

Karen Denise Serrano, MD

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Revised: January 2024

Current Position

2015-current Clinical Associate Professor
Department of Emergency Medicine
University of North Carolina School of Medicine at Chapel Hill

Education

2008-2011 Emergency Medicine Residency
University of Wisconsin Hospital & Clinics
Madison, WI

2005-2006 Internal Medicine Residency
University of Wisconsin Hospital & Clinics
Madison, WI

2000-2005 University of Chicago Pritzker School of Medicine
Chicago, IL
M.D., May 2005

1996-1998 Wheaton College Graduate School
Wheaton, IL
M.A. Biblical & Theological Studies, May 1998

1991-1995 Wellesley College
Wellesley, MA
B.A. History, May 1995

Licensure/Certification

2011- American Board of Emergency Medicine Certified Physician
2015- North Carolina Medical License
2006- Wisconsin Medical License

Professional Experience

2018 – current Medical Director, Sexual Assault Nurse Examiner (SANE) and Forensic
Nurse Program
Department of Emergency Medicine
University of North Carolina School of Medicine
Chapel Hill, NC

2015-present	Clinical Assistant Professor Department of Emergency Medicine Attending Physician University of North Carolina School of Medicine Chapel Hill, NC
2012-2015	Clinical Assistant Professor Attending Physician Department of Emergency Medicine University of Wisconsin Hospital & Clinics Madison, WI
2011-2014	Attending Emergency Medicine Physician Southern Wisconsin Emergency Associates Beloit Memorial Hospital, Beloit WI St. Mary's Hospital, Janesville, WI Stoughton Hospital, Stoughton, WI
2010-2011	Emergency Medicine Chief Resident University of Wisconsin Hospital & Clinics Madison, WI
2008-2011	Emergency Medicine Resident University of Wisconsin Hospital & Clinics Madison, WI
2006-2008	Medical Writer & Editor Healthday.com medical news website
2004-2008	Freelance Medical Writer Clients included Haines Medical Communications & PEPID.com

Honors

2022 UNC Tar Heel Trauma Leading the Way Award for exemplary leadership in the development and implementation of the UNC Trauma Resilience Program which screens trauma patients for PTSD

2020 UNC School of Medicine Academy of Educators Educational Mentor Award for working with resident trainees with identified knowledge gaps

2019 UNC School of Medicine Academy of Educators Inductee

2017 UNC Socrates award for outstanding didactic and clinical teaching

2011 UW Resident Award for Excellence in Pediatrics

2011 UW Resident Award for Excellence in Scholarship

2010 UW Resident Award for Excellence in Scholarship

2009 UW Resident Award for Excellence in Scholarship

- 2005 AMWA Glasgow-Rubin Commendation for Academic Achievement
2003 Alpha Omega Alpha (AOA) Honor Society Inductee

Scholarship

Books & Chapters

1. **Miller, Diane L and Serrano, Karen.** (2020) Ch. 61. Sexual Assault. In: *Emergency Medicine Services: Clinical Practice and Systems Oversight*. David C. Cone, Ed. Wiley; 2020.
2. **Serrano, Karen D.** (2020). Sexually Transmitted Infections. In: Tintinalli JE, Ma O, Yealy DM, Meckler GD, Stapczynski J, Cline DM, Thomas SH (Eds.). *Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 9e*. McGraw Hill; 2020.
3. Vissers RJ, Danzl DF, **Serrano K.** (2016). Intubation and Mechanical Ventilation. In: Tintinalli JE, Stapczynski J, Ma O, Yealy DM, Meckler GD, Cline DM. eds. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 8e* New York, NY: McGraw-Hill; 2016.
4. **Serrano, KD**, Fruhan, SA. (2015). Pneumonia and other pulmonary infections. In: Brown D, editor. *Scientific American emergency medicine*. Hamilton (ON): Decker Intellectual Properties; September 2016. DOI: 10.2310/7900.4140. Available at <http://www.deckerip.com>.
5. Mottram A, **Serrano K.** (2015). Cardiac arrest and cardiopulmonary resuscitation: Recent advances in management approach for cardiopulmonary resuscitation. In Jagadeesh, Balakumar, and Maung,, eds. *Pathophysiology and Pharmacotherapy of Cardiovascular Disease*. Springer- Verlag, Springer-Verlag, 2015: 1135-1147.
6. **Serrano K**, Rebella G. (2012) Femoral Shaft Fractures. In *Essentials Emergency Imaging*. Lewiss, RE, ed. Philadelphia, PA: Lippincott; 2012.

Published Peer Reviewed Articles

1. Short NA, Brady M, Lechner M, **Serrano K**, McLean SA. Acceptability of a Smartphone-Based Intervention Targeting Anxiety Sensitivity among Women Receiving Emergency Care after Sexual Assault: A Pilot Uncontrolled Trial. *J Trauma Stress* 2023 Dec 36(6):1056-1065.
2. DuCanto, J, **Serrano K**, Thompson R. (2016) Novel Airway Training Tool that Simulates Vomiting: Suction-Assisted Laryngoscopy Assisted Decontamination (SALAD) System. *West J Emerg Med*. E pub Nov. 8 2016.
3. **Serrano K**, Tupesis J. (2013) Small bowel obstruction from potato and broccoli bezoar mimicking mesenteric ischemia. *J Emerg Med*. 2013 Jan;44::79-81.
4. **Serrano K**, Rebella G, Sansone J, Kim M. (2012) A rare case of posterior interosseous nerve palsy associated with radial head fracture. *J Emerg Med*. 2012;43(2):e115-7.
5. **Serrano K.** (2011) Change of shift: Back from the dead. *Ann Emerg Med*. 2011 Nov;58(5):494-5.
6. **Serrano K.** (2010) Change of shift: On being a resident and a mom. *Ann Emerg Med*. 2010 May;55(5):481-482.
7. **Serrano K.** (2007) Women residents, women physicians, and medicine's future. *Wisconsin*

Medical Journal. 2007 Aug;106(5):260-265.

8. Curlin F, **Serrano K**, Baker M, Carricaburu S, Smucker D, Chin M. Following the call: How providers make sense of their decisions to work in faith-based and secular urban community health centers. *J Health Care Poor Underserved*. 2006 Nov;17(4):944-957.

Other Printed or Web-Based/ Digital Resource Publications:

1. Gorstein, L.N., Cyr, J.M., **Serrano, K**, Howard, N., & Brice, J.H. (2020). Patient & Family-Centered Care in Emergency Medical Services. <https://pecc.med.unc.edu/>.
2. Gorstein, L.N., Cyr, J.M., **Serrano, K**, Flowers, D.F., & Brice, J.H. (2023). Child Abuse & Neglect. <https://pecc.med.unc.edu/>.
3. **Serrano K**, Shenvi C. Clevidipine for hypertensive emergencies. *Emergency Physicians Monthly*. June 2018. Available from: <http://epmonthly.com/article/clevidipine-for-hypertensive-emergencies/>
4. **Serrano K**, Shenvi C. Reducing relapses through opioid maintenance therapy. *Emergency Physicians Monthly*. May 2018. Available from: <http://epmonthly.com/article/rx-pad-reducing-relapses-through-opioid-maintenance-therapy/>
5. **Serrano, K**, Shenvi C. Navigating the penicillin pseudo-allergy pandemic. *Emergency Physicians Monthly*. Feb 2018. Available from: <http://epmonthly.com/?s=Navigating+the+penicillin+pseudo-allergy+pandemic>
6. **Serrano, K**, Shenvi C. Got calcium? *Emergency Physicians Monthly*. Nov 2017. Available from: <http://epmonthly.com/article/got-calcium/>
7. **Serrano, K**, Shenvi C. The ABCs of BZDs: What you need to know about benzodiazepines. *Emergency Physicians Monthly*. Sept 2017. Available from: <http://epmonthly.com/article/abcs-bzds-need-know-benzodiazepines/>
8. **Serrano, K**, Shenvi C. Give me some sugammadex. *Emergency Physicians Monthly*. June 2017. Available from: <http://epmonthly.com/?s=Give+me+some+sugammadex>
9. **Serrano, K**, Shenvi C. All about praxbind: Pradaxa's effective yet pricey reversal policy. *Emergency Physicians Monthly*. April 2017. Available from: <https://epmonthly.com/article/praxbind-pradaxas-effective-yet-pricey-reversal-agent/>
10. **Serrano, K**, Shenvi C. The non-opioid pain patch. *Emergency Physicians Monthly*. February 2017. Available from: <https://epmonthly.com/article/non-opioid-pain-patch/>
11. **Serrano, K**, Shenvi C. Using TXA for traumatic bleeds. *Emergency Physicians Monthly*. December 2016. Available from: <https://epmonthly.com/article/using-txa-traumatic-bleeds/>
12. **Serrano, K**, Shenvi C. Understanding haloperidol. *Emergency Physicians Monthly*. September 2016. Available from: <https://epmonthly.com/article/understanding-haloperidol/>
13. **Serrano, K**, Shenvi C. All about oxy. *Emergency Physicians Monthly*. August 2016. Available from: <https://epmonthly.com/article/all-about-oxy/>
14. **Serrano, K**, Shenvi C. Want less bleeding, use rivaroxaban. *Emergency Physicians Monthly*. June 2016. Available from: <https://epmonthly.com/article/want-less-bleeding-use-rivaroxaban/>
15. **Serrano, K**, Shenvi C. Lasix: The basics of furosemide. *Emergency Physicians Monthly*. April 2016. Available from: <https://epmonthly.com/article/lasix-basics-furosemide/>

16. **Serrano, K.** Course author for ACEP eCME: Clinical Policy: Procedural Sedation and Analgesia in the Emergency Department, Feb. 2015.
17. **Serrano K.** Critical decisions in emergency medicine: Reactive airway emergencies in pediatric patients. *ACEP News*. June 2014.
18. **Serrano K,** Westergaard, Ryan. Diagnosis and management of acute HIV in the emergency department. *Emergency Medicine Reports*. 2012 July;33(16).
19. **Serrano K.** Does this fracture need to be reduced? ED management of distal radial fractures in children. *Emergency Physicians Monthly*. July 2012;19(7):10-11.
20. **Serrano K.** E-professionalism: Implications of social media on professionalism in medicine. *SAEM Newsletter*. March/April 2012.
21. **Serrano K,** Bourdon R, Walters M. Diagnosis and management of splenic injuries. *EM Resident*. 2011 Feb/March;38(1): 42-43.
22. **Serrano K,** Rebella G. Femoral Shaft Fractures. In *Essentials Emergency Imaging*. Lewis, RE, ed. Philadelphia, PA: Lippincott; 2012.
23. **Serrano K.** CPR changes may improve mortality. *Modern Resident: Newsletter of American Academy of Emergency Medicine/ Resident and Student Association*. August/September 2010.
24. **Serrano K.** The pediatric airway. *Modern Resident: Newsletter of American Academy of Emergency Medicine/ Resident and Student Association*. May/June 2010.
25. **Serrano K.** CO₂ monitoring during procedural sedation with propofol. *Modern Resident: Newsletter of American Academy of Emergency Medicine/ Resident and Student Association*. March/April 2010.
26. **Serrano K.** Women in Medicine Interest Group Update. *Common Sense*. Vol. 17, Jan/ Feb.2010.
27. Woodson R, **Serrano K.** Anemia of Chronic Disease. Monograph for Point of Care/ BMJ website. Aug. 2007.
28. **Serrano K.** Mitral Valve Prolapse. PEPID Primary Care Plus. Skokie, IL: PEPID. Jan. 2005
29. **Serrano K.** Autoimmune Hemolytic Anemia. PEPID Primary Care Plus. Skokie, IL: PEPID. Jan. 2005
30. **Serrano K.** Aortic Stenosis. PEPID Primary Care Plus. Skokie, IL: PEPID. Jan. 2005.
31. **Serrano K.** Peptic Ulcer Disease. PEPID Primary Care Plus. Skokie, IL: PEPID. April 2005
32. **Serrano K.** Biliary Infections. PEPID Primary Care Plus. Skokie, IL: PEPID. April 2005
33. **Serrano K.** Postcholecystectomy Syndrome. PEPID Primary Care Plus. Skokie, IL: PEPID. April 2005

Poster presentations:

1. Weese R, Deguzman-Lucero, Black J, **Serrano K,** McLean S, Short N. Associations between Anxiety Sensitivity and PTSD Symptoms Clusters in the Immediate Aftermath of Sexual Assault. [Poster Presentation]. Annual convention of the Association of Behavioral and Cognitive Therapies (ABCT) 2024, Philadelphia, PA.
2. Pezza M, Weese R, Deguzman-Lucero R, Black J, **Serrano K,** McLean S, Petitt, K, Short N. Association of Adverse Childhood Experiences and Posttraumatic Stress Following Sexual Assault. [Poster Presentation]. Annual convention of the Association of Behavioral and Cognitive Therapies (ABCT) 2024, Philadelphia, PA.

3. Pezza, M., Weese, R., Black, J., **Serrano, K.**, McLean, S., & Short, N. A. (accepted). An Ecological Momentary Assessment Study of ASD Symptoms and Pain among Women Presenting for Emergency Care after Sexual Assault [Poster Presentation]. Anxiety Special Interest Group, annual convention of the Association of Behavioral and Cognitive Therapies 2023, Seattle, WA.
4. Short NA, Brady M, Dasema R, Lechner M, **Serrano K**, Witkemper K, McLean SA. Acceptability of a Brief, Mobile Phone-Based Intervention Targeting Anxiety Sensitivity among Women Sexual Assault Survivors Presenting for Emergency Care: A Pilot Uncontrolled Trial. In J. Tipsword (chair), Understanding Emotion-Related Risk Factors for PTSD and Comorbid Concerns: Roles of Emotional Vulnerabilities, Coping, and Emotion Regulation. Symposium accepted for presentation at the annual meeting of the Anxiety and Depression Association of America: April, 2023, Washington, DC.
5. Short NA, Brady M, Dasema R, Lechner M, **Serrano K**, Witkemper K, McLean SA. Acceptability of a Brief, Mobile Phone-Based Intervention Targeting Anxiety Sensitivity among Women Sexual Assault Survivors Presenting for Emergency Care: A Pilot Uncontrolled Trial. Symposium accepted for presentation at the annual meeting of the Anxiety and Depression Association of America. Washington, DC. April, 2023.
6. **Serrano K**, Svenson J. Black clouds, full moons, and the Q-word: Investigating superstitions among emergency medicine residents. Poster Presentation. American Academy of Emergency Medicine Scientific Meeting. Orlando, FL. March 2011.
7. **Serrano, K**, Svenson J. Photo Competition: Shoulder Pain. Poster Presentation. American Academy of Emergency Medicine Scientific Meeting. Orlando, FL. March 2011.
8. Curlin F, **Serrano K**, Carricaburu S, Smucker D, Chin M. Following the call: Self-reported rewards and costs of current employment for providers in faith-based and non-faith-based urban community health centers. Poster presentation. American Public Health Association National Meeting, Philadelphia, PA. November 2002.

National Presentations:

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|------|---|
| 2021 | Integrated Care in the Emergency Department: Implementation of a trauma-focused mental health provider for sexual assault and other trauma patients. Collaborative Family Health Care Association Annual Conference. Virtual. October 21, 2021. |
| 2015 | Anaphylaxis—is it rash to discharge after the rash? Pecha Kucha Series. American Academy of Emergency Medicine Scientific Meeting. Austin, TX. March 3, 2015. |

Regional Presentations:

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| 2023 | STI Treatment and Emergency Contraception. UNC SANE training course. Feb 23, 2023. |
| 2022 | STI Treatment and Emergency Contraception. UNC SANE training course. March 24, 2022. |
| 2021 | STI Treatment and Emergency Contraception. UNC SANE training course. Feb. 18, 2021. |

- 2020 Medical Care of the Sexual Assault Patient. UNC SANE Training Course. February 27, 2020.
- 2019 Moderator in regional event: UNC Child Physical Abuse Simulation Lab, University of North Carolina, Chapel Hill. Feb 13, 2019.
- 2018 Detecting the subtle signs of child abuse: What every ED provider needs to know. North Carolina College of Emergency Medicine (NCCEM) Fall Conference: Update in Trauma and Emergency Care. Asheville, NC. Co-presented with LaClaire Stewart, MD, MPH. Oct 8, 2018.

Teaching Activities

Course Director

- 2022-present Pulmonary medicine block co-director, UNC EM Residency Conference
- 2016-present Internal medicine block co-director, UNC EM Residency Conference
- 2016- 2020 Advance Practice Selective, Subspecialties in Emergency Medicine, UNC Hospitals Emergency Medicine (ERMD 408)
- 2014-2015 Boards Review Director, UW EM Residency

Lectures

- 2024 Human Trafficking. UNC EM Residency Curriculum. Jan 17, 2024.
Pneumonia case studies. UNC EM Residency Curriculum. Jan 24, 2024.
EKG Workshop. Bootcamp for 4th year medical students. March 25, 2024.
Internal medicine EKGs. UNC EM Residency Curriculum. April 10, 2024.
- 2023 Trauma Informed Care. UNC EM Residency Curriculum. Jan 25, 2023.
EKG workshop. Bootcamp for 4th year medical students. March 21, 2023.
- 2022 EKG workshop. Bootcamp for 4th year medical students. March 22, 2022.
Making friends with failure. UNC EM Residency Curriculum. April 13, 2022.
Intro to EKG for rising 2nd years. June 6, 2022.
Intern lecture series: The Febrile Infant. July 8, 2022.
Intern lecture series: ACS. July 8, 2022.
- 2021 EKG workshop. Bootcamp for 4th year medical students. March 22, 2022.

Care of the Sexual Assault Patient. UNC EM Residency Curriculum. April 14, 2021.

Internal medicine EKGs. UNC EM Residency Curriculum. April 14, 2021.

Intro to EKG for rising 2nd year medical students. June 7, 2021.

Introduction to Shock. New Intern curriculum. Video module. June 10, 2021.

- Becoming a Jedi Master of Arrhythmias. August 11, 2021.
- Child Maltreatment: Recognition, Reporting, and Evaluation. EMS Fellowship Lecture Series. August 17, 2021.
- EKG: Acute coronary syndrome August 25, 2021.
- 2020 EKG: Acute Coronary Syndrome. August 26, 2020.
- EKG: arrhythmias. August 12, 2020.
- Internal medicine EKGs. April 15, 2020.
- Instructor for Internal Central Line course. June 22, 2020.
- EKG basics for interns. June 17, 2020.
- Intro to EKG for 2nd year medical students. May 4, 2020.
- Detecting the subtle signs of child abuse: What every ED physician needs to know. EMS Fellowship Lecture Series. February 4, 2020.
- 2019 EKG: Acute coronary syndrome. UNC Residency Program lecture series, Aug 21, 2019.
- EKG: Becoming a Jedi Master of Arrhythmias. UNC Residency Program lecture series, Aug 14, 2019.
- EKG Introduction for New Interns. UNC Intern Orientation. June 24, 2019.
- Central venous access. UNC Intern central line course. Hospital-wide annual central line training for interns. June 19, 2019.
- Detecting the subtle signs of child abuse: What every ED physician needs to know. UNC EMS Fellowship Lecture Series. April 23, 2019.
- Care of the Sexual Assault Patient. UNC Residency Program lecture series. April 17, 2019.
- EKG workshop: case studies. UNC Residency Program lecture series. April 17, 2019.
- EKG workshop. Bootcamp for 4th year medical students. March 29, 2019.
- Detecting the subtle signs of child abuse: What every ED physician needs to know. UNC Residency Program Core Conference. Jan. 23, 2019.
- Worst case scenario: Toxicology. UNC Residency Program Core Conference. Jan 23, 2019.
- Care of the Adult Sexual Assault Patient. UNC SANE RN training course. Jan. 4, 2019.
- 2018 Becoming a Jedi Master of Arrhythmias. UNC Residency Program Intern Lecture Series. Dec UNC Residency Program Intern Orientation. Dec. 5, 2018.

- Introduction to EKG. UNC Residency Program Intern Orientation. June 27, 2018.
- Child abuse: Recognition, evaluation, and reporting. UNC Family medicine residency conference. May 16, 2018.
- EKG: Intern cases part II. UNC Residency Program Core Conference. Jan 31, 2018.
- EKG: Intern cases part I. UNC Residency Program Core Conference. Jan 3, 2018.
- 2017 Child abuse: Recognition, evaluation, and reporting. UNC EMS Fellowship conference. Dec 5, 2017.
- EKG: Arrhythmias. UNC Residency Program Core Conference. July 19, 2017.
- EKG: Acute coronary syndrome. UNC Residency Program Core Conference. July 12, 2017.
- Introduction to EKG. UNC Residency Program Intern Orientation. June 26, 2017.
- Central venous access. UNC Intern central line course. Hospital-wide annual central line training for interns. June 2, 2017.
- Anaphylaxis. UNC Emergency Medicine Residency Program Core Conference. April 26, 2017.
- Worst case scenario: Internal medicine. UNC Residency Program lecture series. April 12, 2017.
- Anaphylaxis. Duke Emergency Medicine Residency conference. March 9, 2017.
- 2016 Worst case scenario: Critical care. UNC Residency Program lecture series. July 20, 2016.
- Fever in the elderly patient. UNC MS4 Boot camp lecture series. April 20, 2016.
- Worst case scenario: Airway. UNC Residency Program lecture series. February 27, 2016.
- 2015 Anaphylaxis. UW EM Residency Program Core Conference. October 6, 2014. Madison, WI.
- Boards Review Lecture series. Multiple presentations. January 15, 2015, February 5, 2015. April 30, 2015, May 7, 2015. Madison, WI.
- 2014 Medical Writing. UW EM Residency Program Education Track. October 23, 2014. Madison, WI.
- Boards Review Lecture Series, course facilitator with multiple presentations, 8/21/14, 9/4/14, 9/25/14, 10/23/14, 11/20/14, 12/18/14.
- Burnout-proofing your career: Avoiding the occupational hazards of emergency medicine. Alumni Lecture Series, UW EM Residency Program Alumni Lecture Series. Sept. 2014.
- Central venous access. University of Wisconsin Hospital & Clinics. Hospital-wide annual central line training for interns. Jul. 2014.
- Stroke syndromes. UW EM Residency Program Core conference. Jan. 2014.
- Pneumonia. UW EM Residency Program Core conference. Jan. 2014.
- 2013 Aortic emergencies. UW EM Residency Program. Nov. 2013.

- Central venous access. University of Wisconsin Hospital & Clinics. Hospital-wide annual central line training for interns. Jul. 2013.
- Approach to the patient with psychiatric complaints. UW EM Residency Program Intern lecture series. Jul. 2013.
- Suture workshop. UW EM Residency Program Intern lecture series. Jun. 2013.
- 2012 Boards Review: Infectious disease. UW EM Residency Program Boards Review Series. October 2012.
- 2011 Updates in the Treatment of Sepsis. UW Emergency Medicine Grand Rounds. August 2011.
- Morbidity and mortality conference. UW Emergency Medicine Grand Rounds. Apr. 2011.
- 2010 Morbidity & mortality conference. UW Emergency Medicine Grand Rounds. Nov. 2010.
- The approach to abdominal pain in the emergency department. UW School of Medicine and Public Health. Medical student lecture series. Aug. 2010
- Shock in trauma. UW EM Residency Program Case Conference. Jul. 2010.
- Procedural sedation with ketofol. UW Hospital & Clinics. Pediatric Sedation Conference. Mar. 2010.
- Bezoar causing small bowel obstruction. UW EM Residency Program Case Conference. Jan. 2010.
- 2009 Morbidity and mortality conference. UW Emergency Medicine Grand Rounds, Aug. 2009.
- Treating sepsis in the emergency department. UW Emergency Medicine Grand Rounds. Jul. 2009.
- Posterior interosseous nerve injury associated with radial head fracture. UW EM Residency Program Case Conference. Apr. 2009.
- Methanol poisoning. UW EM Residency Program Case Conference. Apr. 2009.
- Approach to the child with altered mental status. UW EM Residency Program Pediatric Intake Conference, Mar. 2009.
- Pneumonia in kids. UW EM Residency Program. Boards Review. Feb. 2009.
- Boards Review: Pediatric exanthems. UW EM Residency Program Boards Review Series. Jan. 2009. Boards Review: Pulmonary embolism. UW EM Residency Program Boards Review Series. Jan. 2009.
- 2008 Boards review: Diabetic ketoacidosis. UW EM Residency Program Boards Review Series. Oct 2008.
- Boards Review: Adrenal insufficiency and adrenal crisis. UW EM Residency Program Boards Review Series. Oct. 2008.
- Boards Review: Thyroid disorders. UW EM Residency Program Boards Review Series. Oct. 2008.
- Boards Review: Lightning injuries. UW EM Residency Program Boards Review Series. Oct. 2008.

Boards Review: Carbon monoxide poisoning. UW EM Residency Program Boards Review Series. Oct. 2008.

Intussusception. UW EM Residency Program Pediatric Intake Conference. Sept. 2008.
Boards Review: Vaginal bleeding and abdominal pain in the non pregnant patient. UW EM Residency Program Boards Review. Sept. 2008.

Boards Review: Local and regional anesthesia. UW EM Residency Program Boards Review. Aug. 2008.

Clinical Teaching:

2015- current Attending Emergency Medicine Physician, UNC Emergency Department

2012-2014 Attending Emergency Medicine Physician, UW Emergency Department

Grants

Inactive

- Victims of Crime Act (VOCA) Grant: UNC SANE Program 2021
Role: PI, 16.25% effort 2021-2022, 9.58% effort 2022-2023
Dates: Oct 1, 2021-Sept 30, 2023
Source: NC Department of Public Safety/Governor's Crime Commission
Amount: \$305,854
Objective: Improve delivery of care to patients experiencing sexual violence by funding full-time SANE coordinator, trauma specialist, and medical director positions.
- Stop Violence Against Women (Stop-VAWA) Grant: UNC SANE Program VAWA Forensic RN
Role: PI, percent effort 0%
Dates: Oct 1, 2021-Sept 30, 2022
Source: NC Department of Public Safety/Governor's Crime Commission
Amount: \$187,751
Objective: Improve delivery of care to patients experiencing sexual violence by funding full-time forensic RN position.
- Stop Violence Against Women (Stop-VAWA) Grant: UNC SANE Program Supplies and Training 2020
Role: PI, 0% effort
Dates: Feb 1, 2020-June 30, 2021
Source: NC Department of Public Safety/Governor's Crime Commission
Amount: \$218,633
Objective: Improve delivery of care to patients experiencing sexual violence by expanding the supply of SANE nurses, including funding new and continuing training opportunities.
- Victims of Crime Act (VOCA) Grant: UNC SANE Program 2019
Role: PI, 19.33% effort 2019-2020, 20.25% effort 2020-2021
Dates: Oct 1, 2010-Sept 30, 2021
Source: NC Department of Public Safety/Governor's Crime Commission
Amount: \$389,843

Objective: Improve delivery of care to patients experiencing sexual violence by funding full-time SANE coordinator, trauma specialist, and medical director positions.

- Stop Violence Against Women (Stop-VAWA) Grant: UNC SANE Program 2019
Equipment and Travel
Role: PI, 0 % effort
Dates: Oct 1, 2019-June 30, 2021
Source: NC Department of Public Safety/Governor's Crime Commission VAWA
Amount: \$26,067
- Objective: Improve delivery of care to patients experiencing sexual violence by improving system processes and organizational structure, and funding necessary equipment and training opportunities for SANE nurses.
- Child Maltreatment Telemedicine Outreach Program
Role: Consultant, 27% Effort
PI: Molly Berkoff, MD
Source: The Duke Endowment
Amount: \$581,710
Dates: 2016-2018.
Objective: Improve delivery of care to abused pediatric patients in NC by developing a child maltreatment telehealth network for UNC Hospitals.

Professional Service

Medical Director, Sexual Assault Nurse Examiner (SANE) and Forensic Nurse Program and Chair, SANE Leadership Team, 2018-present

- Led the transformation of the UNC SANE program, from using on-call nurses with significant staffing gaps to a best practice model utilizing full-time forensic nurses and a trauma specialist, a dedicated mental health provider with expertise in trauma care
- Successfully lobbied the hospital to fund a full-time SANE program coordinator and a full-time forensic nurse
- Secured over \$700,000 in grant funding from the NC Governor's Crime Commission to hire a trauma specialist and an additional full-time forensic nurse
- Expanded to a full Forensic Nursing Program in 2022, with additional services offered including sexual assault, child maltreatment, elder abuse, domestic violence, and human trafficking cases
- Created an annual regional SANE training course, which drew trainees from all over the state, helping to increase the supply of SANE nurses in North Carolina by training 59 nurses since course inception in 2020
- Tackled the larger area of accountability and excellence within the field of forensic nursing and created a statewide database, *Stay SANE*, which tracks SANE training and certifications within the state of North Carolina
- Partnered with the *Better Tomorrow Network* to enroll patients in the RISE study, a smartphone-based intervention aimed at reducing PTSD symptoms following sexual assault

- Partnered with Human Trafficking Capacity Building Center to create a local network of advocacy organizations to provide services to human trafficking victims

Statewide

2016-current North Carolina Committee on Child Abuse and Neglect, a statewide committee of medical professionals and other community stakeholders working together to improve care of vulnerable children

Regional

2018-present Orange County Sexual Assault Response Team (SART), a regional group involving health professionals, law enforcement, advocacy groups, and shelters working to improve care of sexual assault victims.

University of North Carolina at Chapel Hill School of Medicine

2019 -current UNC School of Medicine Academy of Educators

2016-current EM Residency Clinical Competency Committee

UNC Hospitals

2022-current UNC EM Finance Committee

2020-current UNC EM Diversity, Equity & Inclusion Committee

2017 Aging Gracefully in Emergency Medicine Taskforce

2016-current Central Line Insertion Course Project

2016-current UNC EM Educational Committee

2016-current Core Faculty, Department of Emergency Medicine

2015-2017 UNC Hospital Infection Control Committee

Teaching Statement

Education has always been a passion of mine. Prior to medical school I spent two years teaching high school math and chemistry, as well as SAT, ACT, and MCAT courses. As chief resident, I enjoyed assembling the conference didactic curriculum, trying to select topics and speakers which best met trainees' educational needs. In my first faculty job at University of Wisconsin, I directed the Education Track for residents with interest in education and coordinated a monthly board review series. I currently serve as core faculty at UNC, where I attend resident didactics, journal club, co-lead pulmonary and internal medicine modules, and attend monthly program and resident evaluation meetings. I also regularly present on various topics at resident conference, intern orientation month, and medical student and EMS fellows didactics, and at UNC's annual regional SANE training event.

My educational philosophy centers around the idea of creating a supportive environment where learners feel safe and can learn. On shift, my favorite question to ask residents after they present a patient is "What do you want to do?" This gives them ownership of the situation, important for optimal learning, while I stand in the background, providing guidance and direction as needed. In 2017 I received the Socrates award from UNC EM residents for outstanding didactics and clinical teaching. I have also had the privilege of mentoring several residents with knowledge and performance gaps, guiding their remediation with reading plans,

exam-style questions, one-on-one case discussions, and old-fashioned encouragement. In 2020 I received the Academy of Educators Educational Mentor Award for this work.

I have also used my passion for education as medical director of UNC's SANE program. In 2018 Dr. Jane Brice asked me to take over the recently vacated medical director of the SANE Program. Without much experience in the field I rapidly educated myself and became aware of the vast area of need of this often underrecognized, undertreated, and vulnerable patient population. Our Program's mission is to provide timely, compassionate, culturally competent, and evidence-based medical forensic and mental health services to victims of sexual assault, domestic violence, human trafficking, and other forms of violence.

Our team identified multiple areas of need within UNC's existing SANE program. We had a shortage of SANE nurses, which led to prolonged wait times for patients, frequently greater than 12 hours. Our SANE nurses were primarily ER and floor nurses who were pulled from clinical assignments when cases arose, which meant they only did cases sporadically and had difficulty maintaining competence in the highly technical skill of forensic evidence collection. Similarly patients did not always receive the standard of care with regards to STI, HIV and pregnancy prophylaxis. The emotionally difficult nature of SANE cases, along with poor support, lead to low morale and a high turnover rate within our exiting pool of nurses, compounding the SANE shortage.

In addition to these problems in our hospital, there were multiple community and regional gaps in care. Few hospitals in NC had established SANE programs, and many hospitals relied on untrained or incompletely trained nurses for forensic evidence collection. Pediatric patients in particular were often transferred long distances to obtain SANE care. Furthermore, there was no statewide accountability or educational tracking system of SANE nurses, resulting in a variable level of expertise and quality of care provided.

To address the SANE shortage, we created an annual regional SANE training course which drew trainees from all over the state, helping to increase the supply of SANE nurses in North Carolina. Since course inception in 2020 we have trained a total of 51 SANE nurses. It was identified that nurses could easily complete the didactic "classroom" portion of the course, but the clinical training took longer, because they would have to wait for a rape victim to present and then shadow the on-call SANE to learn how to complete a kit. This was both a lengthy and inefficient, as well as potentially insensitive, means of training. To remedy this we created a clinical training course using live models known as gynecologic teaching associates. Trainees could now practice sensitive physical examination and evidence collection skills on a simulated patient, quickly gaining necessary expertise in an education-focused environment. We also create an annual skills day to maintain SANEs' skill fluency. We also began transitioning to a model which uses full-time forensic nurses, rather than on-call SANE nurses, and trained them in additional areas of expertise, such as child maltreatment and elder abuse.

We tackled the larger area of accountability and excellence within the field of forensic nursing, and created a statewide database, *Stay SANE*, which tracks SANE training and certifications

within the state of North Carolina. It is our hope that this tool will help create a culture of excellence and accountability within the field of forensic nursing and ultimately benefit patients.

Finally, prevention of sexual assault is one of the missions of the UNC SANE Program and an educational interest of mine. A 2019 survey from UNC reported that over a third of female respondents reported unwanted sexual contact.¹ Research shows that a high percentage of campus rapes occur in the first few months of the academic year, which is felt to be related to the interplay of alcohol use and risk-taking behavior.² We see this as a potential opportunity for intervention and prevention of sexual assault. The NC public education systems mandates limited sex education during 9th and 11th grades, but no instruction during the 12th grade year, and no education on sexual assault prevention. I designed a sexual assault prevention curriculum aimed at 12th graders, and it was piloted with two volunteer small groups of female high school students in 2022 and 2023. Our hope is that this project could be expanded and offered in public schools or other student groups, with the goal of reducing sexual assault. We are also involved in partnership efforts with UNC on sexual assault prevention, participate in annual activities during UNC's April Sexual Assault Awareness month, and are actively exploring avenues to provide education on sexual assault prevention during UNC's student orientation.

Research Statement

My research interests center around prevention and treatment of sexual assault. Research in this population group is difficult due to relatively small numbers of patients presenting to a single center, the sensitive nature of sexual assault, and the complex interplay of emotional, social and psychological factors. UNC SANE program is a member of the Better Tomorrow Network, a multicenter research group dedicated to improving the lives of sexual assault survivors. Collectively, these sites treat over 5,000 sexual assault survivors per year, and pooling this data allows creation of well-powered research studies and dissemination of best practices for the treatment of sexual assault. At UNC we are currently enrolling sexual assault patients in the RISE study, a smartphone-based intervention aimed at reducing PTSD symptoms following sexual assault.

We also have several research projects in various stages of implementation. A recent study showed that a brief video shown to sexual assault survivors presenting to an ER reduced posttraumatic symptoms at 2 week follow-up.³ We created our own video for patients which gives an overview of the ER visit and the evidence collection process, and discusses the body's response to trauma in an effort to normalize the experience for the patient. We have recently

¹ 2019 AAU Campus Climate Survey on Sexual Assault and Sexual Misconduct. https://safe.unc.edu/wp-content/uploads/sites/1110/2020/06/2019_Survey_Data_Summary_UNC_Final-1.pdf

² <https://www.rainn.org/statistics/campus-sexual-violence>

³ Miller KE et al. Psychological Outcomes After a Sexual Assault Video Intervention: A Randomized Trial. *J Forensic Nurs* 2015;11(3):129-36.

begun showing the video and hope to gather data on the use and effectiveness of the intervention.

In 2019 the SANE Program applied for and received grant funding from NC Department of Public Safety Victims of Crime Act (VOCA) which funded a trauma specialist, a mental health provider with training in trauma care who sees adolescent and adult sexual assault patients in the ED and follows up with them at designated intervals. While the role is still in its infancy, we hope to gather data and study the role that real-time mental health interventions play in recovery from sexual assault.

