

Ruha

## **Anne-Michelle Ruha, M.D., FACMT**

### **CURRICULUM VITAE**

#### **Contact Information**

Department of Medical Toxicology  
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#### **Education**

1988-1992      B.A., Biochemistry. Lafayette College, Easton, Pennsylvania  
1992-1996      M.D. UMDNJ – New Jersey Medical School, Newark, NJ  
1996-1999      Emergency Medicine Residency. Morristown Memorial Hospital, Morristown, NJ  
1999-2001      Medical Toxicology Fellowship. Good Samaritan Regional Medical Center,  
Phoenix, AZ

#### **Additional Training**

2002-2003      EMF/ACEP Emergency Medicine Basic Research Skills Workshop  
2003              REAC/TS Medical Planning and Care in Radiation Accidents  
2008              Buprenorphine in the Treatment of Opioid Dependence  
2012              Clinical Toxinology Short Course, Adelaide, Australia

#### **Current Employment and Academic Positions**

2017 -              Vice Chief, Department of Medical Toxicology  
                         \*Banner – University Medical Center, Phoenix, AZ  
2017 -              Section Chief, Addiction Medicine  
                         Banner – University Medical Center, Phoenix, AZ  
2017 -              Faculty Physician, Division of Medical Toxicology and Precision Medicine  
                         Department of Medicine  
                         University of Arizona College of Medicine – Phoenix  
2018 -              Professor, Department of Internal Medicine and  
                         Department of Emergency Medicine,  
                         University of Arizona College of Medicine – Phoenix  
2013 -              Faculty Physician, Center for Toxicology and Pharmacology Education and  
                         Research, University of Arizona College of Medicine – Phoenix

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- 2009 - Associate Clinical Investigator  
University of Arizona VIPER Institute
- 2003 - Courtesy Staff, Department of Emergency Medicine  
Maricopa Medical Center, Phoenix, Arizona
- 2001 - Attending Physician, Department of Medical Toxicology  
\*Banner – University Medical Center, Phoenix, AZ  
Phoenix Children’s Hospital, Phoenix, AZ
- 2001 - Medical Toxicology consultant  
\*Banner – University Poison and Drug Information Center

\* name changed from Banner Good Samaritan Medical Center in February 2015

**Current Appointments**

- 2009 - American College of Medical Toxicology, Board of Directors  
2014 – 2016 Secretary / Treasurer  
2016 –2019 Vice President  
2019 – present President
- 2015 - University of Arizona VIPER Institute, Advisory Board
- 2016 - U.S. FDA Drug Safety and Risk Management Advisory Committee
- 2019 - Journal of Medical Toxicology, Advisory Board

**Past Positions and Appointments:**

- 1999 - 2010 Banner Thunderbird Medical Center, Part-time Emergency Physician
- 2001 – 2008 Banner Good Samaritan Medical Center, Part-time Emergency Physician
- 2001 – 2005 Medical Toxicology Associate Fellowship Director, BGSMC
- 2009 – 2011 Journal of Medical Toxicology, Case Report Editor
- 2011 – 2014 Journal of Medical Toxicology, Review Section Editor
- 2004 – 2013 Clinical Assistant Professor, Department of Emergency Medicine  
University of Arizona College of Medicine
- 2003 – 2014 Adjunct Assistant Professor, Division of Clinical Education  
Midwestern University, Arizona College of Osteopathic Medicine
- 2009 - 2017 Medical Toxicology Foundation, Board of Directors
- 2011 - 2017 American Board of Emergency Medicine  
Medical Toxicology Sub-board Member  
2015 – 2016 Chair
- 2013 - 2017 Clinical Associate Professor, Department of Emergency Medicine  
University of Arizona College of Medicine – Phoenix

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2017 - 2018 Clinical Professor, Department of Emergency Medicine  
University of Arizona College of Medicine – Phoenix

2005 - 2017 Medical Toxicology Fellowship Director  
\*Banner – University Medical Center, Phoenix, AZ

2005 – 2019 Journal of Medical Toxicology, Editorial Board

### **Current Licensure and Certifications**

|   |                               |
|---|-------------------------------|
| Arizona Medical License, 27356              | 1999 (expires 2/4/2020)       |
| American Board of Emergency Medicine (ABEM) | 2000, 2010 (expires 12/31/20) |
| Medical Toxicology (ABEM)                   | 2002 (extended to 12/31/22)   |
| American Board of Addiction Medicine (ABAM) | 2015                          |
| Addiction Medicine (ABPM)                   | 2019                          |

### **Professional Activities / Service**

#### Current

Banner – University Medical Center Phoenix  
2019 - Physician Health Committee  
2011 – Pharmacy and Therapeutics Committee  
2015 - Medication Safety Committee  
2016 - Physician Wellness Committee  
2018 = Critical Care Clinical Consensus Group  
2018 - Medical Executive Committee

American College of Medical Toxicology  
2010 - Toxicology Investigators Consortium  
2013 – Choosing Wisely Work Group, Chair  
2017 - Communications Division Chair  
2018 - Practice Committee Tox Treatment Center Workgroup Chair

American Academy of Clinical Toxicology  
2008 - Envenomations Special Interest Group  
2013 – Choosing Wisely Work Group, Chair

University of Arizona College of Medicine, Phoenix  
2013 – MMI (multiple mini-interview) rater for prospective medical students  
2015 – Scholarly Project Mentor  
2017 Academic Excellence Day judge  
2017 – Department of Medicine Social Media Committee

#### Past

Banner Good Samaritan Medical Center  
2001 – 2018 Graduate Medical Education Committee member  
2003 – 2018 Graduate Medical Education Executive Committee member  
2003-2004 Internal Review Task Force  
2007 Internal Review Chair, Interventional Cardiology  
2007 Internal Review Committee, General Surgery  
2008 Internal Review Committee, Med Peds

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2009 Internal Review Committee, Orthopedics  
2010 Internal Review Committee, Internal Medicine  
2013 Candlelight Capers Planning Committee

### Phoenix Children's Hospital

2004 – 2006,  
2009 – 2017 Pharmacy and Therapeutics Committee member

### American College of Medical Toxicology

2003 – 2004 Board Review Task Force  
2003 – 2005 Project Participation Guidelines Committee  
2007 – 2008 Education Task Force  
2010 – 2011 2011 Spring Course Organizer  
2010 – 2011 National Case Conference Organizer  
2011 JMT Editor-in-Chief Search Committee  
2014 JMT Editor-in-Chief Search committee  
2011 – 2015 Nominations Committee member  
2009 – 2015 Education Committee member  
2013 – 2016 Liaison to Global Educational Toxicology Uniting Project (GETUP)  
2016 - 2017 Liaison to Medical Toxicology Subboard  
2005 – 2017 Fellowship Directors Committee member  
2011 – 2018 Public Affairs Committee, Chair

### Banner Poison Center

2005 – 2007 Critter Crawl Fundraiser Planning Committee

AAPCC Fatality Review Team member - 2008

## Professional Journal Reviewer

2004 – present Journal of Emergency Medicine  
2004 – present Academic Emergency Medicine  
2005 – present Journal of Medical Toxicology  
2008 – 2011 Case Report Section Editor  
2011 – 2014 Review Article Section Editor  
2014 – 2019 Associate Editor  
2006 – 2013 Internal and Emergency Medicine  
2007 – 2012 Western Journal of Emergency Medicine  
2008 – present Annals of Emergency Medicine  
2009 Postgraduate Medicine  
2010 Journal of Intensive Care Medicine  
2010 Drugs  
2012 – present Wilderness and Environmental Medicine  
2012 Clinical Pharmacology & Therapeutics  
2012 The Lancet  
2012 – present Toxicon  
2013 – present Clinical Toxicology  
2017 Jornal de Pediatria  
2017 JAMA  
2017 Pediatrics  
2019 JAMA Internal Medicine

## Society Memberships

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|                |   |
|----------------|---|
| 1999 – 2013    | Society for Academic Emergency Medicine                       |
| 1999 – present | American College of Medical Toxicology<br>Fellow status, 2007 |
| 2001 – present | American Academy of Clinical Toxicology                       |
| 2004 – 2013    | American Academy of Emergency Medicine                        |
| 2012 – present | International Society of Toxinology                           |
| 2013 – present | North American Society of Toxinology                          |
| 2016 – present | American Society of Addiction Medicine                        |
| 2019 – present | American Medical Association                                  |

## Awards/Honors

ACMT Award for Outstanding Service to the American College of Medical Toxicology – April 2019

## Publications

### *Peer-Reviewed Journals*

1. Tanen DA, **Ruha AM**, Curry SC, Graeme KA, Reagan CG: Hypertonic Sodium Bicarbonate is Effective in the Acute Management of Verapamil Toxicity in a Swine Model. *Ann Emerg Med.* 2000 Dec;36(6):547-553.
2. **Ruha AM**, Tanen DA, Suchard JR, Curry SC: Combined Ingestion and Subcutaneous Injection of Elemental Mercury. *J Emerg Med.* 2001 Jan;20(1):39-42.
3. Tanen DA, **Ruha AM**, Graeme KA, Curry SC: Epidemiology and Hospital Course of Rattlesnake Envenomations Cared for at a Tertiary Referral Center in Central Arizona. *Acad Em Med.* 2001 Feb;8(2):177-182.
4. Tanen DA, **Ruha AM**, Graeme KA, Curry SC, Fischione MA: Rattlesnake Envenomations: Unusual Presentations. *Arch Int Med.* 2001;161:474-479.
5. **Ruha AM**, Tanen DA, Patel P, Wallace K: Dilute Diquat Death. *Am J Emerg Med.* 2001 Oct;19(6):527-8. (letter)
6. **Ruha AM**, Selden B, Curry S: Hemolytic Anemia Following Acetaminophen Overdose in a Patient with Glucose-6-Phosphate Dehydrogenase Deficiency. *Am J Med.* 2001 Feb 15;110:240-241. (letter)
7. **Ruha AM**, Tanen DA, Graeme KA, Curry SC, Miller MB, Gerkin R, Reagan CG, Brandon T: Hypertonic Sodium Bicarbonate for *Taxus media*-Induced Cardiac Toxicity in Swine. *Acad Em Med.* 2002 Mar;9(3):179-85.
8. **Ruha AM**, Curry SC, Beuhler M, Katz K, Brooks DE, Graeme KA, Wallace K, Gerkin R, LoVecchio F, Wax P, Selden B: Initial postmarketing experience with crotalidae polyvalent immune Fab for treatment of rattlesnake envenomation. *Ann Emerg Med.* 2002 Jun;39(6):609-15.
9. Brooks DE, Graeme KA, **Ruha AM**, Tanen DA: Respiratory compromise in patients with rattlesnake envenomation. *J Emerg Med* 2002 Nov;23(4):329-32.
10. **Ruha AM**, Graeme KA, Field A: Late Seizure Following Ingestion of Vicks VapoRub. *Acad Em Med* 2003 Jun;10(6):691. (letter)

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11. Katz K, **Ruha AM**, Curry SC: Aniline and Methanol Toxicity Following Shoe Dye Ingestion. *J Emerg Med* 2004 Nov;27(4);367-369.
12. Kashani J, **Ruha AM**: Methamphetamine toxicity secondary to intravaginal body stuffing. *J Toxicol Clin Tox* 2004 42(7);981-983.
13. **Ruha AM**, Yarema MC: Pharmacologic Treatment of Acute Pediatric Methamphetamine Toxicity. *Ped Emerg Care* 2006 Dec;22(12)
14. Kashani JS, **Ruha AM**: Isolated atomoxetine overdose resulting in seizure. *J Emerg Med*. 2007 Feb;32(2)175-8.
15. Cannon RD, **Ruha AM**, Kashani J. Acute Hypersensitivity Reactions Associated with the Administration of Crotalidae Polyvalent Immune Fab Antivenom. *Ann Emerg Med*. 2008 Apr;51(4):407-11. Epub 2008 Jan 11.
16. **Ruha AM**, Curry SC, Gerkin RD, Caldwell KL, Osterloh JD, Wax PM. Urine Mercury Excretion Following DMSA Challenge in Fish Eaters. *Arch Pathol Lab Med*. 2009 Jan;133(1):87-92.
17. **Ruha AM**, Brooks DE, Curry SC. Management of Delirium Tremens. *Acad Em Med*. 2009;16:91. (letter)
18. **Ruha AM**. The case report: a tool for the toxicologist. *JMT* 2009;5(1):1-2. (editorial)
19. **Ruha AM**, Curry SC. Recombinant Factor VIIa for Treatment of Gastrointestinal Hemorrhage following Rattlesnake Envenomation. *Wilderness Environ Med*. 2009;20:156-160.
20. Levine M, **Ruha AM**. Buprenorphine withdrawal in a toddler. *Ann Emerg Med*. 2009;54(3):477-478. (letter)
21. Quan D, **Ruha AM**. Priapism Associated with Latrodectus Mactans Envenomation. *Am J Em Med*. 2009;27(6)
22. Gresham C, Levine M, **Ruha AM**. Case Files of the Medical Toxicology Fellowship at Banner Good Samaritan Medical Center in Phoenix, AZ: A non-warfarin anticoagulant overdose. *J Med Toxicol*. 2009;5(4):242-249.
23. Gresham C, **Ruha AM**. Respiratory failure following isolated ziprasidone ingestion in a toddler. *J Med Toxicol*. 2010 Mar;6(1):41-3.
24. Levine ML, Khurana A, **Ruha AM**. Polyuria, acidosis, and coma following massive ibuprofen ingestion. *J Med Toxicol*. 2010 Apr 24
25. Levine ML, **Ruha AM**. Images in Clinical Medicine: Rattlesnake envenomation. *N Engl J Med*. 2010 Jun 10;362:23
26. **Ruha AM**, Curry SC, Albrecht C, Riley B, Pizon A. Late Hematologic Toxicity Following Treatment of Rattlesnake Envenomation with Crotalidae Polyvalent Immune Fab Antivenom. *Toxicon* 2011;57(1):53-59.
27. Lavonas EJ, **Ruha AM**, Banner W, et al. Unified Treatment Algorithm for the Management of Crotaline Snakebite in the United States: Results of an Evidence-Informed Consensus Workshop. *BMC Emergency Medicine* 2011;11:2 (3 February 2011)

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28. Levine ML, Canning J, Chase R, **Ruha AM**. Cardiomyopathy following Latrodectus envenomation. *West J Emerg Med*. 2010;11(5):521-523.
29. O'Connor AD, **Ruha AM**, Levine ML. Pressure immobilization bandages not indicated in the pre-hospital management of North American snakebites. *J Med Toxicol*. 2011 Sept;7(3):251; Epub Jun 23 (letter)
30. Levine ML, **Ruha AM**, LoVecchio F, et al. Hypoglycemia following accidental pediatric sulfonyleurea ingestions. *Pediatr Emerg Care*. 2011 Aug 22.
31. Levine ML, **Ruha AM**, Goldstein JN. Evidence-based Emergency Medicine: systematic review abstract. Can asymptomatic patients with a supratherapeutic INR be safely treated as outpatients? *Ann Emerg Med*. 2011 May 31.
32. Levine ML, Brooks DE, Truitt C, Wolk B, Boyer E, **Ruha AM**. Toxicology in the ICU, Part 1: A general overview and approach to treatment. *Chest*. 2011 Sep;140(3):795-806.
33. Levine ML, **Ruha AM**, Graeme KA, Brooks DE, Canning J, Curry SC. Toxicology in the ICU, part 3: Natural toxins. *Chest*. 2011 Nov;140(5):1357-70.
34. Pressure Immobilization after North American Crotalinae Envenomation. Position Statement, created by Levine ML and **Ruha AM** and endorsed by the ACMT, AACT, AAPCC, EAPCC, IST, and APAMT. *J Med Toxicol*. 2011 Dec;7(4):322-3. and *Clin Toxicol* 2011 Nov 8 (Epub ahead of print)
35. Levine ML, Curry SC, **Ruha AM**, et al. Ethylene glycol elimination kinetics and outcomes in patients managed without hemodialysis. *Ann Emerg Med*. 2012 Jun;59(6):527-31. Epub 2012 Jan 5.
36. Levine ML, LoVecchio F, **Ruha AM**, Chu G, Roque P. Influence of drug use on morbidity and mortality in heat stroke. *J Med Toxicol*. 2012 Sep;8(3):252-7. Epub 2012 Mar 24.
37. Levine M, Mihalic J, **Ruha AM**, French RE, Brooks DE. Heavy metal contaminants in yerberia shop products. *J Med Toxicol*. 2012 May 5. [Epub ahead of print]
38. O'Connor AD, **Ruha AM**. Clinical Course of Bark Scorpion Envenomation Managed without Antivenom. *J Med Toxicol*. 2012 Sep;8(93):258-62. Epub 2012 May 5.
39. Levine M. **Ruha AM**. Overdose of Atypical Antipsychotics: Clinical Presentation, Mechanisms of Toxicity and Management. *CNS Drugs*. 2012 Jul 1;26(7):601-11. Epub 2012 Jun 5.
40. Levine M, Curry SC, **Ruha AM**, Pizon AF. In reply. *Ann Emerg Med*. 2012 Oct;60(4):540-1. (letter)
41. Cohen JP, **Ruha AM**, Curry SC, et al. Plasma and Urine Dimercaptopropanesulfonate Concentrations After Dermal Application of TD-DMPS. *J Med Toxicol*. 2013 Mar;9(1):9-15. PMID:23143832
42. Skolnik AB, O'Connor AD, **Ruha AM**, Curry SC. Recommendations regarding management of methanol toxicology. *Ann Emerg Med*. 2012 Dec;60(6):816-7. (letter) PMID:23178022
43. Levine M, Froberg B, **Ruha AM**, Burns-Ewald M, Yen M, Claudius IA, Arthur AO, Tormoehlen L, Thomas SH. Assessing the toxicity and associated costs among pediatric patients admitted with unintentional poisonings of attention deficit-hyperactivity disorder drugs in the United States. *Clinical Toxicology* Mar 2013, Vol. 51, No. 3: 147-150. PMID:23473458

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44. Levine M, Curry SC, Padilla-Jones A, **Ruha AM**. Critical Care Management of Verapamil and Diltiazem Overdose With a Focus on Vasopressors: A 25 Year Experience at a Single Center. *Ann Emerg Med*. 2013 Sep;62(3):252-8. PMID:23642908
45. Boyer L, Deagan J, **Ruha AM**, et al. Safety of intravenous equine F(ab')<sub>2</sub>: insights following clinical trials involving 1534 recipients of scorpion antivenom. *Toxicon*. 2013 Aug 2. PMID:23916602
46. **Ruha AM**. Recommendations for Provoked Challenge Urine Testing. *J Med Toxicol*. 2013 Dec;9(4):318-25. PMID: 24113861
47. **Ruha AM**, Levine M. CNS Toxicity. *Emerg Med Clin North Am*. Lugassy and Smith, eds. 2014 Feb;32(1):205-21 PMID: 24275175
48. Levine M, Skolnik AB, **Ruha AM**, Bosak A, Menke N, Pizon AF. Complications following antidotal use of intravenous lipid therapy. *J Med Toxicol*. 2013 Dec 13 PMID:24338451
49. Levine M, Curry S, **Ruha AM**, Padilla-Jones A. In Reply. *Ann Emerg Med*. 2014 Jan;63(1):90-1. PMID:24355374 (letter, author reply to letter regarding publication 2013 Sep;62(3):252-8)
50. **Ruha AM**, Curry SC, Levine M. In Reply. *Ann Emerg Med*. 2014 Jan;63(1):93. PMID:24355377 (letter, author reply to letter regarding publication 2013 Sep;62(3):252-8)
51. Libby B, **Ruha AM**, Raschke R, Wong M. Multisystem organ failure following LipoDissolve injections. *J Clin Toxicol*. 2013;3:171.
52. Bosak AR, **Ruha AM**, Graeme KA. A case of neurotoxicity following envenomation by the Sidewinder rattlesnake, *Crotalus cerastes*. *J Med Toxicol*. 2014 Jan 11 (epub ahead of print) PMID: 24414250
53. Kopec K, Leikin J, Banner W, **Ruha AM**, Brent J. Management of cardiac dysrhythmias following hydrocarbon abuse: clinical toxicology teaching case from NACCT Acute & Intensive Care Symposium. *Clin Toxicol*. 2014;52(2):141-5. PMID:24476044
54. Levine M, Pizon AF, **Ruha AM**. Warfarin overdose: a 25 year experience. *J Med Toxicol*. 2014 Feb 1 (Epub ahead of print) PMID:24488527
55. Levine M, **Ruha AM**, Padilla-Jones A, Gerkin R, Thomas SH. Bleeding following rattlesnake envenomation in patients with pre-envenomation use of antiplatelet or anticoagulant medications. *Acad Emerg Med* 2014 Mar;21(3):301-307. PMID:24628755
56. Curry SC, Padilla-Jones A, O'Connor AD, **Ruha AM**, Bikin DS, Wilkins DG, Rollins DE, Slawson MH, Gerkin RD; Acetaminophen Adduct Study Group. Prolonged Acetaminophen-Protein Adduct Elimination During Renal Failure, Lack of Adduct Removal by Hemodiafiltration, and Urinary Adduct Concentrations After Acetaminophen Overdose. *J Med Toxicol*. 2014 Oct 7. [Epub ahead of print] PMID:25288219
57. Bush S, **Ruha AM**, Seifert S, Morgan D, Lewis B, Arnold T, Clark R, Meggs W, Toschloq E, Borron S, Figge G, Sollee D, Shirazi F, Wolk R, Chazal I, Quan D, Garcia-Ubbelohde W, Alagon A, Gerkin R, and Boyer L. Comparison of F(ab')<sub>2</sub> versus Fab antivenom for pit viper envenomation: A prospective, blinded, multicenter, randomized clinical trial. *Clin Toxicol* 2015 Jan;53(1):37-45. PMID: 25361165
58. French RNE, Brooks DE, **Ruha AM**, Shirazi FM, Chase PB, Boesen K, Walter F. Gila monster (*Heloderma suspectum*) envenomation: descriptive analysis of calls to United States poison centers with focus on Arizona cases. *Clin Toxicol*. 2015;53(1):60-70. PMID: 25511795



59. Bush SP, **Ruha AM**, Seifert SA, Sollee DR, Boyer LV. In Reply re: "Comparison of F(ab')<sub>2</sub> versus Fab antivenom for Pit Viper Envenomation: A Prospective, Blinded, Multicenter, Randomized Clinical Trial" *Clin Toxicol* (Phila). 2015 May;53(4):414-415. PMID:25706452 (letter)
60. Wong A, Vohra R, **Ruha AM**, Koutsogiannis Z, Graeme KA, Dargan PI, Wood DM, Creaton A, Greene SL. The Global Educational Toxicology Uniting Project (GETUP): An analysis of the first year of a novel toxicology education project. *J Med Toxicol*. 2015 May 8. PMID:25952764
61. Boyer LV, **Ruha AM**. Pitviper Envenomation Guidelines should address choice between FDA-approved treatment for cases at risk of late coagulopathy. *Wilderness & Environmental Medicine, Wilderness Environ Med*. 2016 Apr 11. PMID: 27079732 (letter)
62. **Ruha AM**. Ethical Standards Help to Define the Medical Toxicologist. *J Med Toxicol*. 2015 Dec;11(4):383-4. (editorial)
63. Spyres MB, **Ruha AM**, Seifert S, Onisko N, Padilla-Jones A, Smith EA. Occupational Snake Bites: a Prospective Case Series of Patients Reported to the ToxIC North American Snakebite Registry. *J Med Toxicol*. 2016 May 27. [Epub ahead of print] PMID: 27234295
64. Coorg V, Levitan R, Muenzer J, Gerkin RD, **Ruha AM**. Clinical course and outcomes associated with different treatment modalities for pediatric Bark scorpion envenomation. *J Med Toxicol* 2016 Aug 3. [Epub ahead of print] PMID: 27487782
65. Farrugia LA, Rhyee SH, Campleman SL, **Ruha AM**, Weigand T, Wax PM, Brent J; Toxicology Investigators Consortium. The Toxicology Investigators Consortium Case Registry-the 2015 Experience. *J Med Toxicol*. 2016 Aug 12. [Epub ahead of print] PMID: 27517280
66. Lasoff DR, **Ruha AM**, **Curry SC**, Koh C, Clark RF. A new F(ab')<sub>2</sub> antivenom for the treatment of crotaline envenomation in children. *Am J Emerg Med*. 2016 Oct;34(10):2003-2006. doi: 10.1016/j.ajem.2016.07.061. PMID: 27567423
67. Spyres MB, **Ruha AM**, Kleinschmidt K, Vohra R, Smith E, Padilla-Jones A. Epidemiology and clinical outcomes of snakebite in the elderly: a ToxIC database study. *Clin Toxicol* (Phila). 2017 Jul 13:1-5. PMID: 27567423
68. O'Connor AD, Padilla-Jones A, **Ruha AM**. Severe bark scorpion envenomation in adults. *Clin Toxicol* (Phila). 2018 Mar;56(3):170-174. Epub 2017 Jul 28. doi:10.1080/15563650.2017.1353095. PMID: 28753044
69. Farrugia LA, Rhyee SH, Calello DP, Campleman SL, Riederer AM, Malashock HR, Pizon A, Wiegand T, Wax PM, Brent J; **Toxicology Investigators Consortium Study Group**. The Toxicology Investigators Consortium Case Registry-the 2016 Experience. *J Med Toxicol*. 2017 Sep;13(3):203-226. Epub 2017 Aug 1. doi: 10.1007/s13181-017-0627-3. PMID: 28766237
70. Heise CW, Hayek C, Padilla-Jones A, Gerkin RD, **Ruha AM**. Clinical Predictors of Tissue Necrosis Following Rattlesnake Envenomation. *Clin Toxicol* (Phila). 2018 Apr;56(4):281-284. Epub 2017 Sep 8:1-4. doi: 10.1080/15563650.2017.1371311. PMID: 28885114
71. **Ruha AM**, Kleinschmidt KC, Greene S, Spyres MB, Brent J, Wax P, Padilla-Jones A, Campleman S; ToxIC Snakebite Study Group. The Epidemiology, Clinical Course, and Management of Snakebites in the North American Snakebite Registry. *J Med Toxicol*. 2017 Dec;13(4):309-320. Epub 2017 Oct 3. doi: 10.1007/s13181-017-0633-5. PMID: 28975491
72. Spyres MB, Skolnik A, Moore E, Padilla-Jones A, Gerkin RD, **Ruha AM**. Comparison of Antivenom Dosing Strategies for Rattlesnake Envenomation. *Critical Care Medicine*.

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2018 Mar 7. doi: 10.1097/CCM.0000000000003079. [Epub ahead of print] PMID: 29521714

73. Kleinschmidt KC, **Ruha AM**, Wax P, Brent J, on behalf of the ToxiC Snakebite Study Group. Acute Adverse Events Associated with the Administration of Crotalidae Polyvalent Immune Fab Antivenom within the North American Snakebite Registry. *Clin Toxicol (Phila)*. 2018 Apr 24:1-6. doi: 10.1080/15563650.2018.1464175. [Epub ahead of print] PMID: 29688079

74. Chai PR, **Ruha AM**, Wong KE, Monette DL, Spyres MB, Lapoint J, Greller H, Mycyk MB. The Virtual Toxicology Journal Club: The Dissemination and Discussion of Noteworthy Manuscripts Using Twitter. *J Med Toxicol*. 2018 Jun 20. doi: 10.1007/s13181-018-0670-8 PMID: 29926389

75. Moore EC, Porter LM, **Ruha AM**. Rattlesnake Venom-Induced Recurrent Coagulopathy in First Trimester Pregnant Women - Two Cases *Toxicon*. 2019 Mar 14;163:8-11. doi: 10.1016/j.toxicon.2019.03.006. [Epub ahead of print] PMID: 30880187

76. Curry SC, Padilla-Jones A, **Ruha AM**, O'Connor AD, Kang AM, Wilkins DG, Jaeschke H, Wilhelms K, Gerkin RD; Acetaminophen Adduct Study Group. The Relationship Between Circulating Acetaminophen-Protein Adduct Concentrations and Alanine Aminotransferase Activities in Patients With and Without Acetaminophen Overdose and Toxicity *J Med Toxicol*. 2019 Apr 12. doi: 10.1007/s13181-019-00705-2. [Epub ahead of print] PMID: 30980348

### *Book Chapters and Monographs*

1. **Ruha AM**: Plants, in Ling LJ, et al (ed): *Toxicology Secrets*. Hanley & Belfus, Inc., Philadelphia. 2001
2. Wax PM, **Ruha AM**: Withdrawal Syndromes, in Irwin RS, et al (ed): *Intensive Care Medicine*. Lippincott-Raven, Philadelphia. 5th edition. 2003
3. **Ruha AM**: Snake Bites. *Critical Decisions in Emergency Medicine*. 2004 May;18(9)
4. Katz K, **Ruha AM**: Barbiturates, in Brent J, et al (ed): *Critical Care Toxicology*. Mosby, Inc. Philadelphia. 2005
5. Curry SC, Mills KC, **Ruha AM**: Neurotransmitters, in Goldfrank LR, et al (ed): *Goldfrank's Toxicologic Emergencies*. 8<sup>th</sup> ed. New York:McGraw-Hill, 2006
6. Riley B, Pizon A, **Ruha AM**, Roberts JR, Otten EJ: Snakes and Other Reptiles, in Goldfrank LR, et al (ed): *Goldfrank's Toxicologic Emergencies*. 8<sup>th</sup> ed. New York: McGraw-Hill, 2006
7. Pizon A, Riley B, **Ruha AM**, Roberts JR, Otten EJ: Antidotes in Depth: Antivenom (Crotaline and Elapid), in Goldfrank LR, et al (ed): *Goldfrank's Toxicologic Emergencies*. 8<sup>th</sup> ed. New York: McGraw-Hill, 2006
8. Cannon R, **Ruha AM**: Insecticides, Herbicides and Rodenticides, in Adams J, Barton C, Collings J, et al (ed): *Adam's Emergency Medicine*. Saunders, 2008.
9. Curry SC, Mills KC, **Ruha AM**, O'Connor AD: Neurotransmitters, in Goldfrank LR, et al (ed): *Goldfrank's Toxicologic Emergencies*. 9<sup>th</sup> ed. New York:McGraw-Hill, 2011.
10. Riley B, Pizon A, **Ruha AM**: Snakes and Other Reptiles, in Goldfrank LR, et al (ed): *Goldfrank's Toxicologic Emergencies*. 9<sup>th</sup> ed. New York: McGraw-Hill, 2011.

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11. Pizon A, Riley B, **Ruha AM**: Antidotes in Depth: Antivenom (Crotaline and Elapid), in Goldfrank LR, et al (ed): Goldfrank's Toxicologic Emergencies. 9<sup>th</sup> ed. New York: McGraw-Hill, 2011.
12. **Ruha AM**: Spider Bites and Scorpion Stings, in Conn's Current Therapy 2011. Elsevier, 2011.
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14. **Ruha AM**: Spider Bites and Scorpion Stings, in Conn's Current Therapy 2012. Elsevier, 2012.
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### *Other Print, Audio, and Web-based Media*

1. **Ruha AM**: Case 1: Case Discussion. *Int J Med Toxicol*. 2001;4(5):31.

2. **Ruha AM**: Ask the Experts: Whole Bowel Irrigation. *MDchoice.com*. March 2002.

3. LoVecchio F, **Ruha AM**, Pitera AE, Hilder R: A prospective poison center experience of sustained-release bupropion over 40-months in children. *Int J Ped Neonat*. 2004;4(1).

4. **Ruha AM**: Ask The Experts. Bark scorpion stings can be dangerous. *The Arizona Republic*. May 30, 2009.

5. **Ruha AM**: Ask The Experts. The hCG diet not effective for healthy weight loss. *The Arizona Republic*. October 30, 2010.

6. Lavonas EJ, Fox BR, **Ruha AM**, Smith. Expert Guidance in Developing Institutional Algorithms for Snake Envenomation Management. CME/CE Released 03/12/2013.  
<http://www.medscape.org/viewarticle/780335>

7. **Ruha, AM**: Poisonous Plants and Animals. Clinical Decision Support: Critical Care Medicine, edited by Kellum JA, Fortenberry JD, Fuchs BD, Shaw A. 2013. Decision Support in Medicine, LLC. Wilmington, DE

9. Tran A, **Ruha AM**: Tricyclic Antidepressants. Clinical Decision Support: Clinical Toxicology, edited by Cantor, Marraffa, and Stork. 2016. Decision Support in Medicine, LLC. Wilmington, DE.

10. Interview on Dantastic Mr. Tox podcast. Episode 2: Snakes on a Podcast.  
<https://itunes.apple.com/us/podcast/the-dantastic-mr-tox-howard/id1247074688?mt=2>

11. **Ruha AM**. How do I talk to my kids about prescription drugs and the dangers of taking opioids? All The Moms, USA Today Network. <http://allthemoms.com/2017/11/27/how-do-i-talk-to-my-kids-about-prescription-drugs-and-the-dangers-of-taking-opioids/> November 27, 2017.

## **Presentations**

### *Invited Lectures at Regional, National, and International Conferences*

1. GABA A and GABA B receptors. North American Congress of Clinical Toxicology Annual Meeting, Chicago, September 7, 2003

2. Current Chemical Threats. Emergency Medicine 2005: Moving Forward. Mayo Clinic College of Medicine, Scottsdale, April 19, 2005.

3. Toxic Plant and Mushroom Review. Western Toxicology Fellows Conference, Denver, April 7, 2006.

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4. Danger in the Desert: The pediatric patient with a scorpion sting or snake bite. More than Medicine...Emergency Care for the Pediatric Patient conference. Phoenix Children's Hospital. October 12, 2006.
5. Medical Management of Desert Envenomations. Venomous Critter Conference. Arizona Game and Fish, Mesa, March 20, 2007.
6. Scorpion Symposium: The Phoenix Experience. Venom Week. Tucson, Arizona September 6, 2007.
7. GABA and Alcohol. Western Toxicology Fellows Conference. Phoenix, Arizona. April 17, 2008.
8. Update on Desert Envenomations. Arizona Game and Fish Critter Conference. Mesa, March 17, 2009.
9. Neurotransmitter Primer. American College of Medical Toxicology Spring Course. Puerto Rico, March 27, 2009.
10. LLSA Review: Sodium Thiosulfate or Hydroxocobalamin for the Empiric Treatment of Cyanide. ACMT Spring Course. Puerto Rico, March 28, 2009.
11. Hematologic Recurrence Following Crotalidae Polyvalent Immune Fab Treatment of North American Rattlesnake Bite. Venom Week. Albuquerque, New Mexico. June 3, 2009.
12. Fab2 antivenom for reversal of neurotoxicity following bark scorpion sting. North American Congress of Clinical Toxicology. San Antonio, Texas. September 24, 2009.
13. Current use of antivenoms in Arizona. Antidotes and Drug Safety Course. American College of Medical Toxicology. Scottsdale, AZ. March 11, 2010.
14. Scorpion stings and use of a 'new' antivenom in Arizona. ACMT Spring Course. Scottsdale, AZ. March 13, 2010.
15. Envenomations. ACMT Medical Toxicology Board Review Course. Cincinnati, Ohio. September 12, 2010.
16. Toxic Plants. ACMT Medical Toxicology Board Review Course. Cincinnati, Ohio. September 12, 2010.
17. Desert Envenomations. 2011 Pinal County EMS Conference. Casa Grande, AZ. June 24, 2011.
18. History and Recommendations for Provoked Urine Metal Testing. Use and Misuse of Metal Chelation Therapy conference. CDC, Atlanta, Georgia. February 29, 2012.
19. Anticholinergic Drug Toxicity. Clinical Presentation of Life-Threatening Overdoses workshop at 34<sup>th</sup> Annual Southwestern Association of Forensic Scientists Conference. Scottsdale, AZ. October 24, 2012.
20. Media Relations: We Can Be Better Than Dr. Oz! 2013 ACMT Annual Scientific Meeting. San Juan, Puerto Rico. March 15, 2013.
21. Exotic Snakes at the Phoenix Zoo: Clinical Considerations. Presentation to regional herpetologists, biologists, and physicians. Phoenix Zoo. August 20, 2013.

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22. Use of Antivenom for Exotic Envenomations: Clinical, Regulatory, and Practical Considerations. Moderator of panel session. ACMT Annual Scientific Meeting. Phoenix, Arizona. March 29, 2014.
23. Venomous Snakebites in Arizona. Department of Homeland Security, Homeland Security Investigations Arizona Rapid Response Team. Phoenix, Arizona April 23, 2014.
24. Everything Else Venomous: Scorpions, Spiders, and Bees. Department of Homeland Security, Homeland Security Investigations Arizona Rapid Response Team. Phoenix, Arizona April 23, 2014.
25. Choosing Wisely in Medical Toxicology. ACMT Annual Scientific Meeting, Clearwater, Florida. March 28, 2015.
26. Snake and Spider Envenomations. Pick Your Poison: Current Trends in Toxicology. Scottsdale, Arizona. April 11, 2015.
27. Spiders, Scorpions, and Snakes: Presentation and Management. Philippine Nurses Association of Arizona Fall Conference. Scottsdale, Arizona. September 19, 2015.
28. Marine Envenomations. Pick Your Poison: Trends in Toxicology conference. Phoenix, Arizona. March 25, 2017.
29. Uncommon Presentations of Common Envenomations. Houston Venom Conference. Keynote speaker. Houston, Texas. April 11, 2017.
30. Trends, Treatments, and Tools: Confronting Arizona's Opioid Epidemic. Panelist. University of Arizona College of Medicine. Phoenix, Arizona. May 23, 2017
31. Gadolinium. What the Medical Toxicologist Needs to Know. Western Toxicology Fellows Conference. Phoenix, Arizona. May 2, 2019.

### *Platform Presentations*

1. **Ruha AM**, Tanen DA, Graeme KA, Curry SC: Conversion of Direct Coombs Antibody Screen After Administration of Crotalidae Antivenin (Wyeth®). North American Congress of Clinical Toxicology (NACCT), Tucson, September 2000
2. **Ruha AM**: Case Presentation Conference. NACCT, Montreal, October 2001
3. **Ruha AM**, Beuhler M, Brooks D, Wallace K, Graeme KA, Curry SC, Gerkin R, LoVecchio F: CroFab® for Treatment of Rattlesnake Envenomation. NACCT, Montreal, October 2001
4. **Ruha AM**, Tanen DA, Graeme KA, Curry SC, Miller MB, Gerkin R, Reagan CG, Brandon T: Hypertonic Sodium Bicarbonate for *Taxus media*-Induced Cardiac Toxicity in Swine. NACCT, Montreal, October 2001
5. Baron R, McCammon JB, Radtke T, Lovecchio F, Curry SC, **Ruha M**: Open air carbon monoxide poisonings on houseboats: 74 cases from 1990-2000. NACCT, Montreal, October 2001
6. Curry SC, Pizon AF, Riley BD, Washington KT, **Ruha AM**: Effect of IV Albumin on Brain Salicylate Concentration in a Porcine Model. NACCT, San Francisco, October 2006

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7. Jackson S, **Ruha AM**: Intracranial hemorrhage following stingray envenomation. Venom Week, Tucson, September 2007
8. O'Connor AD, **Ruha AM**: Clinical course of bark scorpion envenomation when antivenom is unavailable. NACCT, Denver, October 2010.
9. Bush SB, **Ruha AM**, et al. A prospective, multicenter, randomized clinical trial comparing Crotalinae equine immune F(ab')<sub>2</sub> to Crotalidae Polyvalent Immune Fab (Ovine) for the treatment of patients with pit viper envenomation. NACCT, New Orleans, October 2014.
10. Coorg V, Levitan R, Muenzer J, Gerkin RD, **Ruha AM**. Clinical course and outcomes associated with different treatment modalities for pediatric Bark scorpion envenomation. ACMT Annual Scientific Meeting. Clearwater, Florida. March 29, 2015.
11. Spyrès MB, Skolnik AB, Padilla-Jones A, Gerkin R, Moore E, **Ruha AM**. Rattlesnake envenomations treated with and without maintenance antivenom. Clinical Toxicology. 2016;54(8):660. NACCT, Boston, October 2016.
12. **Ruha AM**, Kleinschmidt K, Greene S, et al. The Epidemiologic and Clinical Characteristics of Snakebites in the North American Snakebite Registry. J Med Toxicol. 2017;13(1).
13. Kleinschmidt K, **Ruha AM**, et al. Acute Adverse Events Associated with the Administration of FabAV within the North American Snakebite Registry. J Med Toxicol. 2017;13(1).
14. Moore E, Zelic M, Padilla-Jones A, **Ruha AM**. A Case Series of Patients with Massive Honeybee Envenomation. J Med Toxicol. 2018; 14(1).
15. Offerman S, Goshen J, Padilla-Jones A, **Ruha AM**, Thomas S, Levine M. Bupropion – Associated Seizures Following an Acute Overdose. In ACMT 2019 Annual Scientific Meeting Abstracts – San Francisco, CA. Journal of Medical Toxicology. April 2019, 15(2):53-107.