

2020: A YEAR OF INNOVATION  
AND ADDRESSING INEQUITY  
IN THE MIDST OF A PANDEMIC

On  
The  
Cutting  
Edge





2020 HAS BEEN A YEAR THAT GENERATIONS TO COME WILL NEVER FORGET. The national response to the multiple crises that we have had to face has been remarkable and diverse. I have never been prouder of any group than I have of the Department of Surgery this year. We have come to work in harm's way. We have stood up for justice and what is right. We have given of ourselves to those who were in need due to smoke and fire. We financially sacrificed so that we could continue our health care mission. Not to be forgotten is that we have continued to develop and support multiple initiatives to deliver quality care and expand the service we provide to our community and region.

We as Oregonians should be extremely proud in our response to the pandemic. Governor Kate Brown in a recent press conference relayed that Oregon has the 5th lowest rate of infection amongst the 50 states. This is a tribute to the percentage of our population that has taken mask-wearing and social distancing seriously. Despite those efforts, the virus has begun to affect Oregon just as it has the rest of the country. We have experienced a significant rise in hospitalizations, deaths, and overall infections since Halloween. The good news is that vaccines have arrived. We received our first box in mid-December and our frontline workers have already received their first dose. Despite the delivery of vaccine therapy, we will still be faced with a massive public health crisis until at least 70% of the population either receives the vaccine or gets infected. I am confident that our department will continue to persevere, triage, and go the extra mile to deliver surgical care for those in need.

**Given that backdrop, OHSU and the Department of Surgery have accomplished some amazing things this year.**

From a leadership perspective, this year saw the creation of the Department's Diversity, Equity and Inclusion council under the

direction of DEI Vice Chair **V. Liana Tsikitis, M.D., M.C.R., M.B.A.** We also created the Donald D. Trunkey Research Center for Civilian and Combat Casualty Care under the direction of **Martin Schreiber, M.D.** Given the obvious limitations in our department recruitment process, we had an amazing year which was highlighted by welcoming our Vice Chair for Research **Jonathan Brody, Ph.D.**, and our new Division Head of Surgical Oncology **Flavio Rocha, M.D.** Even more amazing is the leadership and educational direction brought to the Department by our Vice Chair for Education **Karen Brasel, M.D., M.P.H.** OHSU is still successfully running the largest general surgery residency in the country and we are setting new standards in board pass rates, resident research, and in our resident selection process. Lastly, we say goodbye to the Department's administrative stalwart leader, **Sally Rodgers, M.A., M.H.A.** As Sally retires, we enter a new era under the guidance of **Elspeth Rogers, M.P.A., H.A.**, who will assume the role as Department Administrator on January 1.

### Message from the Chair

Kenneth Azarow, M.D., F.A.C.S., F.A.A.P.  
Mackenzie Professor and Chair

*OHSU and the Department of Surgery have accomplished some amazing things this year.*

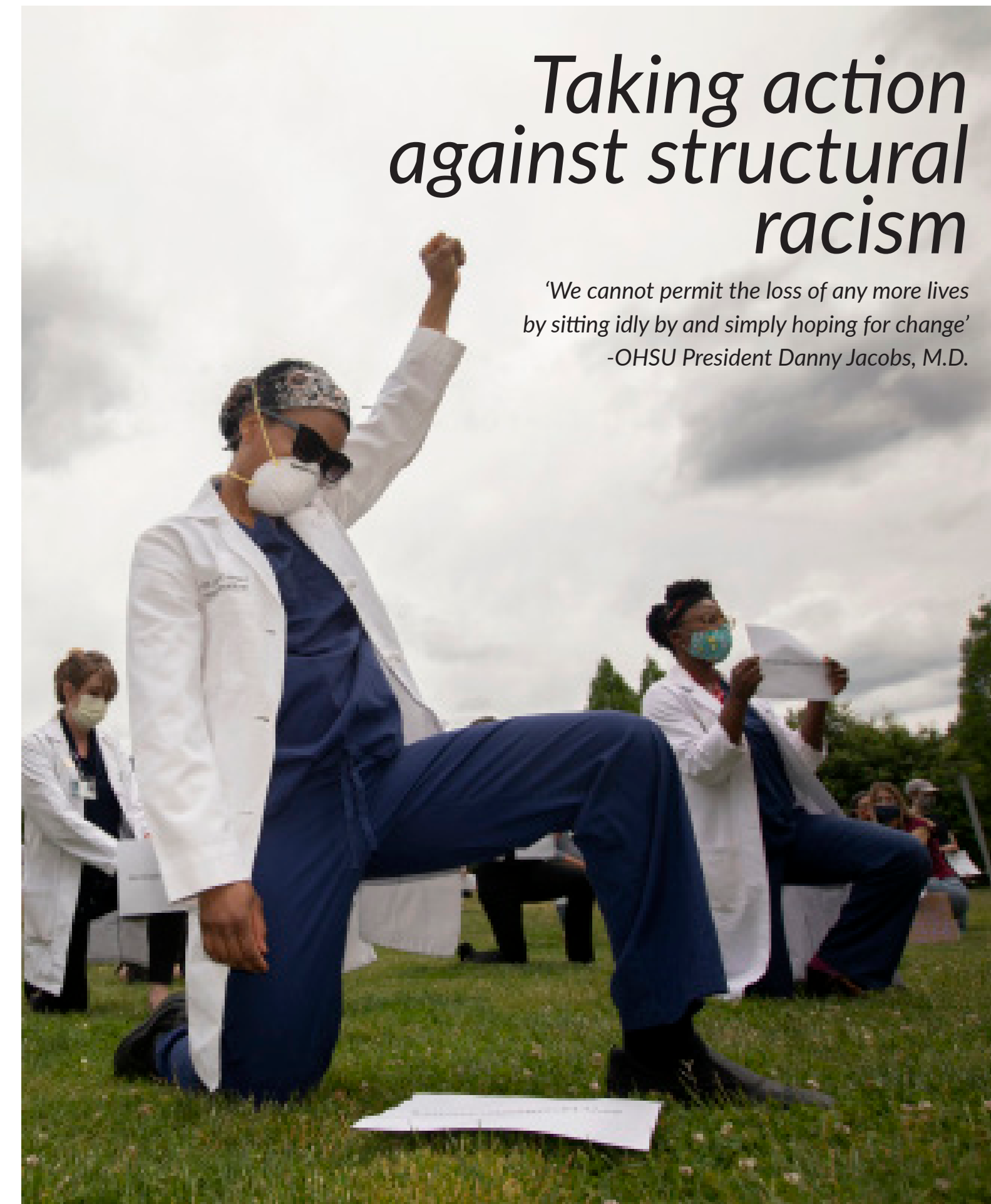
From a programmatic view, 2020 was a huge success despite overwhelming obstacles - 2021 looks just as bright. **Fred Tibayan, M.D.**, officially restarted the cardiac transplant program with the first transplant taking place in the spring of 2020 since reopening in the summer of 2019. The division of pediatric surgery will launch a fetal surgery program with the recruitment of **Raphael Sun, M.D.** Transplant surgery (which set new records for numbers of transplants in 2020) will initiate a hepatobiliary fellowship. Bariatric Surgery under the leadership of **Farah Husain, M.D.**, has successfully led OHSU Hillsboro through the ACS verification process as a center of excellence for metabolic surgery and expects the same for Portland Adventist next year. **Allison Nauta, M.D.**, has led the effort to have OHSU designated as a center of excellence for lymphedema surgery and **Jens Berli, M.D.**, has initiated a gender affirming surgery fellowship, both within the division of Plastic Surgery. **Cherrie Abraham, M.D.**, in vascular surgery has championed an innovative effort to allow for virtual/remote surgery including proctoring, mentoring and education.

As you read about some of these programs and individuals throughout the rest of this publication, I would like to emphasize that OHSU and the Department of Surgery have no tolerance for racism. The only way we have been able to come through this year is by working together and supporting one another with mutual respect and equality. If nothing else, 2020 has taught us we had much to learn about crisis management. While intentions of the past may have come from a good place, they may not always have translated to appropriate actions. Regardless of successes or takeaways in dealing with these crises, I am confident that our department is still learning every day and will proceed forward with an open mind and open heart. I wish you all a safe and happy start to the New Year.

*The only way we have been able to come through this year is by working together and supporting one another with mutual respect and equality.*

# Taking action against structural racism

*'We cannot permit the loss of any more lives by sitting idly by and simply hoping for change'*  
 -OHSU President Danny Jacobs, M.D.



On May 25, 46-year-old George Floyd was killed in Minneapolis. His death triggered worldwide protests against racial injustice and police brutality. Portland citizens took to the streets and began what would turn into months of protests, rallies and demonstrations in support of the Black Lives Matter movement.

As an institution employing over 15,000 Oregonians and with the responsibility of shaping the medical profession through education, OHSU has responded with an active stance against structural racism.

Over the past 6 months we've made some headway:

- Re-direction of significant funding to diversity, equity and inclusion efforts.
- Development of a training and mentoring program for OHSU members of color to support upward mobility and career development.
- Termination of the OHSU contract with Oregon Correction Enterprises for laundry services.
- Recruitment for the new position of OHSU Chief Equity Officer.
- Establishment of committees and programs across all departments to address systemic racism from the ground up.

These institutional efforts are a reflection of OHSU leadership and strengthened by the faculty, students and staff who have taken it upon themselves to act and self-educate.

*A collection of our Department voices, perspectives, reflections and actions*

*"In a personal effort to better address structural racism, I read and participated in a discussion of Ibram Kendi's book, 'How to be an antiracist.' In addition, I participated in the NIH Cultural Humility training program that invites self-critique to recognize my own internal bias as a clinician toward my patients."*

**- Robert Goldman, M.D., Affiliate Professor of Surgery**

*"I've been making it a point to actively seek out and support minority-owned small businesses in the Beaverton/Hillsboro area where I live."*

**- Erin Anderson, Surgery Education Manager**

*"As the chief clinical transmission officer for the practice plan and clinical leader of the office and digital health, we are taking a proactive approach to incorporating diversity, equity, and inclusion into our analytics, patient experience interviews, and operations."*

**- Darren Malinoski, M.D., Professor of Surgery, Division to Trauma, Critical Care and Acute Care Surgery**

*"In June, I and my fellow OHSU advanced practice providers chose to raise collective donations for 2 organizations that are doing immediate, frontline, daily work to mitigate the effects of racism in Portland. We were able to raise a total of \$12,700 toward Don't Shoot PDX and the Oregon ACLU. Although this is a drop in the bucket compared to what is truly needed to support lasting change, it is a start, and we are proud of our accomplishment. We look forward to working with OHSU toward health equity and the mitigation of racially based social determinants of health."*

**- Erica Degenhardt, N.P. Division to Trauma, Critical Care and Acute Care Surgery**

*"Together my wife and children have watched a number of documentaries and series exposing racism and its history in our country. I highly recommend the Netflix Series "When They See Us" (a dramatization of the trial and conviction of innocent young African American children and depiction of the police and criminal justice system and the systemic racism that existed and continues to exist). We also watched Henry Louis Gates five part series "The African Americans- Many Rivers to Cross" which is an excellent history tracing slavery to the civil rights movement to the present. We have watched and highly recommend the documentary '13' on Netflix, discussing the 13th Amendment."*

**- Cherrie Abraham, M.D., Professor of Surgery, Division of Vascular Surgery**





# A Year of Innovation



# VR Tools

The headsets are simple to use and only require a smartphone that supports iOS and Android.

Students experience operating room scenarios play out in first-person with on-screen annotation and narrations.



**Albert Lwin, M.D., PGY 4,** general surgery resident, is working with **Erin Gilbert, M.D., M.C.R.,** associate professor of surgery, OHSU School of Medicine, to supplement the simulation sections of nationally recognized curriculums with virtual reality modules.

The purpose is to bring simulation training home and allow for repetition and practice in a safe environment.

*"We're developing inexpensive VR tools to allow students to replicate and supplement traditional simulation training," said Dr. Lwin. "We are now holding sessions to test the simulations with learners."*

The 360-degree videos with text annotations and narration walk students through different scenarios. These are then made available to students who use Google Cardboard, an inexpensive virtual reality viewer, to experience the training in first person view.

The first training session will be based on ACS TEAMS - which is a Trauma curriculum tailored for medical students - and made available to our intern class in early 2021.



# OHSU Crisis Vent

**Albert Chi, M.D.,** associate professor of surgery, division of trauma, critical care and acute care surgery, and team developed an inexpensive 3-D printed ventilator to help meet the need during the COVID-19 pandemic.



In response to national and international shortages in the availability of medical ventilators from the COVID-19 pandemic, **Albert Chi, M.D.'s** team of innovators has developed a novel low-cost 3-D printed flow driven pressure regulated mechanical ventilator capable of basic and complex ventilation needs. This device requires no electronics and can be sustained with either O2 tanks or standard hospital 50psi O2 wall supply. The device can be created with a standard 3-D printer in a sterile environment and rapidly produced in under 10 hours. It is deployed at a minimal cost of approximately \$20 in materials, assembled with easily obtainable hardware supplies. This new device design has the capacity to treat patients requiring standard mechanical ventilator support but can also effectively treat the sickest patients with progressive ARDS. Our 3-D printed ventilator, called the OHSU Crisis Vent, has successfully passed all FDA preliminary testing requirements and is awaiting Emergency Use Authorization.



# Donald D. Trunkey Center

The Donald D. Trunkey Center for Civilian and Combat Casualty Care represents an unprecedented commitment to optimizing trauma care through collaborative research efforts in the Portland area.

The Center was established in April 2020, and named for the late emeritus OHSU chair of surgery Dr. Donald D. Trunkey.

Directed by trauma head **Martin Schreiber, M.D.**, it connects trauma providers and investigators from multiple disciplines across OHSU and the VA Portland Health Care System.

## Arnet R. Ecklund Innovation Fund for Combat Care and Research

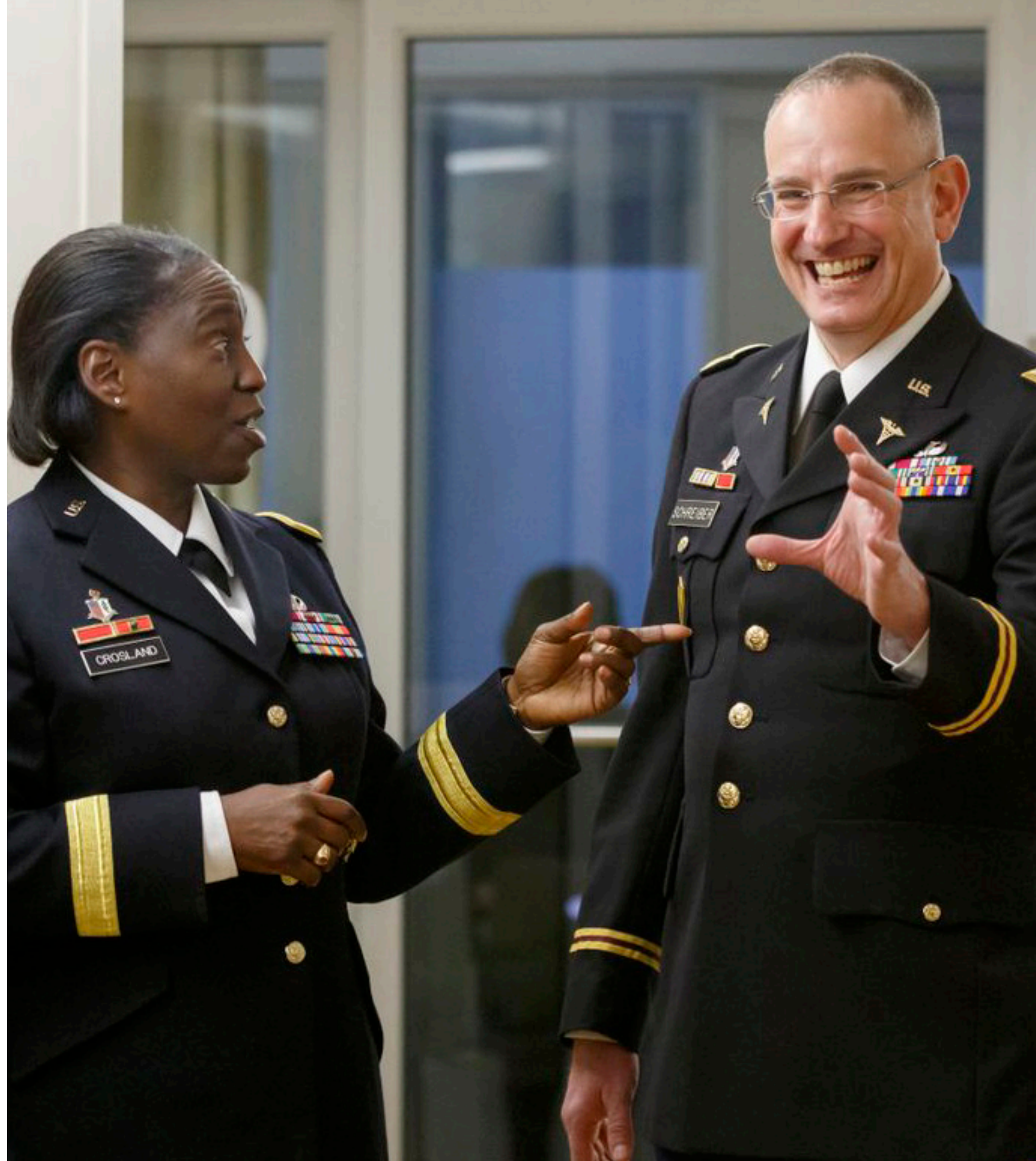
The Arnet R. Ecklund Innovation Fund for Combat Care and Research was established within the Trunkey Center with a 6 figure donation from Mr. Ecklund. This donation was specifically targeted toward supporting trauma surgeon **Albert Chi, M.D.**'s work in prosthetics.

The Trunkey Center monthly Seminar Series that is designed to help synergize trauma research efforts across the region was initiated on September 30, 2020 with talks by **Mary Heinricher, M.D.**, on the basic science of pain sensation and **Mackenzie Cook, M.D.**, on long term outcomes after trauma. The seminar features related talks from both a basic science researcher and clinician and supports opportunities for collaboration.

## Monthly Seminar Series

## Breakthrough Research

On September 8, Trunkey Center collaborators published their collective work in *JAMA* titled "Effect of Out-of-Hospital Tranexamic Acid vs Placebo on 6-Month Functional Neurologic Outcomes in Patients with Moderate or Severe Traumatic Brain Injury." This was the culmination of a 7-year effort across North America performed at 12 sites, 20 hospitals and 39 EMS agencies. The study revealed that a 2 gram bolus of Tranexamic acid resulted in a significant improvement in survival compared to placebo or standard TXA dosing. It's a study that is already impacting the way traumatic brain injury patients are being treated throughout the world.



# Control

# Mission



## ReCCaMP Remote Critical Care Management Platform

Connecting rural areas to the expertise in our academic health center through easily deployable technology

Easy? Not exactly. Here's what had to happen.

- Prototype a scaled effort of existing hardware and software supported by GE Healthcare and Microsoft.
- Harness the clinical expertise of key OHSU clinical and research faculty.
- Build a patient-centered mobile app to access care anywhere in the world.
- Expand a standalone secure light-weight electronic health management system (Centricity High Acuity) as the initial interface for patient flow management, and fully integrated orders, labs, and documentation.
- Integrate vitals, pumps, and ventilator monitoring through the central server (Edge), all supported through a cloud-based WiFi or cellular network based on availability (Azure). Integrate critical care support through remote critical care teams using an integrated critical care solution (Mural) that provides real-time patient data feeds, clinical decision support, and best-practice protocols, and may utilize protocols that detect early warning of impending clinical deterioration.
- Capacity management and flow by the Command Center platform.
- Implement MS Azure platform and MS Teams application to support all connectivity, bidirectional secure communication (video and messaging), synchronous and asynchronous support and education.

## It's December 2019

A novel coronavirus has just begun to overwhelm intensive care units in Asia and then Europe. By March 2020, COVID-19 was declared a worldwide pandemic. In the ensuing months hospital capacity and capability was outstripped in many regions.

It had been reported that more than 80% of patients with COVID-19 related pneumonia required ICU admission and 50-80% required invasive mechanical ventilation with high-level critical care. Current world-wide infrastructure and manpower was incapable of effectively supporting such patient volumes.

At the outset of COVID, the need for implementation of a versatile tele-critical care platform and hub was quickly apparent.

Researchers across OHSU departments of surgery, medicine, and anesthesia had already begun collaborating to develop a Remote Critical Care Management Platform (ReCCaMP). This project, under lead investigator and professor of surgery **David Zonies, M.D., M.P.H., M.B.A.**, leveraged OHSU's extensive expertise in managing and executing on large, complex, and multi-disciplinary projects, building off of an existing network and proven technology.

In addition, Zonies' team had partnered with GE Healthcare and Microsoft in 2019 to optimize and implement their fully integrated virtual ICU product, **Mural**.

As part of this relationship, the team integrated OHSU's expertise in usability research to improve and accelerate development of **Mural**. The plan was to fully deploy to 5 hospitals in late fall 2020. In response to the emergence of COVID-19, however, they worked with GEHC to accelerate this timeline further to allow for full deployment across all of OHSU's ICU beds (a 300% increase in capacity) in just 2 weeks, to allow for reductions in PPE utilization and improve provider safety. The team's established and expanding efforts put them in a strong position to hit the ground running. They rapidly built off of their existing infrastructure and expertise to optimize and deploy ReCCaMP for universal and advanced ICU care delivery in July 2020.

*David Zonies, M.D., M.P.H., M.B.A., Lead Investigator*



Deployment of the entire integrated system as a proof of concept was launched in the summer of 2020. ReCCaMP can provide value beyond the current pandemic to support civilian future public health disasters and military operations. The flexibility of ReCCaMP to run on a full spectrum of web compatible commercially available devices in a secure and safe fashion and will address ongoing needs for rapidly deployable critical care presence in far forward combat or civilian disaster situations. ReCCaMP can extend critical care resources and expertise as a stand-alone, light-weight, secure system in resource poor environments during the critical period immediately following a life-threatening injury greatly improving patient outcomes.





# Department Spotlight

The Department of Surgery, with our 170 faculty, 65 staff members and 125 trainees across nine divisions, has much to celebrate this year.



The OHSU Invent-a-thon, conceived and led by innovation manager **Sarah Biber, Ph.D.**, was a huge success this past October. While originally meant to be in-person, the virtual event brought together 49 teams from across the country and around the world to pitch their ideas to a panel of investor judges. CathPort from the Surgical Care Track walked away with \$5,000 from the event, winning 1st place and the health care disparities prize for their track. The team comprised **Sarah Hecht, M.D.**, assistant professor of urology and **Albert Lwin, M.D.**, department of surgery resident, both in the School of Medicine.



**Albert Chi, M.D.**, associate professor of surgery, division of trauma, critical care and acute care surgery, and team developed an inexpensive 3-D printed ventilator to help meet the need during the COVID-19 pandemic. He and **Donn Spight, M.D.**, associate professor of surgery and associate director of OHSU Simulation, used simulation to train health care workers on this and other COVID-19 practices.

The OHSU Heart Failure and Transplant Program team has successfully transplanted five hearts and implanted 13 heart pumps. The program was reactivated in August 2019 with the recruitment of 3 nationally-regarded cardiologists joining **Howard Song, M.D., Ph.D.**, head of cardiothoracic surgery, and **Fred Tibayan, M.D.**, surgery director for heart failure and transplant. Together, Drs. Song and Tibayan have performed more heart transplants and implanted more ventricular assist devices than any other surgeons in the state.



The **Donald D. Trunkey Center for Civilian and Combat Casualty Care** was established in May, directed by **Martin Schreiber, M.D.**, professor and division head of the division of the trauma, critical care and acute care surgery. The Center is named for the late Donald Trunkey, M.D., a renowned pioneer in trauma care and the eighth chair of surgery. It joins trauma investigators from multiple disciplines across OHSU and the VA Portland Health Care System to identify opportunities for collaboration in the advancement of innovative trauma research.



The Division of Bariatric Surgery participated in a national accreditation site visit with the ACS Metabolic-Bariatric Surgery Quality Improvement Program (MBSAQIP) at Hillsboro Medical Center in November 2020. The visit reviewed the continuum of patient care required for bariatric programs. The site visit was successful and without citations, and HMC anticipates national accreditation in the new year.



OHSU and Doernbecher Children's Hospital received the highest designation this year as a Center of Excellence in the Treatment of Lymphatic Diseases as a Comprehensive Center of Excellence by the Lymphatic Education and Research Network. Only 11 centers in the world currently carry this level of designation, establishing OHSU as a leader in the treatment of lymphatic disease. The efforts to create a Comprehensive Center were led by the Division of Plastic and Reconstructive Surgery and assistant professor **Allison Nauta, M.D.**

**Flavio Rocha, M.D.**, accepted the position of surgical oncology division head and physician-in-chief of the Knight Cancer Institute, OHSU School of Medicine, and will arrive at OHSU Jan. 1. Dr. Rocha is a key recruitment and an incredible gain for the university and we are delighted to welcome him.



**Erica Degenhardt, ACNP**, received the OHSU APRN Nurse of the Year Award in October. She is pictured in surgery with **Brett Sheppard, M.D.**, professor of surgery and vice chair for clinical affairs and quality in surgery, who led OHSU efforts in 2019 to participate in a high-level surgical assessment program by the American Society of Surgeons. Following two days of unprecedented scrutiny, examination and interviews, OHSU was granted verification of its surgical quality program, meeting all ACS criteria for a highly reliable safety culture and organization. The program was rolled out to hospitals across the country earlier this year.



**Raphael Sun, M.D.**, was successfully recruited to the Division of Pediatric Surgery to lead the development of a Comprehensive Fetal Surgery Program at OHSU. Dr. Sun will join the institution in September 2021 after completing training in Pediatric Surgery as well as Fetal Surgery at Texas Children's Hospital. Working with leaders from Maternal Fetal Medicine, he will work to build on the advanced services currently offered to develop the first center of its kind in the Pacific Northwest. The center will offer all currently available fetal interventions and work to develop innovative approaches to further the field.



**Farah Husain, M.D.**, division head of bariatric surgery, was awarded the Olga Jonasson Distinguished Member Award by the Association of Women Surgeons Foundation on December 6, 2020. The annual award recognizes leaders who, through outstanding mentorship, enable and encourage women surgeons to realize their personal and professional goals. Dr. Husain is a true advocate for female advancement and a force for increasing diversity in the field of surgery.

**Elsbeth Rogers, M.P.A., H.A.**, has accepted the position of Department Administrator effective January 1, 2021. DA **Sally Rodgers, M.A., M.H.A.**, has held the position since 2011 and will retire at the end of the year. Elsbeth is currently the Division Manager for Plastic and Bariatric Surgery. She has over 20 years of experience in health care administration and will bring a wealth of knowledge to this critical department role.





# On The Cutting Edge



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Questions or comments? Email *On the Cutting Edge* Editor Sara Szymanski at [szymanss@ohsu.edu](mailto:szymanss@ohsu.edu) – we'd love to hear from you.

Oregon Health & Science University is a nationally prominent research university and Oregon's only public academic health center. It educates health professionals and scientists and provides leading-edge patient care, community service and biomedical research.

Change can't happen if we see things just one way. That's why diversity is so important to OHSU.