). *J Psychoactive Drugs* 35: 253, 2003. [PMID: 12924748]
77. Gowing L, Farrell M, Ali R, White JM: Alpha 2-adrenergic agonists for the management of opioid withdrawal. *Cochrane Database Syst Rev* 3: CD002025, 2014. [PMID: 24683051]
78. http://www.wpro.who.int/publications/docs/ClinicalGuidelines_forweb.pdf. (World Health Organization: Clinical guidelines for withdrawal management and treatment of drug dependence in closed setting.) Accessed November 14, 2018.
79. Gowing L, Ali R, White JM: Buprenorphine for the management of opioid withdrawal. *Cochrane Database Syst Rev* 3: CD002025, 2009. [PMID: 19588330]