University of Washington EMS Fellowship

Effective medical direction for EMS agencies is highly dependent upon the skills and motivation of the involved physicians. Over the past 40 years, physicians graduating from residency training have had limited opportunities to receive formal fellowship training prior to assuming the EMS medical director role.

In 2011, the American Board of Medical Specialties recognized Emergency Medical Services Medicine as a medical subspecialty. In time, communities will seek EMS medical directors who have successfully completed a formal EMS fellowship program.

The 5-fold disparity in long-term survival rates following out-of-hospital cardiac arrest among different communities suggests that the EMS medical director has a profound impact on the quality of care delivered to patients. Seattle and the surrounding areas of King County, WA have among the highest survival rates following out-of-hospital cardiac arrest in the world. In greater Seattle, meticulously trained firefighters and paramedics provide excellent medical care. These medical programs have long had a few core physicians who are intimately involved in the care provided by each paramedic working in the system.

In Seattle and King County, changes in the approach to caring for specific illnesses and injury are implemented deliberately and carefully measured to determine if they lead to an improvement or, perhaps, a deterioration in the system. This approach has demonstrated significant discoveries translatable to a much wider community. The essential design and foundational principles responsible for the success of Seattle’s world class EMS system have not been widely emulated.

The University of Washington established an EMS fellowship, in collaboration with Physio-Control, to immerse the fellow in all aspects of ground and air EMS medicine. The goals of the fellowship are:

- Develop the future medical leaders of EMS programs who are inquisitive in discovery of new knowledge, effective educators of EMS professionals, and resourceful in implementing medical care.
- Establish the premier EMS physician fellowship program in the world.
Fellowship Sites

**Harborview Medical Center** – HMC is the only designated Level 1 adult and pediatric trauma and burn center in the state of Washington and serves as the regional trauma and burn referral center for Alaska, Montana, and Idaho. HMC is also the disaster control hospital for Seattle and King County. Owned by King County, governed by a county-appointed board of trustees and managed by the University of Washington, HMC serves patients from all of walks of life, caring for the community’s most vulnerable patient populations.

**Seattle Fire Department** – The Seattle Fire Department Medic One program began caring for patients in 1970. The two-tier response plan was created shortly thereafter and continues as a core underpinning of the system design. Seattle Medic One is based at Harborview Medical Center and provides advanced life support EMS for the City of Seattle, population 615,000, using 7 advanced life support (ALS) ambulances each staffed with 2 of the 71 certified paramedics operating within the Medic One program. In addition, there is one Medic Supervising Officer on-duty at all times. Basic life support (BLS) transport is provided under a contract with American Medical Response, ensuring timely transport for less critically ill and injured patients.

**King County Medic One** – The King County Department of Health provides ALS services for the 690,000 people living in communities within King County, south of City of Seattle, using 8 ALS ambulances. About 70 paramedics in the program work side-by-side with local fire agencies in a “third service” model.

**Airlift Northwest (ALNW)** – ALNW operates five bases throughout Washington and Southeast Alaska. ALNW transports critically ill patients from one of the largest and geographically varied landmasses in the world – from isolated islands in Alaska, coastal regions along Alaska and Washington, desert communities in Eastern Washington, to mountainous terrain in Idaho and Montana.

**UW Paramedic Training** – Based at HMC, the University of Washington/Harborview Medical Center paramedic training program accepts between 14 and 20 students from ALS agencies within the state of Washington. At program graduation, each paramedic student has performed endotracheal intubation for more than 40 patients, established at least 400 IV lines and cared for no less than 800 patients during 2500 to 3000 hours of training between October and July.
Our faculty includes physicians nationally recognized as leaders in the field of EMS.

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<td><strong>Michael Sayre, MD</strong></td>
<td>Professor, Emergency Medicine</td>
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<td>Program Director, EMS Fellowship</td>
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<td>Medical Director, Seattle Fire Department</td>
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<td>Dr. Sayre came to UW via Ohio, where he was the Research Director for the Center for EMS at the Ohio State University Wexner Medical Center. Dr. Sayre is also a former chairman of the American Heart Association's Emergency Cardiovascular Care Committee. Upon arriving in Seattle in 2012, Dr. Sayre became the Associate Medical Director for Operations for the Seattle Fire Department where he is currently the Medical Director. He also began work to create the EMS Fellowship. Dr. Sayre's mission is to build the best EMS Fellowship training in the country.</td>
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| **Mickey Eisenberg, MD, MPH, Ph.D.** | Professor, Emergency Medicine                                        |
|                                       | Director, QI, King County EMS                                        |
|                                       | For over 30 years, Dr. Eisenberg's research in the areas of cardiac arrest, defibrillation, and cardiopulmonary resuscitation has guided the direction of EMS in the Seattle and King County area. Recently, Dr. Eisenberg has worked to share the approach to out-of-hospital cardiac arrest developed in Seattle and King County with other cities. His book, *Resuscitate: How Your Community Can Improve Survival from Sudden Cardiac Arrest*, is now in its second edition. Dr. Eisenberg is the Director of QI for King County EMS. |

| **Tom Rea, MD, MPH**         | Professor, General Internal Medicine                                |
|                            | Medical Program Director, King County EMS                          |
|                            | Dr. Rea's professional focus on factors contributing to the risks of and repercussions from out-of-hospital cardiac arrest spurred his involvement with Medic One. He is an active researcher, leading clinical trials and analyzing Medic One process and outcomes data collected thru the years. He completed his IM residency at the University of Washington and is the recipient of several King County EMS and Medic One awards. Dr. Rea is the Medical Program Director for King County EMS. |

| **Richard Utarnachitt, MD, MS** | Assistant Professor, Emergency Medicine                             |
|                                  | Medical Director, Airlift Northwest                                  |
|                                  | Dr. Utarnachitt completed his residency in emergency medicine at Wayne State University in Detroit, MI. He moved west to join the faculty of emergency medicine at UW and the Harborview ED. He quickly became known as an enthusiastic and engaging educator, plus an advocate for medical student and resident education. His involvement in medical student clinical and curriculum development led to an appointment as co-director for the medical student clerkship. This background in education, coupled with a strong interest in medical aviation, led to his selection as Medical Director for Airlift Northwest in 2011. |

| **Andrew McCoy, MD, MS**     | Acting Instructor, Emergency Medicine                               |
|                            | Medical Director, American Medical Response                        |
|                            | Dr. McCoy graduated from the University of Washington Emergency Medical Services Fellowship in 2016. Prior to coming to UW he completed his residency at SUNY at Buffalo. He also completed a Master of Science in Clinical Research in the Clinical Research Scholars Program at Case Western Reserve University. Dr. McCoy has helped to shape the UW EMS Fellowship during his time as a fellow and will continue to do just that as a faculty member. In 2016 he joined American Medical Response as the Medical Director. |
Initial Fellowship Year

You will be integrated into a variety of roles to offer concurrent and comprehensive exposure to all EMS functions:

- Clinical shifts at Valley Medical Center, a community training site for the UW EM residency program.
- Immersion into Seattle Fire Department (SFD) medical operations, including daily ALS run review with the medical director.
- Participate weekly with the SFD direct patient care team.
- Attend weekly EMS Conference Series.
- Weekly QI meeting with Seattle Fire Department.
- Several days per month with South King County Medic One response team.
- 2-4 days per month as crew member for ALNW, progressing from active 3rd provider role to full flight physician.
- Involvement with ALNW flight crew training and continuing education.
- Research education. Fellows have access to biostatistical, epidemiological and research methods training provided by the UW's Institute of Translational Health Sciences.
- Weekly EMS research meetings at Seattle Fire and at King County EMS.
- Cardiac Case Review with EMS Physicians at King County EMS.
- Access to the King County Center for the Evaluation of EMS (CEEMS) cardiac arrest registry, maintained since April 1976; and access to the Cobb File, the Seattle Fire Department’s cardiac arrest registry, maintained continuously since March 1970.
- Attend regular meetings at Physio-Control
- Teach in the Michael K. Copass University of Washington Paramedic Training Program.
- Accompany faculty to state Department of Health meetings at the state capital in Olympia, and to Regional Trauma Council meetings.
- Participate in the planning and execution of SFD mass gathering medicine events.
- Carry a radio and participate as medical control physician for SFD. Fellows will also monitor radio communications between the Medic One paramedics and the R2s in the HMC ED, intervening if necessary.
- Dispatch center quality improvement and observation.
- Fellow will attend NAEMSP Medical Director’s Course as well as NAEMSP Conference.
- Fellow has dedicated office space in the Division of Emergency Medicine as well as within the Seattle Fire Department and at King County EMS.
- Fellow is expected to complete at least one scholarly project during the fellowship. This project should be worthy of publication / presentation.
**Didactic and Experiential Learning**

Using didactics, simulation, and field experience, fellows will have in-depth training in the following topics:

- Toxic Exposures, Poisoning, and Hazardous Materials
- Explosive Incidents
- Weapons of Mass Destruction and Related Injury
- Mass Gathering Medicine
- Disaster Management and Response Considerations
- Tactical EMS Operations
- Casualty Evacuation
- Limited Patient Access Situations
- Wilderness EMS Systems

**Second Fellowship Year**

One of the major strengths of the Seattle and King County EMS system is its commitment to scholarly activity. The organizations have long traditions of carefully measuring and tweaking each aspect of the system. Many of the “tweaks” turn out to be insignificant. Occasionally, one of the changes appears to make a positive impact on medical care. Some of these discoveries, such as 9-1-1 call taker instruction in Hands-only CPR over the telephone and the impact of prehospital endotracheal intubation on survival from brain injury, have been published in reputable medical journals such as the New England Journal of Medicine, JAMA, Lancet, Circulation, Resuscitation, and Prehospital Emergency Care.

Fellows who are interested can spend a second year accessing one of several optional programs at the University of Washington. A variety of Masters degree programs are available in the School of Public Health, depending on the needs and interests of the fellow. The UW Foster School of Business offers the Executive Development Program on Monday afternoons. Seattle Children’s Hospital and the UW Medicine Center for Patient Care Quality and Safety partner to offer a Certificate Program in Patient Safety and Quality. Fellows with a passion for teaching may access the Teaching Scholars Program within the School of Medicine.

In addition, during the second year, fellows will continue to be involved in the operations of Seattle Fire Medic One, King County EMS, and Airlift Northwest. The second year of EMS fellowship training also gives the fellow the opportunity to complete EMS research and establish the publication track record essential to a successful academic EMS career.

The University of Washington holds a Clinical and Translational Science Award (CTSA) from the National Institutes of Health. Fellows have access to the biostatistical, epidemiological, and research methods training provided by the University of Washington’s Institute of Translational Health Sciences. The Seattle Fire Department’s cardiac arrest
registry (the Cobb file) transitioned in 2013 to the RedCap software systems provided by the UW ITHS.

The Seattle Fire Department cardiac arrest registry maintains extensive records on all resuscitation attempts from the first resuscitation attempt in March 1970 to the present and is a resource available to the fellow. Seattle Fire has PhD biostatistical support and data management services funded through the Medic One Foundation. Dr. Leonard Cobb, the Emeritus Medical Director for Seattle Medic One, hosts a research meeting weekly on Thursday afternoons.

Similarly, the King County Center for the Evaluation of EMS (CEEMS) program has maintained a separate cardiac arrest registry since April 1976 to the present. King County also maintains an airway registry with extensive records on more than 8,000 patients with endotracheal intubations. This is a rich source for research publications such as this. The King County CEEMS also has dedicated statistical support and data management services. In addition, the University of Washington School of Medicine faculty affiliated with King County CEEMS sponsor 3-5 medical students each summer to work on specific EMS research projects. The fellow will have the opportunity to contribute to these ongoing activities.

Both Seattle Fire Department and King County EMS participate with the Resuscitation Outcomes Consortium (ROC) research programs. The University Of Washington Department Of Biostatistics in the School of Public Health is the home of the Clinical Trial Center and the coordinating center for the ROC.
Seattle Life

Seattle is located on the Puget Sound, surrounded by water and two mountain ranges. Seattle is a vibrant and scenic city offering a wide range of cultural and recreational activities and an active urban lifestyle.

Seattle’s thriving arts and entertainment scene includes live music, film, theater, dance, ballet, opera, museums, art galleries, and festivals such as Folklife and Bumbershoot. Seattle is known for its Northwest and international cuisine, coffee houses, microbreweries, and wine bars. The city is home to the Seahawks (football), Mariners (baseball), Storm (women’s basketball), Sounders (soccer), and to the University of Washington Huskies sports teams.

Seattle has an active and broad recreational culture. You can choose from hiking, backpacking, mountain climbing, downhill and cross country skiing, bicycling, kayaking, sailing, scuba diving, as well as walking and playing in one of Seattle’s numerous parks or taking a ferry to a nearby island in the Sound. Seattle is home to elite crew rowers from around the world, and boasts one of the world’s largest indoor bouldering gyms close-by Harborview.

Seattle enjoys a mild climate throughout the year, with average high temperatures of 47 degrees in November through February and 72 degrees in June through August. And despite its reputation, Seattle has a lower annual rainfall than Boston, New York, Chicago, Houston, or Washington DC!

The Seattle metropolitan area is home to almost 2 million people and is known for its variety of residential neighborhoods. Each neighborhood has its own unique character, and many hold weekly farmers markets during the summer season. In short, Seattle is a wonderful place to live and work!

For more information visit the following web sites:

City of Seattle - www.seattle.gov/living
Seattle Parks & Recreation - www.seattle.gov/parks
Visit Seattle - www.visitseattle.org/Visitors/Home.aspx
Website
www.em.washington.edu/education/ems

Contact

For more information, please contact the fellowship director, Michael Sayre, MD, by e-mail: sayrem@uw.edu.