

DEPARTMENT OF
ANESTHESIOLOGY
ANNUAL REPORT | 2021-22 ACADEMIC YEAR



Message from the Chair

This past academic year was truly remarkable. The 2022 annual report highlights the people and events that make our department truly one of the best in the nation. I am certain you will feel similarly as you read through the department accomplishments contained herein representing the collective efforts of those who make us exceptional, our people.

This year's report is organized around our department mission, which is "to deliver high-quality and compassionate medical care, provide premier educational programs and perform innovative research." Coming out of the most challenging months of the pandemic, our clinical mission continues to be an important focus of the department's divisions.

Notably, the critical care team is back to some semblance of normalcy. With the abatement of the pandemic, the team rededicated the majority of its efforts to the care of patients within the cardiovascular ICU and the Werner Cancer Hospital ICU while further expanding its roster of physicians. Similarly, the multi-specialty division grew through the recruitment of several graduating residents. Filled with exceptional educators, this was the third year in a row that a member of the division was named teacher of the year. Congratulations Dr. Huiling Pang!

The division of adult cardiothoracic anesthesiology had a most impressive year. Sasha Shillcutt, MD, served as scientific program chair for the SCA national meeting while Karsten Bartels, MD, was the SCA's inaugural chair of the Cardiovascular Outcomes Research in Perioperative Medicine meeting. Pain medicine and pediatric anesthesiology each showcased their fellowship programs, with the recruitment of our second regional anesthesia and acute pain medicine fellow as well as our first pediatric cardiac anesthesiology fellows, Rafael Arsky Lombardi, MD, and Erin Renze, DO, respectively.

Finally, we saw our research team expand again, with the addition of Lie Gao, MD, PhD. Dr. Gao brings to the Department of Anesthesiology his expertise in exercise physiology as well as a new \$2 million grant funded by the National Institute of Health. We are fortunate to have been able to recruit Dr. Gao to our research team.

Thank you for your interest in the Department of Anesthesiology. We look forward with hope to the future and as we reflect with pride on our accomplishments. Please enjoy this year's annual report.

Steven J. Lisco, MD

*Myrna Newland, MD, Endowed Professor of Anesthesiology
Chairman, Department of Anesthesiology, University of Nebraska Medical Center*

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Our mission is to deliver high-quality and compassionate medical care, provide premier educational programs and perform innovative research.



Dr. Lisco appointed to leadership roles

In July 2022, Steven Lisco, MD, chair of the UNMC Department of Anesthesiology, assumed two more leadership roles.

Dr. Lisco was appointed Nebraska Medicine chief academic officer and the UNMC College of Medicine senior associate dean for clinical affairs. Both roles were previously held by Carl Smith, MD, who will continue in his role as chair of the UNMC Department of Obstetrics and Gynecology.

“These roles reflect the weight Nebraska Medicine places on the tripartite mission of UNMC and the significance UNMC has in successfully meeting the strategic mission of the health system,” Dr. Lisco said. “I am looking forward to continuing to strengthen the relationships and the trust that has been built over several years. It is truly a unique relationship and one that will become even more important.”

The chief academic officer of Nebraska Medicine is jointly appointed by Bradley Britigan, MD, dean of the College of Medicine, and Jim Linder, MD, chief executive officer of Nebraska Medicine, and reports directly to both. Dr. Lisco is now responsible for overseeing UNMC’s employed academic physician practice, as well as its research and education components at Nebraska Medicine, while serving as Nebraska Medicine’s liaison to the UNMC College of Medicine.

The senior associate dean for clinical affairs, appointed by Dr. Britigan, is responsible for coordinating the clinical activity of the college’s faculty in conjunction with all clinical practice sites, including but not limited to Children’s Hospital & Medical Center and the VA.

Dr. Britigan said that during Dr. Lisco’s 10 years as chair of the UNMC Department of Anesthesiology and in

leadership and support of numerous Nebraska Medicine clinical programs, he has demonstrated the energy, knowledge, vision and leadership skills that made him the ideal individual to succeed Dr. Smith.

“Under his leadership, the department of anesthesiology has grown dramatically and in directions that support all the college’s academic and clinical objectives,” Dr. Britigan said. “I am confident his actions will allow our organizations to further excel in all our missions through creating and implementing an academic clinical practice environment that supports our faculty and provides exceptional patient care.”

“Dr. Lisco is a wonderful choice to continue strengthening the relationship between academic programs and health system,” Dr. Linder said. “I have enjoyed working with him in his role as chair of anesthesiology, and I am confident in the vision and experience he brings the chiefs’ team.”

Anesthesiology's Dr. Ellis named to medical staff presidency

Sheila Ellis, MD, began her role as president of medical staff of Nebraska Medicine on Jan. 1, 2022.

She first became president-elect in 2019. Dr. Ellis will serve a two-year term in the new role representing the interests of the medical staff to the medical executive committee (MEC) and the Nebraska Medicine Board of Directors. Dr. Ellis succeeds Lindsay Gage, MD, an Omaha-area nephrologist, and alum of the UNMC College of Medicine. Dr. Ellis is the first faculty member from the UNMC Department of Anesthesiology to be elected to the medical staff presidency.

"We are excited for Dr. Ellis in her new role as medical staff president," said Harris Frankel, MD, chief medical officer and chief compliance officer at Nebraska Medicine. "She is an accomplished physician who brings medical staff leadership experience to the presidency, having previously served as chair of the medical staff credentials committee. Being in an elected position of her peers speaks to the confidence the medical staff has in her leadership abilities and their trust in her overseeing the governance of the organized medical staff of TNMC," Dr. Frankel said.

Dr. Ellis is a professor and vice chair of faculty development in the UNMC Department of Anesthesiology. For over 25 years, Dr. Ellis has been a department leader who has served in numerous professional capacities in and outside the department. Dr. Ellis has served as interim department chair of anesthesiology from 2008 to 2010, and as an oral board examiner for the American Board of Anesthesiology since 2004. She has previously chaired the University hospitals' medical staff credentials committee.

Dr. Ellis' accomplishments tell the story of a distinguished and outstanding career in medicine, which Dr. Ellis called both gratifying and fulfilling. "This opportunity is a great way to cross boundaries and get engaged with other departments, as well as work with nursing staff and leadership in other areas," she said. The presidency is a milestone in an extensive line of achievements Dr. Ellis has made in the past two and half decades.

"Dr. Ellis has been an active and contributing member of the medical staff for years," said Steven J. Lisco, MD, chair of the UNMC Department of Anesthesiology. "This honor is truly well-deserved. She will do an absolutely outstanding job."

In her new role, Dr. Ellis said supporting medical providers is one of her main goals.

"It's important to address the well-being of our medical staff and give them an avenue by which to be represented at a leadership level," Dr. Ellis said. "We will continue to provide high quality care, improve our safety records, and address any other difficulties that providers may encounter in their work."

The president of medical staff is the primary elected officer who represents the medical staff at Nebraska Medical Center, which consists of academic physicians from UNMC and the Omaha community. Acting jointly with the MEC as chair, Dr. Ellis will provide direction to and oversee medical staff activities related to assessing and promoting continuous quality improvement of all medical staff functions, as outlined in related bylaws, rules, regulations and policies. She will serve as an ex-officio member of all other medical staff committees, with duties related to staff credentialing, appointment, compliance and other aspects of medical staff governance.



"Additionally, by way of her presidency, she also will have a seat with the Nebraska Medicine Board of Directors, and I have no doubt she will be a good steward in representing the TNMC medical staff to the board. On a personal note, I look forward to working with Dr. Ellis and suspect I will continue to learn with and from her," Dr. Frankel said.

Dr. Ellis emphasized the significance of anesthesiologist representation at the hospital-executive level. "We are in contact with so many departments. Anesthesiologists have a wide footprint. We're present in outpatient centers, clinics, procedures and more areas. Being involved in setting policies and procedures helps ensure that the care we provide adheres to our high standards for quality and safety," she said.

Dr. Ellis credits her success so far—from her beginnings at UNMC to today—is thanks to the department's immense support. She hopes this will pave the way for more department team members to pursue engagement opportunities.

"It's important for us to be involved and to have a seat at the table," Dr. Ellis said.

HIGH QUALITY, COMPASSIONATE CARE



Critical care division update

In early 2021, the UNMC Critical Care Division faced one of its biggest challenges during a major COVID-19 surge with dedication and excellence, said division chief Dan Johnson, MD.

“Critical care anesthesiologists, fellows, residents and nurse practitioners were instrumental in the success of the ability to provide coverage and work with the pulmonary critical care medicine team (CCM) in its efforts to provide optimal care for the influx of patients.”

In 2021-22, the division returned to its primary mission of providing critical care in the ICU for cardiology, cardiothoracic, vascular, surgical oncology, ENT, obstetric and ECMO patients in a nurturing educational environment. The division also focused on advanced education and training for residents and fellows as they master the foundations of critical care medicine.

“The division of critical care takes a broad approach to teaching, one that takes place at all levels for residents and fellows,” Dr. Johnson said. “In addition to rotations, a robust didactic

lecture series and conferences offer trainees the opportunity to receive a personalized educational experience.”

Fellows benefit from the in-house expertise of critical care faculty as multiple faculty members, current fellows and former fellows passed the National Board of Echocardiography’s Examination of Special Competence in Critical Care Echocardiography (CCEeXAM) in 2021, with more on track to pass in 2022.

The division grew with the hiring of two physicians: Stephen Brannan, MD, and Sean Rajnic, MD. More notable achievements include Elizabeth Mahal, MD, completing the palliative care fellowship program, and Joseph Pawlowski, MD, being named associate residency program director for performance and well-being.

Dr. Johnson continues to serve a two-year term as Chair of the Society of Critical Care Medicine ultrasound committee, with the responsibility of directing the Critical Care Ultrasound Course both online and at in-person held twice annually.

Critical care faculty

Daniel Johnson, MD,
division chief

Amanda Arnzen, MD
Karsten Bartels, MD, PhD, MBA
Joseph Baus, MD
Stephen Brannan, MD
Lucas Deschenes, MD
Erin Etoll-Jones, MD
Michelle-Anne Iverson, MD
Zahid Iqbal, MD
Steven Lisco, MD
Joseph Pawlowski, MD
Sean Rajnic, MD
James Sullivan, MD
Dennis Thiel, MD
Shaun Thompson, MD
Levi Zehr, MD



Multispecialty division update

As one of the larger divisions in the department, members of the multispecialty division care for patients in various surgical services and develop evidence-based clinical care in addition to coordinating educational programs for residents and fellows.

The multispecialty division consistently strives to maintain a balance between clinical service and educational programs for residents and fellows. Members are proud of their teaching activities, from formal lectures to mentorship and participation in national conferences.

A testament to this commitment is many resident graduates and fellows opt to remain in the department as faculty. This year the department welcomed former resident Michelle-Anne Iverson, DO, to the faculty. Physicians from the multispecialty division have been awarded Teacher of the Year for the past five years, with the honor this year going to Huiling Pang, MD. The award is especially meaningful because residents nominate and vote for the most impactful educators.

"We provide anesthetic care to a medically diverse patient population," said Robert Lobato, MD, multispecialty

division chief. "Our team members participate in several complex surgical procedures in addition to mentorship responsibilities, research and our academic mission. It's essential for us to stay up to date on the latest advances, both in terms of our skills as well as our technology."

This academic year marks the second full year since the reorganization of the division, which has continued to grow both clinically and academically, despite pandemic-related challenges. The new non-OR anesthesiology section (NORA) was established to handle anesthesia services performed outside an operating room environment, including endoscopy, bronchoscopy, interventional radiology and diagnostic radiology.

Although the past year brought many challenges, the multispecialty team met them with enthusiasm and flexibility. Moving forward, the goal is to continue to improve patient care, advance resident education and pursue innovative research.

"Our resilience was tested with the COVID-19 pandemic," Dr. Lobato said. "After two challenging waves, we are steadily returning to more normal operations."

Multispecialty faculty

Robert Lobato, MD,
division chief

Brittany Brown, MD,
Kathryn Crane, MD,
Sheila Ellis, MD
Bradley Fremming, MD, PharmD
Allyson Hascall, MD
Scott Hofmann, MD
Richard Holcomb, MD
Michelle-Ann Iverson, DO
Cale Kassel, MD
Dina Kogan, MD
Maria Michaelis, MD
John Ohnoutka, MD
Huiling Pang, MD
Kyle Ringenberg, MD
Nancy Rogic, MD
Jean Simonson, MD
Jennifer Uggen, DO
Kristin Wakin, MD
Charles Walcutt, MD
Trevor Wilke, MD
Corey Zetterman, MD

Section heads

Cale Kassel, MD,
*abdominal organ transplantation
anesthesiology*

Kristi Lorenzen, MD,
*thoracic and vascular
anesthesiology*

Joseph Pawlowski, MD,
neuroanesthesiology

Charles Walcutt, MD,
obstetric anesthesiology





Cardiothoracic division update

The UNMC Division of Cardiothoracic Anesthesiology continued to increase its national footprint in 2021-22, with a significant presence at the Society of Cardiovascular Anesthesiologists (SCA) annual meeting.

“UNMC and Nebraska Medicine were represented in all facets of this international meeting, from curriculum planning, presenting lectures, workshops, problem-based learning discussions, research and fellow and resident participation. We are proud to be entrusted with these leadership roles by our peers,” said professor and division chief Tara Brakke, MD. “It speaks to the reputation our division has developed on a national scale over the past decade.”

Sasha Shillcutt, MD, professor and vice chair of strategy, served as scientific program chair for the entire national meeting, held May 14-17, 2022, in Palm Springs, Calif. Dr. Brakke was tasked with serving as the meeting’s fellow and resident program chair.

Karsten Bartels, MD, PhD, professor, vice chair of research and Lieberman Endowed Chair of Anesthesiology, was the national meeting’s inaugural chair of cardiovascular outcomes research. Megan Chacon, MD, associate professor, director of global health, chaired SCA’s meeting on point-of-care ultrasonography earlier in the spring.

In addition, the division boasted multiple members of the annual meeting’s program committee and several presenters.

The division also grew its number of fellows to five, up one from the previous year. The fellowship program began in 2013 with a single fellow and has grown steadily since, as the division built the funding and educational support to meet the clinical need.

Dr. Brakke praised fellowship director Rebecca Aron, MD, associate professor and director of well-being, with leading the program as it navigated the increase in positions.

Clinically, the division was proud to be a part of the milestone of 500 heart transplants. “The heart failure team at Nebraska Medicine is one of the best in the region and contributing to each patient’s success is especially rewarding,” Dr. Brakke said.

Dr. Shillcutt, MD, was awarded the Dr. Gail Walling Yanney Endowed Professorship in Anesthesiology. Business and community leader Mike Yanney of Omaha established the professorship with a gift to the University of Nebraska Foundation in honor of his wife’s many contributions to the anesthetic practice in Omaha and at UNMC. Steven Lisco, MD, chair of the anesthesia department, said that the professorship charges Dr. Shillcutt, with assisting the department in its diversity, equity and inclusion (DEI) efforts.

Cardiothoracic anesthesiology also had several research highlights in the past year, including:

- Jeffrey Songster, MD, assistant professor, completed a clinical trial on the efficacy of bolus versus continuous sufentanil dosing for perioperative analgesia and cardiac surgery.
- Nicholas Markin, MD, associate professor, with Megan Rolfzen, MD, CA2 resident, completed a retrospective cohort study on the efficacy of regional anesthesia for sternotomy pain.
- Dr. Markin, in collaboration with Dr. Chacon and colleagues from the department of surgery, also published a notable manuscript on cardiac function following reanimation with normothermic regional perfusion in heart transplantation.
- Karsten Bartels, MD, PhD, research was funded through a handful of National Institutes of Health (NIH) K23, AHRQ R01, and NIH/NIHLBI UH3 and R13 mechanisms.

Cardiothoracic faculty

Tara Brakke, MD,
division chief

Austin Adams, MD
Rebecca Aron, MD
Karsten Bartels, MD
Stephen Brannan, MD
Megan Chacon, MD
Lucas Deschenes, MD
Amy Duhachek-Stapelman, MD
Katie Goergen, MD
Kristi Lorenzen, MD
Andrew Maresch, MD
Nicholas Markin, MD
Ellen Roberts, MD
Thomas Schulte, MD
Sasha Shillcutt, MD
Jeffrey Songster, MD
Dennis Thiele, MD
Troy Wildes, MD

Senior cardio sonography technologist

Walter Thomas
Steven Weiss

Tara Brakke, MD,
and John Maru, CRNA





Angie Rakes, MD

Pain division update

Acute pain service

The Acute Pain Service (APS), led by Nicholas Heiser, MD, director of acute pain service, established an improved workflow in 2021-2022, predominately performing perioperative pain management. The newly established pain pharmacy teams provide routine medical pain management, effectively acting as first responders.

Madhuri Are, MD, division chief of pain medicine, said the shift to an in-patient consultative style of service has improved both workflow and morale in the division, which leads to a better patient experience.

“We have improved our perioperative management structure in order to create a more collaborative, multidisciplinary team,” Dr. Are said. “This effort has eased the burden on our acute pain service team members, who can now focus on perioperative pain management.”

The APS provides comprehensive pain management for patients undergoing major surgical procedures, employing multimodal medication management and reducing the need for narcotics. Regional blocks continue to play an important role in decreasing reliance on opioids post-op, contributing to better patient experiences.

Chronic pain service

The Chronic Pain Service provides patients with many tailored avenues of relief and guidance in managing their chronic pain. This safe, multimodal approach uses procedures varying from minimally invasive to complex, non-narcotic prescription medication management, physical therapy, pain management therapy and more.

The team has an ongoing commitment to innovative procedures, such as cement augmentation, dorsal root ganglion dorsal column stimulation and minimally invasive lumbar decompression (MILD procedure) as well as tactics that enhance the patient experience.

In addition, clinical spaces at Village Pointe were completed, allowing the chronic pain section to grow and serve more patients in the region.

“Our goal is to provide the best possible care for patients by minimizing opioid use and maximizing pain control in the safest way possible,” Dr. Are said. “The additional space and increased faculty have allowed us to employ a very robust ‘fast-track’ service and manage an opioid tapering clinic.”

Fellowship programs

Regional anesthesia and acute pain medicine fellowship

Nicholas Heiser, MD, is the RAAPM fellowship program director since 2019 and also has served as associate residency program director from 2017-2020.

“He has shown significant passion from an education standpoint and continues to work with medical students, residents and trainees as well as being actively involved in simulation and cadaver workshops for the betterment of student and trainee education,” Dr. Are said.

Current fellow: Rafael Arsky Lombardi, MD

Pain medicine fellowship program

In 2022, Michael Lankhorst, MD, was appointed the new director of the pain medicine fellowship program. Kimberley Haynes-Henson, MD, who served in this role for seven years is now the new associate program director for the fellowship.

With more than eight years of experience, Dr. Lankhorst is ideally equipped to mentor chronic pain fellows, preparing them to excel clinically and in the fields of education and research.

Current fellows: Apollo Stack, MD; Katie Berky, MD; and Melanie Wood, MD

New faculty

Redgy Fuller, DO, a former department resident and fellow, is now a member of the chronic pain faculty as of July 2022.

Research

In 2022, the pain division initiated a multidisciplinary research study examining the effect of the iovera[®] system on post-op recovery. iovera[®] is a medication-free, localized nerve block that potentially can reduce pain on a long-term basis.

“The objective is to evaluate the effects of cryoanalgesia, or freezing of the nerves, before knee replacement surgery,” Dr. Are said. “Patients in the study will receive treatment two to three weeks prior to surgery and will be assessed throughout recovery.”

Some subjects will be given an adductor canal block for pain management in lieu of iovera[®], and some will receive both to compare the length of stay, opioid requirements and post-op physical therapy requirements.

“Our hypothesis is that presurgical iovera[®] treatment will result in decreased opioid use, decreased pain, improved function and improved patient outcomes,” Dr. Are said.

Pain division faculty

Acute pain

Nick Heiser, MD
medical director

Austin Adams, MD
Andrew Ingemansen, MD
Zahid Iqbal, MD
Cale Kassel, MD
Kyle Johnson, MD
Andrew Maresch, MD
Platt Niebur, MD
Kyle Ringenberg, MD
Jessica Sayre, MD

Chronic pain

Madhuri Are, MD,
division chief

Redgy Fuller, DO
Kim Haynes-Henson, MD
Marshall Ladd, DO
Michael Lankhorst, MD
Angie Rakes, MD

Physician assistants

Holly Doerneman, PA
Christa Nelson, PA
Lea Sommer, PA

Pediatric anesthesiology division update

The pediatric anesthesiology division expanded its practice in the new Hubbard Center for Children, set the foundation for a pediatric point-of-care ultrasound program, launched the new pediatric neurosurgical anesthesia program and recruited the first pediatric cardiac anesthesia fellow this year. The department welcomed new faculty including Mackenzie Laurila, MD, Maireen Miravite, MD, Stephanie Shin, MD, and Katherine Stiles, MD.

The Hubbard Center

The new Hubbard Center for Children at Children's Hospital & Medical Center opened in 2021. The nine-floor, state-of-the-art clinical facility doubles surgical capacity with an additional 100 patient beds, enabling Children's to continue to meet the needs of families and children from all over the nation. It also houses an expanded Newborn Intensive Care Unit, Pediatric Intensive Care Unit and Cardiac Care Center.

Pediatric point of care ultrasonography training

Pediatric anesthesiologists at Children's Hospital & Medical Center and UNMC set the foundation as educational leaders to launch the inaugural workshop on pediatric point-of-care ultrasonography training for multi-disciplinary providers who want to incorporate the use of this technology in their patient evaluations.

Although the workshop was held in October 2022, planning and execution efforts took place during the 2021-2022 academic year. The event was organized by the UNMC Division of Pediatric Anesthesiology Chief Julia Gálvez, MD, and Marcellene Franzen, MD, in collaboration with visiting professor Elaina Lin, MD, from The Children's Hospital of Philadelphia.

"There's nothing like this offered in this region, so we brought in faculty from several different specialties, not just anesthesiologists," said Dr. Franzen.

"We invited national experts in pediatric critical care medicine, pediatric cardiology, neonatology, pediatric hospital medicine, pediatric emergency medicine and pediatric anesthesiology to share their expertise."

Pediatric neurosurgical anesthesia program

The division also launched the new pediatric neurosurgical anesthesia program, under the direction of Marcellene Franzen, MD, allowing the anesthesia team to provide advanced monitoring, optimal blood flow and oxygen levels in addition to perioperative pain management during robot-assisted, minimally invasive procedures and intraoperative MRI scans.

Scholarship

The pediatric anesthesiology faculty were actively engaged in scholarship, showing a strong presence featuring podium presentations, workshop faculty and poster presentations at national meetings including the American Society of Anesthesiologists, Society for Pediatric Anesthesia, American Osteopathic College of Anesthesiologists (AOCA), the Society for Technology in Anesthesia and the Society for Education in Anesthesia. Jessica Goeller, MD, served as a co-chair and organized the midyear seminar for the American Osteopathic College of Anesthesiologists in Chicago. Several peer-reviewed manuscripts and editorials were published featuring Amy Beethe, MD, Andrea Dutoit, MD, Marcellene Franzen, MD, Gabriel Gallegos, MD, Julia Gálvez, MD, Jessica Goeller, MD, Mackenzie Laurila, MD and Kunal Sualy, MD.

Pediatric faculty

Julia Gálvez, MD,
vice chair and division chief

Amy Beethe, MD
Brittany Brown, MD
Greta Duncan Wiebe, MD
Andrea Dutoit, MD
Marcellene Franzen, MD
Kerri George, MD
Jessica Goeller, MD
Ryan Hamlin, MD
David Hoy, MD
Mackenzie Laurila, MD
Michelle LeRiger, MD
Thomas Lockhart, MD
Thomas Manning, MD
Lena Mayes, MD
Maria Michaelis, MD
Maireen Miravite, MD
Kaitlyn Pellegrino, MD
Ahsan Qadeer, MD
Erin Renze, MD
Nancy Ann Rogic, MD
Stephanie Shin, MD
Mohanad Shukry, MD
Rachel Spitznagel, MD
Katherine Stiles, MD
Kunal Sualy, MD
David Tingley, MD
Timothy Welch, MD
Guy Williams, DO
Jasper Williams, MD



Fellowship Program Director of Pediatric Anesthesiology Michelle LeRiger, MD, (middle) with Erin Renze, MD (left) and Maureen Miravite, MD (right)

Education

The pediatric anesthesia fellowship enrolled Dr. Blaine Schlawin as a pediatric anesthesiology fellow and Dr. Erin Renze as the first pediatric cardiac anesthesiology fellow. The education team is growing with Dr. Timothy Welch serving as the program director for the pediatric cardiac anesthesiology fellowship and is actively recruiting candidates for future classes.

“A major strength of our program is its size,” said Dr. Welch. “In comparison with larger training programs, our fellows have the opportunity to be exposed to essentially all cardiac surgical and interventional procedures.”

Pediatric anesthesiology faculty continue to serve as teachers across the graduate medical education

spectrum, ensuring that medical students interact with pediatric anesthesiologists from an early stage of training.

Dr. Amy Beethe continues to serve on the admissions committee for the University of Nebraska College of Medicine, Dr. Kunal Sualy serves as an advisor to first and second-year medical students, Dr. J Gálvez teaches workshops for the health systems course and Dr. Brittany Brown leads the anesthesia interest group for third and fourth-year students.

The pediatric anesthesia education team continues to excel in refining the structure of the residency rotations, evidenced by the number of trainees pursuing a fellowship in pediatric anesthesiology after completion of residency.

“We are very proud of being an integral part of educational initiatives throughout all levels of graduate medical education,” said Dr. Gálvez.

Dr. Gálvez, with support from the Kugler-Vonderfecht endowed professorship, launched a faculty development initiative for pediatric anesthesiology faculty which provides one-on-one coaching in various areas such as career development and leadership skills. One of the division’s greatest strengths is the vast experience of the faculty leaders who serve as mentors, providing guidance on career paths, academic projects, or research based on each individual’s area of interest.

CRNA division update

The UNMC Department of Anesthesiology Certified Registered Nurse Anesthetists is comprised of a group of exceptionally skilled, compassionate and resilient team players who demonstrate a commitment to their profession and UNMC.

During the COVID-19 surges, CRNAs took on new and expanded roles throughout Nebraska Medicine, putting their knowledge and skill to use. Their superb work and dedication to going the extra mile have showcased their adaptability during this challenging time.

Over the past year, the division has adapted to a “new normal” transitioning from altered operations due to the pandemic, leaving intensive care units and emergency departments and returning to critical care services. Although COVID-19 presented additional challenges to an already short-staffed department, it also provided an opportunity for reevaluation and to incorporate changes in workflows, processes and staff management.

Division Chief of Nurse Anesthesia Tiffany Olson said the team has remained flexible and engaged through the process of change.

“I’m so proud of the way our CRNAs have met challenges head-on,” Olson said. “This team has been engaged and positive as we move towards a brighter future.”

The result of this adaptability is a group that not only is clinically excellent but part of a cohesive team that works

together to ensure coverage for high-volume, quality care for patients undergoing many types of surgical procedures. The opening of new surgical centers and clinical practices has increased the demand for CRNAs. The division anticipates growth over the coming year as they actively recruit new team members and continue efforts to boost retention.

Listening sessions were another focus for the division in 2022, increasing communication among the team and with other clinical staff and creating a more integrated CRNA team within the department.

“The listening sessions have been a great way to keep team members engaged,” Olson said. “We have been able to address concerns, problem-solve and suggest ways to make change happen in a positive way.”

“We have enormous respect for the talented CRNAs in our department, and we are appreciative of the expert care they provide for our patients,” said Mohanad Shukry, MD, executive vice chair. “Their collaboration with our physician anesthesiologists enables the department to provide the extraordinary care expected from UNMC and Nebraska Medicine.”



Tiffany Olson, CRNA, division chief of nurse anesthesia

CRNA leadership

Tiffany Olson, CRNA,
division chief

Nicholas Stalnaker, CRNA,
associate chief

Committee memberships and leadership positions

Nick Hall
Iowa Association of Nurse Anesthetists board of directors

- Kris Rohde
- *American Association of Nurse Anesthesiology, political action committee member, 2020 – present*
Treasurer, 2022 – present
Custodian of Records, 2021 – 2022
 - *Nebraska Association of Nurse Anesthetists board of directors*
Federal political director, 2020 – present
 - *Political Involvement Committee, 2020 – present*
 - *State Government Relations chair, 2018 – present*
 - *Advocate of the Year 2021*



New staff & promotions

The UNMC Department of Anesthesiology proudly welcomed the following team members in the 2021-22 academic year:

Stephen Brannan, MD
Kathryn Crane, MD
Dina Kogan, MD
Mackenzie Laurila, DO
Lena Mayes, MD
Sean Rajnic, MD
Stephanie Shin, DO
Katherine Stiles, MD
Timothy Welch, MD

As of July 1, 2021, the following faculty members were promoted from assistant professor to associate professor of anesthesiology.

Austin Adams, MD
Greta Duncan-Weibe, MD
Allyson Hascall, MD
Cale Kassel, MD
Michael Lankhorst, MD

Awards

Brad Paulson Award for an Outstanding Medical Student in Anesthesiology: Christopher Weber, MD

CBY Teacher of the Year: Joe Pawlowski, MD

CA1-CA3 Teacher of the Year: Huiling Pang, MD

Certificates of Academic Excellence (75th percentile or greater on ABA in-training exam):

Allison Bell, MD
Teddy Black, MD
Jae Cauble, DO
Michael Dancer, MD
Jane Goodson, MD
Joel Hachiya, MD
Blair Mack, MD
John Riley, MD
Megan Rolfzen, MD
Zachary Schell, MD
Taylor Ziegler, MD



Committee memberships and leadership positions

SCA - Society of Cardiovascular Anesthesiologists

ABA - American Board of Anesthesiology

AAPAE - Association of Anesthesiology Program Administrators and Educators

SCCM - Society of Critical Care Medicine

SPA - Society for Pediatric Anesthesia

Austin Adams, MD

Nebraska Medicine Mortality Review Committee – Member

Nebraska Medicine Adult Congenital Care Conference – Member

SCA Online Education Subcommittee – Member

Madhuri Are, MD

National Comprehensive Care Network – Member

American Society of Pain Medicine: Poster and Abstract Committee

National Comprehensive Cancer Network – Member

Rebecca Aron, MD

ABA Moca Minute – Board Exam Editor or Author

ABA Adult Cardiac Anesthesiology Exam Committee – Question Editor

Karsten Bartels, MD, PhD

ASA Abstract Review Committee, Critical Care Medicine – Member

ABA Advanced Exam – Question Editor

ASA Committee on Critical Care Medicine – Lead author on position paper “Statement on the role of anesthesiologists in the practice of adult critical care medicine”

ABA Advanced Examination Committee – Member

Tara Brakke, MD

SCA Fellows Annual Meeting Program Committee – Co-chair

SCA Annual Meeting Program Committee – Member

SCA Board of Directors

Megan Chacon, MD

Society of Cardiovascular and Thoracic Anesthesia Scientific Program Committee – Member

SCA Point-of-Care Ultrasound Workshop Moderator – Director

European Association of Cardiothoracic Anesthesiologists Point-of-Care Ultrasound – Director

Amy Duhachek-Stapelman, MD

ABA Objective Structured Clinical Examination Board – Exam Question Author

ABA Objective Structured Clinical Examination ECHO section – Exam Question Author

ABA Board – Exam Question Author

ABA – Board Examiner

Andrea Dutoit, MD

SCCM SEA Education Committee – Member

SPA Education Committee

Education Committee, Society for Education in Anesthesia

Council Member, Association of Anesthesiology Core Program Directors

ERAS Supplemental application working group

Liaison to AAMC for AACPD regarding the supplemental application

Sheila Ellis, MD

ABA – Board Examiner

ABA Board – Exam Question Author

ABA Applied Structured Oral Exam – Exam Question Author and Editor

ABA Applied Oral and OSCE Exams – Board Examiner

Erin Etoll, MD

Critical Care Anesthesiology – Board Exam Editor or Author

Julia Gálvez, MD

At-Large Director, Society for Technology in Anesthesia

Chair, Biomedical Informatics Special Interest Group, Society for Pediatric Anesthesiology

Associate Editor, Anesthesiology

SPA Education Committee

ASA Committee on Informatics and Information Technologies

SPA Pediatric Anesthesia Article of the Day Editorial Board,

SPA Diversity, Equity and Inclusion Committee

Jessica Goeller, DO

Pediatric specialty American Osteopathic Board of Anesthesiology subject matter expert and question writer

Chair of Professional Education Committee, American Osteopathic College of Anesthesia

Board of Governors, American Osteopathic College of Anesthesia

Faye Hagggar, EdD

Society of Academic Associations of Anesthesiology & Perioperative Medicine AAPAE – Member

Society of Academic Associations of Anesthesiology & Perioperative Medicine AAPAE – Chair-Elect

Ryan Hamlin, MD

Consultant, Malignant Hyperthermia Association of the United States

Allyson Hascall, MD

Society for Ambulatory Anesthesia Non-operating Room Anesthesia Committee – Member

Society for Ambulatory Anesthesia Communications Committee – Member

Society for Ambulatory Anesthesia Meetings Committee – Member

Daniel Johnson, MD

SCCM Adult Ultrasound Committee – Member

Adult Ultrasound Committee – Chair

Cale Kassel, MD

Nebraska Society of Anesthesiologists – Board of Directors

ASA – House of Delegates

Michael Lankhorst, MD

Medicare: J5 Medicare Contractor Advisory Committee – Member

Michelle LeRiger, MD

SPA Editor, Question of the Week

Steven Lisco, MD

Association of Academic Anesthesiology Chairs (AAAC-SAAAPM) – Councilor

Association of Midwest Academic Anesthesia Chairs – Board Member

Association of Midwest Academic Anesthesia Chairs – Finance and Investment Committee

Research Committee, Society of Critical Care Medicine, Anesthesiology Section – Vice Chair

Robert Lobato, MD

ASA – House of Delegates

Nebraska Society of Anesthesiologists – Board of Directors

TJ Lockhart, MD

Society of Pediatric Anesthesia (SPA)

- Peer review committee for SPA case guides.
- The national sim course facilitator MOCA SIM@SPA.
- pediatric anesthesia program director association, member

Nicholas Markin, MD

SCA – Ethics Committee

ABA Multimedia – Member

Maria Michaelis, MD

Metro Omaha Medical Society – Treasurer

Nebraska Board of Medicine and Surgery – Chair

ASA – Member

Kaitlyn Pellegrino, MD

Rising Star, Society for Pediatric Anesthesia

Rachel Spitznagel, MD

Epic Corporation, Pediatric Anesthesiology Specialty Steering Board

Wakeup Safe

Nancy Rogic, MD

ASA – Wellness Committee

Thomas Schulte, MD

Association of Anesthesia Clinical Directors – Board of Directors

National Board of Echocardiography – Board Exam Editor

Sasha Shillcutt, MD

SCA – Board of Directors

SCA – Continuing Medical Education Committee Member

SCA Annual Meeting and Scientific Sessions – Program Chair

ABA – Board Examiner

SCA – Scientific Program Committee Chair

National Board of Echocardiography – Advanced Writing Committee

Mohanad Shukry, MD

Malignant Hyperthermia Association of the United States – Quality Assurance Committee Member

Children's Health Network – Board Member

SPA Workshop Director

Shaun Thompson, MD

SCCM – Graduate Medical Education Committee

Kristin Wakin, MD

Society of Obstetric Anesthesia and Perinatology – International Outreach Committee Member

Charles Walcutt, MD

Nebraska Department of Health and Human Services – Maternal Mortality Review Committee Member

Tim Welch, MD

Chair, Pediatric Critical Care Medicine Special Interest Group, Society for Pediatric Anesthesia



Educational update

UNMC has one of the most complex patient populations in the region, providing access to challenging clinical scenarios for residents to develop excellent clinical skills early on in their training. Department faculty are dedicated to the training and mentorship of future innovative leaders in anesthesiology.

One of the greatest joys of being part of the education team is teaching and inspiring motivated students. In the last academic year, the department introduced its inaugural Health Educators and Academic Leaders (HEAL) Fellow, Teddy Black, MD. The HEAL track provides students an opportunity to develop essential skills as future educators and academic leaders. The program was developed in 2021, offering the fellow a support network, providing a solution to the isolation caused by pandemic

restrictions and contributing to the department's mission of becoming a national leader in clinical educator development.

Residents benefit from the wealth of research opportunities available on the UNMC campus while training clinically in one of the top-ranking anesthesiology residency programs in the country. This innovative residency track prepares future investigators for academic careers as clinical scientists. Former chief anesthesiology resident Peter Pellegrino, MD, PhD, was awarded a CRANE scholarship in 2021. (See Page 19)

Research residents Megan Rolfzen, MD, and Jeremy Payne were awarded Foundation for Anesthesia Education and Resident Scholar Awards (FAER), providing an opportunity to attend and present at the American Society of Anesthesiology's annual meeting. (See Page 20)

Residents say "well-being" is a primary reason they choose to train at the UNMC Department of Anesthesiology. The programs and events in the resident wellness program are resident-planned and resident-led, under the direction of Associate Residency Program Director of Performance and Well-being Joe Pawlowski, MD, and Residency Wellness Adviser Skye Bakker, MD. Each class has one or two "Wellness Champions" who lead the way with the department's wellness initiatives, encouraging activities that promote well-being in the social, physical, emotional, occupational, spiritual, environmental, intellectual and financial domains.

Future goals include growing the residency program, continuing to improve and enhance programs and continuing to offer a premiere educational innovation in the field of anesthesiology.

Dr. Pendyala named outstanding faculty

Gurudutt Pendyala, PhD, the Robert Lieberman Professor of Anesthesiology in the UNMC Department of Anesthesiology, was named the Outstanding Mentor of Junior Faculty Award at the UNMC Annual Faculty Meeting in April 2021.

When notified of the award, Dr. Pendyala spoke about the joys of mentoring others, particularly “walking alongside your mentees, showing a possible future and instilling confidence that it can be achieved.

“The son of a math teacher, Dr. Pendyala said his mother – who taught high school for more than three decades – often told him, “All students learn and succeed but not at the same time and in the same way.

“He referenced another quote – from newsman Dan Rather – as important to his success, as well: “The dream begins with a teacher who believes in you, who tugs and pushes and leads you to the next plateau, sometimes poking you with a sharp stick called truth.”

“I consider this quote as the much-needed eye opener,” Dr. Pendyala said. “While we want our mentees to be successful, it is imperative to make them realize certain of their shortcomings. Such conversations can be hard (most of the time) and easily be misconstrued as intimidation. Clarifying to them that this is but a part of their learning curve is the biggest challenge.



“The payoff? Dr. Pendyala said it is the “pay it forward” moment.

“When your own mentees train their own – this always is a priceless moment that swells your heart with pride and, ultimately, is a testimony of your own success.”

FAER Scholars named two years in a row

For two years in a row, the UNMC Department of Anesthesiology has had residents honored by the Foundation for Anesthesia Education and Research.

Resident Meg Rolfzen, MD, received a FAER Resident Scholar Award for her presentation at the 2021 American Society of Anesthesiology’s (ASA) annual meeting.

Jeremy Payne, MD, received a FAER Scholar Award in 2021 to attend the 2022 American Society of Anesthesiology’s (ASA) annual meeting.

Dr. Rolfzen’s abstract was titled “Association between alcohol abuse and hospital outcomes in colectomy patients – A retrospective cohort study.” Co-authors included Susan Mikulich-Gilberston, PhD, Crystal Natvig, Jacqueline Carrico, MD, Robert Lobato, MD, Martin Krause, MD, and Karsten Bartels, MD, PhD.

Dr. Rolfzen’s inquisitiveness drew her to a career in scientific research.

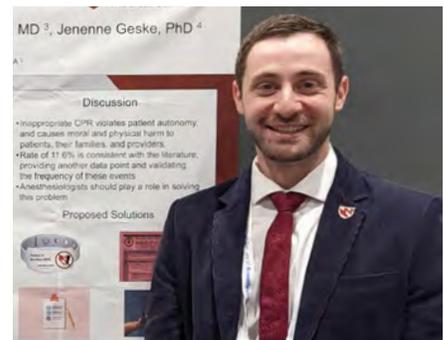
“Research invites curiosity and some element of creativeness in a different

metaphysical way,” Dr. Rolfzen said. “Maybe I could have scratched that itch elsewhere (knitting, etc.), but investigating topics germane to the field of anesthesiology brings it full circle.”

Dr. Rolfzen said she appreciated the monetary benefit of the award that offset the cost of attending, but the true value was the opportunity to collaborate with other residents nationwide who also are learning the basis of scientific inquiry.

Dr. Payne’s research poster, “Prevalence and Characteristics of Inappropriate Cardiopulmonary Resuscitation at an Academic Midwest Medical Center,” was presented at the meeting in New Orleans. He received the award prior to the event, on the strength of his abstract and a nomination by departmental leaders, using the scholarship to travel to the event.

Although being a resident is more than a full-time job, Dr. Payne has several reasons why he felt research work is important to his development as a medical professional.



“Research lays the foundation for the clinical principles we learn in medical school and residency,” he said. “Understanding how studies apply in different clinical situations can allow us to give our patients the best outcome possible.

“Also, participating in research advances the field and improves our understanding of basic science and/or clinical practice. It allows us to satisfy intellectual curiosities and answer interesting questions, as well.”

Dr. Payne hopes to use data gathered through research and other avenues to make hospitals more efficient and cost-effective, enhance patient safety and increase employee satisfaction.

Dr. Peter Pellegrino named CRANE Scholar

Medical residency is a busy, often trying time, to put it mildly. But the Careers in Research and Anesthesiology in NEbraska (CRANE) Scholar Program allows aspiring clinician-scientists to remain active researchers during their anesthesiology residency.

“Obviously, residency is a very clinically focused time,” said Peter Pellegrino, MD, PhD, former chief anesthesiology resident and CRANE Scholar. The CRANE Program “is a mechanism by which our residents can do research and get protected research time during residency.”

“As a researcher, I was always working in preclinical models. But I’m really interested in trying to translate that to humans to help actual patients and help physicians take care of patients.”

The six-month research elective is an American Board of Anesthesiology-approved option for anesthesia residents in academic departments who are invested in research, have a promising track record of preliminary research success, and are performing clinically at a level that reassures residency program leaders that they can forego six months of clinical training and still be ready for their boards and future practice.

Dr. Pellegrino met all criteria and was able to utilize six months over the last two years to complete a collaborative research project, the results of which he is submitting in multiple manuscripts and extramural grants. But it wasn’t easy.

“One of the things that any clinician who does research has to be very concerned about is that the less time that one spends doing clinical things, the greater the risk you can have gaps in competency,” Dr. Pellegrino said.

It was a balancing act. Dr. Pellegrino was fortunate he was able to pace his research over the two-year period. And he remained on-call throughout his research blocks, “in order to contribute to the call burden residents shoulder, and also to maintain clinical competency,” he said.

This protected time was a welcome boon both to the research project and

– Peter Pelligrino, MD

to Dr. Pellegrino’s well-being. “Prior to my CRANE Scholarship, the only way for me to do research was to finish a 24-hour call shift and then go straight into a complex, 14-hour preclinical experiment. It wasn’t healthy, and the project really blossomed once I had that protected time.”

His research was a multidisciplinary collaborative effort with UNMC colleagues Alicia Schiller, PhD, Hanjun Wang, MD, Yiannis Chatzizisis, MD, PhD, and Irving Zucker, PhD.

They are excited about their “sympathetic vasomotion” project, a preclinical study which might someday lead to a drug-free hypertension treatment.

Some sympathetic or “fight-or-flight” nerves can lead to hypertension. Deactivating these nerves hasn’t been as effective as expected in clinical trials, because often the denervation wasn’t complete enough.

But this UNMC team invented technology to test whether the denervation worked, or if another round needs to be done, and would then be done immediately, without waiting weeks to find out.

The technology likely could be translated to help with other sympathetic nervous system-related maladies, like chronic pain.

To continue this research while in residency was invaluable, Dr. Pellegrino said. He is committed to the clinician-scientist path.

“As a researcher, I was always working in preclinical models,” he said. “But I’m really interested in trying to translate that to humans to help actual patients and help physicians take care of patients. That’s really what I’m passionate about, and the CRANE Scholar Program and the Department leadership have been vital in supporting me as my research progresses from preclinical studies to the clinical domain.”

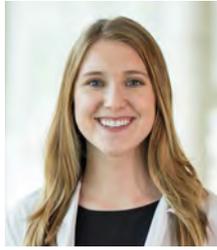
This matches the vision of Karsten Bartels, MD, PhD, the UNMC Department of Anesthesiology’s Robert Lieberman Vice Chair of Research. “We believe that the most efficient way to recruit the best residents to stay at UNMC as faculty is ensuring UNMC is the best place for them to be successful as academic anesthesiologists.”



Graduating residents



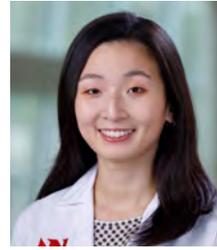
Sagar Bansal, MBBS
Adult Cardiothoracic
Anesthesiology Fellowship,
UNMC



Allison Bell, MD
Pain Medicine Fellowship,
Northwestern University



Katie Berky, MD
Pain Medicine Fellowship,
UNMC



Zhaohui Hu, MD
Pediatric Anesthesiology
Fellowship, UT
Southwestern Medical
Center



**Michelle-Anne
Iverson, DO**
Department of
Anesthesiology, UNMC



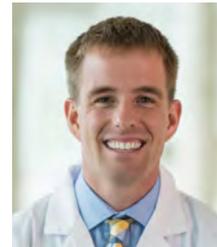
Kelsey Neuhalfen, MD
Pediatric Anesthesiology
Fellowship, Vanderbilt
University Medical Center



**Peter Pellegrino, MD,
PhD (Chief Resident)**
Critical Care Anesthesiology
Fellowship, UNMC



Rachel Quandahl, MD
Liver Transplant
Anesthesiology Fellowship,
UNMC



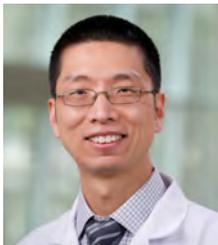
**Blaine Schlawin, DO
(Chief Resident)**
Pediatric Anesthesiology
Fellowship, UNMC/
Children's Hospital &
Medical Center



Apollo Stack, MD
Pain Medicine Fellowship,
UNMC

Graduating fellows

Adult Cardiothoracic Anesthesiology



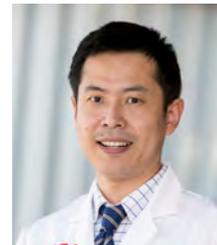
Haiying (Tom) Liu, MD
Des Moines Methodist-
Cardiovascular
Anesthesiology,
Des Moines, IA



Daniel McDonald, MD
Division of Cardiac
Anesthesiology, Medical
College of Wisconsin,
Milwaukee, WI



Aldis Siltumens, MD
Marshfield Clinic-
Cardiovascular
Anesthesiology,
Marshfield, WI



Chen (Brian) Zhao, DO
Department of
Anesthesiology
University of Birmingham in
Alabama, Birmingham, AL



Chandni Ravi, MBBS
Department of Emergency
Medicine - Critical Care,
Medical College of Georgia
at Augusta University,
Augusta, GA

Critical Care

Pain Medicine



Patrick Ward, DO
Adult Cardiothoracic
Anesthesiology Fellowship,
UNMC



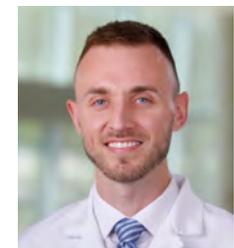
Levi Zehr, MD
Department of
Anesthesiology, UNMC



Clayton Damme, MD
Innovative Pain & Spine
Specialists, Lincoln, NE



Redgy Fuller, DO
Department of
Anesthesiology, UNMC



Codi Guck, DO
Pain Medicine Clinic and
Surgery Center, Fargo, ND

Graduating fellows

Pediatric Anesthesiology



Maureen Miravite, MD

*Pediatric Anesthesiology,
Children's Hospital &
Medical Center, Omaha, NE*



Erin Renze, DO

*Pediatric Anesthesiology,
Children's Hospital &
Medical Center, Omaha, NE*

Incoming residents

Class of 2026



Joshua Abels, MD

UNMC



Hayden Brodersen, MD

*University of North Dakota
School of Medicine and
Health Sciences*



Zachary Egr, MD

UNMC



Cameron Evans, MD

*Chicago Medical School at
Rosalind Franklin University
of Medicine and Science*



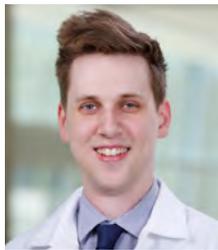
Jennie Keum, MD

*University of Missouri-
Columbia School of
Medicine*



Shawn Nelson, MD

Baylor College of Medicine



Alec Seei, DO

*Des Moines University
College of Osteopathic
Medicine*



Noah Svec, MD

UNMC



Christopher Weber, MD

UNMC



Jenna Wright, DO

*Marian University College of
Osteopathic Medicine*

Joined CA1 Class of 2025



Gary LaCroix, MD

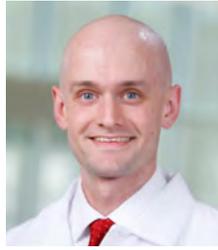
*University of Texas Medical
Branch School of Medicine*

Incoming fellows

Adult Cardiothoracic Anesthesiology



Sagar Bansal, MBBS
UNMC



Chris Kelsheimer, MD
University of Missouri-
Kansas City



Natalie Rea, MD
Mayo Clinic



Valerie Verdun, MD
Mayo Clinic



Patrick Ward, DO
University of Missouri-
Columbia

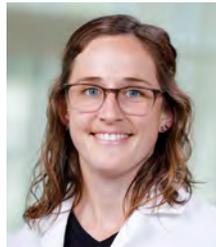
Critical Care



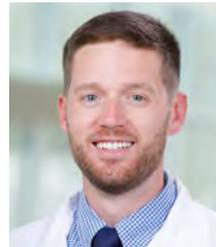
Kyle Gronbeck, MD
UNMC, Emergency
Medicine



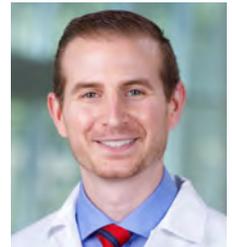
Molly Johnson, MD
University of New Mexico,
Emergency Medicine



Justinn Lahaye, MD
University of Utah,
Emergency Medicine



Kevin McKillion, DO
West Virginia University



**Peter Pellegrino,
MD, PhD**
UNMC

Critical Care



Daniel Raboin, MD
San Antonio Uniformed
Services Health Education
Consortium



**Benjamin Reinhart,
DO**
UNMC, Emergency
Medicine



Rachel Quandahl, MD
UNMC



Katie Berky, MD
UNMC



Apollo Stack, MD
UNMC

Liver Transplant

Pain Medicine

Pain Medicine

Pediatric

Pediatric Cardiac

Regional Anes. and Acute Pain Medicine



Melanie Wood, MD
Yale New Haven Health



Blaine Schlawin, DO
UNMC



Erin Renze, DO
UNMC



**Rafael Arsky
Lombardi, MD**
Medical College of Georgia
at Augusta University

Clinical research update

This year, the research team welcomed research nurse coordinator Karmen DeLancey and clinical research associates Emely Sanchez and Bailey Williams to the department and two research fellows, John Gallego, MD, and Januka Nepal.

The research nurse coordinator implements and maintains all research studies in the department. Julie Hoffman and DeLancey help coordinate complex collaborations between national and international partners. The research nurse coordinators help execute the project from inception to close out.

Additionally, the research team hosted summer STAR student, Juana Mora Valdovinos for a summer internship. Valdovinos, a University of Nebraska at Omaha student, collaborated on the REDUCE-SCREEN study.

The research team attended the Cardiovascular Outcomes Research in Perioperative Medicine (COR-PM) in Palm Springs, California. The Society of Cardiovascular Anesthesiologists hosted the inaugural event, co-chaired by Karsten Bartels, MD, PhD.

The Nebraska Outcomes Research Laboratory research nurse coordinators Julie Hoffman and Karmen DeLancey facilitated several clinical research studies in the 2021-2022 academic year:



Julie Hoffman Karmen DeLancey

0655-21-EP - The Society for the Advancement of Transplant Anesthesia-Liver Transplant Anesthesia Quality Improvement Database

Principal investigator: Cale Kassel, MD

This is a multi-center prospective medical records study focused on collecting data specific to anesthesia care during liver transplantation. The data will be used to gain insight into preoperative patient conditions, intraoperative surgical, and anesthetic treatment practice, anesthetic outcomes and complications, and patient outcomes in the care of liver transplant recipients.

R01 HS027795-01A1 - Efficiency and quality in post-surgical pain therapy after discharge - EQUIPPED

Principal investigator: Karsten Bartels, MD, PhD

The five-year study is funded by a \$2 million R01 grant from the Agency for Healthcare Research and Quality. The EQUIPPED study will test a patient-facing phone application. Before discharge from the hospital, patients who meet inclusion criteria and agree to informed consent are randomized into the intervention arm (consumer app with educational information regarding opioid use) or the control arm (provision of the app with only data collection). Participants are sent one survey each week for a month post-discharge. The study's primary outcome will measure the cumulative weekly opioid intake after discharge.

401-21-FB - Tight perioperative blood pressure management to reduce serious cardiovascular, renal, and cognitive complications: The GUARDIAN trial

Principal Investigator: Karsten Bartels, MD, PhD

Multi-Center randomized factorial trial with Cleveland Clinic

The GUARDIAN Trial evaluates clinically meaningful outcomes that might be improved by tight perioperative pressure management, defined as intraoperative blood pressure control (norepinephrine or phenylephrine infusion to maintain intraoperative MAP >85 mmHg) combined with postoperative hypotension prevention (delayed restart of chronic antihypertensive medications and a target systolic pressure >110 mmHg) in moderate-to-high-risk surgical patients.

Multicenter perioperative outcomes group (MPOG) and anesthesiology performance improvement and reporting exchange (ASPIRE)

IRB approved

Receiving regulatory approval to join the MPOG Outcomes Group is one of the steps to becoming an active site.

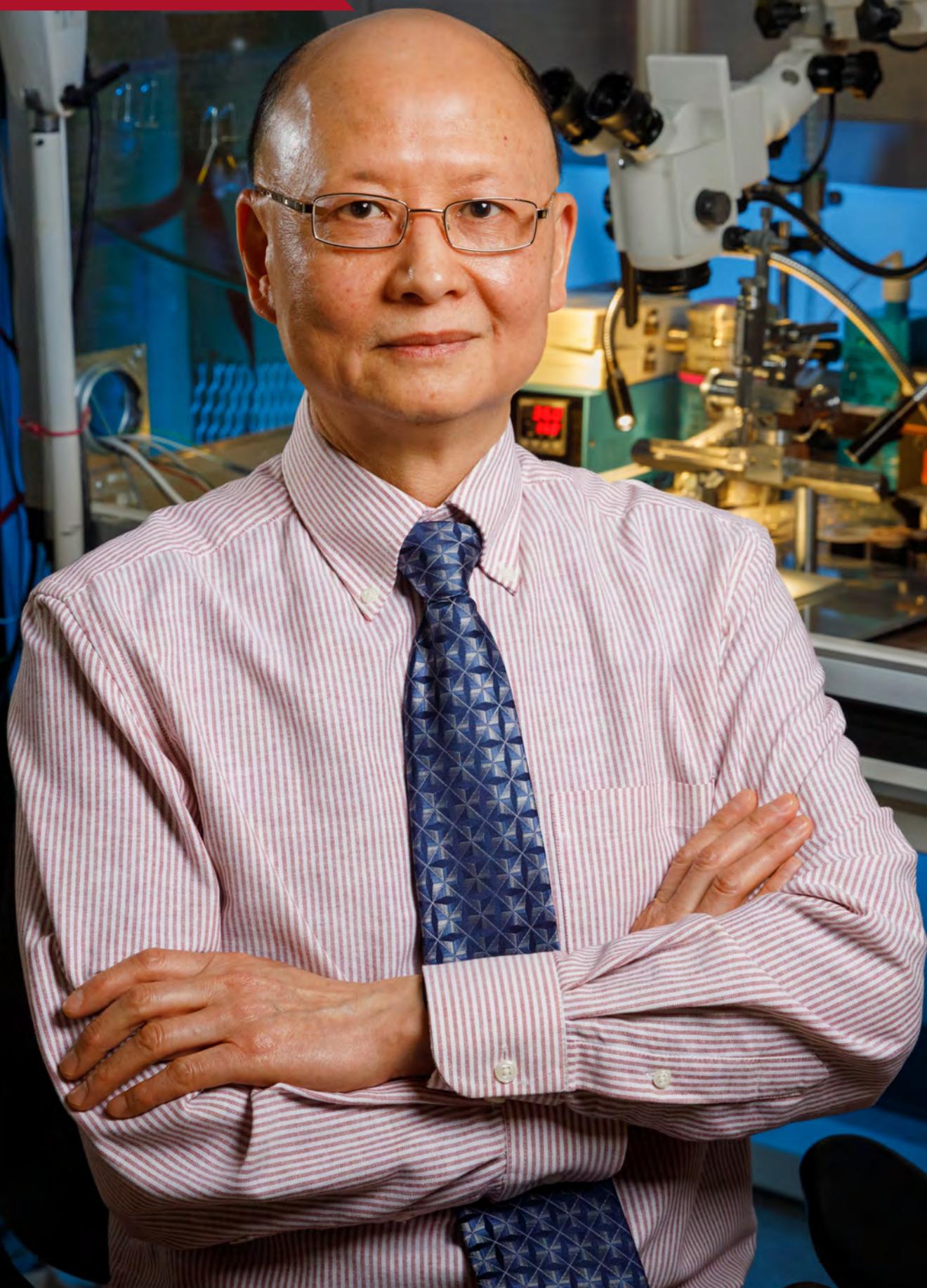
Re-evaluating the inhibition of stress erosions (REVISE)

Principal investigator: Daniel Johnson, MD

Multi-Center trial with McMaster University, Hamilton, Ontario, Canada.

The goal of this international study is to determine if in critically ill patients using breathing machines, the use of pantoprazole is effective in preventing bleeding from stomach ulcers or whether it causes more problems such as lung and bowel infections, or whether pantoprazole has no effect at all. An economic analysis will determine whether the harm is worth the benefits and whether the benefits are worth the costs to inform patients, families, clinicians and healthcare systems globally.

INNOVATIVE RESEARCH



Looking deeper into exercise

It's axiomatic: Exercise is good for your health.

UNMC researcher Lie Gao, MD, PhD, is looking into one of the possible reasons why.

Dr. Gao, who has been at UNMC approximately 20 years, joined the UNMC Department of Anesthesiology earlier this year to extend his investigation of heart failure pathology into cardioprotection, a main benefit of physical activity.

"It has been incredibly exciting to have a talented scientist like Dr. Gao join the UNMC Department of Anesthesiology," said Chair Steven Lisco, MD. "His line of inquiry has the potential to be groundbreaking. It is highly translatable and meshes perfectly with preclinical research currently being done in our department."

Dr. Gao's research, funded by a \$2 million National Institutes of Health R01 grant, began in January and will run for the next four years.

Karsten Bartels, MD, vice chair of research, said: "This project has very high translational potential in at-risk perioperative patients, and we are excited that Dr. Gao chose our department to conduct his groundbreaking work."

"It is well-known that regular exercise is fundamental for our health, particularly to the cardiovascular system," Dr. Gao said. "The reasons, however, are still a mystery. My project is exploring its mechanism based on a new concept that all cells in our body can generate extracellular vesicles, a natural nanosized-vehicle capable of transporting substances from one part of the body to another."

Dr. Gao said that researchers in the anesthesiology department have been at work in this fast-growing field for many years.

"Due to the high oxygen consumption and metabolic rate in exercise, contracting muscle produces a large amount of reactive oxygen species, a group of toxic molecules that may lead to potential damage to cellular proteins, lipids and DNA/RNA," he said.

Fortunately, muscle is equipped with multiple potent protective mechanisms to neutralize these excessive toxic molecules.

"The first line of defense is led by a master transcription factor, termed Nrf2, which can help make more than 200 cytoprotective proteins and activate several key intracellular

"It has been incredibly exciting to have a talented scientist like Dr. Gao join the UNMC Department of Anesthesiology. His line of inquiry has the potential to be groundbreaking."

– Steven Lisco, MD

signaling pathways in muscle, according to our recent study in collaboration with Mass Spectrometry Core and Bioinformatics Core on the campus," Dr. Gao said.

Investigators proposed that hundreds of these proteins function as an antioxidant cohort — not only protecting a muscle itself locally but also providing potential defense to other organs remotely, as the proteins can be transported by the extracellular vesicles from the contracting muscle to the heart during exercise. This helps protect against chronic heart failure and cardiac ischemia/reperfusion damage.

Dr. Gao's theory caught the eye of Dr. Lisco, a longtime supporter of basic science research in his department, who brought Dr. Gao into anesthesiology so he could work alongside other researchers exploring similar investigative avenues.

"I was excited to join Dr. Lisco and his excellent team," said Dr. Gao, adding that he had enjoyed 20 great years in the UNMC Department of Cellular and Integrative Physiology and will continue to collaborate with faculty members there.

"I expect to find some key molecules that mediate the exercise benefit," he said. "These molecules will be therapeutic targets to treat oxidative stress-associated dysfunction — such as hypertension, heart failure and other key cardiovascular diseases."

"Although this is basic science research," Dr. Gao said, "I expect to reveal information that can lead to translational efforts in patients, which is another great opportunity the new department can provide me."

Dr. Bartels said that Dr. Gao is a welcome addition to the department for many reasons.

"In addition to his scientific prowess, Lie is a kind and generous mentor who has already started new collaborations within the department of anesthesiology," Dr. Bartels said. "On behalf of the research team, we warmly welcome Dr. Gao's arrival and pledge our support for his continued success."

Impactful study covers 'entire gamut of addiction'

Methamphetamine use disorder (MUD) is associated with chronic inflammation in the brain. It also has a very high relapse rate – a recent University of Nebraska-Lincoln study reports that meth use and overdose deaths are rising in rural parts of the state.

Are those two things – inflammation in the brain and methamphetamine use disorder relapses – related?

A UNMC-UNL research team, led by Sowmya Yelamanchili, PhD, associate professor of anesthesiology in the UNMC Department of Anesthesiology, published findings in a leading medical journal in 2022 that establish that connection and much more.

Dr. Yelamanchili and her team report that the microRNA mir-29a “plays a critical role in (chronic methamphetamine exposure)-induced inflammation and damage to the synapses.” Mir-29a is significantly increased during methamphetamine exposure.

Further, the study found that mir-29a levels show significant increase both with drug-seeking and “reinstatement,” a model of relapse, in animal models. An anti-inflammatory agent, already an FDA-approved drug for other conditions, can reduce levels of mir-29a and “thereby rescue relapse in animals,” Dr. Yelamanchili said.

Through study of plasma from human methamphetamine use disorder subjects, the team has validated mir-29a as a biomarker to detect chronic inflammation and synaptic damage.



Sowmya Yelamanchili, PhD

These findings show, “The presence of this microRNA can cause relapse,” Dr. Yelamanchili said.

“We are excited to have found this critical lead.”

Publication in the field’s leading journal, the *Journal of Extracellular Vesicles*, means the scientific community believes the findings are a big deal. “It means these works have a high translational relevance,” Dr. Yelamanchili said.

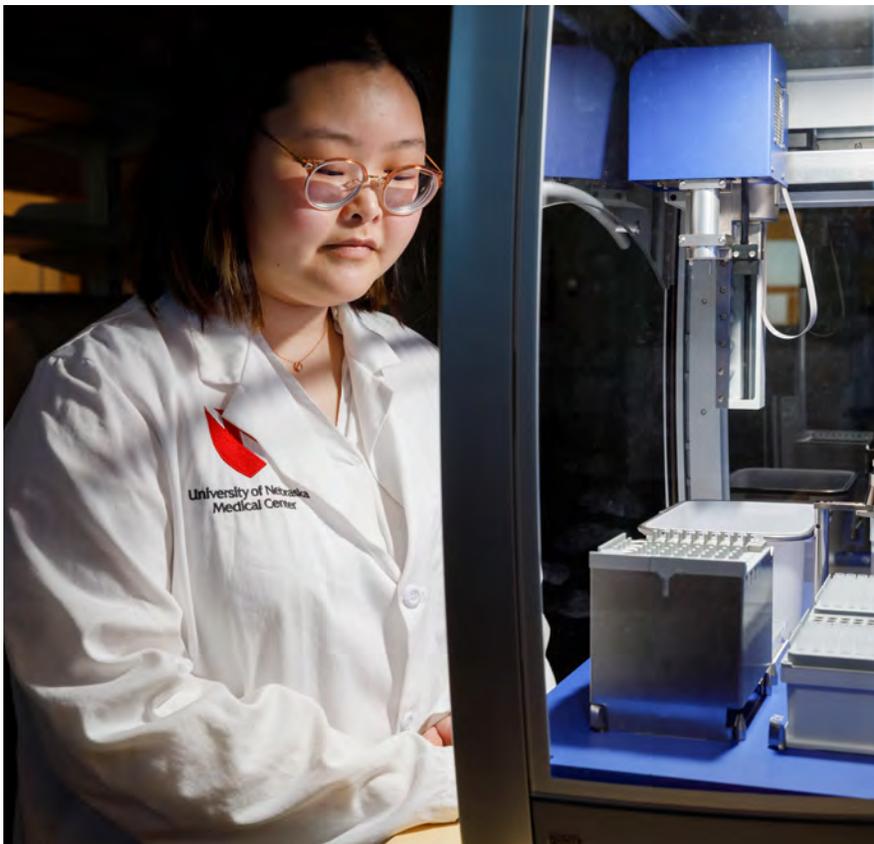
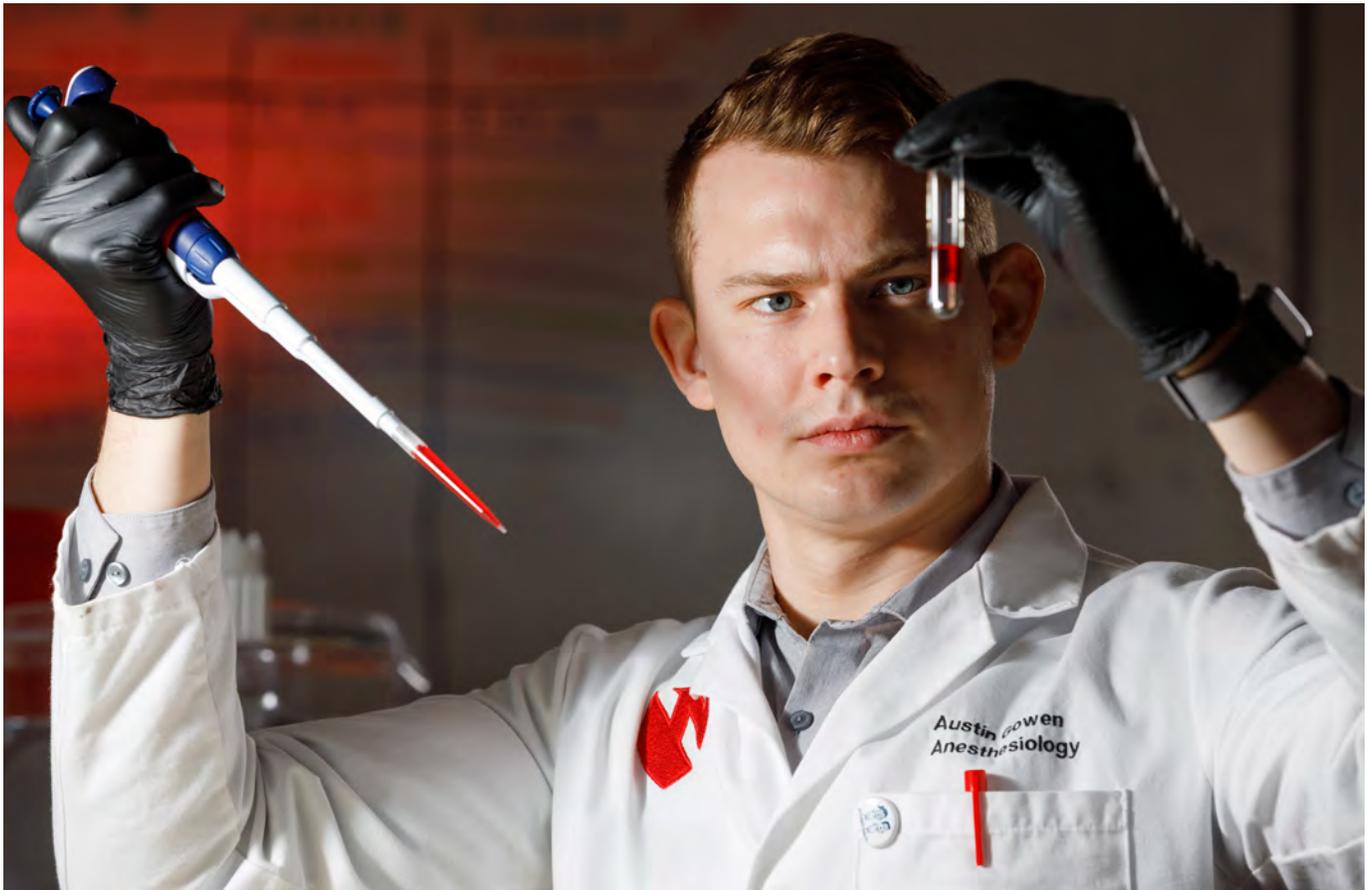
“We have covered the entire gamut of addiction,” said Gurudutt Pendyala, PhD, Robert Lieberman Professor of Anesthesiology.

Dr. Pendyala is a crucial collaborator, as are Howard Fox, MD, PhD, professor of neurological sciences, and Rick Bevins, PhD, director of UNL’s Rural Drug Addiction Research Center.

The comprehensive study has been a five-year journey for Dr. Yelamanchili and team. She first got the idea studying how extracellular vesicles – organelles regulating several body functions, including carrying cargo molecules (in this case microRNA from cell to cell) – contribute to inflammation in other diseases. Nebraska is first to connect this to MUD.

The team further validated its findings using in vitro cultures, where introducing mir-29a caused damage to synapses, and finally human subject plasma, lending a high degree of translational relevance.

In preclinical animal models, treatment with the anti-inflammatory ibudilast decreased mir-29a, lessened inflammation and “rescued” damage to the synapses and dendrites. The team, funded through a National Institutes of Health R01 grant, is actively pursuing further therapeutics study and aims to move into clinical subjects, hopefully within a couple years.



Austin Gowen and Jina Yi, graduate students, and Subhash Chand, PhD, post-doctoral research assistant, at work in Dr. Yelamanchili's lab.



Department celebrates research with inaugural event



In October of 2021, the UNMC Department of Anesthesiology held its first Celebration of Research, an event conceived not only to highlight the department's researchers but to recognize those who support and facilitate research efforts, as well.

The celebration featured awards, a poster session, a look at the year's research highlights and the annual Lieberman Lecture, delivered by Dan Clauw, MD, professor of anesthesiology at the University of Michigan and director of the Chronic Pain and Fatigue Research Center.

"Dr. Clauw gave one of the most inspiring talks I've ever heard," said Karsten Bartels, MD, PhD, the department's vice chair of research. "Dr. Clauw's model of building a successful multidisciplinary team-based research infrastructure that is both inclusive and competitive provided an appealing vision for the growth of anesthesiology research at UNMC."

The event was held at the Wigton Heritage Center and was intended to bring the department together.

"We wanted to celebrate everyone who makes a contribution," Dr. Bartels said. "We all know there are multiple types of professionals involved in successful research activities – investigators, administrators, graduate students, postdocs, research assistants, research nurses and scientists, as well as clinical faculty. This event allowed us to bring all those people together and celebrate their contributions."

The event has quickly become a staple of the department calendar. The second event was held in October 2022, and organizers now are preparing for the event's third year.

Additionally, it has led to increased research activity within the department, Dr. Bartels said.

"We've had robust applications to all internal grant mechanisms, including the new bridge grant; applications by clinical faculty for the Lieberman starter grants; and we are seeing some of our residents engaging in research leading to peer-reviewed publication, which is an impressive accomplishment. In addition, we are able to support our federally funded scientists to elevate their cutting-edge research to the next level."

"The Celebration of Research provides an opportunity for our department to showcase the outstanding research and innovations that are occurring on campus," said Mohanad Shukry, MD, executive vice chair of the department. "More importantly, it is a great opportunity to shine the light on our researchers and innovators and their boundless contribution to our mission."

We thank Dr. Bartels for leading our research mission and organizing the celebration of research day on behalf of the department."

Grant winners during the 2021 event were:

- Sowmya Yelamanchili, PhD, and Gurudutt Pendyala, PhD, who received a \$26,000 grant for the Zetaview Instrument.
- Oliver Kitzerow, BS, (with faculty PI Hanjun Wang, MD) received a \$20,000 grant for the project "The Role of Nrf2 In Attenuating the Exaggerated Exercise Pressure Reflex and Limiting Claudication in Peripheral Artery Disease."
- Kajal Kamra (with faculty PI Dr. Wang) received a \$20,000 grant for the project "Novel mechanism of neural control of breathing in acute lung injury."
- Ravi Chandni (with faculty PI James Sullivan, MD) received a \$1,650 grant for the project "Outcomes of non-invasive respiratory support compared to endotracheal intubation in COVID-19 patients."

Abstract and poster awards of \$500 were awarded to:

- Steve Brannan, MD (case report)
- Kajal Kamra (basic science)
- Daniel McDonald, MD (clinical research)

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