

UW EMS Medical Direction

Services Provided

Overview

In affiliation with [UW Health](https://www.uwhealth.org), UW EMS Medical Directors **provide a comprehensive portfolio of highly advanced and specialized medical direction services**, backed by the significant resources and academic excellence of the University of Wisconsin–Madison. Our integrated university-hospital system has provided medical direction services throughout Wisconsin since 1971.

The pages ahead explore medical direction services available under contract with the [University of Wisconsin Department of Emergency Medicine](https://www.wisc.edu/emergency-medicine).

We invite you to contact us to learn more about how our medical direction and educational services can elevate your agency's prehospital care. Visit ems.emed.wisc.edu or email uwprehospital@medicine.wisc.edu.



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Why Choose UW EMS Medical Directors?

When selecting a medical direction team, it is essential to partner with **experienced and collaborative leaders who are passionate** about advancing prehospital medicine and strengthening the health and safety of local communities.

By combining **our drive to serve with clinical and academic excellence**, we have to knowledge, skills, experience, and resources to provide unparalleled support to EMS agencies, providers, and trainees.

EMS agencies choose the University of Wisconsin for medical direction for our:

- **Unmatched Expertise:** Our team of EMS Medical Directors are nationally recognized leaders in prehospital medicine, each holding academic appointments and contributing to cutting-edge research and education in emergency medicine.
- **Customized Solutions:** We understand that every EMS agency is unique. Our tailored approach ensures that protocols, training, and quality improvement initiatives are designed to meet your agency's specific needs.
- **Commitment to Quality:** Through evidence-based practices and rigorous adherence to the highest safety and quality standards, we prioritize continuous improvement to elevate system performance and patient outcomes.
- **Innovative Education:** From high-fidelity simulations to real-time case reviews, our educational programs are designed to empower clinicians with the knowledge and skills needed to deliver exceptional medical care.
- **Collaborative Leadership:** We view our relationship with EMS agencies as a true partnership, in which you can count on continuity, transparency, and responsiveness.



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UW EMS Medical Direction

Qualifications of Medical Directors

The majority of our medical directors are **board-certified in EMS – the highest level of qualification achievable for physicians**. Our team brings extensive expertise in the oversight of large, multi-agency EMS systems, as well as pediatric EMS, quality improvement, prehospital informatics, research, and retrieval medicine.

All of our faculty physicians hold academic appointments at the UW School of Medicine and Public Health and are experienced, effective, and dedicated educators.



Megan Gussick, MD

Division Chief, Prehospital Medicine
Medical Director, Madison Fire Department
Clinical Associate Professor



Michael Lohmeier, MD

Lead Medical Director, Ground EMS
Medical Director, Fire Department of Mount Horeb
Medical Director, Sun Prairie EMS
Medical Director, Waunakee Area EMS
Medical Director, UW Health Emergency Education Center
Professor



Andrew Cathers, MD, DRTM

Medical Director, UW Health Med Flight
Associate Professor



Nicholas Genthe, MD

Medical Director, District One EMS
Assistant Professor



UW EMS Medical Direction

Qualifications of Medical Directors



Michael Kim, MD

Lead Medical Director, Pediatric EMS
Co-Chair, Wisconsin EMS for Children
Associate Professor



Michael Mancera, MD

Medical Director, Fitch-Rona EMS
Medical Director, Middleton EMS
Medical Advisor, Dane County EMS
Associate Professor



Ryan Newberry, DO, MPH, NRP

Medical Director, Dane County Sheriff's Office
Assistant Medical Director, UW Health Med Flight
Assistant Professor



Michael Spigner, MD, NRP

Director, Prehospital Medicine Informatics
Medical Director, Brooklyn Fire & EMS
Medical Director, Sugar River EMS
Medical Director, New Glarus Fire Department
Associate Medical Director, Madison Fire Department
Chair, EMS Quality & Patient Safety
Assistant Professor



Kendall Stevens, MD

Assistant Professor



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UW EMS Medical Direction

Qualifications of Medical Directors



Craig Tschautscher, MD, MS, DRTM

Medical Director, Berlin EMS

Medical Director, Southern Green Lake County Ambulance

Assistant Professor

Our full-time fellow physicians also assist with medical direction:



Adam Brown, MD, MS

Clinical Instructor



Gregory Raupp, MD, MSW

Clinical Instructor

We also employ an EMS physician assistant on our medical direction team:



Michael Horowitz, PA

Assistant Medical Director, Sun Prairie EMS

Assistant Medical Director, Waunakee Area EMS



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UW EMS Medical Direction

Online Medical Direction

The UW Department of Emergency Medicine provides comprehensive medical direction services, including:

Online Medical Direction

Online medical direction refers to real-time/direct medical oversight.

❑ **24/7/365 Medical Director On-Call (MDOC)**

An EMS board-certified physician is available at all times via a dedicated telephone. EMS clinicians can access this physician for questions related to patient care or complex medicolegal decision making.

❑ **24/7/365 Physician Response Capability**

An EMS board-certified or board-eligible physician is available at all times via a dedicated response vehicle (BADGER-1). The vehicle is fully equipped with emergency vehicle warning systems, a mobile data terminal, radio systems, and patient care equipment. This allows the vehicle to seamlessly integrate into the local emergency response system. We maintain another vehicle (BADGER-2) for backup and support.



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UW EMS Medical Direction

Offline Medical Direction



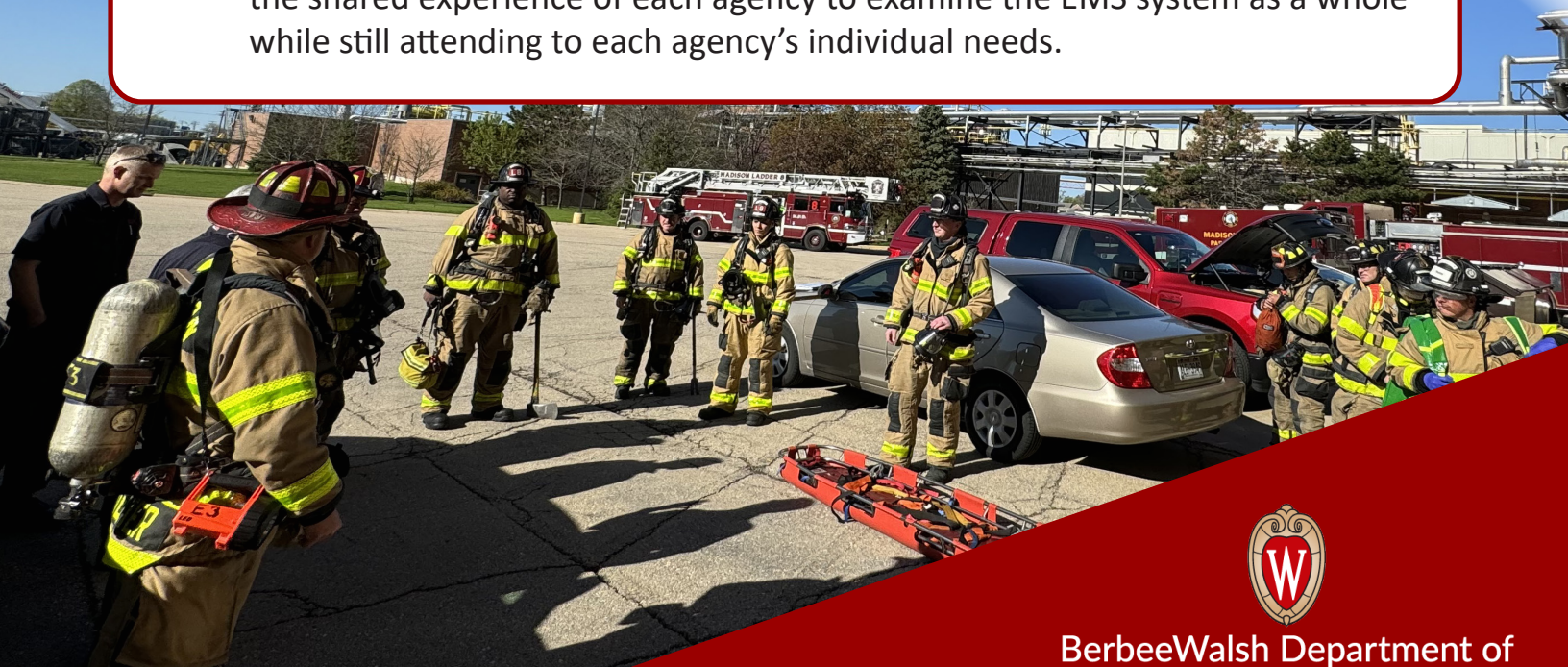
Offline Medical Direction

Offline medical direction refers to oversight provided through the development of policies and protocols.

EMS agencies under contract with UW–Madison have the opportunity to adopt our evidence-based patient care protocols, which are designed to reflect the contemporary science of prehospital medicine while maintaining readability and usability by frontline clinicians. **By adopting the UW's high-standard protocols, EMS agencies are better able to deliver high-quality care.**

Agencies within Dane County who contract with UW–Madison may become members of the UW EMS Consortium. This regional coalition was created to **establish standards for the safe and effective delivery of prehospital care** through:

1. Development and adoption of a single set of evidence-based prehospital care protocols.
2. Establishment of staffing and equipment standards to promote exchangeability and interoperability between neighboring jurisdictions, which ensures that citizens can expect a comparable level of service when a neighboring jurisdiction must respond to an emergency.
3. Maintenance of a unified quality improvement system, which capitalizes on the shared experience of each agency to examine the EMS system as a whole while still attending to each agency's individual needs.



UW EMS Medical Direction

Education & Training

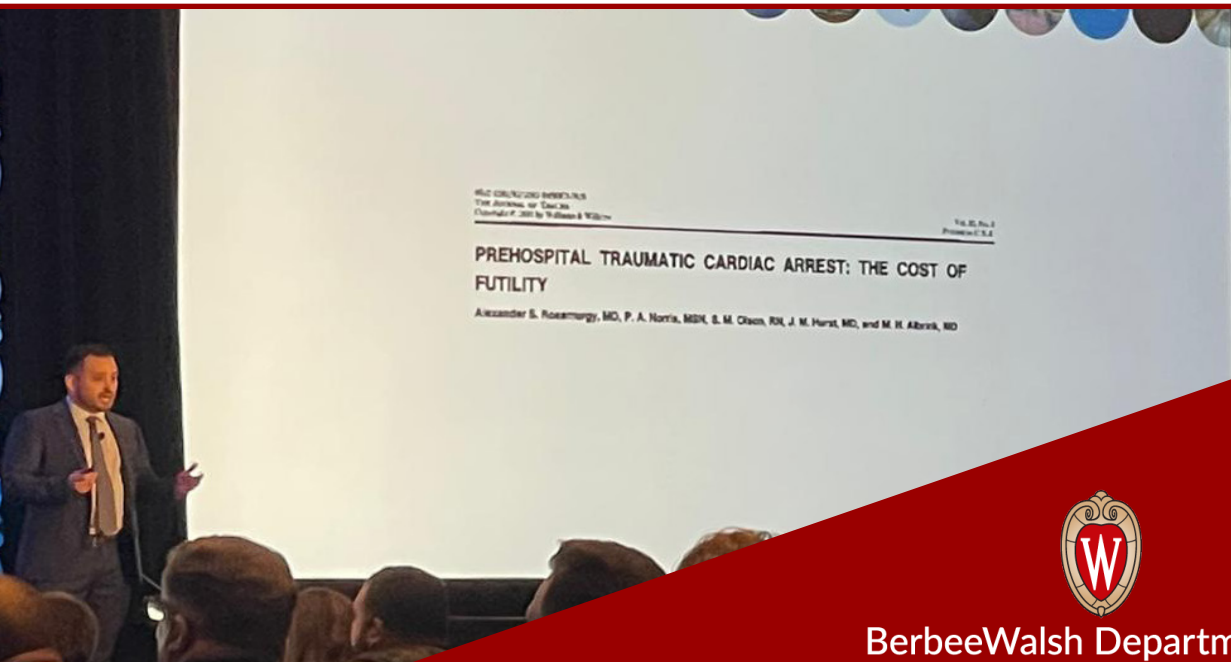
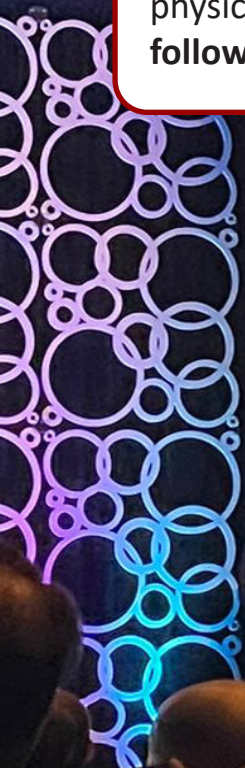
Overview

Our approach to education is evidence-based, driven by quality metrics, and tailored to your agency's specific needs. Our educational offerings are designed to empower frontline clinicians with the skills, knowledge, and confidence needed to excel in prehospital care.

We employ a combination of virtual and in-person formats, and are able deliver education on nights and weekends to ensure each agency's needs are met. EMS agencies under contract with the UW also gain access to our online learning management platform containing hundreds of hours of continuing education. Between live education and online learning, EMS clinicians are guaranteed to have sufficient hours for renewal of licensure and National Registry recertification.

These strategies represent the **best practices in prehospital education**, ensuring that our education is impactful, relevant, and focused on delivering better outcomes for patients.

Additionally, our expert medical directors hold faculty appointments with UW—Madison and have experience educating a wide range of audiences, including career and volunteer EMS, medical students, resident and fellow physicians, attending physicians, and citizens. **Key features of our educational services are detailed on the following pages.**



UW EMS Medical Direction

Key Educational Services

High-Fidelity Simulation

We use **state-of-the-art simulation technology** to create realistic medical scenarios that challenge clinicians to think critically and perform under pressure. These immersive experiences replicate complex prehospital environments, enabling providers to refine their clinical decision-making and teamwork skills in a controlled, supportive setting.

We leverage **simulation specialists** from the [UW Health Emergency Education Center](#) and [UW Health Clinical Simulation Program](#) to deliver high-fidelity education. Many of these educators have advanced degrees and certifications specifically related to medical simulation.

Additionally, the UW Department of Emergency Medicine operates the **only fully functional simulation training ambulance in the region** (BADGER-3), a testament to our dedication to EMS education.

Skills Sessions

We provide **hands-on training opportunities** that focus on high-impact, evidence-based skills. These sessions are tailored to meet the needs of providers at all levels, from basic life support (BLS) to advanced life support (ALS), ensuring that participants **gain practical expertise** that translates directly to improved patient outcomes.



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Key Educational Services

Monthly Didactic Sessions

Our **monthly educational didactics** provide ongoing opportunities for professional development and knowledge enhancement. Delivered by experienced faculty, these sessions cover a **wide range of topics**, including the latest advancements in prehospital care, protocol updates, and case reviews, ensuring that providers remain at the cutting edge of their field.

Timely Case Reviews

We provide **real-time review and feedback on agency-specific cases**, allowing for targeted learning and improvement. By analyzing actual cases and delivering immediate, actionable insights, we help providers identify strengths and areas for growth. This approach fosters a deeper understanding of clinical decision-making and enhances the overall quality of prehospital care.



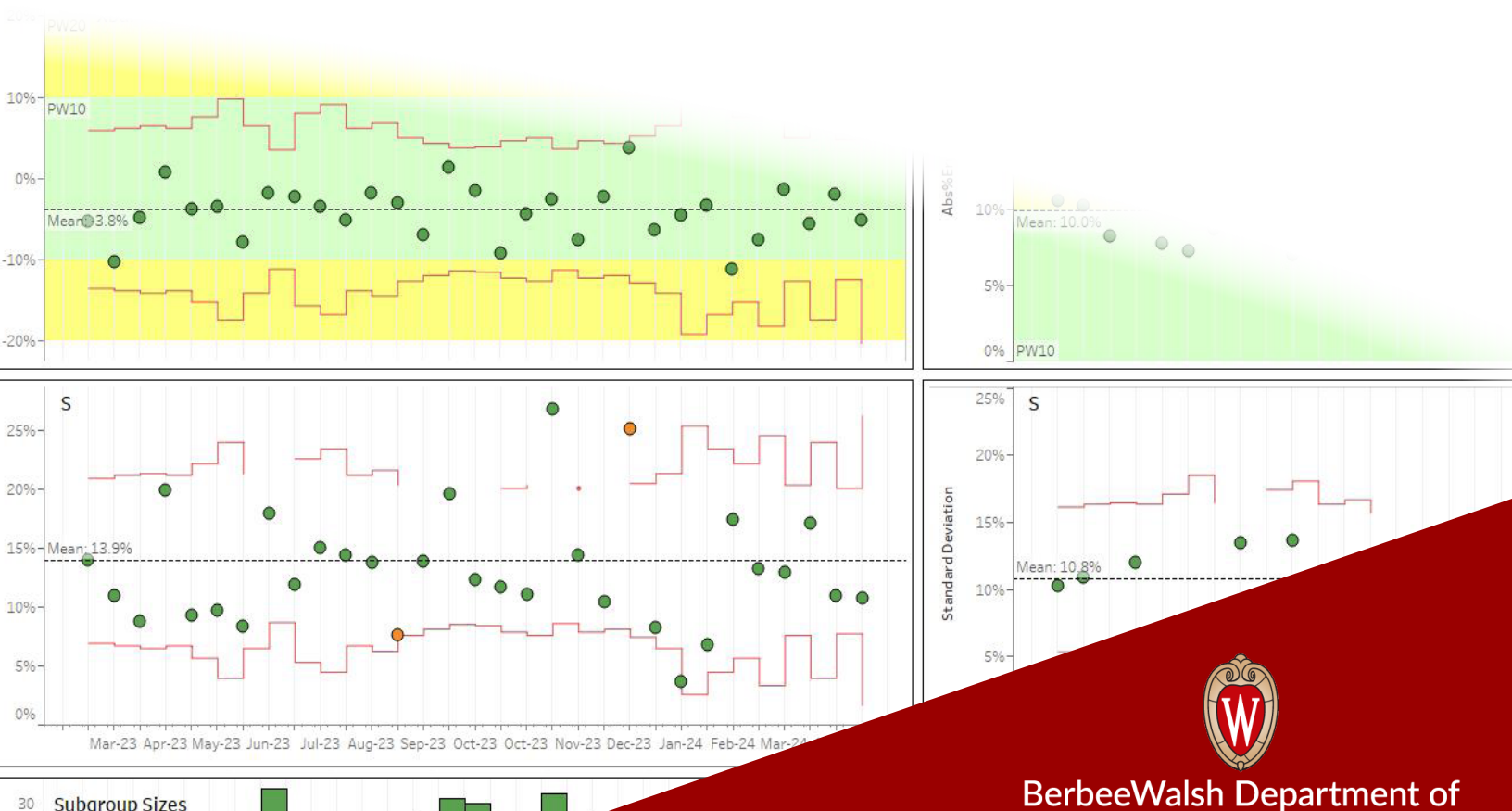
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UW EMS Medical Direction Informatics

Data Analysis and Informatics

In one year, UW EMS Consortium agencies responded to **33,000 incidents**, producing more than **8.9 million data elements**. Effectively leveraging this data requires both technical expertise and domain knowledge in EMS.

While most EMS Medical Directors do not possess the technical skills necessary to extract, transform, and analyze the data produced by EMS systems, **the UW Department of Emergency Medicine employs one of the few physicians in the United States with board certification in both EMS and clinical informatics**. This in-house expertise obviates the need to hire a dedicated analyst.



UW EMS Medical Direction

Informatics

Data Analysis and Informatics

The UW Department of Emergency Medicine's prehospital informaticist possesses a wide range of skills including:

- ☐ Working knowledge of best practices related to cybersecurity, safeguarding of protected health information (PHI), the Health Insurance Portability and Accountability Act (HIPAA), and methods for de-identifying PHI.
- ☐ Intimate familiarity with National EMS Information System (NEMSIS) data standards.
- ☐ Ability to write complex reports in ImageTrend Elite (prehospital EHR).
- ☐ Ability to develop projects within the ImageTrend Elite CQI module.
- ☐ Ability to clean, process, and integrate data from multiple sources.
- ☐ Ability to perform complex analyses within Microsoft Excel.
- ☐ Development of interactive dashboards using business intelligence software (e.g., Tableau).
- ☐ Ability to generate effective data visualizations for a range of stakeholders using inclusive design principles and various software, including Adobe Photoshop, Adobe Illustrator, Microsoft Excel, or R.
- ☐ Ability to perform and interpret descriptive statistics, including the use of statistical software such as SPSS, STATA, or R.
- ☐ Ability to write queries to Application Programming Interfaces (API) for secure data exchange.
- ☐ Understanding of relational database management systems and the ability to access data from these sources using programmatic query languages (e.g., SQL).
- ☐ Understanding of medical ontologies and health care data standards, to better advocate for interoperability initiatives between the hospital and prehospital environment.



UW EMS Medical Direction

Informatics

Data Analysis and Informatics

The UW Department of Emergency Medicine has created several unique registries and data dashboards to support quality improvement initiatives within the UW EMS Consortium.

☐ **Regional ST-Elevation Myocardial Infarction (STEMI) Registry**

STEMIs are a highly lethal and time-sensitive form of heart attack, where EMS performance affects patient outcome. The Department of Emergency Medicine collaborated with STEMI coordinators from both UW Health and SSM Health to gather hospital-agnostic data into a novel database. The data is visualized in a dashboard that integrates registry data with data from the EMS electronic health record (EHR).

☐ **Pediatric Weight Registry**

The accurate measurement of patient weight is an important step in reducing medication errors. Since EMS does not have access to scales, this is a particularly poignant area for monitoring and quality improvement. The Department of Emergency Medicine created a registry, fed by both hospital and EMS data, that is being used to drive improvement in the methods used by EMS clinicians to obtain accurate weights. This infrastructure will become the foundation of future work that evaluates emerging patient safety technologies, such as stretcher-mounted scales.

☐ **Prehospital Airway Registry**

The placement of prehospital airways requires chemically paralyzing patients to place breathing tubes. This can be a lifesaving, albeit high-risk, procedure. To comprehensively evaluate this practice, a novel registry was created by the Department of Emergency Medicine to integrate subjective data from paramedics, and objective data from airway procedure recordings and monitor records. The resultant dataset will facilitate extremely nuanced quality improvement efforts that could not possibly be accomplished without the accompanying data infrastructure. Systemwide data will be viewable in a dashboard, and parameterized reports will be produced to support individualized feedback.



UW EMS Medical Direction Research

Research Support

Research develops new knowledge to advance the science of prehospital medicine. Agencies with high incident volume are well-positioned to participate in research with appropriate scientific and regulatory support.

We can provide robust support for obtaining and conducting grant-funded research. Non-academic organizations often lack the same level of research expertise and support.

The Department of Emergency Medicine [leads groundbreaking research](#), particularly community paramedicine, cardiac arrest, informatics, geriatrics, and public health. Contracting with the UW offers access to UW–Madison’s significant research enterprise. The university [ranks fifth nationally for annual research expenditures](#), surpassing \$1.93 billion during fiscal year 2024*.

Notable grant-funded research conducted by the UW Department of Emergency Medicine and EMS partners includes:

- 1. Enhancing Diversity in the Madison Fire Department (MFD)**

Funded by the Wisconsin Partnership Program, we are developing a career pathway program for groups underrepresented in the city's fire service.

- 2. Establishing Community Paramedicine in the City of Madison**

With funding from the National Institutes of Health and local grantors, we performed the only randomized trials of a community paramedic intervention designed to help older adults with dementia transition from the emergency department back to the community. The first study was instrumental in establishing support MFD's community paramedicine program.

We have also evaluated community paramedicine at Meriter Hospital, leading to sustained funding.

*National Science Foundation



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UW EMS Medical Direction Research

Research Studies

Recent research publications authored by UW EMS faculty physicians include:

- ❑ **Spigner, M. F., Gussick, M., & Shah, M. N.** (2026). *The Estimated Benefit of Lights and Sirens During Ambulance Transport*. *Prehospital Emergency Care*, 1–9. <https://doi.org/10.1080/10903127.2026.2659958>
- ❑ Gupta P, Mayampurath A, Gruenloh T, Oguss M, Afshar A, **Spigner M, Gussick M**, Churpek M, Lee T, Afshar M. *Prior emergency medical services utilization is a risk factor for in-hospital death among patients with substance misuse: a retrospective cohort study*. *BMC Emerg Med* 24, 110 (2024). doi: 10.1186/s12873-024-01025-7.
- ❑ **Spigner M**, Garcia C, Welle L, Braude D, Cluff S, LaPrise R, & White J. (2024). *Sonographic cardiac activity correlates with end-tidal carbon dioxide and cardiac rhythm in out-of-hospital cardiac arrest*. *International Journal of Paramedicine*. (7), 61-71. doi: 10.56068/LXLL1391.
- ❑ Blackwood J, **Mancera M**, Bavary S, Carbon C, Daya M, VanKeulen B, Alteneder DN, Helm J, Robertson J, Charbonneau J, Nania JM, Schaeffer B, Lopez M, Loncon T, Collins B, Charter M, Jorgenson DB, Gao M, Price R, Rea T. *Improving response to out-of-hospital cardiac arrest: The verified responder program pilot*. *Resuscitation*. 2020 Sep;154:1-6. doi: 10.1016/j.resuscitation.2020.06.015.
- ❑ **Mancera M, Genthe N, Gussick M, Lohmeier M, Thompson R, Shah M.** *Acceptability and Preferences of Simulation-Based Continuing Education Among Emergency Medical Service Providers*. *WMJ*. 2022 Jul;121(2):127-131. PMID: 35857688.
- ❑ **Spigner M**, Braude D, Pruett K, Ortiz C, Glazer J, Marinaro J. *The Use of Predictive Modeling to Compare Prehospital eCPR Strategies*. *Prehosp Emerg Care*. 2023;27(2):184-191. doi: 10.1080/10903127.2022.2079782.
- ❑ **Spigner M**, Benoit J, Menegazzi J, McMullan J. *Prehospital Protocols for Post-Return of Spontaneous Circulation Are Highly Variable*. *Prehosp Emerg Care*. 2021 Mar-Apr;25(2):191-195. doi: 10.1080/10903127.2020.1754979.
- ❑ **Tschautscher C**, Hardy C, Butterbaugh M, Stampfl M, Hetzel S, **Bernardoni B, Spigner M, Newberry R, Cathers A.** *Outcomes of Empiric Calcium Administration with Prehospital Blood Product Administration*. *Air Medical Journal*. 2024 Jul-Aug;43(4):364. doi: 10.1016/j.amj.2024.05.014.
- ❑ Gruenloh T, Gupta P, Afshar A, Oguss M, Salisbury-Afshar E, Pisani M, Westergaard R, **Spigner M, Gussick M**, Churpek M, Afshar M, Mayampurath A. *Integrating Multiple Data Sources to Predict All-Cause Readmission or Mortality in Patients with Substance Misuse*.
- ❑ Pisani M, Oguss M, Dickson-Gomez J, Kostelac C, Parry A, Moss S, Salisbury-Afshar E, Patterson B, **Spigner M, Gussick M**, Mayampurath A, Afshar M. *Designing a Substance Misuse Data Dashboard for Overdose Prevention Teams*.
- ❑ **Tschautscher C**, Muesch A, **Hurst A, Newberry R, Bernardoni B, Cathers A, Spigner M.** *Evaluating End-Tidal Carbon Dioxide as a Surrogate for Partial Pressure of Carbon Dioxide in Ventilated Pediatric and Neonatal Patients During Critical Care Transport*.



UW EMS Medical Direction

Contact Information

About the Department of Emergency Medicine

The BerbeeWalsh Department of Emergency Medicine at the University of Wisconsin School of Public Health and UW Health advances the health and well-being of our community through unparalleled investments in exemplary education and training, rigorous discovery and collaboration, and compassionate patient care. We work toward our mission within a professional environment that supports and elevates individuals, while aiming to build a sense of community and purpose.

About the Division of Prehospital Medicine

The Division of Prehospital Medicine strives to empower out-of-hospital clinicians to provide the highest possible quality of patient-centered care. We work toward this by enhancing the capabilities and collaboration of local EMS agencies through tailored training, high-fidelity simulation, comprehensive patient safety and quality improvement programs, sophisticated data analysis, and robust support for grant-funded research.

UW EMS Consortium Mission Statement

The UW EMS Consortium unites EMS agencies under the medical direction of the University of Wisconsin Department of Emergency Medicine to advance prehospital care through coalitional partnerships, evidence-based practice, quality improvement, education, and research.

Contact Us

We look forward to working with you to strengthen the health and safety of your team and the communities you serve. Please contact us to learn more and discuss at uwprehospital@medicine.wisc.edu or visit ems.emed.wisc.edu.



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