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DEPARTMENT OF SURGERY

FACULTY & TRAINEES TAKE CHARGE IN COVID-19 PANDEMIC PLANNING

The Department of Surgery faculty and trainees, alongside many other UW Medicine professionals, are approaching COVID-19 from a multitude of facets. Several of our faculty and trainees share these approaches and experiences to the pandemic.



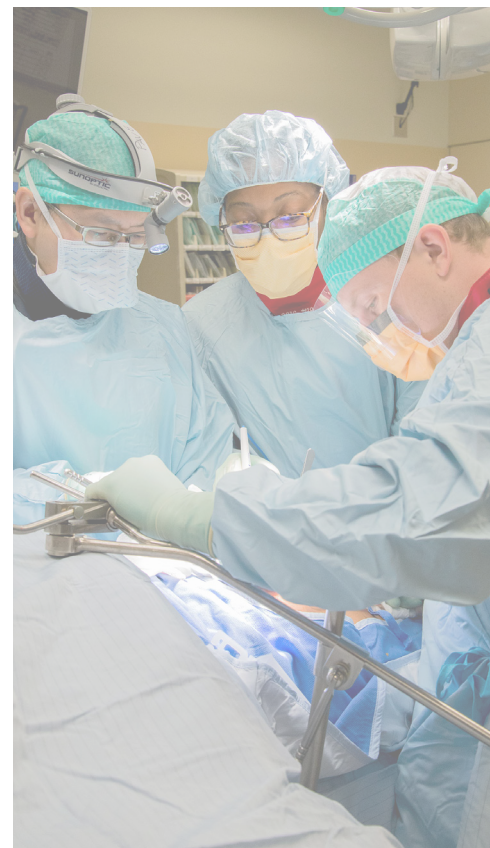
Dr. Andy Wright, Professor
Division of General Surgery

OR Procedures

Early in the pandemic response, we had several emergency general surgery cases on COVID-19 suspected patients. Drs. Daniel Kim, Clinical Assistant Professor in General Surgery Division, and Dr. Satish Bhagwanjee, Professor in the Department of Anesthesiology and Pain Medicine, worked quickly to develop a plan for the first few of these cases, but it soon became apparent that more formalized plans would be needed. There are a number of issues that come up when managing surgery in COVID+ patients, affecting everything from patient transport to airway management to OR supplies and personnel. We worked as a team with anesthesia and OR staff to develop a number of protocols for OR management of COVID-19 patients, including separate documents for transport, intubation and ventilatory support, and OR management. With the potential for aerosolization of virus during thoracic or gastrointestinal cases we additionally reviewed and recommended best practices for smoke and gas evacuation during both open and minimally invasive procedures. We also learned that the standard procedures around PPE did not apply well to

OR personnel needing to don and doff appropriate personal protective equipment (PPE) while also performing normal sterile gowning and gloving. Working with infection control we developed a checklist for PPE during sterile procedures and have worked with [WWAMI Institute for Simulation in Healthcare \(WISH\)](#) to film and edit instructional videos so that surgeons and OR staff can do just-in-time training as needed. Together, these new procedures, policies and trainings have helped to create an environment that allows us to effectively deliver quality care while protecting the safety of both our patients and our providers.

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Dr. **Gabriel Aldea**, Professor
Division of Cardiothoracic Surgery

Cardiac Surgery

The COVID pandemic presented an unprecedented challenge to our national and regional health care systems. The state, DOH, and UWMC's clinical and academic leadership planned for and executed an incredibly dynamic and timely response, and averted the incredibly sad system meltdowns witnessed elsewhere.

Cardiac Surgery had several specific challenges to overcome: 1) protecting our patients and continuing to deliver emergency care; 2) protecting our care delivery teams; 3) triaging care to only emergency circumstances to create system capacity (i.e., ICU, acute care, PPE to deal with COVID patients; 4) creating a COVID-free acute care and ICU environment and, once UWMC testing capability was developed, pre-test all patients prior to surgical procedures; and lastly 5) dynamically respond to frequently changing circumstances.

The COVID pandemic requires all of us to be deliberate, thoughtful and collaborative, and with a growing appreciation of how complex the challenges we face are—of how much we are learning every day and how quickly we need to evolve our protocols to match. In the initial acute phase, our emphasis was on creating system capacity and conserving personal protective equipment (PPE) by purposefully limiting operative procedures to those patients we believed were at risk of death/readmission within two weeks. In the sub-acute plateau phase, we are now expanding access by operating on patients we believe are at risk of death/readmission within 30 days and with even more emphasis on protocols to protect

care delivery teams. We are additionally working on rapid expansion of telemedicine and establishing follow-up protocols for new referrals as well as for a growing list of urgent outpatients who had their surgical procedures postponed. UW Medicine has expanded and refined testing capabilities (<12hr turnaround for "routine" testing, introduction of rapid (45 minute) testing and, soon, serologic testing). Currently, all hospital admissions are pre-screened for COVID. This coming month we are slowly and methodically initiating care for the backlog of urgent patients with diagnoses that require urgent/non-emergent intervention and do so in close coordination with our colleagues in the ICU, OR, nursing, CT anesthesia, advanced care practitioners, and other ICU medical teams.

These incredibly challenging circumstances have increased our appreciation and deep gratitude for all the individuals on our care delivery teams, our colleagues from all medical disciplines and residents who served on the "front lines," and hospital and Department leadership for providing guidance for us to navigate this crisis safely.

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faculty & trainees take charge in covid-19 pandemic planning

RESIDENT REDEPLOYMENT

As the COVID-19 pandemic grew worldwide and reached Seattle, we suspected it was only a matter of time before it would affect our Department of Surgery residents. In accordance with the principles of social distancing and minimizing exposure risk, we implemented emergency restructuring of our residency teams at all of our institutions. At the University of Washington Medical Center – Montlake Campus, we grouped our resident teams into three arenas of patient care—inpatient care, operating room care, and outpatient care—a deviation from the traditional paradigm of subspecialty teams. The main focus in doing so was to protect our residents from exposure to COVID-19, comply with social distancing, and at the same time maintain our surgical workforce in order to continue excellent patient care. This revised team model also allowed flexibility for residents to be deployed to work on other units within the hospital based on increased patient care needs resulting from the COVID-19 pandemic.

Residents and faculty worked together to develop, implement and constantly adapt a plan that made this possible. Our work at the UWMC Montlake was recently published in JAMA Surgery, and we hope can be used as a model at institutions nationwide. As a result of the COVID-19 pandemic, it will be difficult if not impossible to return to "normal." We continue to extract lessons from this experience that will help us better shape the future of our training program.

[Read the full article >>](#)



Dr. Jorge Reyes, Professor & Chief

Division of Transplant Surgery

Solid Organ Transplant Patient Care in the Era of COVID-19

The emergence of the COVID-19 pandemic found medical services nationwide preparing for conditions we had never seen before. International experience demonstrated to us the first wave of management paradigms at a time when testing was not routine. We benefited from the early European experience, sadly with the news of health care providers contracting COVID and dying.

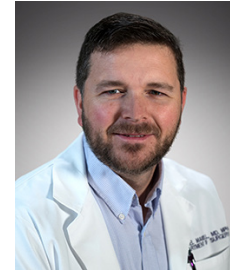
After phone meetings with hospital leadership and directors of all organ transplant programs, on March 17th the guidelines for care during this pandemic were instituted. The guidelines established testing for all organ donors (a positive test would rule out the use of these organs) and recipient patients (a positive test would prompt selecting another patient), admission options, identification of inpatient units (floor and ICU,) and flow of patients through discharge and outpatient follow up. With the exception of Living Donor Kidney Transplants, all solid organ transplants with organs from deceased donors (brain dead or deceased after circulatory death) would be considered urgent, and Living Donor Liver Transplants would proceed only for pediatric recipient patients at Seattle Children's Hospital (SCH). Across the nation, many transplant programs came to a halt or temporarily ceased their operations. With guidelines in place, the UW Medical Center abdominal transplant programs have remained open throughout this entirety, performing 36 transplants over a six week period: 25 kidney transplants, 10 liver, and one Living Donor

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Liver transplant from a donor at UWMC to a child at SCH. Organ procurement and transplantation procedures have been performed without a case of COVID-19 transmission in any recipient patient or health care team member (either donor or recipient teams), and the outcomes have remained excellent. The transplants were performed in the standard fashion including immunosuppressive drug protocols. Sadly, organ donation has declined, and although reasons are speculative as to the causes, it has impacted organ availability and transplantation rates have dropped regionally and nationally.

I remain in deep admiration to our entire health care team at UWMC for their comprehensive sense of mission during this pandemic. It has been an essential source of strength during this great heave in effort to remain open for the care and transplant of patients needing organ transplantation. I will be forever grateful to them all.



Dr. Sam Mandell, Assistant Professor

Division of Trauma, Burn & Critical Care

Extracorporeal Membrane Oxygenation (ECMO)

As the COVID pandemic unfolded, it became increasingly clear that Extracorporeal Membrane Oxygenation (ECMO) could play a role in patients with critical respiratory failure. However, without much world-wide experience or evidence to guide decision making, it was unclear how best to utilize this resource-intensive technology. Members of the Department of Surgery including Drs. **Eileen Bulger**, Professor & Chief, Trauma, **Samuel Mandell**, Division of Trauma, Burn & Critical Care; **Michael Mulligan**, Professor & Chief, Section Chief, Thoracic Surgery, **Aaron Cheng**, Associate Professor, Division of Cardiothoracic Surgery, along with partners from Emergency Medicine and Anesthesia worked to survey world experience and create protocols for UW Medicine to select appropriate patients for ECMO therapy. Additionally, this included partnering with other ECMO centers in a new "Pacific Northwest Consortium" to harmonize indications across centers, share tips, and support patient flow throughout the region. The result is that ECMO has now been utilized successfully in selected COVID-19 patients and we have been able to distribute patients across the centers to optimize the use of resources and deliver timely care to those in need.

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Dr. **Bryce Robinson**, Associate Professor
Division of Trauma, Burn & Critical Care Surgery

COVID-19 Critical Care

Harborview Medical Center (HMC) formally activated its Incident Command (IC) center on Monday, March 2nd and its work continues to this day. My role has been to lead the critical care platform at HMC and to represent it at the various UW Medicine IC subcommittees. The initial focus of the HMC IC was on the safety of our employees and bedside providers. For critical care, this meant establishing our COVID ICU platforms with engineering, personal protective equipment (PPE) training, and aligning our care/testing practices to those recommended by both federal and professional organizations. Many protocols and policies were created internally using UW content experts due to the early nature of our regional exposure.

Our second focus was on surge planning using the “space, stuff, staff” structure. Critical Care at HMC began identifying spaces to expand beyond the existing 89-bed ICU footprint. Immediate coordination began with our staffing offices, engineering, and ICU leaders to develop a step-wise surge model for the expansion up to 163 ICU beds. Our plan required care in non-traditional environments with critical care teams caring for patients within a defined hospital geography, not by admitting diagnosis. The procurement of resources was a coordinated effort over the entire enterprise with a significant emphasis on PPE, ventilators, and communication technologies between providers, patients, and families at home. Finally, staff surge planning was a significant focus of our efforts. Creating and scheduling 2-8 new critical care teams

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mandated coordination between HMC, UW Medicine IC, and the Graduate Medical Office's at UW School of Medicine.



Dr. **Sherene Shalhub**, Associate Professor
Division of Vascular Surgery

Society for Vascular Surgery's COVID-19 Town Hall

Dr. Shalhub moderated the Society for Vascular Surgery's (SVS) COVID-19 Town Hall in May 2020 along with Dr. Kim Hodgson, SVS President. The event was devoted to the "Clinical Challenges in Managing Vascular Patients with COVID-19."

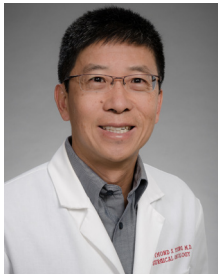
The meeting was designed to address the spectrum of challenges vascular surgeons face in caring for patients with COVID-19, including: maintaining personal protection; preventing transmission among patients and staff; providing vascular access for critically ill patients; managing vascular access complications; diagnosing and treating emergency manifestations of vascular disease; managing deep venous thromboses; managing thrombotic complications in non-vascular patients; considering thrombotic prophylaxis algorithms; and having strategies to provide proper care while minimizing vascular lab tech exposure.

Dr. Shalhub shares “The SVS town halls have been a great opportunity to hear from SVS leadership and members about their experiences and thoughts regarding the impact of COVID-19 on vascular surgery. We recently analyzed the data from the “COVID-19 Pandemic Practice, Anxiety, Coping and Support Survey for

Vascular Surgeons,” which was sponsored by the SVS Wellness Committee, and identified several areas where vascular surgeons can be supported at institutional, regional, and national societal levels. Town halls are one way to address these concerns. For example, many found the donning and doffing of personal protective equipment (PPE) to be stressful; we immediately leveraged this information to have some of the time during the town hall to discuss the process, especially from hospitals with large volumes of patients infected with COVID-19.”

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Dr. Ray Yeung, Professor
Division of General Surgery

Cancer Care During COVID-19: Overcoming Social Distancing

Early actions taken by the Governor of Washington State along with public adherence to social distancing have significantly flattened the coronavirus curve. This has allowed some of us to continue to take care of urgent surgical diseases such as cancer in accordance with national guidelines. In order to meet the requirements of social distancing and personal protective equipment (PPE) preservation while maintaining the same standard of care, we adopted a number of changes, among which the use of telehealth has been a game changer for our Hepato-Pancreato-Biliary (HPB) surgical practice.

In response to the COVID-19 crisis, government agencies including CMS and HHS have broadened access to telehealth services for patient encounters. With relaxation of some key requirements associated with telemedicine under the 1135 waiver, physicians and other providers can make use of online videoconferencing from any location, including across state lines. In addition, first time consultations are acceptable, and the services are reimbursed at parity with that of in-person visits. Since mid-March, the UW Telehealth service in conjunction with their counterparts at Seattle Cancer Care Alliance have worked tirelessly to roll out a HIPAA-compliant digital communication platform for all providers, thus enabling us to conduct virtual face-to-face consultations with minimal technological and regulatory hurdles to overcome. Our clinic teams including patient care coordinators, medical assistants, nurses and advanced practice providers agreed on a plan of

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attack to reach out to our new referrals and return patients using telehealth. In the last few weeks since the COVID-19 response, >90% of our patient encounters have been converted to this digital format, initially using HIPAA-compliant provider-specific Zoom IDs, and subsequently into our Epic scheduling templates with unique Zoom IDs for individual appointments. The latter facilitated the entire team of providers and staff to interact with the patients during their virtual visits, making the experience seamless and efficient.

What have we learned? Even in its rudimentary form, telehealth lives up to its hype of being accessible and convenient. Minor glitches aside, we were successful in connecting with many patients in the comfort of their own homes located throughout the state and beyond. The Zoom platform accommodates any number of participants to facilitate multi-disciplinary discussion during tumor board conferences as well as patients' consultations, thus affording efficient access to specialty care. Additional advantages for patients include time and money saved from traveling, taking off work, parking, and related incidentals. For practices that do not rely heavily on detailed physical exams such as HPB oncology, telehealth is a wonderful tool for physicians to offer their services to anyone in need at just a click away. Clinics and their staff at UWMC-Montlake have taken extraordinary measures to launch telehealth and to make changes to the scheduling templates, virtual rooming and nursing care as they embrace the new technology. The COVID-19 crisis has granted us firsthand experience playing in the digital communication sandbox, and we are still in the exploratory phase of this experiment trying to make the pieces of the puzzle fit our individual needs. With strong advocacy from the medical

profession and the hospital alliances to keep telehealth widely available, we aspire to deliver more efficient, effective, economical, and environmentally friendly healthcare.

