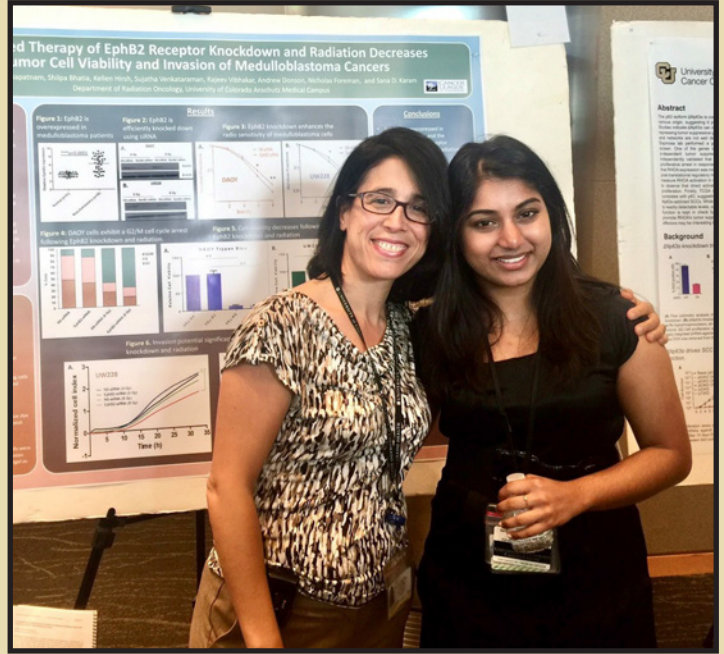
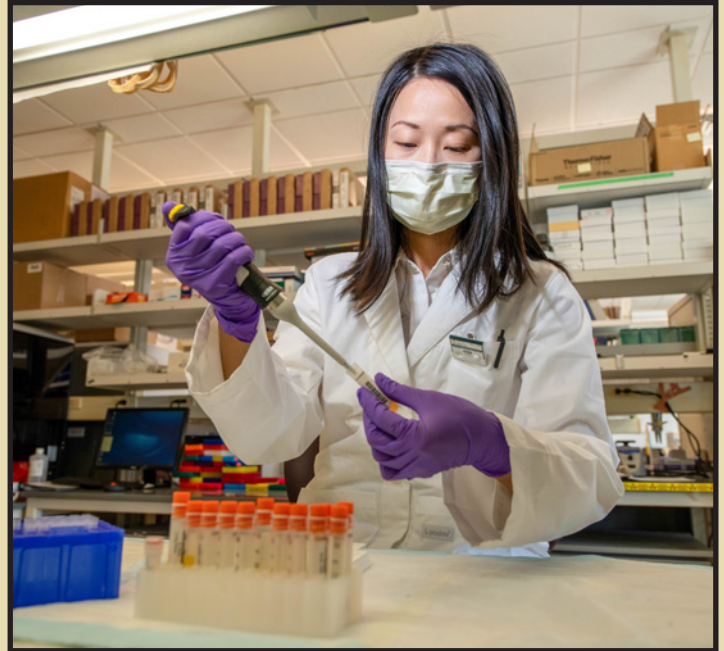




School of Medicine
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

2022 FACTS AND FIGURES UNIVERSITY OF COLORADO SCHOOL OF MEDICINE

Celebrating 139 Years: 1883-2022



School of Medicine

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**



Dean's Message

The University of Colorado School of Medicine had another year of growth and progress in 2022, thanks to our community of dedicated faculty, staff, students, and trainees.

Among the highlights:

- Our clinicians provided expert care to 683,000 patients at more than 3.9 million patient visits.
- Our researchers were awarded more than \$577 million in grant funding.
- Our faculty practice has endowed five department chairs, including two this year, while also increasing student scholarship support to \$1.3 million annually.
- Our medical school received more than 10,000 applicants for the 184 seats in the incoming class.
- Our educators transitioned to a new curriculum structured to improve care and prepare our medical students to become accomplished physician leaders.

That big picture of our School of Medicine's impact on our community is composed of thousands of individual contributions by the faculty, staff, students, and trainees on our campus. Some notable examples:

Aimee Pugh Bernard, PhD, assistant professor of immunology and microbiology and executive director of the Human Immunology & Immunotherapy Initiative, received the university's 2022 Chase Faculty Community Service Award for her work introducing elementary school students to science, technology, engineering, and math, and for her advocacy on behalf of immunization requirements.

Dave Young, MD, assistant professor of emergency medicine, went to Ukraine in April 2022 to provide care to people in that besieged country. He provided care to refugees living in shelters after fleeing their home cities. He also taught other providers to give care on the front lines.

Jessica Rove, MD, assistant professor of surgery, and Simran Randhawa, MBBS, assistant professor of surgery, in 2021 became the first pair of female cardiothoracic surgeons to concurrently perform transplant surgeries at the University of Colorado Hospital. Jessica performed a heart transplant while down the hall Simran handled a lung transplant.

Valeria Canto-Soler, PhD, associate professor of ophthalmology, and Natalia Vergara, PhD, assistant professor of ophthalmology, and their CellSight research teams won the top two awards in phase three of the National Eye Institute's 3D Retinal Organoid Challenge. Together, they were awarded \$750,000 in prize money, which they will use to advance their work developing novel stem cell-based therapeutics for patients with blinding diseases.

Caitlin Rublee, MD, MPH, assistant professor of emergency medicine, was selected for the class of 2022 National Academy of Medicine Fellowships. She was one of only seven people selected for the two-year program.

Mark Johnston, PhD, professor emeritus and former chair of the Department of Biochemistry and Molecular Genetics, was elected to the National Academy of Sciences.

These achievements and so many others are made possible because our School of Medicine and our campus partners are focused on creating an environment that encourages and rewards excellence and accomplishment. We expect that the many investments in people and programs we've made during the past year will yield similar outstanding results in the years ahead. Among those investments:

The Department of Biomedical Informatics became the School of Medicine's first new department since 2008. Its focus is enhancing clinical care by integrating computational technology, laboratory investigations, and artificial intelligence.

Lotte Dyrbye, MD, MHPE, became the School of Medicine's first chief well-being officer. She joined CU in 2022 after establishing herself as a national expert at Mayo Clinic on the causes, prevention, and remedy of burnout among clinicians.

With Children's Hospital Colorado, we're establishing a new child health research enterprise, and have named Ronald Sokol, MD, chief scientific officer, child health. A professor of pediatrics, Ron is an accomplished researcher and director of the Colorado Clinical and Translational Sciences Institute.

The University of Colorado Cancer Center's grant from the National Cancer Institute was renewed. The center's members hold more than 600 grants and contracts providing more than \$86 million in funding.

The newly established Gates Institute, with a \$100 million commitment from the Gates Frontier Fund and a matching amount from the campus, will focus on cell and gene therapies, building on previous investments in faculty recruitments and the construction of a state-of-the-art biomanufacturing facility.

The Colorado Area Health Education Center, which provides community-based education and interdisciplinary training across Colorado, received renewed grant support from the U.S. Health Resources and Services Administration. The center receives matching support from our campus.

The Climate & Health Program began offering a Diploma in Climate Science to train clinicians in sustainable hospital systems, disaster response and recovery, and community resilience. The two-year, five-certificate diploma course enrolled its first cohort in 2022.

A new joint MD-MS degree program with the Department of Aerospace Engineering Sciences at CU Boulder will prepare trainees to understand the engineering of spacecraft systems and human health impacts related to interacting with those systems.

The Linda Crnic Institute for Down Syndrome's researchers secured more than \$18 million in new funding from the NIH in fiscal 2022. With support from the Global Down Syndrome Foundation and the School of Medicine, the institute's researchers are poised to make ongoing scientific breakthroughs.

As we celebrate these many successes, we are committed to continue to work together to improve human health through discovery and care.



John J. Reilly, Jr., MD
Richard Krugman Endowed Chair
Dean, University of Colorado School of Medicine
Vice Chancellor for Health Affairs



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Mission Statement

Approved by the Executive Committee and Faculty Senate in January 1993

The mission of the University of Colorado School of Medicine is to provide Colorado, the nation and the world with programs of excellence in:

- ◆ **Education** - through the provision of educational programs to medical students, allied health students, graduate students and housestaff, practicing health professionals and the public at large;
- ◆ **Research** - through the development of new knowledge in the basic and clinical sciences, as well as in health policy and health care education;
- ◆ **Patient Care** - through state-of-the-art clinical programs which reflect the unique educational environment of the University, as well as the needs of the patients it serves; and,
- ◆ **Community Service** - through sharing the School's expertise and knowledge to enhance the broader community, including our affiliated institutions, other healthcare professionals, alumni and other colleagues, and citizens of the state.

Values Statement

Approved by the Executive Committee (October 2008) and Faculty Senate (November 2008)

The University of Colorado School of Medicine works actively to:

- ◆ Advance science through research on the biological mechanisms that underlie illness.
- ◆ Improve both the medical care and science of the uniquely human components of health and disease.
- ◆ Provide specialized and personalized medical care in an efficient environment.
- ◆ Support positive wellness and clinical prevention programs that promote health across the lifespan and lower early mortality.
- ◆ Transmit a high level of primary and specialty clinical expertise to the coming generations of health professionals.
- ◆ Provide a welcoming, challenging, and diverse atmosphere of growth for those who answer the call to careers in health science and service.
- ◆ Develop a diverse funding portfolio that provides the means to develop, attract, and retain nationally competitive research faculty members.
- ◆ Advance competitive medical research productivity through increased external support for innovative research ideas.
- ◆ Enhance the cooperative relationships with affiliate hospitals toward common goals in education, research, and clinical care.
- ◆ Develop a common infrastructure with the affiliate institutions on the new Anschutz Medical Campus to improve the efficient use of joint resources.
- ◆ Expand scholarly collaborations across disciplines within the School of Medicine that stimulate research innovation and increase competitive research funding.
- ◆ Support productive faculty and institutional collaborations with its sister Schools within the University of Colorado Denver to maximize bioscience research potential.
- ◆ Expand productive working relationships with local communities outside the University but within the state and region, whether for clinical, teaching, or research efforts.
- ◆ Pursue entrepreneurial development both in education and in research through collaborations with the private business communities in Colorado and the western region.
- ◆ Further improve working relationships with State and federal government entities to provide direct investment and support for research and education.
- ◆ Build collaborative relationships with medical schools and universities around the globe to enhance mutual growth in medical expertise, scholarship and stature.

Diversity Values Statement

Approved by the Executive Committee (October 2008) and Faculty Senate (November 2008)

The University of Colorado School of Medicine believes that diversity is a value that is central to its educational, research, service and health care missions. Therefore, the SOM is committed to recruiting and supporting a diverse student body, faculty and administrative staff. The SOM adopts a definition of diversity that embraces race, ethnicity, gender, religion, socioeconomic status, sexual orientation and disability. The definition of diversity also includes life experiences, record of service and employment and other talents and personal attributes that can enhance the scholarly and learning environment.

The SOM shall strive to admit qualified students and appoint qualified residents, fellows, faculty, staff and administrators who represent diversity.

The SOM also shall develop programs that are designed to: Promote the academic advancement and success of minority students, house officers and faculty; enhance cultural and diversity instruction throughout the curriculum; break down racial and ethnic stereotypes and promote cross-cultural understanding; and promote unexplored research agendas and new areas of scholarship.

The SOM's diversity programs also seek to enhance diversity and cultural competency in the health care workforce, improve access to health care for poor, minority and underserved populations and, ultimately, eliminate racial, ethnic and socioeconomic disparities in health and health services.

The SOM will work with all departments and programs within the SOM, and with other University of Colorado campuses and their leaders, to achieve the goals outlined above and to promote a culture of inclusiveness, respect, communication and understanding.

The SOM will support the goals of the University's Vision 2020, which seek to develop a University culture in which diversity and academic excellence are seen as interdependent.







How We Are Organized

CU School of Medicine ADMINISTRATION July 1, 2022

Dean, School of Medicine
Vice Chancellor for Health Affairs
John J. Reilly, Jr., MD

Administration
Chief of Staff
Associate Dean
of Public Relations
Mark Couch

**Senior Associate Dean
for Research Affairs**
Peter Buttrick, MD

**Anschutz Health and
Wellness Center**
Director
Daniel Besessen, MD

CU Research Imaging Center
Director
Tim DeGrado, PhD

Research Core Infrastructure
Multiple Directors

Advisory Committees
Research Advisory Committee
Chair
Mary Weiser-Evans, PhD

**Strategic Investment in
Research Committee**
Chair
Laurel Lenz, PhD

Bridge Funding Committee
Chair
Raphael Nemeroff, PhD

Clinical Research
Associate Dean
Thomas Campbell, MD

Child Health Research
Associate Dean
Ronald Sokol, MD

Space and Facilities
Director
Suzann Ruedeman

**Senior Associate Dean
for Administration and Finance**
Brian T. Smith, MHA

Budget and Finance
Associate Dean
John Moore

Financial Operations
Director
Brian Slentz

Human Resources
Director
Olawunmi Ogunwo, JD

Information Technology
Director
Michael Miller

University of Colorado Medicine
Executive Director
Brian T. Smith, MHA

**Senior Associate Dean
for Clinical Affairs**
Anne Fuhlbrigge, MD, MS

**University of Colorado Medicine
Affiliated Hospital Relations**
Clinical Affairs, Adult Health
(University of Colorado Hospital)
Associate Dean
Scott Laker, MD

Clinical Affairs, Child Health
(Children's Hospital Colorado)
Associate Dean
Adel Younoszai, MD

Clinical Outreach
(University of Colorado Hospital
and School of Medicine)
Associate Dean
Karen Chacko, MD

Quality Safety and Education
Associate Dean
Jeffrey Glasheen, MD

Associate Deans for Health Affairs
Children's Hospital Colorado
Michael Narkewicz, MD

University of Colorado Hospital
Jean Kutner, MD, MPH

National Jewish
Gregory Downey, MD

Denver Health
Connie Price, MD

**Institute for Healthcare Quality,
Safety and Efficiency**
Director
Jeffrey Glasheen, MD

Clinical Leadership Council
Vice Chairs for
Clinical Affairs and Quality
Associate Center Directors for
Clinical Affairs and Quality

**Senior Associate Dean
for Education**
Shantia M. Zimmer, MD

Finance and Administration
Associate Dean
Lucinda Allen, MS

Rural Health
Associate Dean
Mark Deutschman, MD

Office of Student Life
Associate Dean
Brian Dwinelli, MD

Assistant Deans
Jeffrey Druck, MD
Amrita del Pino-Jones, MD
Deborah Seymour, PsyD
Director
Haylee Shacklock, MHA

Admissions
Associate Dean
Jeffrey Soohoo, MD, MBA

**Child Health Associate
Physician Assistant Program**
Associate Dean
Jonathan Bowser, MS, PA-C

Colorado Springs Branch
Interim Associate Dean
Jennifer Adams, MD

**Continuing Medical Education
and Professional Development**
Associate Dean
Brenda Bucklin, MD

Fort Collins Branch
Associate Dean
Suzanne Brandenburg, MD

Graduate Medical Education
Associate Dean
Carol Rumack, MD

Genetics Counseling Program
Director
Carol Walton, MS

Modern Human Anatomy
Executive Director
Thomas Finger, PhD

MD Curriculum
Assistant Deans
Jennifer Adams, MD
Marsha Anderson, MD
David Ecker, MD
Chad Stickrath, MD

**Assessment, Evaluations,
and Outcomes**
Assistant Dean
Tai Lockspeiser, MD, MHPE

Student Advocate
Associate Dean
John Repline, MD

Research Education
Associate Dean
Angie Ribera, PhD

Assistant Dean
Andy Bradford, PhD

**Education Technology and
Instructional Design**
Co-Directors
Helen MacFarlane, MA
Michelle Doucette, PhD

Physical Therapy Program
Associate Dean
Michael Harris-Love, PT, MPT, DSc

**Anesthesiologist
Assistant Program**
Medical Director
Jaime Daly, MD

Medical Scientist Training Program
Director
Cara Wilson, MD

**Center for Advancing
Professional Excellence**
Director
Elishmaa Bashra, MPH

**Senior Associate Dean
for Faculty**
Chief Well-being Officer
Liselotte Dyrbø, MD, MHPE, FACP

**Finance and
Administration**
Vacant

Office of Faculty Affairs
Associate Dean
Steven Lowenstein, MD, MPH
Director
Cheryl Welch, MPA

**Office of Community Based
Medical Education**
Assistant Dean
Heather Cassidy, MD

**Office of Diversity
and Inclusion**
Associate Dean
Shantia M. Zimmer, MD
Director
Krista Walker, PhD

**Office of Faculty and
Leadership Development**
Vacant

**Women in Medicine
and Science**
Director
Judith Regenstein, PhD

**Academy of
Medical Educators**
Interim Director
Shantia M. Zimmer, MD

Leadership Academy
Vacant

**Office of
Professional Excellence**
Co-Directors
Jeffrey Druck, MD
Abigail Lara, MD

**Office of
Faculty Well-being**
Vacant

CU School of Medicine

BASIC SCIENCE AND CLINICAL DEPARTMENT CHAIRS CENTER AND INSTITUTE DIRECTORS

As of July 1, 2022

Dean, School of Medicine
Vice Chancellor for Health Affairs
John J. Reilly, Jr., MD

Clinical Departments

Anesthesiology
Vesna Jevrovic-Todorovic, MD,
PhD, MBA

Dermatology
David Norris, MD

Emergency Medicine
Richard Zane, MD

Family Medicine
Myra Muramoto, MD, MPH

Medicine
Vineet Chopra, MD, MSc

Neurology
Kenneth Tyler, MD

Neurosurgery
Kevin Lillehei, MD

Obstetrics and Gynecology
Nanette Santoro, MD

Ophthalmology
Naresh Mandava, MD

Orthopedics
Evalina Burger, MD

**Otolaryngology – Head
and Neck Surgery**
Todd Kingdom, MD
Interim

Pediatrics
Stephen Daniels, MD, PhD

**Physical Medicine and
Rehabilitation**
Venu Akuthota, MD

Psychiatry
C. Neill Epperson, MD

Radiation Oncology
Brian Kavanagh, MD, MPH

Radiology
Gerald Dodd, MD

Surgery
Richard Schulick, MD, MBA

Basic Science Departments

**Biochemistry and
Molecular Genetics**
Julia Promisel Cooper, PhD

Biomedical Informatics
Casey Greene, PhD

**Cell and
Developmental Biology**
Wendy Macklin, PhD

Immunology and Microbiology
Leslie Berg, PhD

Pathology
Ann Thor, MD

Pharmacology
Heide Ford, PhD

Physiology and Biophysics
Angie Ribera, PhD

Centers, Institutes (Partial Listing)

**Alzheimer's and
Cognition Center**
Huntington Potter, PhD

**Anschutz Health and
Wellness Center**
Daniel Bessesen, MD

**Barbara Davis Center
for Diabetes**
Marian Rewers, MD, PhD

Cardiovascular Institute
Leslie Leinwand, PhD
Peter Buttrick, MD

**Center for Advancing
Professional Excellence**
Elshimaa Basha, MPH

Altitude Research Center
Robert Roach, PhD

Center for Children's Surgery
Duncan Wilcox, MD

CU Cancer Center
Richard Schulick, MD, MBA

Neurotechnology Center
Mark Dell'Acqua, PhD

**Center for Women's
Health Research**
Judith Regensteiner, PhD

**Adult and Child Center for
Health Outcomes Research
and Delivery Science**
Allison Kempe, MD, MPH

**Gates Center for
Regenerative Medicine**
Dennis Roop, PhD

**Kempe Center for the
Prevention and Treatment of
Child Abuse and Neglect**
Kathryn Wells, MD

**Linda Crnic Institute for
Down Syndrome**
Joaquin Espinosa, PhD

Webb-Waring Center
John Repine, MD

**Helen & Arthur E. Johnson
Depression Center**
C. Neill Epperson, MD

University of Colorado School of Medicine Leadership



*John J. Reilly, Jr., MD,
Richard Krugman Endowed Chair,
Dean, School of Medicine, and
Vice Chancellor for Health Affairs*



*Peter Buttrick, MD,
Senior Associate Dean for
Research*



*Mark Couch,
Chief of Staff and
Associate Dean of Public
Relations*



*Lotte Dyrbye, MD,
MHPE, Senior Associate
Dean of Faculty and
Chief Well-being Officer*



*Anne Fuhlbrigge, MD,
Senior Associate Dean
for Clinical Affairs*



*Brian T. Smith, MHA
Senior Associate Dean for
Administration and Finance,
and Executive Director,
CU Medicine*



*Shanta Zimmer, MD,
Senior Associate Dean
for Education, and
Associate Dean for Diversity
and Inclusion*

School of Medicine Associate Deans



Jennifer Adams, MD,
Colorado Springs Branch
(Interim)



Jonathan Bowser, PA, MS,
Child Health Associate/
Physician Assistant Program



Suzanne Brandenburg, MD,
Fort Collins Branch



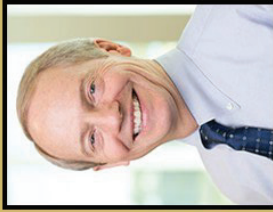
Brenda Bucklin, MD, Continuing Medical Education
and Professional Development



Thomas Campbell, MD,
Clinical Research



Karen Chacko, MD,
Clinical Outreach



Gregory Downey, MD,
Health Affairs, National Jewish Health



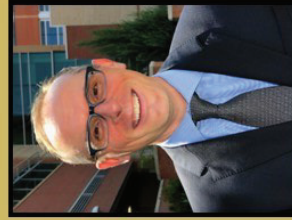
Mark Dautchman, MD,
Rural Health



Brian Dwinell, MD,
Student Life



Christina Enlayson, MD,
Clinical Affairs/Population
Health



Jeffrey Glasheen, MD,
Clinical Affairs/Quality and
Safety Education



Michael Harris-Love, PT, MPT, DSc,
Physical Therapy Program

School of Medicine Associate Deans



*Jean Kunner, MD, MPH,
Health Affairs, UCHealth University of
Colorado Hospital*



Scott Laker, MD,



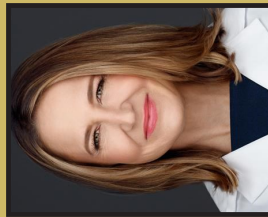
*Steven Lowenstein, MD,
MPH, Faculty Affairs*



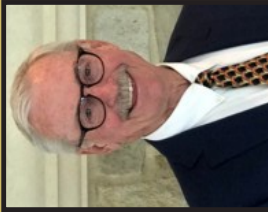
*John Moore,
Administration and Finance*



*Michael Narkewicz, MD,
Health Affairs, Children's Hospital Colorado*



*Connie Savar Price, MD,
Health Affairs,
Denver Health and Hospital Authority*



*John Repline, MD,
Student Advocacy*



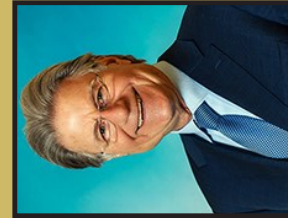
*Angie Ribera, PhD,
Research Education*



*Carol Rumack, MD,
Graduate Medical Education*



*Shilpa Rungta, MD, MBA,
Health Affairs, Veterans Affairs*



*Ronald Sojoo, MD,
Child Health Research*

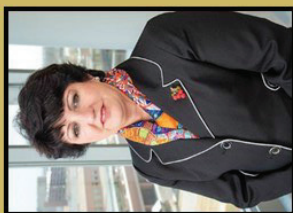


*Adel Younoszai, MD,
Clinical Affairs/Child Health*

School of Medicine Clinical Department Chairs



Venu Akuthota, MD,
Physical Medicine and Rehabilitation



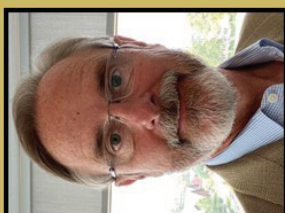
Evalina Burger-Van der Walt, MD,
Orthopedics



Vineet Chopra, MD, MSc, Medicine



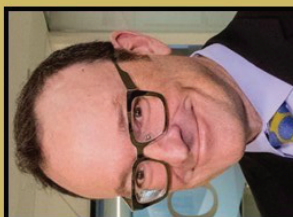
Stephen R. Daniels, MD, PhD,
Pediatrics



Gerald 'Chip' Dodd, MD,
Radiology



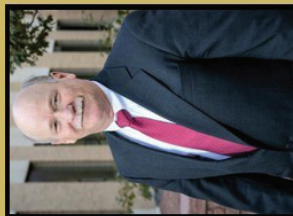
C. Nell Epperson, MD,
Psychiatry



Brian D. Kavanagh, MD, MPH,
Radiation Oncology



Todd Kingdom, MD,
Otolaryngology-Head and Neck
Surgery (Interim)



Kevin Lillehei, MD,
Neurosurgery



Nareesh Mandava, MD,
Ophthalmology



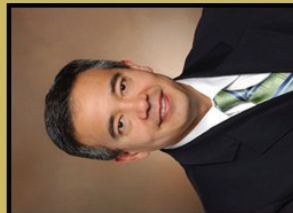
Myra Muramoto, MD, MPH,
Family Medicine



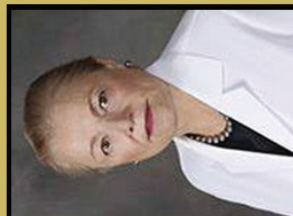
David Norris, MD,
Dermatology



Nanette Santoro, MD,
Obstetrics and Gynecology



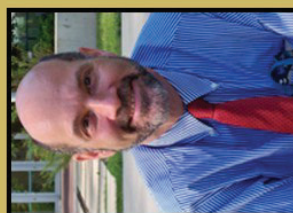
Richard Schulick, MD, MBA,
Surgery



Ann Thor, MD,
Pathology



Vesna Jevtic-Todorovic, MD,
PhD, MBA, Anesthesiology

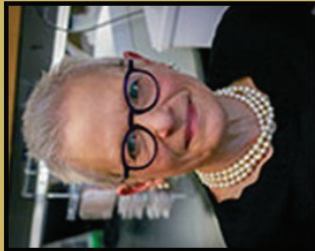


Kenneth Tyler, MD,
Neurology



Richard Zane, MD,
Emergency Medicine

School of Medicine Basic Science Department Chairs



*Leslie Berg, PhD,
Immunology and Microbiology*



*Julia Promisel Cooper, PhD,
Biochemistry and Molecular
Genetics*



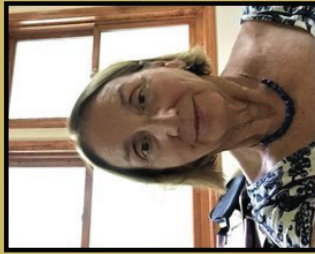
*Heide Ford, PhD
Pharmacology*



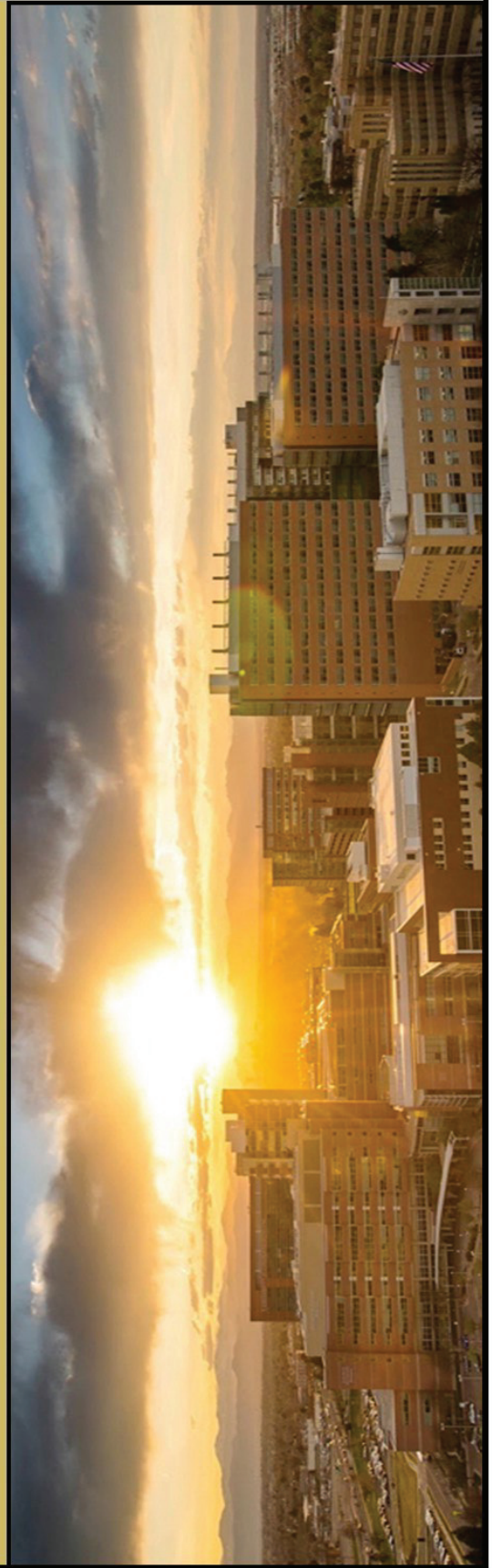
*Casey Greene, PhD,
Biomedical Informatics*



*Wendy Macklin, PhD,
Cell and Developmental Biology*



*Angeles Ribera, PhD,
Physiology and
Biophysics*



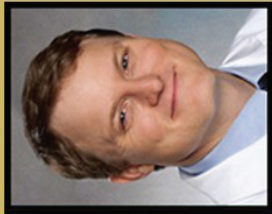
School of Medicine Center, Institute, and Program Directors



Elshimaa Basha, MPH,
Center for Advancing
Professional Excellence



Daniel Bessesen, MD,
Anschutz Health and Wellness
Center



Marc Banaga, MD, MPH,
Colorado Prevention Center



Peter Buttrick, MD, Co-Director,
Cardiovascular Institute



Mark Dell'Acqua, PhD,
NeuroTechnology Center



C. Neill Epperson, MD,
Helen and Arthur E.
Johnson Depression
Center



Joaquin Espinosa, PhD,
Linda Crnic Institute
for Down Syndrome



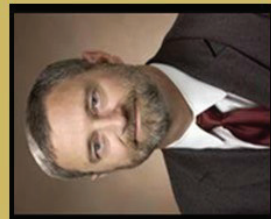
Thomas Finger, PhD,
Co-Director, Rocky Mountain Taste and
Smell Center



Casey Greene, PhD,
Center for Health Artificial Intelligence



Kathryn Hassell, MD,
Colorado Sickle Cell Treatment
and Research Center



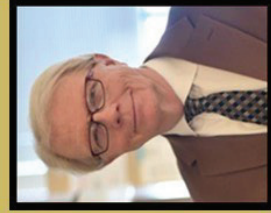
James Kelly, MD,
Marcus Institute for Brain Health



Allison Kenpe, MD, MPH,
Adult and Child Consortium for
Health Outcomes Research
and Delivery Science



Leslie Leinwand, PhD, Co-Director,
Cardiovascular Institute

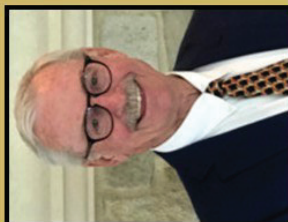


Huntington Potter, PhD,
CU Alzheimer's and Cognition Center

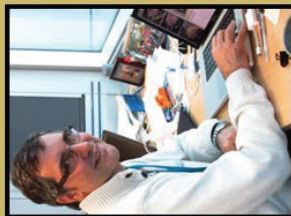
School of Medicine Center, Institute, and Program Directors



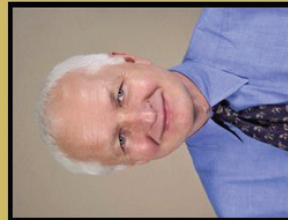
Judith Regenstein, PhD,
Ludeman Family Center for
Women's Health Research



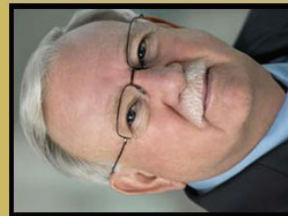
John Repine, MD,
Webb-Waring Center



Diego Restrepo, PhD,
Co-Director, Rocky Mountain
Taste and Smell Center



Marian Rewers, MD, PhD,
Barbara Davis Center for
Diabetes



Dennis Roop, PhD,
Gates Center for
Regenerative Medicine



Paul Rozance, MD,
Perinatal Research Center



Richard Schulick, MD, MBA,
University of Colorado Cancer Center



Robin Shandas, PhD,
Center for Bioengineering



Kathryn Wells, MD,
Kempe Center for the Prevention and
Treatment of Child Abuse and Neglect



Michael Wang, MD,
Hemophilia and Thrombosis
Center

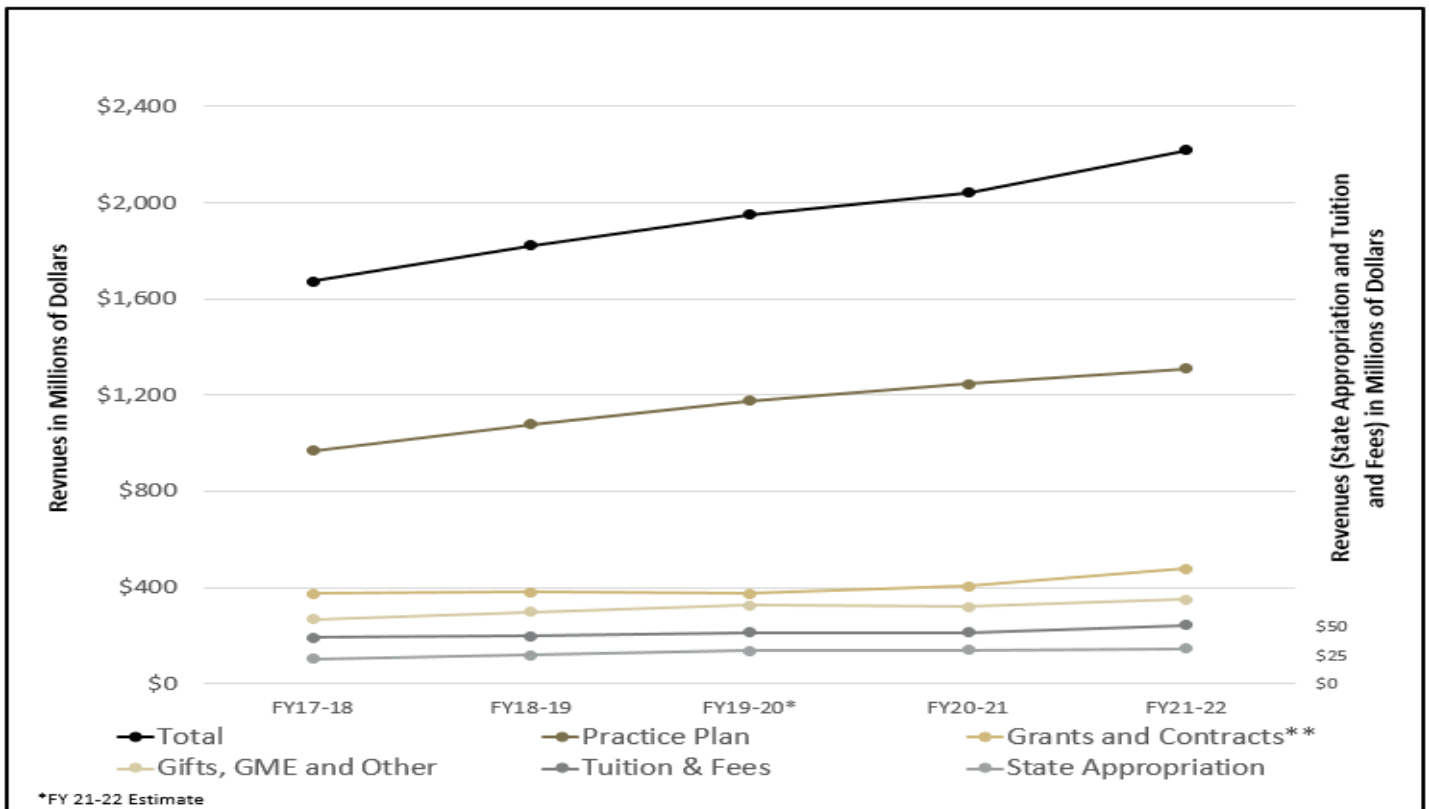


Duncan Wilcox, MD,
Center for Children's Surgery

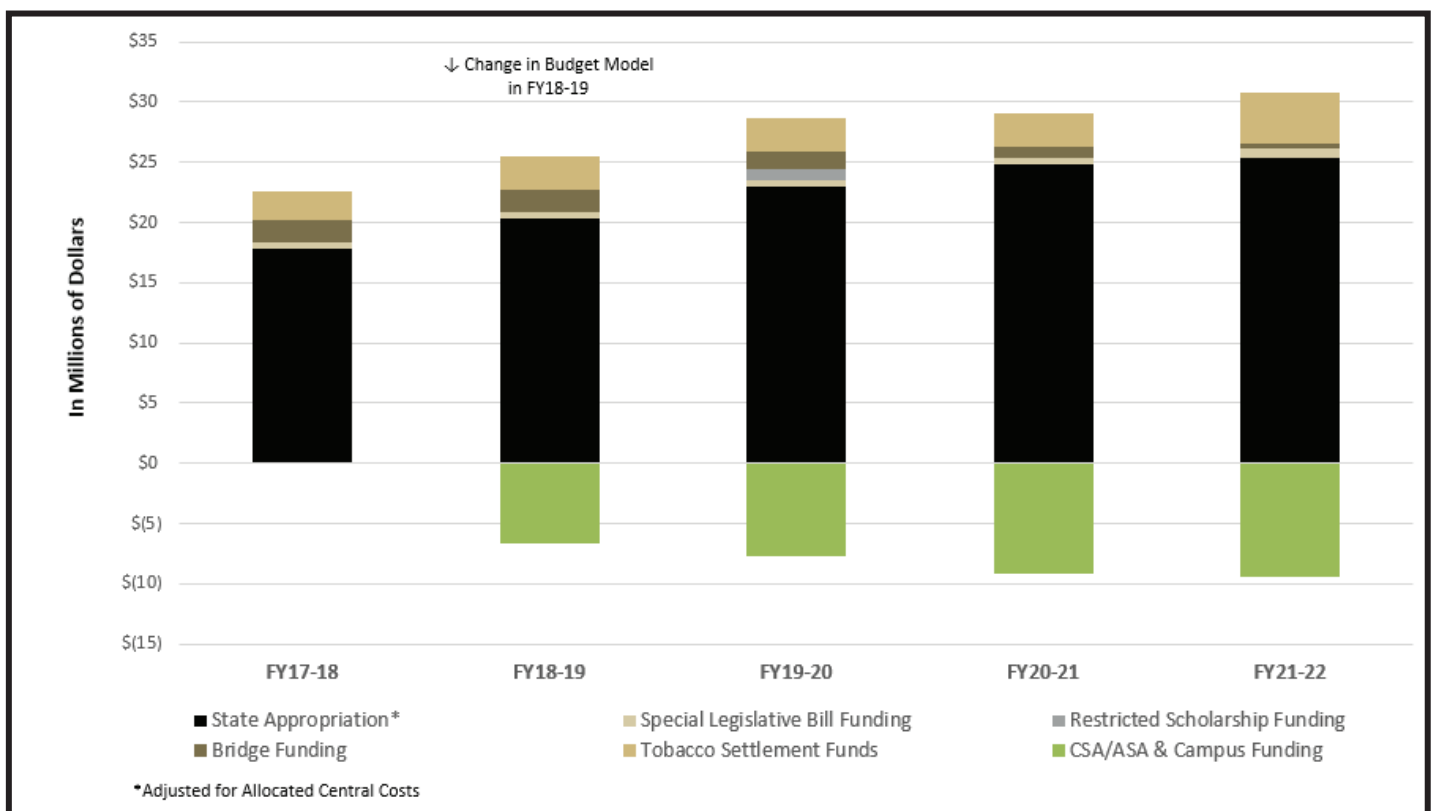


Administration and Business Affairs

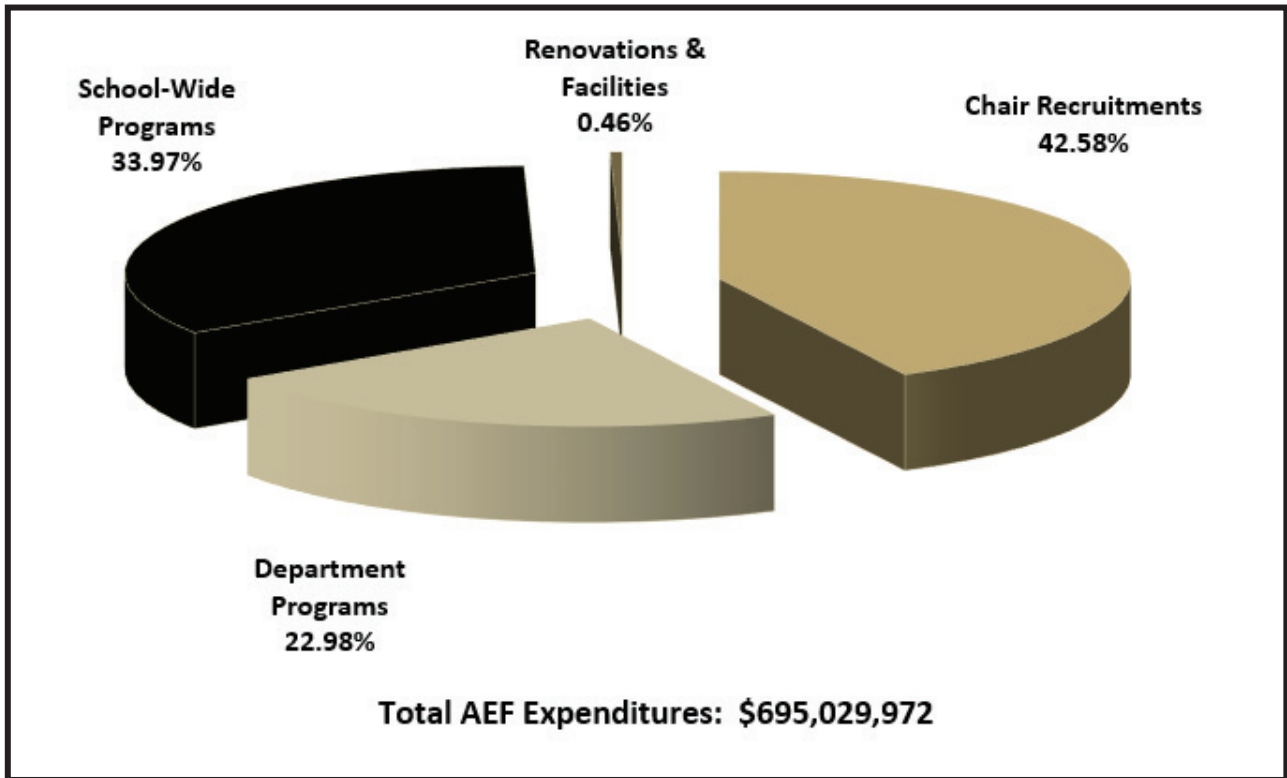
CU School of Medicine Trend in Revenue Sources Fiscal Years 2018 - 2022



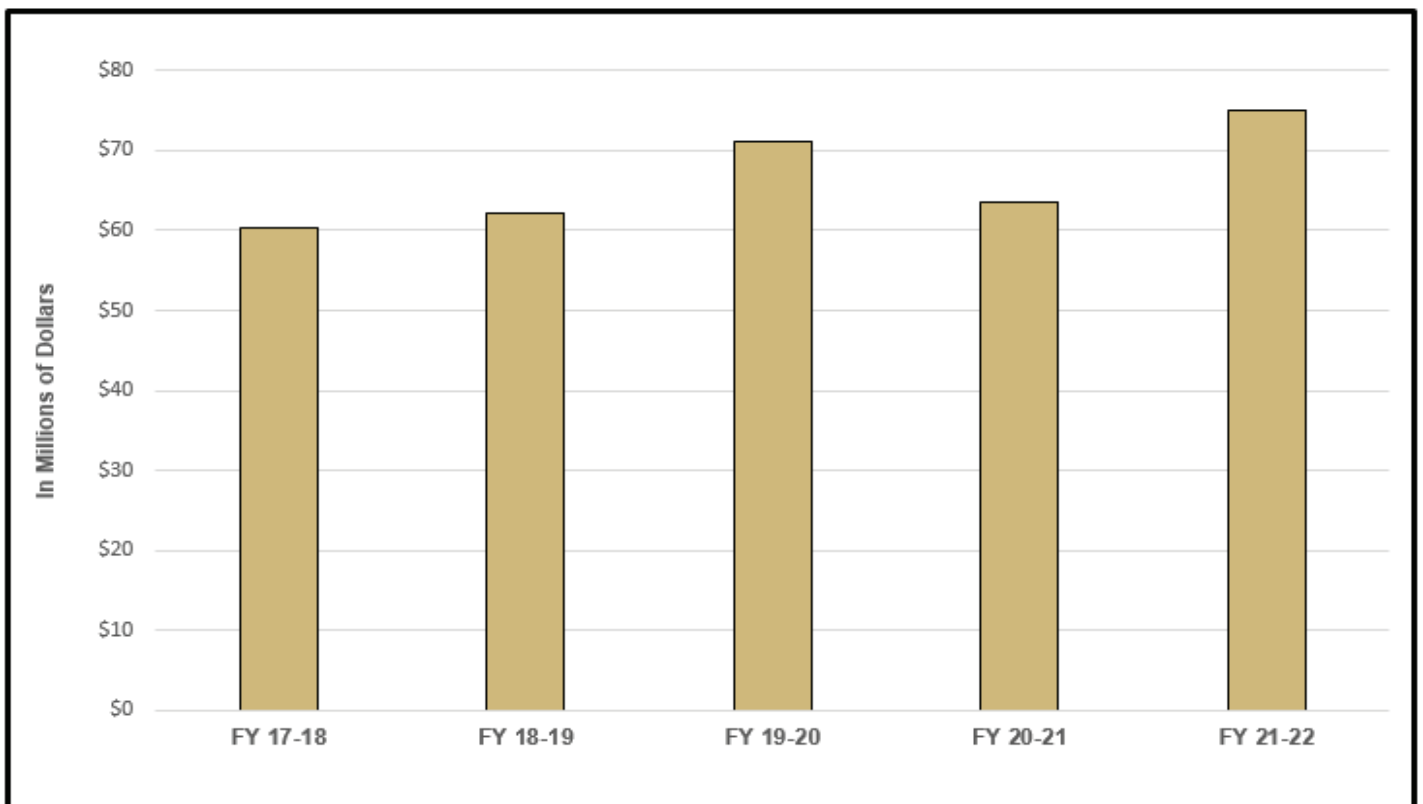
Trend in School of Medicine General Fund Fiscal Years 2018 - 2022



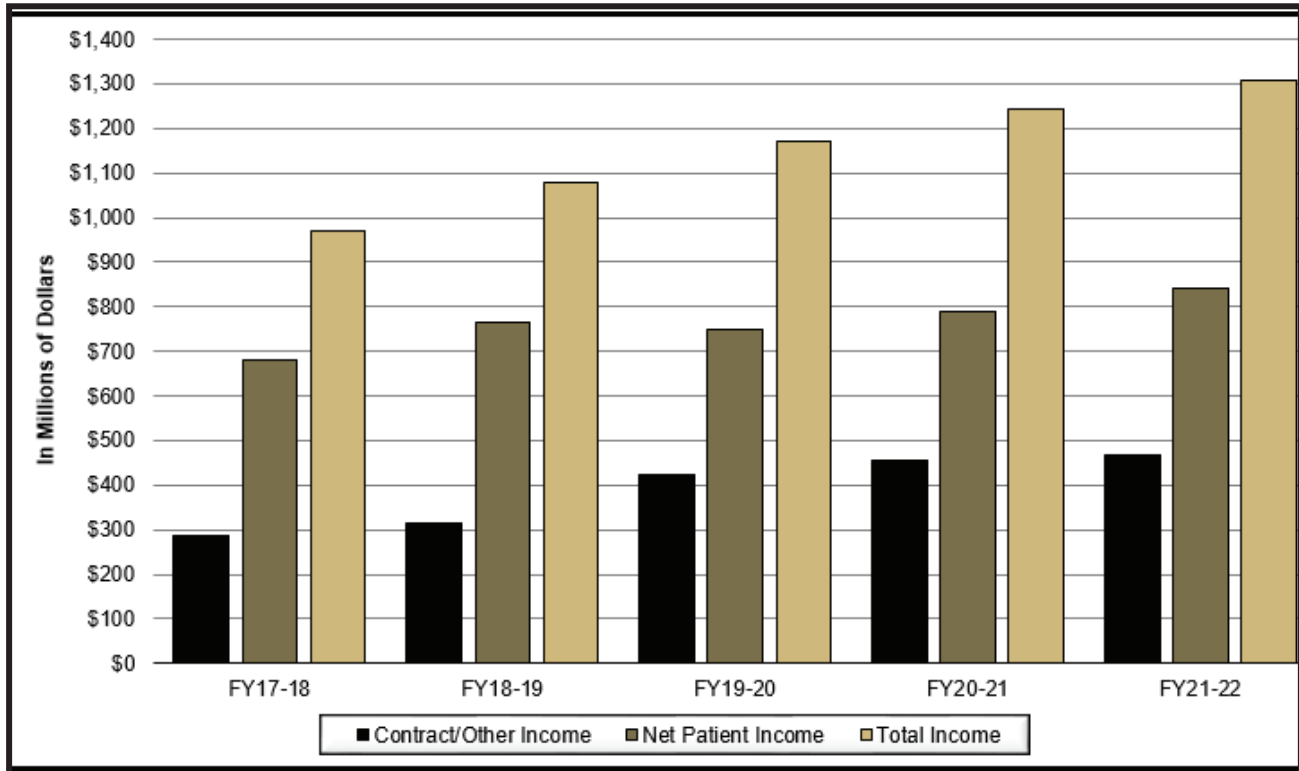
Academic Enrichment Fund Expenditures
Fiscal Years 1983 - 2022



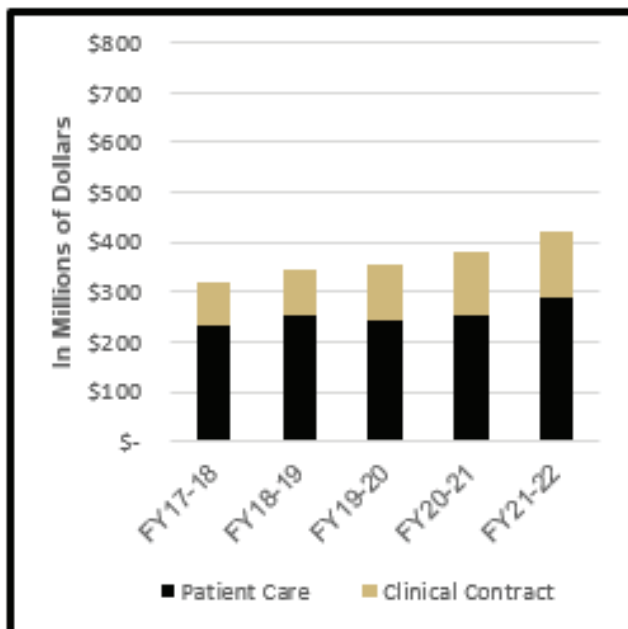
School of Medicine Commitment Expenditures
Fiscal Years 2018 - 2022



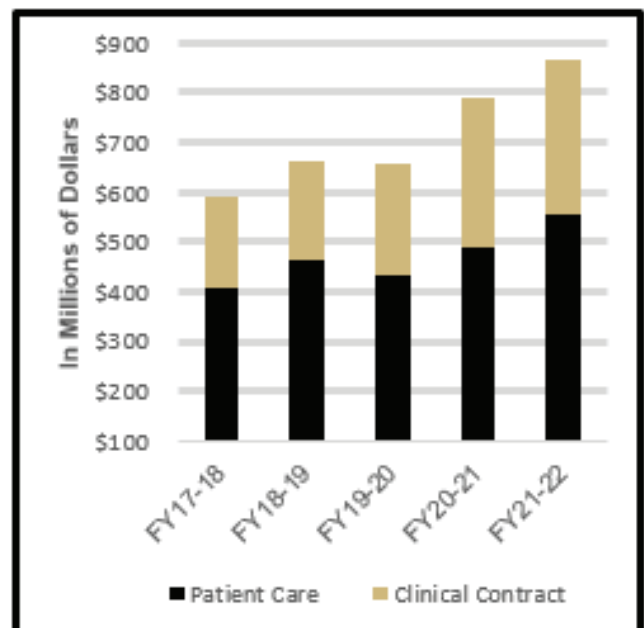
**CU Medicine Patient and Contract Income
Fiscal Years 2018– 2022**



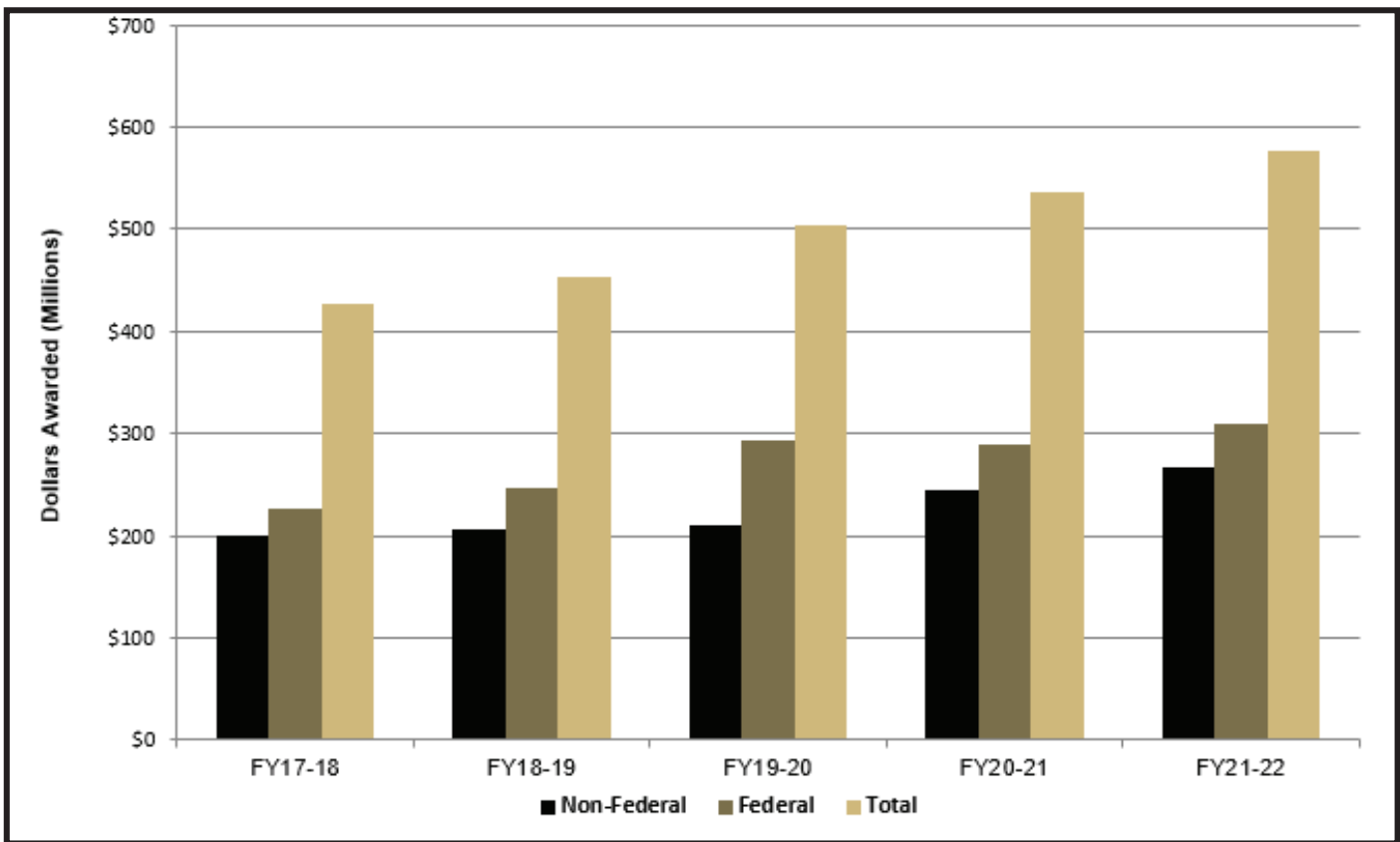
**University of Colorado Medicine
Child Health Clinical and Contract Income
Fiscal Years 2018 — 2022**



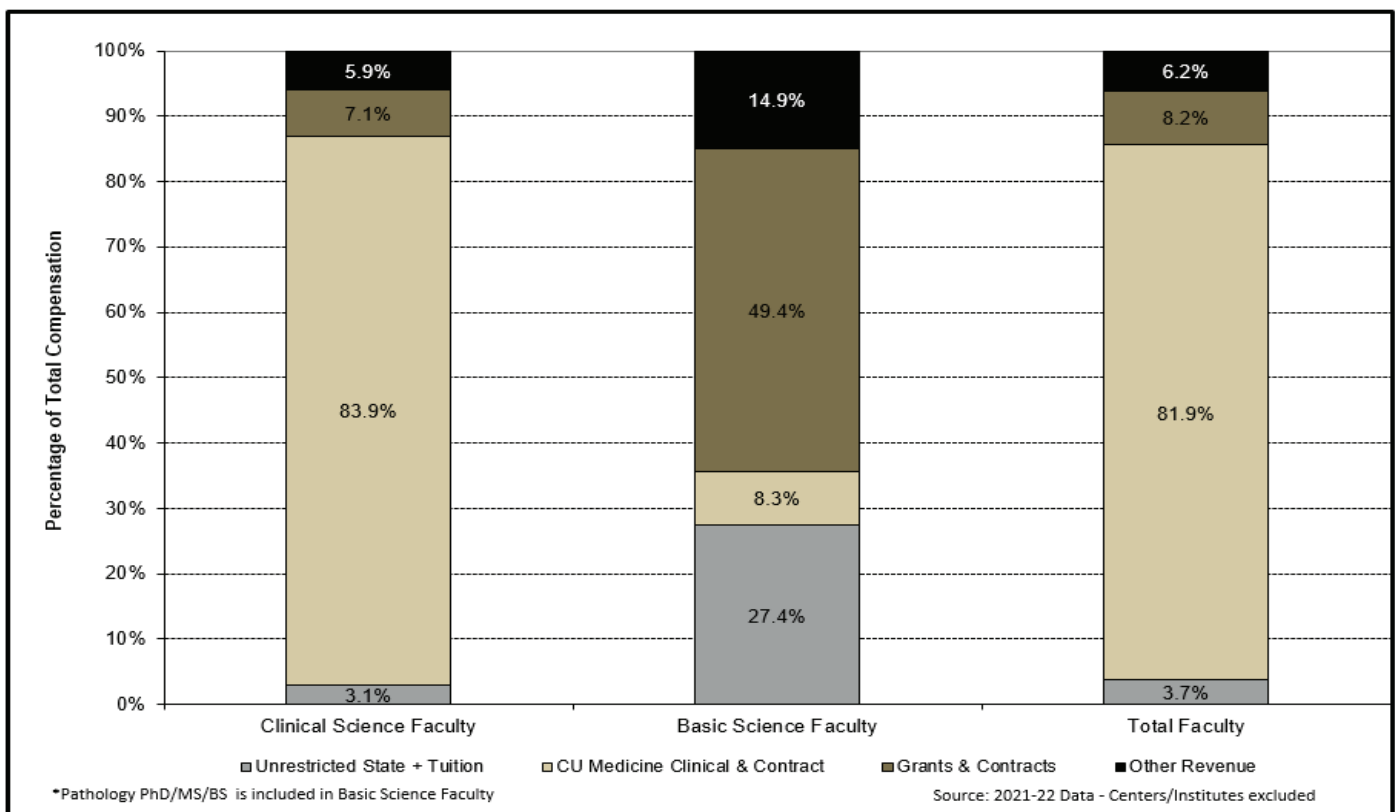
**University of Colorado Medicine
Adult Health Clinical and Contract Income
Fiscal Years 2018 — 2022**



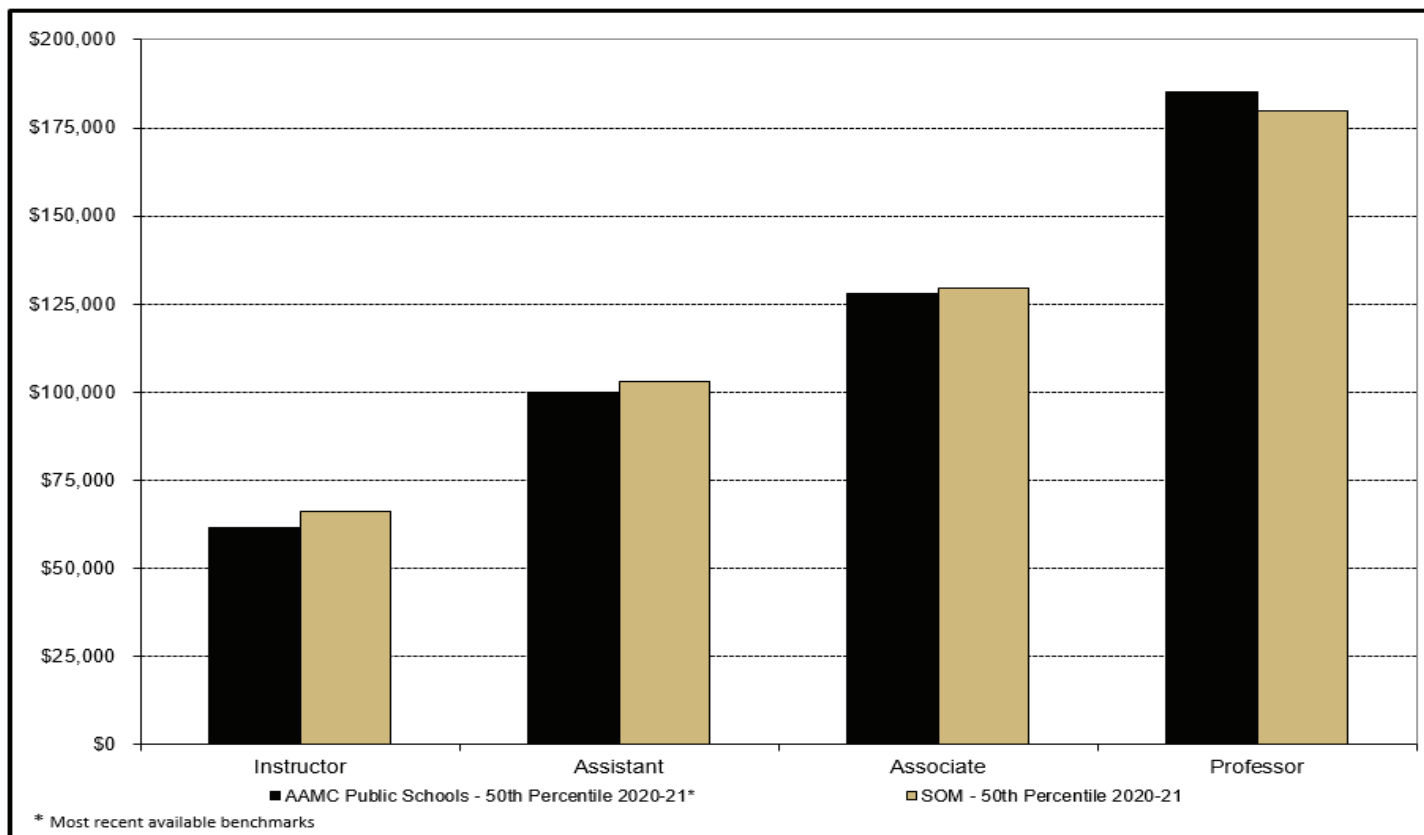
Sponsored Research Award Trend Fiscal Years 2018 — 2022



Source of School of Medicine Faculty Compensation Fiscal Year 2021— 2022

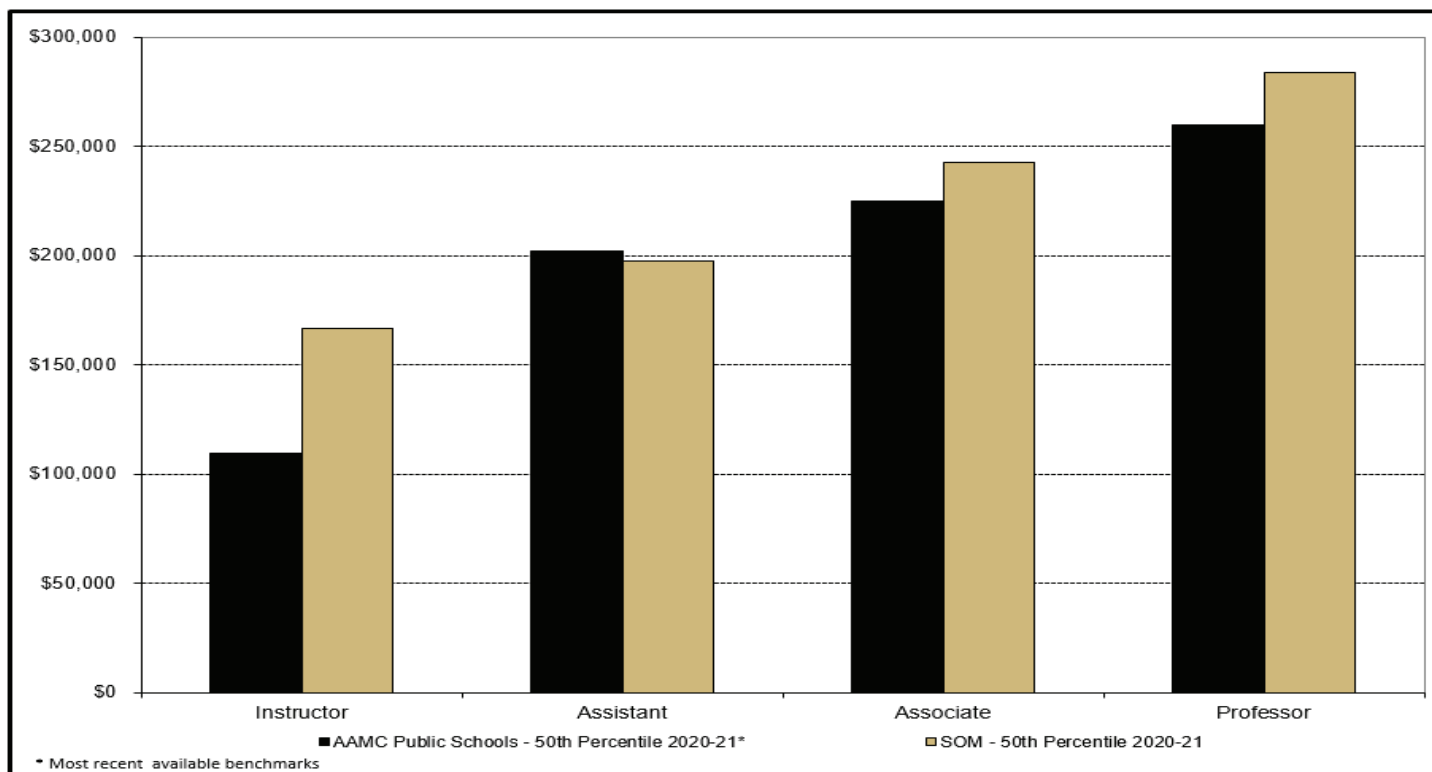


Comparison of Faculty Fixed Salaries to AAMC Benchmarks for Basic Science Departments



Source: AAMC Faculty Salary Survey 2020-2021

Comparison of Faculty Salaries to AAMC Benchmarks for Clinical Science Departments

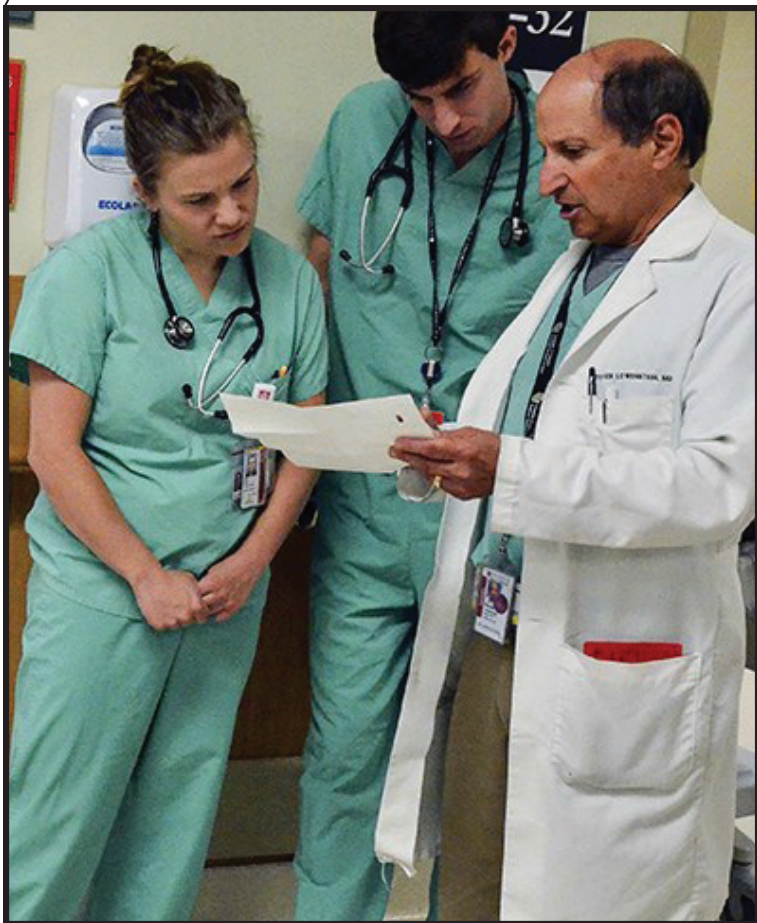


Source: AAMC Faculty Salary Survey 2020-2021

CU School of Medicine Endowed Chairs

Department/Program	Total
Anschutz Health and Wellness Center	1
Barbara Davis Center for Diabetes	7
Ludeman Family Center for Women's Health Research	4
Charles C. Gates Center for Regenerative Medicine and Stem Cell	4
Colorado Prevention Center	1
Dean's Office	2
Linda Crnic Institute for Down's Syndrome	1
University of Colorado Cancer Center	20
Webb-Waring Center	1
Department of Anesthesiology	3
Department of Biochemistry and Molecular Genetics	2
Department of Biomedical Informatics	1
Department of Dermatology	1
Department of Emergency Medicine	1
Department of Family Medicine	3
Department of Immunology and Microbiology	1
Department of Medicine	38
Department of Neurology	2
Department of Neurosurgery	1
Department of Obstetrics and Gynecology	4
Department of Ophthalmology	7
Department of Orthopedics	3
Department of Pathology	1
Department of Pediatrics	3
Department of Pharmacology	1
Department of Physical Medicine and Rehabilitation	2
Department of Psychiatry	2
Department of Radiation Oncology	1
Department of Radiology	6
Department of Surgery	9
Total	133
Pediatrics Children's Hospital Colorado	55
University of Colorado Hospital	1





Clinical Affairs

Clinical Affairs

The Office of Clinical Affairs partners with clinical leaders to strengthen the clinical practice of the faculty in the CU School of Medicine. Program integration with the school's affiliated partners promotes our collective ability to improve access to faculty expertise and provide safer, patient-centered care at the lowest possible cost. Our affiliated partners include: UCHHealth University of Colorado Hospital, the UCHHealth system, Children's Hospital Colorado, Denver Health, Veterans Affairs Eastern Colorado Health Care System, and National Jewish Health.

Anne Fuhlbrigge, MD, MS, serves as senior associate dean for clinical affairs. With Christina Finlayson, MD, beginning a phased retirement, the clinical affairs leadership team has been restructured. Fuhlbrigge partners with Associate Deans **Karen Chacko, MD**, **Christina Finlayson, MD**, **Jeffrey Glasheen, MD**, and **Adel Younoszai, MD**. With the restructuring **Scott Laker, MD**, and **Pete Smith, MD**, have joined the clinical affairs leadership team.

- **Laker, Younoszai, and Smith** serve in joint leadership roles with University of Colorado Medicine, which is the faculty practice plan. Laker is associate dean of adult health, medical director for community practice, and senior medical director for CU Medicine, Younoszai is associate dean of child health and medical director of the child health practice, and Smith, who is assistant dean of adult health and medical director for the hospital-based practice, has been named medical director for primary care.
- **Glasheen** serves as a leader in quality and safety education for the University of Colorado through his role as director for the Institute for Healthcare Quality, Safety, and Efficiency.
- **Chacko** leads clinical outreach, including the CU Medicine-UCHMG collaborative task force and directs digital health initiatives and expansion across the practice in her role as medical director of digital health.
- **Finlayson** continues as associate dean for population health with oversight of the Office of Value-Based Performance (OVPB) and Medicaid Supplemental Funding Program.
- The **Clinical Leadership Council**, comprised of the School of Medicine vice chairs and associate center directors for clinical affairs, provides additional clinical leadership.

We welcome **Lisa Neal-Graves, JD**, to the leadership team for Clinical Affairs. Lisa has been named CEO of the Aurora Wellness Community (AWC), a partnership between the CU Anschutz Medical Campus and the Aurora community that aims to improve access to primary care for underserved populations in Aurora. Faculty and residents from multi-field primary care disciplines will develop a primary health care model integrating community, social, and clinical services addressing influencers of health to increase health equity and improve health.

With affiliated partners, UCHHealth and Children's Hospital Colorado (CHCO), we continue to partner to develop clinically integrated networks, committed to improving health outcomes for patients, enhancing the provider and staff experience, while reducing the total cost of care.

In the adult health practice, the number and variety of community-based practices continue to grow. We currently have four Community Primary Care Practices (Broomfield, Cherry Creek, Centennial, Greenwood Village) with plans to expand our Women's Integrated Services in Health (WISH) clinic into the community setting this year. Specialty practice locations are available across Denver Metro, including Broomfield, Inverness, Aurora and the south metro area. The Highlands Ranch Hospital, including a multispecialty medical office building, allows for a variety of services in that community. These community-based practices bring access to care closer to where our patients live and work.

In an important move across our community practice, we completed the transition of all staff from UCHHealth to CU Medicine over the last year. This was a phased approach beginning in October 2021, culminating with the transition of the Highlands Ranch Hospital Medical Office Building's staff. CU Medicine now formally employs the clinical and non-clinical staff in our community practice sites. This transition will allow for more efficient staffing management of our clinics, while continuing to provide superb care for our patients.

The Office of Clinical Affairs works closely with the Office of Value-Based Performance (OVPB), led by Lisa Schilling, MD, Aaron Van Artsen, MLRHR, and Finlayson. The OVPB continues to support the School of Medicine faculty in providing the highest quality medical care while controlling health care spending costs. In CY2022, we added value-based contracts for Medicaid Maternity Shared Savings Program, Aetna Medicare Advantage, and Centers for Medicare & Medicaid Services Innovations program Primary Care First to our payer portfolio. We now have 50% of empaneled patients in CU Medicine and UCH primary care practices attributed through a value-based contract. Specific OVPB activities that support our patients and providers include Ambulatory Health Promotion (AHP) direct patient outreach to close health care gaps in cancer screening, chronic disease management,

adult and well child preventive care visits, osteoporosis screening and treatment, mental health care follow-up, transitions of care and nicotine cessation. We have received local and national recognition for these activities, including five consecutive years of Exceptional Performance status in the Medicare Merit-based Incentive Payment System (MIPS).

The Medicaid Supplemental Funding Program, also known as UPL, is a University of Colorado School of Medicine initiative designed to expand access to care and improve outcomes for Health First Colorado (Colorado Medicaid) members. This program is funded by the Centers for Medicare & Medicaid Services (CMS) through the Colorado Department of Health Care Policy & Financing with priority areas of access to primary and specialty care for Medicaid patients, medical home care delivery model, behavioral health services, outreach to rural and frontier areas, transitions of care programs, and implementation of evidence-based programs that expand access and improve outcomes. In addition to supporting direct patient access, the approximately 100 targeted investments reach broadly across adult and child health from local support of homeless services that identify housing resources to state-wide engagement through ECHO peer-mentored education, telemedicine to hospitals, clinics, and patient homes, and childhood asthma, diabetes, and celiac screening and intervention. A few highlighted programs include:

- Ambulatory Nicotine Cessation Program. It received 415 referrals in 2021 and has demonstrated a 61% reduction in tobacco use, including 54% total cessation, among participants who finish the program.
- Barbara Davis Center Childhood Diabetes. Using electronic medical record information to identify children at highest risk for poor diabetes outcomes, they provide an Extra Care program to extend enhanced outreach, facilitate appointment scheduling, provide pre-visit planning and depression screening, and deploy enhanced social work supports to this very vulnerable population.
- Non-epileptic Seizure Clinic. 25% of patients presenting with seizures do not have epilepsy. The average time to correct diagnosis for these patients is 7 years. The University of Colorado Non-epileptic Seizure Clinic is the only clinic treating this condition in the Intermountain West. Last year, the clinic treated 998 patients, many of whom can return to work, family life, and their local care providers in a way that was not possible prior to receiving a correct diagnosis and treatment.
- Colorado Pediatric Psychiatry Consultation & Access Program. CoPPCAP improves access to child mental health care by establishing a statewide teleconsultation service that serves as a central source of training and information about pediatric mental health care to pediatric primary care providers. The program provides in-person or telehealth patient consultation to guide care, and support identification of local resources. The goal is to reduce the youth suicide in Colorado.

Engaging the community and state of Colorado through virtual/digital options was crucial during the pandemic. The virtual/digital health explosion boosted the clinical frontier for our faculty as we partner with UCHHealth, CHCO, and their virtual health teams to provide services to all patients from the comfort and safety of their homes or a location of their choosing, and especially to areas in Colorado that cannot easily access traditional face-to-face specialty care. Moving past the pandemic, virtual care coupled with digital opportunities will become even more dynamic as patients have become familiar and accustomed to the convenience of digital solutions. Developing a robust digital front door with options for access that increasingly put the patient in the driver's seat will increasingly allow us to match the right care for the clinical need. Enhancing care with remote patient monitoring data will positively impact both preventive care and chronic disease management. Along with the growth of telehealth, patients from other states have increasingly accessed and benefitted from our providers' expertise, and the Clinical Outreach and Digital Health teams are invested in ensuring the ability to continue expanding this work while remaining compliant and following best practices. Exploring options for online consulting work around the country will match together patients who have conditions in search of expertise that only the CU School of Medicine providers can offer. Working with our colleagues in the University of Colorado Health Medicine Group (UCHMG) practices, we continue to find alignment and ways to provide the best care possible to all patients in the UCHHealth system through improved communication, safety, and sharing of best practices.

The PMCC led by John F. Thomas, PhD, and Duane Pearson, MD, continues to expand a health care delivery model that focuses on the primary-specialty care interface. The PMCC houses ECHO Colorado (Extension for Community Health Outcomes) and the CORE program (Coordinating Optimal Referral Experience), which leads the eConsult program. eConsults are an asynchronous data-informed exchange initiated by a primary care provider (PCP) to a CU School of Medicine specialist allowing the PCP to seek clinical guidance on a patient's care to maintain care continuity in the primary medical home with collaborative expertise. It allows increased access to specialty care at a lower cost by reducing unnecessary transfers, decreasing care fragmentation and redundancy of testing. This care delivery model allows for care that can more broadly meet the patients where they are and be responsive to potential individual barriers to care (social determinant issues).

Highlights for the eConsult program over the last year:

- Total eConsults: 6,304 (FY 2021 = 5,545).
- 27 Adult Specialties, 22 Child Health Specialties.
- In a total cost of care analyses conducted for econsult use with patients covered by Medicaid, eConsults were associated with an estimated average \$266 reduction in PMPM (per member per month) total cost of care over the subsequent three months when compared to referrals, which represents an estimated \$799 cost savings per member over the three months following an index eConsult encounter.
- Our “external pivot” allows a bridge from electronic health records at several prominent Federally Qualified Health Center partners to place eConsult to Anschutz Medical Campus-based specialists. Use by Salud Family Health Centers, Peak Vista Community Health Centers in Colorado Springs, High Plains Community Health Center, Valley Wide Health Systems, and AllHealth Network grew by 400% compared to 2021.
- The technologies and workflows developed for external pivot have been adopted by academic medical centers.

ECHO (Extension for Community Health Outcomes) Colorado is an online program allowing health care providers to access experts and specialists for tailored didactic learning and care support to expand care in the primary care medical home. ECHO allows the Anschutz Medical Campus to engage, train and support a broad swath of care providers, allied staff, and administrators in many topics to help health care systems continue to incorporate best practices, aid in the adoption of new/innovative care models, and practice top of scope diagnostics and treatment approaches.

ECHO Colorado FY22 updates

- Offered ~50 unique ECHO series, training thousands of providers per year.
- 39% of participants served medically underserved populations, 81% of participants served rural or frontier counties, 55% of participants served the Medicaid population.
- Increased the capacity of health professionals in Colorado and beyond.
- FY22 reach = registrants represented 46 states and 62 of Colorado’s 64 counties.
- Promoted professional collaboration, increased access to specialty care and empowered providers to serve as a local resource.
- Provided ready-made infrastructure for a statewide COVID response series to support community-based providers and community-based school personnel.

Through these programs, the PMCC supports physicians to (1) provide better access to care, (2) integrate best practices in the primary-specialty care interface, (3) decrease overall health care expenditures, and (4) prevent disease exacerbation.

The child health practice continues to expand in the Mountain West. Partnering with Children’s Hospital Colorado, faculty support children who need specialized care in surrounding states. Technology has expanded access to pediatric specialists while keeping children in their communities and local hospitals. For example, a new service has improved care and comfort for infants with retinopathy of prematurity through a hybrid in-person and telemedicine approach. Faculty members at the Sue Anschutz-Rodgers Eye Center, in partnership with Children’s Hospital Colorado and St. Mary’s Medical Center in Grand Junction, created the telemedicine Retinopathy of Prematurity service to monitor premature infants remotely and through monthly in-person visits until their eyes have reached full vascularization, or until they’re beyond the critical period of blood vessel growth. Additionally, in June 2022, the section of pediatric critical care initiated a tele-critical care consult service with Billings Clinic in Billings, Mont. The service will allow a subset of higher acuity pediatric patients to remain in their community, close to home.

The Institute for Healthcare Quality, Safety, and Efficiency (IHQSE) resides in the Office of Clinical Affairs and offers multiple training programs. Since 2012, the IHQSE has trained over 2,500 doctors, nurses, and staff on the Anschutz Medical Campus. In 2022, the IHQSE began to offer its training programs across our clinical partners’ health systems as well as to a national audience, with participants from more than 20 hospitals. The Certificate Training Program in Health Quality Transformation is a year-long, intensive leadership training program in quality and safety, which has trained over 100 clinical teams from UCHHealth University of Colorado Hospital and Children’s Hospital Colorado. This training and practical project experience has led to significant improvements in outcomes, reductions in length of stay, enhanced clinic flow, and less medical and surgical harm. The Quality and Safety Academy was developed for and has served over 700 participants, primarily resident and fellow learners. The Improvement Academy supports individuals and teams working on quality improvement projects. This course offers two days of structured didactic sessions and application to project work along with longitudinal coaching. Facilitative Leadership is a two-day development course for early-phase leaders. Foundations in Healthcare Leadership is a more extensive four-day program that is supplemented by one year of executive coaching. In 2022, the Clinical Effectiveness and Patient Safety Grant Program (CEPS) was moved under the IHQSE. The CEPS grant program offers grants of up to \$25,000 to faculty, trainees, and staff to pursue innovations, improvements and research in quality and safety.

CU Medicine

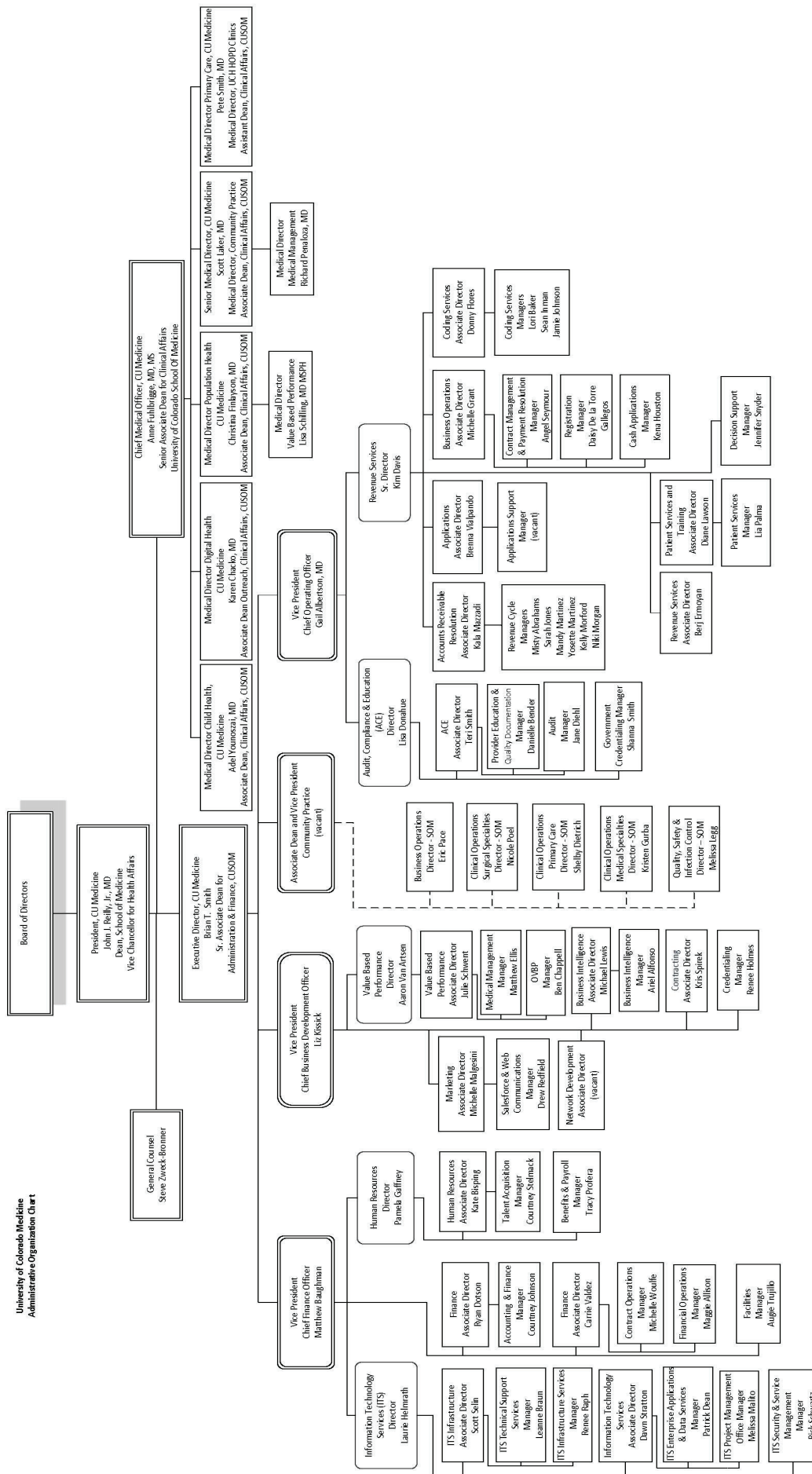
University of Colorado Medicine (CU Medicine) is a 501(c)(3) practice organization that supports the clinical practice of the CU School of Medicine by providing business infrastructure services. The President of CU Medicine is **John J. Reilly, Jr., MD**, and the Executive Director is **Brian T. Smith, MHA**.

CU Medicine services include managed care contracting, revenue cycle management, compliance, business development and financial services for physicians and advanced practice professionals, as well as infrastructure for population health and the community practice division. All faculty of the CU School of Medicine are members of CU Medicine. The organization is governed by a Board of Directors chaired by the Dean of the CU School of Medicine. The board is comprised of the chairs of clinical departments, a basic science chair, elected faculty representatives, and designees of the Children's Hospital Colorado and UCHesth University of Colorado Hospital.

In October 2016, the UPI board approved using University of Colorado Medicine as the name of the practice plan to recognize that the organization represents all faculty of the University of Colorado School of Medicine, including physicians and advanced practice providers.

On the following page is a current organization chart.







Diversity and Inclusion

Office of Diversity and Inclusion

Vision: To improve human health by advancing diversity in the healthcare workforce and creating an environment in which all feel welcomed, valued, and respected.

Mission: Recruit, retain, and support diverse School of Medicine learners and faculty through programming, services, and advocacy work within our training programs and departments, across the Anschutz Medical Campus, and in partnership with our clinical affiliates and the communities we serve.

Objectives: The Office of Diversity and Inclusion will foster a respective, diverse, and inclusive learning and work environment by:

- Providing leadership to diversity, equity, and inclusion (DEI) initiatives across the School of Medicine
- Partnering with organizational leaders to advance DEI goals
- Developing and supporting policies and procedures aligned with SOM values and DEI goals
- Unlocking opportunities for progress in DEI through systematic identification of targets for initiatives and provisions of evidence-informed strategies
- Simplifying and supporting the development, execution, and evaluation of training programs and departments DEI initiatives
- Offering learner, workforce, and community-based training on DEI
- Facilitating and supporting recruitment efforts of diverse learners and staff
- Offering support and building community for learners and faculty.
- Sponsoring diverse learners and faculty and encouraging their participation in leadership and professional development opportunities
- Building agile processes of measuring and reporting progress to determine impact of initiatives
- Sharing DEI initiatives, learnings, and outcomes transparently and broadly

Leadership

Shanta M. Zimmer, MD, Associate Dean of Diversity and Inclusion and Senior Associate Dean for Education

Amira del Pino-Jones, MD, Associate Dean of Diversity, Equity, and Inclusion, effective Oct. 1, 2022

Janet Meredith, Director of community-based partnerships

Christy Angerhofer, Diversity and inclusion business professional

2022-23 Activities

Diversity Council: The Dean-appointed School of Medicine Diversity Council serves as the guiding committee for the work of the office and includes members from the Anschutz Medical Campus and external community. The council meets monthly. This year, it worked on updating the School of Medicine's diversity plan, encouraging physician assistant and physical therapy students' participation in student affinity groups, enhancing recruitment and retention, and scholarship fundraising. The council also contributed to strengthening and restructuring the Lesbian Gay Bisexual Transgender Queer (LGBTQ) curriculum, enhancing the anti-racist curriculum, and building a mechanism for students to report bias in the curriculum. The diversity council has strengthened the School of Medicine Office of Diversity and Inclusion partnership with the University of Colorado's Office of Equity, hosted Women Leaders at Anschutz Medical Campus networking events, and assisted in the continuous reviews of campus pipeline programs, including post-baccalaureate and BA/BS-MD programs.

Pipeline: The Office of Diversity and Inclusion leads or contributes to several pathway and recruitment programs to promote diversity in undergraduate medical education.

- Twenty-four (24) students have successfully completed the BA/BS-MD Program, a combined eight-year program for highly qualified Colorado high school students from broadly diverse backgrounds, and are now engaged in graduate medical education training.
- Engage in local, regional, and national recruitment efforts through partnerships with the School of Medicine Office of Admissions, the Anschutz Medical Campus Office of Inclusion and Outreach, and other CU System networks. Attend recruitment fairs hosted by the Latino Medical Student Association, Student National Medical Association, and the Association of American Medical Colleges.

- The Office of Diversity and Inclusion and the Office of Admissions continue to participate and co-sponsor the Annual Pre-Admissions Workshop in partnership with the Four Corners Alliance (University of New Mexico, University of Arizona, University of Utah, University of Colorado, and the Association of American Indian Physicians).

Undergraduate Medical Education

- Supports the CU School of Medicine holistic admissions process to matriculate a diverse and inclusive student body. For the past seven years, the entering class of the School of Medicine has included 25%-30% students from backgrounds under-represented in medicine.
- Hosted meet-and-greet events throughout the academic year for new students.
- Engaged with physician assistant and physical therapy students to increase the office's visibility and to share information about resources available to students.
- Supports student alliances, including:
 - CU chapter of the Student National Medical Association advised by Leslie Appiah, MD, Department of Obstetrics and Gynecology.
 - CU chapter of the Latino National Medical Society (LMSA) advised by Claudia Clavijo, MD, associate professor of anesthesiology. The CU LMSA chapter hosted the national LMSA leadership group on campus in spring 2022.
 - Medical Student Pride Alliance committed to empowering sexual and gender minority medical students and allies.
 - Asian Pacific American Medical Student Association that aims to amplify voices of Asian Pacific Islander students.
- Organized the CU School of Medicine chapter of White Coats for Black Lives Matter die-in event to raise awareness and to oppose violence by law enforcement against Blacks and Latinos. James Carter, MD, assistant professor of medicine was keynote speaker.
- Supported ~ 180 first-generation medical students through the CU School of Medicine FirstUP mentoring program. Mentors are current faculty members and CU alumni practicing physicians.
- Supports the Community Engagement Curriculum Advisory Board, chaired by Janet Meredith and School of Medicine alum Bela Mohapatra, MD, which provides oversight to the development of the School of Medicine service-learning curriculum.

Graduate Medical Education

- Supports the School of Medicine graduate medical education programs by providing diversity, equity, and inclusion consultations, mentorship and training in holistic review, implicit bias, microaggressions, systemic racism, and allyship.
- Supported the 2022 Graduate Medical Education Second Look Day. Representatives from Emergency Medicine, Obstetrics and Gynecology, Physical Medicine and Rehabilitation, Interventional Radiology, Radiology, Pediatrics, Family Medicine, Surgery, Neurology, Internal Medicine, and Pediatrics provided information to over 400 participating fourth-year medical students. All participating residency programs recruited residents to their entering classes in 2022.
- Supports the Minority and Ally Resident Council, which offers mentoring, professional development, and opportunities for social gatherings to address the needs of minority residents. This group has over 75 residents as part of its membership base. The 2021-2022 president was Shawnecca Burke, MD (family medicine resident), and the vice president was Daniel Colon-Hidalgo, MD (pulmonary fellow). Burke joined the faculty in the Department of Family Medicine in September 2022 and will continue as a mentor for residents and fellows.

Faculty

- Provides guidance and support for multiple NIH T32 training grants to enhance efforts to increase diversity in the grantee pool as well as to support efforts around mentorship and retention of scientists from backgrounds under-represented in medicine.
- Provides salary support for highly qualified recruits from backgrounds under-represented in medicine.
- Supports the University of Colorado Organization for Racial and Ethnic Support, which hosts faculty development activities for members.
- Brings together Department Diversity Leadership Group to discuss local and national efforts to advance diversity, equity, and inclusion, share best-practices and learnings, and advocate on behalf of diverse faculty.

Community

- Engaged in the 2040 Partners in Health Community Advisory Network. A highlight of this collaboration is the multi-year mentored scholarly activity project of CU-UNITE Track, where medical students explore intervention strategies to help health care professionals understand and reduce occurrences of discrimination in health care.

- Supports 9 partnerships with community members working on the impact of health care racism on marginalized communities, infant and maternal mortality in the African American community, trust and medication adherence among Iraqi refugees, alcohol use in the community of refugees from Burma, and climate change and health. The work included research, community interventions and education, presentations, and medical school curriculum.

Shout-outs: Oluatosin Adebisi, MD '22, was awarded the student award at the CU SNMA graduation celebration for her leadership as a diversity champion. The faculty recognition award for leadership was presented to Regina Richards, PhD. As a medical student, Stephanie Nwagwu, MD '22, served as the regional director for the CU SNMA and as the national chairperson of the Board of Directors for SNMA.

Future Directions

Amira del Pino-Jones, MD, associate professor of medicine at the University of Colorado School of Medicine, was named the CU School of Medicine's associate dean for diversity, equity, and inclusion, effective October 1, 2022. As associate dean, Del Pino-Jones will provide leadership in all aspects of the school's diversity, equity, and inclusion programs, including education, research, community outreach, recruitment, and support of faculty, residents, students, and staff.

Del Pino-Jones has served as director of diversity, equity, and inclusion for the Division of Hospital Medicine in the Department of Medicine. In that role, she has led efforts to advocate for and achieving salary equity based on rank, to standardize faculty recruitment and interview processes to help minimize bias and enhance recruitment, and to conduct diversity trainings and educational sessions for faculty.

Previously, Del Pino-Jones created two pipeline programs geared toward preparing underrepresented students for careers in medicine and leadership positions. Through those programs, she has mentored 23 students, 80% of whom have now matriculated into medical school and other health professional programs.

Among Del Pino-Jones' responsibilities as associate dean are providing leadership and direction for a broad scope of diversity activities, including implementation of the CU School of Medicine Diversity Strategic Plan; developing approaches to increase recruitment and retention of diverse students, residents, faculty, and staff; providing faculty development related to diversity, equity, and inclusion; collaborating with curriculum teams to develop health equity-focused learning objectives and curricula for undergraduate and graduate medical education; and leading initiatives that result in increased diversity in leadership roles across the school.



<https://medschool.cuanschutz.edu/deans-office/diversity-inclusion>



Education

Education

The education programs at the School of Medicine are under the leadership of **Shanta M. Zimmer, MD**, Senior Associate Dean for Education. The University of Colorado School of Medicine is committed to lifelong and interdisciplinary learning for health care professionals. We have many programs to serve the needs of undergraduate, graduate, and post-graduate students, beginning with pathway programs in middle schools to attract and prepare a diverse and talented applicant pool to the health professions. Students graduating from the MD program will be able to compete for positions in our Graduate Medical Education programs that offer outstanding training for residents and fellows. Once graduates complete their training as physicians, physician assistants, physical therapists, and anesthesia assistants, the office of Continuing Medical Education offers lifelong educational programs designed to improve competence, performance, and health outcomes. Included in this section is information on the Academy of Medical Educators that was created to support and enhance all educational programs and teachers at the University of Colorado School of Medicine. The following pages reflect information on all of the school's educational programs including Anesthesiology Assistant; Center for Advancing Professional Excellence; Child Health Associate/Physician Assistant; Genetic Counseling; Graduate Medical Education; Office of Continuing Medical Education and Professional Development; Physical Therapy and Undergraduate Medical Education.

Academy of Medical Educators

The Academy of Medical Educators (AME), under the leadership of **Shanta M. Zimmer, MD**, seeks to create a community of dedicated educators who work together to promote excellence in teaching and curriculum throughout the health sciences community. To support this goal, AME inducted six new members in 2020 for a total of 103 members who serve the campus through a series of programs that provide faculty development, coaching, recognition, small grant and other scholarship opportunities, and advocacy in medical education.

In 2021-22, the AME continued to provide regular faculty development opportunities through workshops, online education, and a growing number of individual sessions to departments and programs. The longstanding and highly successful Teaching Scholars Program, under the leadership of **Chad Stickrath, MD**, and **Mary Jane Rappaport, DPT, PhD**, graduated 12 interprofessional participants who are now trained in curriculum development, program evaluation, and medical education scholarship. For faculty development, the AME continues to run the biannual Residents and Fellows as Teachers Elective, led by **Eric Young, MD**.

In addition to faculty development and career advancement for educators, the AME has worked to promote education and educators on campus. The AME has increased its role in supporting the scholarship of education, and it serves as a Best Evidence Medical Education Review Site. We provide a core research infrastructure to provide advice, research assistant support, and mentorship for medical education research projects. In 2019, the AME launched a new monthly Medical Education Grand Rounds Series featuring local and national speakers on topics of pedagogy, mentorship, assessment, and educational innovation across the spectrum of learners in undergraduate and graduate medical education. <https://medschool.cuanschutz.edu/education/academy-of-med-educators/grand-rounds>. The AME grand rounds series is open to all interested audiences and CME credit is available.

The Academy of Medical Educators 2022 recipients of grants from the Rymer Innovation Awards program support efforts to create, implement, and evaluate innovative medical education programs and to develop scholarship in medical education. We are grateful to Drs. Robert and Marilyn Rymer, and their support for the Rymer Family Endowment, for investing in medical education and innovation. Review committee chairs are Tai Lockspeiser, MD, MHPE, and Prem Subramanian, MD, PhD.

Funding for the AME is provided through the School of Medicine Dean's Office and Graduate Medical Education, with additional support for the small grants programs from the Rymer Family and the Office of Faculty Affairs. Please visit the website for detailed information on each of the above: <https://medschool.cuanschutz.edu/education/academy-of-med-educators>

Anesthesiologist Assistant Program

The University of Colorado’s Master of Science Program in Anesthesiology is a rigorous 28-month graduate-level program housed within the Department of Anesthesiology at the Anschutz Medical Campus. When the first class was matriculated in the fall of 2013, it became only the ninth program of its kind in the United States. The past several years have resulted in some changes in the Anesthesiologist Assistant program landscape and there are now 19 Anesthesiologist Assistant programs offering similar degree programs: 14 accredited programs and 5 programs undergoing the accreditation process.

The program is divided into two phases: A 16-month integrated didactic and clinical curriculum followed by a 12-month almost entirely clinical phase. Prior to transitioning into the clinical phase, students must have successfully completed four semesters of basic science as well as general and advanced anesthesia curriculum. Upon graduation, students will have over 2,700 clinical training hours, not including simulation. Students sit for the national certifying exam provided by the National Commission for Certification of Anesthesiologist Assistants (NCCAA) prior to graduation. Students who successfully complete the program requirements are awarded a Master of Science Degree in Anesthesiology from the University of Colorado School of Medicine.

Mission

The mission of the Master of Science in Anesthesiology Program is to educate and train highly skilled Anesthesiologist Assistants in the cognitive, psychomotor, and affective learning domains so they can work within the anesthesiologist-led anesthesia care team to provide quality patient care.

Leadership

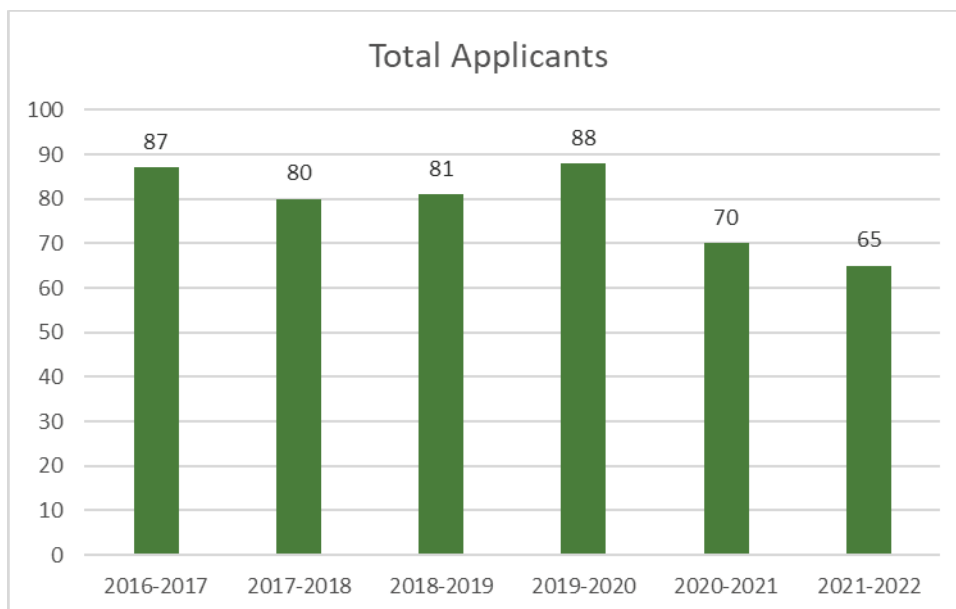
Vesna Jevtovic-Todorovic, MD, PhD, MBA	Chair, Department of Anesthesiology
Anthony Oliva, MD, PhD	Interim Vice Chair of Education, Department of Anesthesiology
Jaime Daly, MD,	Medical Director
Jillian Vitter, MD	Associate Medical Director
Luke Eaton, CAA MHSc	Interim Program Director
TBD	Associate Program Director
Amy Hebbert	Lead Program Coordinator
Alana Holdren	Program Coordinator

Website

The website is updated regularly to reflect the changes in staff, program outcomes and the new class.
<https://medschool.cuanschutz.edu/anesthesiology/education/anesthesiologist-assistant-program>

Student Overview

When the fall 2022 semester begins, the MS-Anesthesiology Program will have a total of 39 students enrolled. The MS-Anesthesiology Program has had seven graduating classes and a total of 72 graduates. Below is the historical data for Total Applicants, Current Student Demographics, Student Demographics at Matriculation and the Graduation and Certification rates.



Current Student Demographics							
	Class of 2022	Class of 2023	Class of 2024				
Students	12	11	16				
Male : Female	7:5	4:7	7:9				
In-State	12	8	7				
Out-of-State	0	3	9				
Student Demographics <i>at Matriculation</i>							
	Class of 2018	Class of 2019	Class of 2020	Class of 2021	Class of 2022	Class of 2023	Class of 2024
Students	11	13	12	14	13	12	16
Average Age	27	26	24	25	27	26	27
Male: Fe- male	6:5	8:5	6:6	6:8	8:5	5:7	7:9
In State	8	7	4	6	7	6	7
Out of State	3	6	8	8	6	6	9
Average GPA	3.6	3.4	3.5	3.6	3.6	3.6	3.6
Average MCAT	59th %ile	56th %ile	57th %ile	62nd %ile	69th %ile	55th %ile	63rd %ile

Graduation & NCCAA Exam			
Class	Graduated	Pass	Fail
2021	13	13	0
2020	12	12	0
2019	13	13	0
2018	11	11	0
2017	10	10	0
2016	7	7	0
2015	6	6	0
Total	72	72	0
Pass Rate	100%	100%	

Recent Accomplishments

Curriculum and Instruction

The MS-Anesthesiology Program offers a 28-month didactic curriculum designed by expert faculty and complemented by clinical rotations. The program boasts a unique curriculum that features didactic courses taught by attending anesthesiologists and CAAs. This gives students the opportunity to formally interact with all members of the anesthesia care team from the beginning of training. Senior year didactics include a senior project in research or quality improvement to supplement clinical requirements and an interactive senior seminar where students lead Problem-Based Learning Discussion (PBLD) sessions covering interesting cases and subject matter. In addition to classroom didactics, the students begin clinical hours within the first two months of the program. MS-Anesthesiology students become very comfortable with the operating room environment even before completing the didactic portion of the program. This comfort transforms into self-sufficiency as students rotate through a variety of clinical subspecialties including pediatrics, trauma, cardiothoracic, regional, neuroanesthesia, and obstetrics. While the Anschutz Medical Campus provides excellent learning opportunities, program leaders have also established multiple affiliation agreements with outside clinical sites offering students the opportunity to rotate in clinical settings along the Front Range as well as nationwide. Students complete the program with an extremely well-rounded clinical base of knowledge and level of professionalism, and they are comfortable in a variety of environments.

Simulation Lab

The Simulation Lab is an integral part of the overall curriculum during the first year and is comprised of three semesters. Students are taught skills and concepts using low-fidelity simulators for task training and a high-fidelity simulator, the SimMan 3G, for scenario-based training. Task-training exercises include basic and advanced airway management, anesthesia machine operation, setup and use of anesthetic agents, invasive monitor placement, and regional anesthesia techniques. Crisis resource management skills are taught using the SimMan 3G with scenario-based training. Crisis management training includes ACLS protocols, local anesthetic toxicity management, difficult airway management, treatment of severe bronchospasm, and many other scenarios. The concept of TeamSTEPPS (team performance strategies and tools) is incorporated in all scenarios.

Diversity Scholarship

To facilitate an avenue for increasing diversity in the Anesthesiologist Assistant Program, the Department of Anesthesiology has established its first Diversity Scholarship to provide support to students who are traditionally underrepresented in health science graduate programs. Scholarship funds will cover up to \$45,000 of tuition over the last four semesters of the MS-Anesthesiology Program. Past recipients have been Jonathan London (2018), Fabienne Haas (2019), Mike Dinh (2020), and Kira Floge (2021).

Our program is excited to extend the range of the Diversity Scholarship to benefit students from underrepresented groups in their first year of the program. At the time they are offered a position in the program, students in the 2024 class were invited to apply for one of two \$5,000 tuition scholarships. Our first recipient is Eduardo Cervantez, Jr.

Community Outreach

The MS-Anesthesiology students have completed community service projects every semester of the program's existence. In past years, students have prepared meals for Ronald McDonald House Charities of Denver using food from area businesses; the students funded gift cards and donated them to Ronald McDonald House; raised money by making and selling scrub caps to benefit Lifebox, an organization that sends pulse oximeters to low-resource and lower-middle-income countries at no or reduced cost; helped to collect used medical supplies for Project Cure, the largest provider of donated medical supplies and equipment to developing countries around the world; participated as a group in a blood drive with Children's Hospital Colorado, and staffed booths at local fundraising events such as Strides for Epilepsy 5K and university health fairs. Our students continued their philanthropic efforts this past year. They cooked a meal for the families at the Ronald McDonald House and they have been raising funds to send one or more of our students to Uganda for a rotation working alongside Colby Simmons, DO, MBA, with the Department of Anesthesiology's Global Program.

Child Health Associate/Physician Assistant Program

The University of Colorado PA Program has gained national recognition for its curriculum in primary care medicine. The Program confers a Professional Master's Degree (MPAS). In accordance with the mission of the program, the CHA/PA Program curriculum provides comprehensive physician assistant education in primary medical care with expanded training in pediatrics and need for service to disadvantaged, at risk and medically underserved populations. Graduates practice in all areas of medicine and serve patients of all ages.

Mission Statement

The mission of the Child Health Associate/Physician Assistant Program is to provide comprehensive physician assistant education in primary care across the lifespan, with expanded training in pediatrics and care of the medically underserved.

Program Curriculum

The Colorado Curriculum is a cutting-edge, learner-centered educational platform designed to foster clinical decision-making and lifelong learning skills. The curriculum is based on clinical presentations rather than traditional courses, which mimics how patients present for care and how clinicians practice medicine. For example, during the week of the curriculum focused on the clinical presentation "shortness of breath," all learning in the basic sciences and clinical medicine is delivered in the context of a patient with shortness of breath. The Colorado Curriculum consists of two didactic years, with clinical experiences integrated across both years. The third year of the program consists of 10 one-month rotations. The program begins in July with a summer immersion course that includes fundamentals of learning strategies, PA professional roles, wellness and resilience, and clinical topics.

The curriculum is organized into seven system-oriented blocks: Hematology, Infection, Inflammation and Malignancy (Heme/IIM); Gastrointestinal, Genitourinary, and Renal (GI/GU/Renal); Cardiovascular and Pulmonary (CVP); Dermatology and Head, Eyes, Ears, Nose, and Throat (Derm/HEENT); Musculoskeletal and Neurology (MSK/Neuro); Endocrinology and Reproduction (Endo/Repro); and Psychiatry. The curriculum is an iterative, spiral approach to learning, such that clinical topics which are introduced in the first year are revisited at a more advanced level in the second year. Each block course integrates the basic sciences and clinical medicine by employing the use of small group experiences, case-based learning, standardized patients (SPs), patient simulators, lectures, and collaborative sessions. Additionally, students participate in thread courses over both years which provide education in clinical skills, role development, patient care, and the clinical environment. The thread courses include Clinical Skills, Clinical Experiences, and Foundations in Prevention, Advocacy, and Professional Practice.

The curriculum includes fully integrated clinical experiences in hospital and community settings. During clinical experiences, students participate in observations, history-taking, physical examination and assessment, development of a differential diagnosis and clinical decision-making and planning of treatments and interventions. Students work closely with preceptors and other members of the health care team and are evaluated on skills and competencies required for patient care.

The faculty of the entire School of Medicine and affiliates contribute greatly to the quality of the learning experiences provided at the CHA/PA Program. Affiliations with UHealth University of Colorado Hospital, Children's Hospital Colorado, and Denver Health and Hospitals, in addition to community clinics, provide a network of clinical experiences to enhance the training of students. The faculty within the departments of Pediatrics, Family Medicine, Internal Medicine, Surgery, and others regularly participate in both classroom and clinical training of the CHA/PA Program students.

Program Faculty and Leadership

The education, scholarship, and service roles of the principal faculty of the CHA/PA Program provide students with experienced faculty mentors with clinical practices in general pediatrics, family medicine, and pediatric subspecialties.

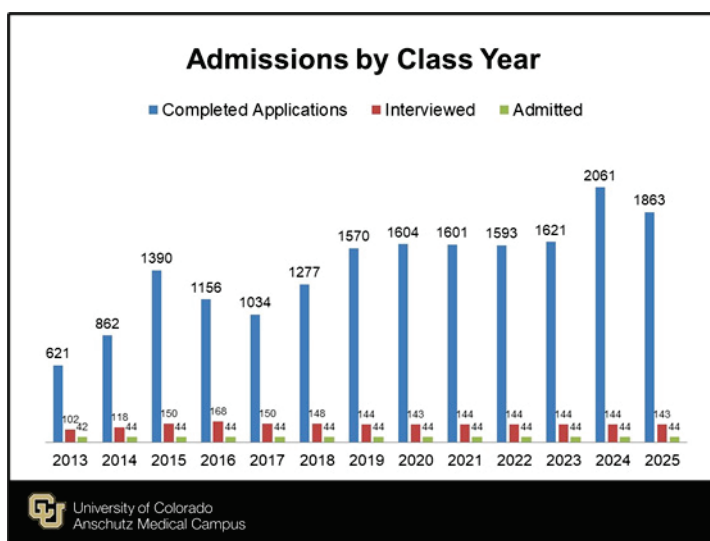
Program faculty serve in state and national leadership roles. Jonathan Bowser, MS, PA-C, is a Past President for Physician Assistant Education Association (PAEA) and serves on the President's Commission. Jacqueline Sivahop, EdD, PA-C, facilitates workshops for new faculty and program directors for PAEA and is a feature editor for the Journal of Physician Assistant Education (JPAE). Amy Akerman, PA-C, is on PAEA's Government Relations Steering Committee and was nominated by PAEA to the Inter-professional Education Collaborative (IPEC) Core Competencies Revision Working Group. Kate LaPorta, PA-C, MHS, participates in the PAEA Standard Setting workgroup for the End of Curriculum exam, and Kelsey Dougherty, PA-C, is a member of the Colorado Academy of Physician Assistants CME committee.

International Connections

The University of Colorado Child Health Associate/Physician Assistant Program continues its partnership with the Trifinio Clinic in Guatemala. CHA/PA students engage in clinical experiences in this clinic site in rural northwestern Guatemala. Our global partnerships offer us new perspectives on our educational program and the work we do here, helping us provide better care for our patients in the United States and abroad.

Student Overview

The CHA/PA Program has a very competitive admissions process and continues to attract top students from across the country. During the 2021-22 admission cycle, the program received 1,863 applications, of which 143 were interviewed to admit 44 students. Program graduates are employed in all areas of primary and subspecialty areas of practice including pediatrics, family medicine, surgery, internal medicine, emergency medicine, dermatology, and many more. The program has a 97% five-year average NCCPA board pass rate.



Admissions- Student Demographics			
	Class of 2023	Class 2024	Class of 2025
Total Students	44	44	44
CO Resident	19	25	20
Non-Resident	25	19	24
Overall GPA	3.73	3.80	3.70
Science GPA	3.68	3.76	3.63
Average Age	25	25	23
Hispanic	3	8	8
Alaskan Native/American Indian	1	1	1
Black	1	2	4
Asian	7	4	4
White	32	29	27

Program Information

Program Director: **Jonathan Bowser MS, PA-C**

Medical Director: **Tai Lockspeiser MD, MHPE**

Associate Director: **Jacqueline Sivahop EdD, PA-C**

Program website: <https://medschool.cuanschutz.edu/physician-assistant-program>

Genetic Counseling Program

The Master of Science in Genetic Counseling Program prepares students for professional practice and board certification as genetic counselors. The program is fully accredited by the Accreditation Council for Genetic Counseling (ACGC). Upon graduation, alumni are eligible to sit for the national certification exam administered by the American Board of Genetic Counseling (ABGC). Established in 1971, the CU Anschutz Genetic Counseling Program is the third-oldest training program for genetic counselors in North America and one of only four such programs in the Rocky Mountain region.

Mission Statement

The mission of the Genetic Counseling Program is to train competent, compassionate, and innovative graduates who will effectively integrate professional practice and human genomics to deliver quality, client-centered genetic counseling services, promote informed health policy, and engage in scholarship, advocacy, and leadership activities throughout their careers.

Program Curriculum

The intensive 21-month curriculum integrates extensive coursework in human clinical and laboratory genetics and genomics, psychosocial and counseling theory, research, and ethical, legal, social, and professional practice issues with more than 1,000 hours of direct, supervised clinical training in pediatric, metabolic, reproductive, oncology, adult, and specialty genetics clinics. During the second year, students complete a scholarly mentored capstone project addressing a current clinical practice, laboratory, educational, policy, or service delivery issue in genetic counseling. Students are encouraged to submit abstracts for presentation of their projects at national meetings and to publish their findings in peer-reviewed journals.

Professional Practice of Program Alumni

Genetic counselors play a critical, expanding role in the health care system. They are at the forefront of precision genomic medicine initiatives. As genetic risk assessment and genetic testing become integral components of virtually all medical specialties, genetic counselors help to ensure quality, informed, client-centered delivery of these services. The Bureau of Labor Statistics identifies genetic counseling as one of the fastest-growing health care fields.

CU Anschutz Genetic Counseling Program alumni practice throughout Colorado and the nation. Practice settings of alumni include hospitals, academic and private genetics centers, diagnostic laboratories, telehealth genetic counseling services, clinical research programs, biotechnology companies, state public health departments, and patient advocacy organizations.

As members of multidisciplinary health care teams, genetic counselors provide scientific expertise, education, risk assessment, non-directive support for decision-making and psychosocial needs, and community resources. Genetic counselors are central to the provision of quality, comprehensive care of individuals and families affected with or at risk for specific genetic conditions, or with genetic predispositions to cancer, cardiovascular or other diseases. Genetic counselors in clinical settings use a client-centered approach to ensure that patients and their medical providers can understand and appropriately utilize genetic information and laboratory tests to promote informed healthcare choices. Laboratory-based genetic counselors serve as professional liaisons to hospital systems, individual health care providers and their patients. They help providers and patients understand new testing modalities and appropriate testing options, conduct utilization management review to promote cost-effective use of genetic testing, and provide individualized results interpretation. Genetic counselors in both clinical and laboratory roles utilize their scientific expertise to research genomic variants and ensure that clinical interpretation of often novel findings of genomic testing reflects current knowledge and is conveyed to clients in an understandable manner. Many program alumni are faculty at their institutions, promoting genomic literacy as educators of trainees, other health care professionals and the public, and conducting clinical and translational research. Alumni facilitate support and advocacy groups for genetic conditions, engage in health care policy development regarding genetic services, and provide consulting to biotechnology and other industries.

Student Profile

Admission to the Genetic Counseling Program is highly competitive and is conducted through a national match program. In the spring 2022 admissions cycle, six students were admitted from around the United States. Students in the Class of 2024 range in age from 23 to 27 and their mean undergraduate GPA was 3.64. Prior professional activities include two students who worked as genetic counseling assistants in pediatrics and telehealth oncology settings, respectively, two who worked in research or public health laboratory settings, one who managed a behavioral health licensing program, and one who worked as a foster child welfare specialist prior to starting graduate school. All have client advocacy and counseling experience in settings including crisis-counseling services, programs for individuals with developmental disabilities, refugee centers, camps and sexual violence prevention programs. All have undergraduate or professional research experience, and several have volunteer or professional teaching experience.

Notable Accomplishments - 2021-2022 Academic Year

- 100% of the program's 2021 graduates taking the American Board of Genetic Counseling (ABGC) Certification Exam achieved certification and the CGC credential on their first attempt (nationally, the first attempt pass rate was 79%). The pass rate on first attempt for board certification has been 100% for the program's past six graduating cohorts.
- Five 2021 program graduates entered clinical practice immediately after graduation in the specialties of pediatrics, adult genetics, and oncology. One 2021 graduate was selected for a one-year fellowship with the Department of Neurology at CU Anschutz Medical Campus, focusing on genetic counseling for pediatric and adult neuromuscular diseases, and recently was hired as the second board-certified genetic counselor for the adult neurology program.
- Two students in the 2022 graduating class had their capstone research projects accepted for presentation at the 2022 American College of Medical Genetics and Genomics Conference, one as a poster and the other as an invited platform presentation. The latter, Carly Peterson, was awarded the 2022 Carolyn Mills Lovell Genetic Counselors Award for Best Abstract by the ACMGG Foundation, the first time that this award was given to a student, not a practicing genetic counselor.
- All May 2022 graduates started positions as genetic counselors immediately after graduation in oncology, pediatrics and assisted reproductive technology (IVF/PGT) specialties.

M.S. Genetic Counseling Program Information

Program Director: **Carol Walton, MS, CGC**

Assistant Director, Clinical Training: **Kathleen Brown, MS, CGC**

Website: <https://www.cuanschutz.edu/graduate-programs/genetic-counseling>

Graduate Medical Education

Carol M. Rumack, MD

Associate Dean for Graduate Medical Education

<https://medschool.cuanschutz.edu/graduate-medical-education>

The Graduate Medical Education (GME) Office is under the leadership and direction of Carol M. Rumack, MD, associate dean for GME at the University of Colorado School of Medicine and Designated Institutional Official (DIO) for the Accreditation Council for Graduate Medical Education (ACGME). Ashley Walter, MBA, is the director of finance and administration. The GME Office is responsible for the oversight of ACGME accreditation and educational environment as well as payroll, benefits and administrative issues for all residency and fellowship training programs.

The Graduate Medical Education mission of the University of Colorado School of Medicine is to provide Colorado, the nation and the world with programs of excellence in:

- **Education** - through the provision of educational programs to program directors, program coordinators, residents, the entire GME community as well as practicing health professionals and the public at large.
- **Research** - through the development of new knowledge in the basic and clinical sciences, as well as in health policy and health care education.
- **Patient Care** - through state-of-the-art clinical and research education programs which reflect the educational environment of the University of Colorado School of Medicine, as well as the needs of the patients it serves.
- **Community Service** - through sharing the CUSOM's expertise and knowledge to enhance the broader community, including our affiliated institutions, other healthcare professionals, alumni, other colleagues, and citizens of the state.

The GME Office implements policies of the Graduate Medical Education Committee (GMEC) of the School of Medicine. The ACGME charges the GMEC with responsibility for monitoring and advising on all aspects of residency education including compliance with ACGME work hours, patient safety, and quality improvement requirements, and in maintaining a strong learning environment.

The GMEC is composed of program directors, GME faculty liaisons from the major teaching hospitals and officers of the Housestaff Association. GMEC reports to the Dean of the School of Medicine through the associate dean for GME and senior associate dean for education.

COVID ACTIONS/MAJOR CHANGES taken in collaboration with School of Medicine GME Affiliated Hospitals

- New health care plan for residents (CU Anthem same as all faculty and staff).
- On 7/1/21, leave policy revisions included new ACGME medical, parental, and caregiver leave policy with six weeks paid leave.
- COVID - Moonlighting encouraged instead of reassigning residents in the COVID surge from October 2021-January 2022 during ACGME Emergency Status. Education was maintained during this time by Zoom.
- Kshama Jaiswal, MD, was appointed as GME director of well-being and she initiated the Resident WellBeing Council.
- Supervision was added to the work hour survey.
- Health care disparities education survey of all program directors.
- Task force for health care equity now seeks solutions to healthcare disparities.
- Abigail Lara, MD, was appointed chief healthcare equity officer for the UHealth system.
- New GMEC subcommittee chairs and vice chairs were appointed.
- Collaborative case reviews.
- GME hospital partnership annual incentive program is now based on patient safety reports and collaborative case reviews, which include resident and interprofessional participation in root-cause analysis.
- “Better Together” coaching of women residents and fellows presentation and project in internal medicine.

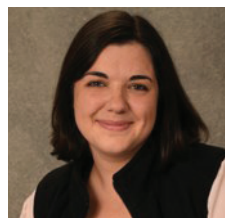
CU School of Medicine GME Resident Relief Fund began in the spring of 2020, thanks to generous donors seeking to address COVID-related financial hardship experienced by some residents and fellows. Seventy-eight residents and fellows have qualified for a total of \$129,833 in assistance so far. The fund expanded its scope to provide residents and fellows with assistance for other types of unanticipated disasters.

10th Annual GME Outstanding Program Coordinator Awards

The Graduate Medical Education Committee, in collaboration with the Program Coordinator Council (PCC), awarded Irma Salas as this year's outstanding program coordinator as well as the University of Colorado School of Medicine GME Nominee for the ACGME 2023 National Program Coordinator Award. Amanda Lassoued, Anesthesiology, was also awarded as an outstanding University of Colorado School of Medicine GME Program Coordinator.



Irma Salas
Pathology Fellowships



Amanda Lassoued
Anesthesiology

NEW ACGME PROGRAMS INITIAL ACCREDITATION	
Clinical Biochemical Genetics	04/12/2022
Surgical Critical Care (Burn)	Initial Accredited pending

NEW NON-ACGME FELLOWSHIP PROGRAMS
EM: Medical Education Science
PATH: Breast & GYN Pathology
PEDS: Pediatric Emergency Medicine Research

NEW ACGME PROGRAM DIRECTORS (PDs) & PROGRAM COORDINATORS (PCs)					
	2017-18	2018-19	2019/20	2020/21	2021/22
New PDs	11	18	20	19	13
New PCs (and/or transferred to another program)	15	9	9	14	21
2021-22 average turn-over rate: PDs = 11% PCs = 27%					

Figure 1 2022-2023 GME Enrollment Data & Trends (Numbers reflect enrollment as of August 1, 2022)

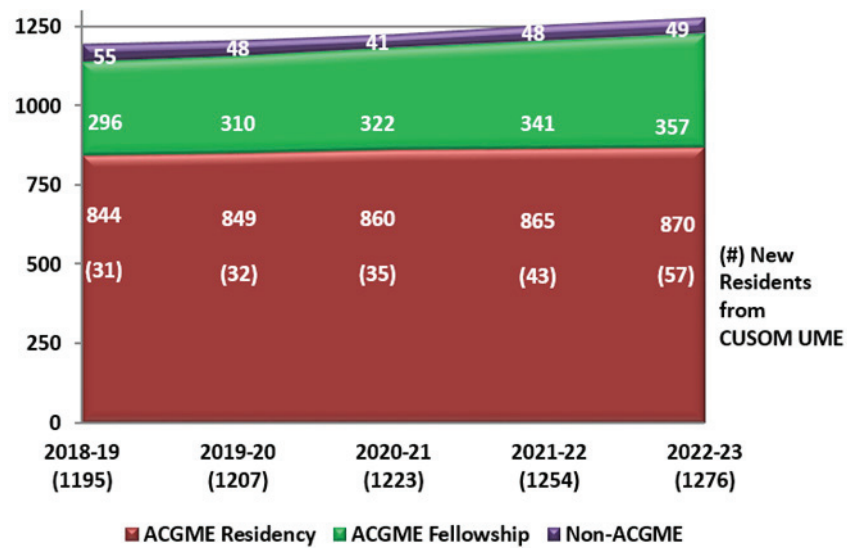


Figure 2 Number of ACGME Accredited GME Programs

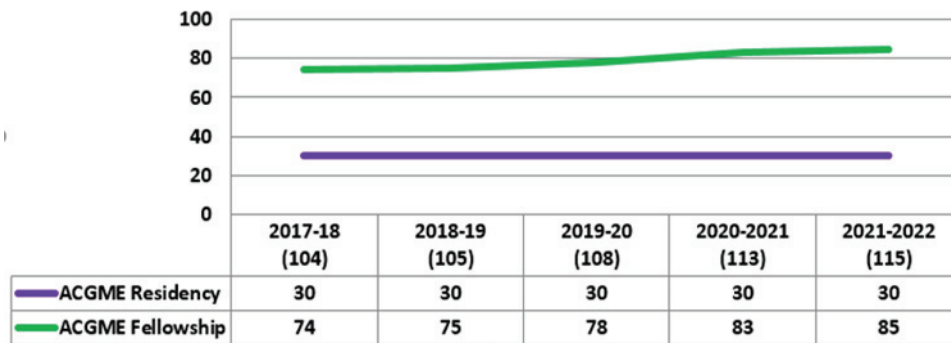


Figure 3 International Medical Graduate Enrollment

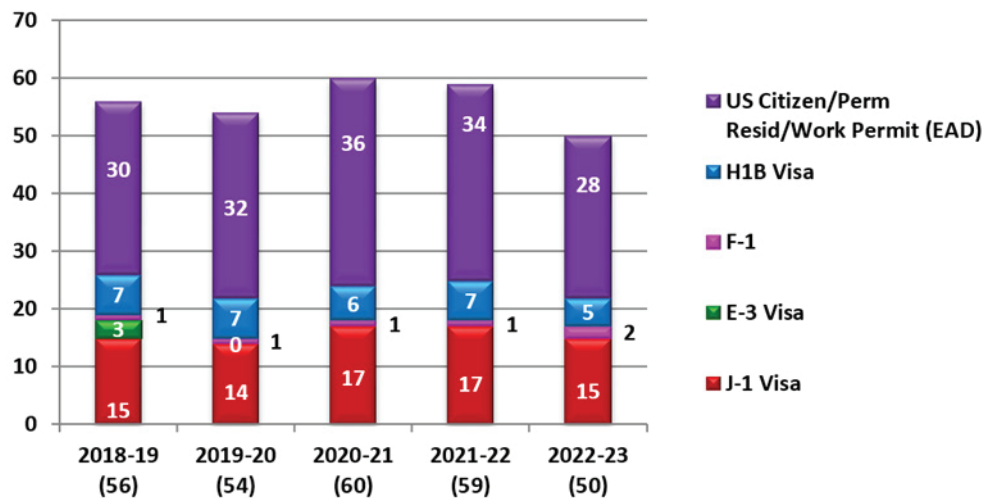


Figure 4 Primary Care vs Specialty Enrollment

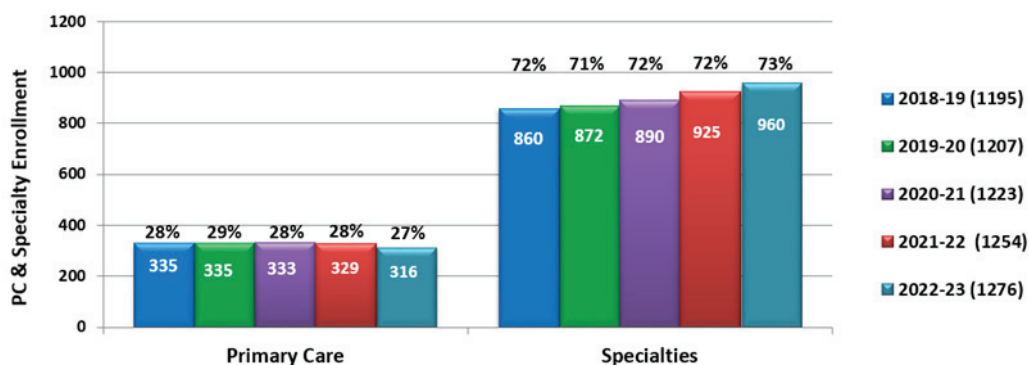
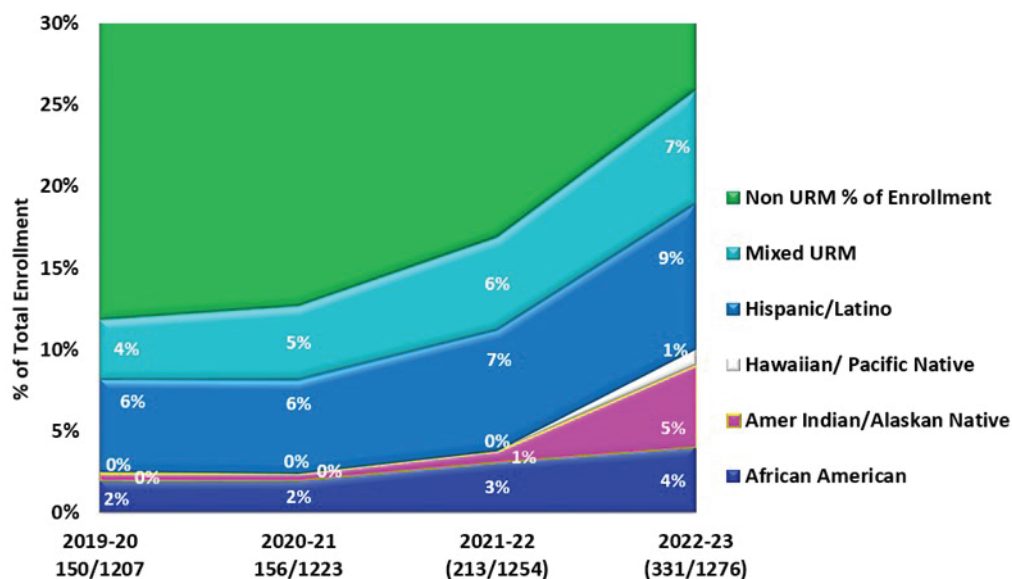


Figure 5 Underrepresented Minority Enrollment % of Total Enrollment (N=1276)



GRADUATE PLANS – GME 2021-22 GRADUATE SURVEY



University of Colorado Neurosurgery Residency

For the 2021-22 academic year, 377 residents and fellows graduated from ACGME and non-ACGME approved programs. All graduates completed the 2021-22 GME Graduate Survey.

Figure 6 ACGME Institutional Resident Survey Overall Satisfaction

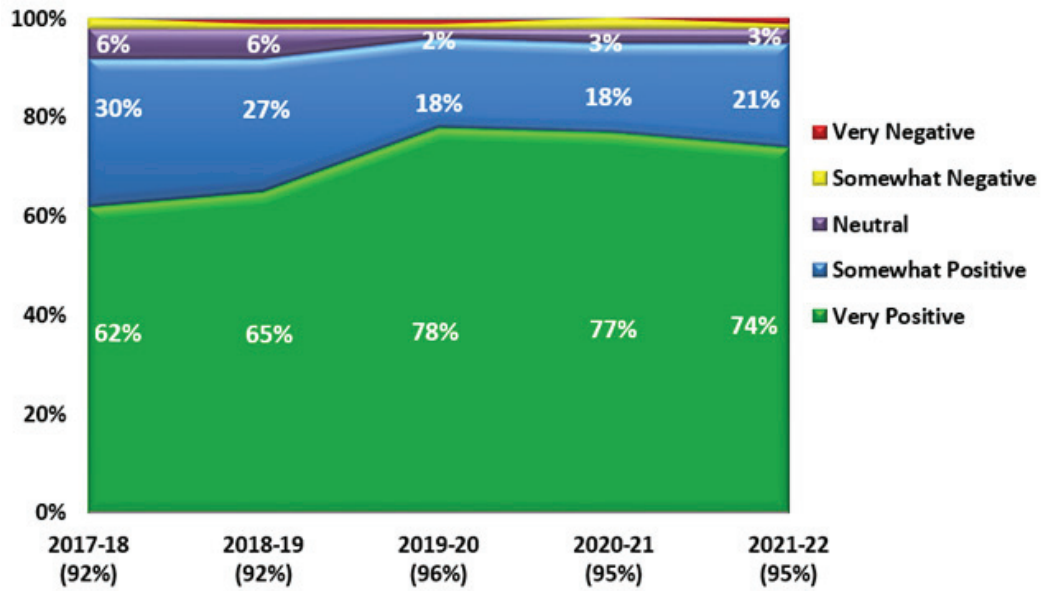


Figure 7 Graduates - Professional Plans

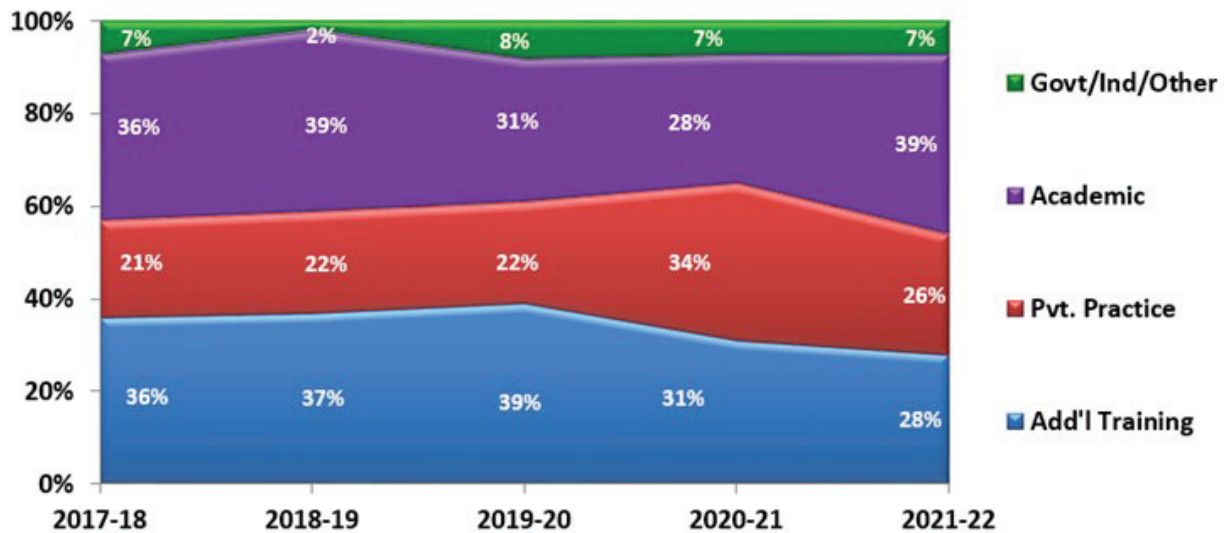


Figure 8 Where Will All Graduates Practice?

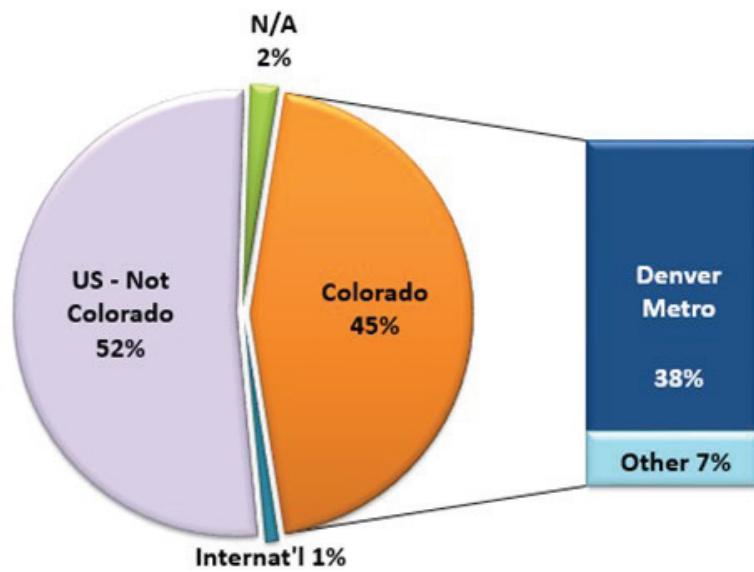


Figure 9 Graduates Planning to Practice in Colorado

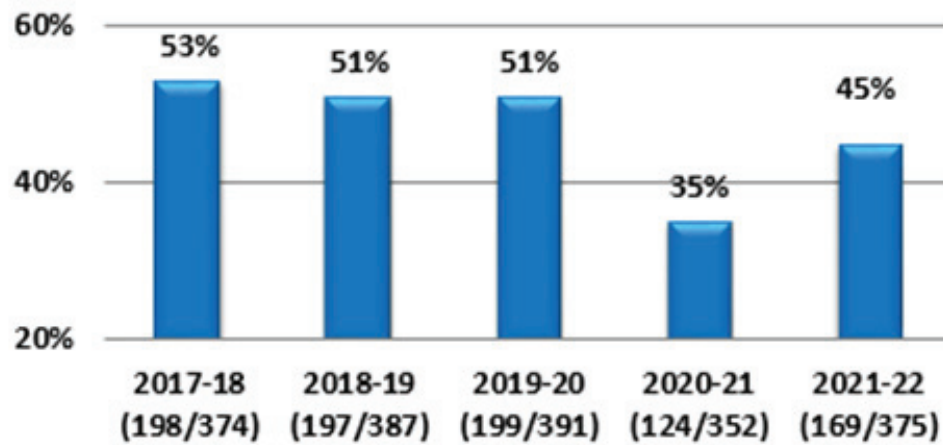


Figure 10 Graduates Across the Country

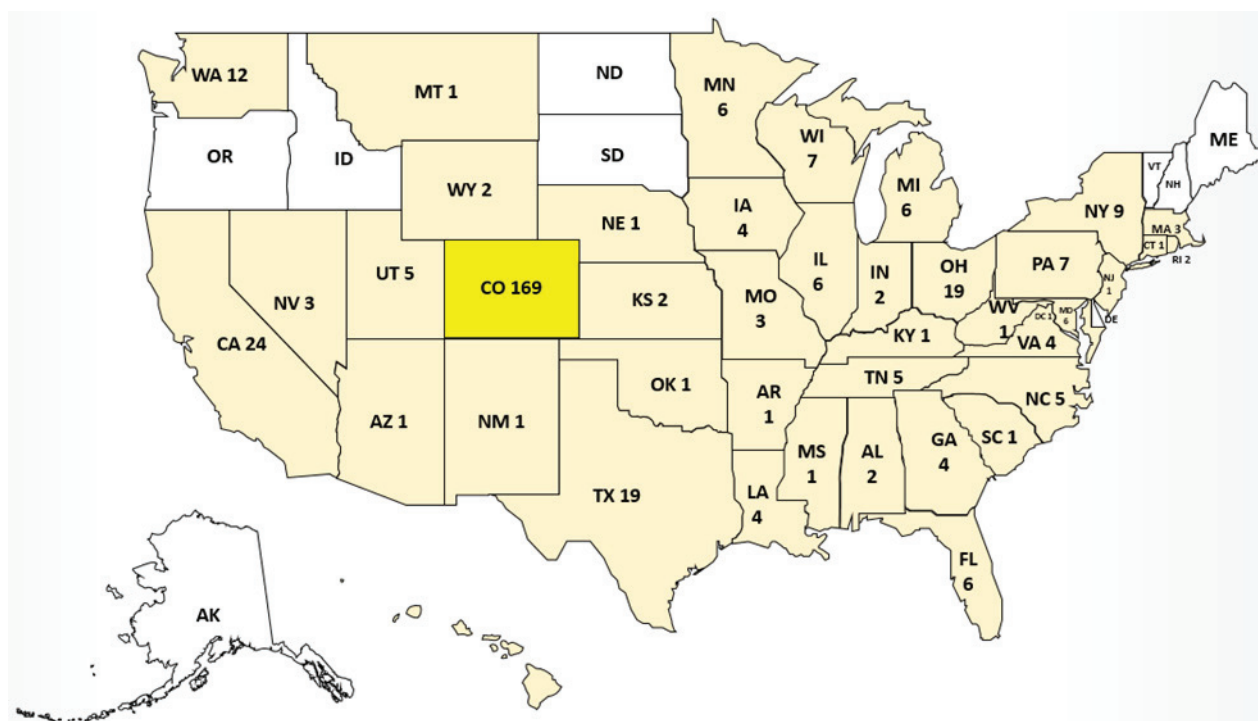
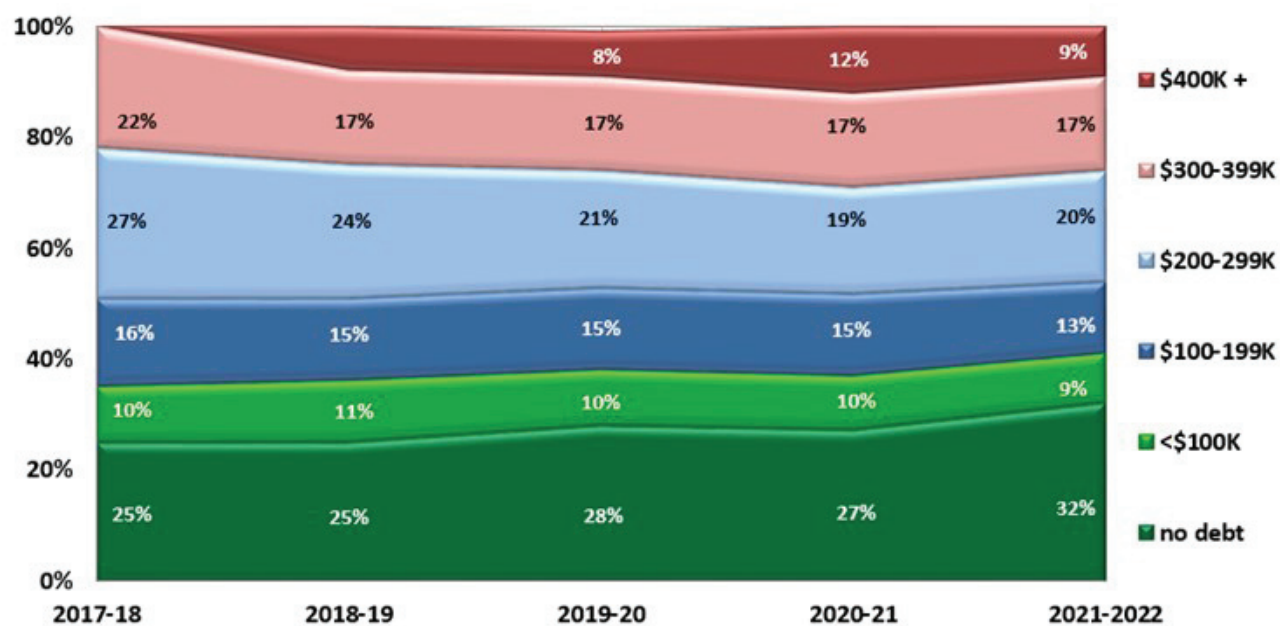


Figure 11 Resident/Fellow Financial Debt



Office of Continuing Medical Education

The Office of Continuing Medical Education (OCME) is led by **Brenda Bucklin, MD, MEHP**, professor of anesthesiology and associate dean for continuing medical education. The office is staffed by Pam Welker (administrator), Carolyn Wieber, and Angela Gianficaro (conference managers). The mission of the office is to enhance “learners’ knowledge, competence, performance, or patient outcomes through continuing medical education and professional development activities that are linked to practice and focused on health care quality gaps.” Learners are expected to “apply new knowledge and skills in order to improve performance and patient outcomes in their practice settings.” Additional information can be found at <https://medschool.cuanschutz.edu/education/cme>.

The greatest challenge for OCME during the past couple of years has been the impact of the COVID-19 pandemic on activities certified by OCME. Many activities were converted to virtual delivery of content during that period. Now, many activities have returned to live or hybrid delivery. This pivot back to live included the Family Medicine Review Course, which was held in Estes Park, June 20-24, 2022, and offered 31.75 hours of AMA PRA Category 1 Credit to ~100 attendees. During the year, OCME reached more than 33,469 physician and 24,196 non-physician learners. In addition, 2,652 hours of instruction were certified for AMA PRA Category 1 Credit.

The American Board of Medical Specialties (ABMS) Portfolio Program (MOC Part IV: Improvement in Practice) is also managed by OCME. Twenty-four specialty boards, under the guidance of the ABMS have implemented a four-part MOC process to help ensure physicians keep current in their specialties. Each specialty board has developed its own specific requirements, options for meeting them, and timeframes in which they must be met.

Physical Therapy Program

The University of Colorado School of Medicine Physical Therapy Program in the Department of Physical Medicine and Rehabilitation is home to three educational programs: Physical Therapy Program, Pediatric Physical Therapy Residency Program, and PhD Program in Rehabilitation Science. Additionally, two candidacy-stage residency programs are within the Physical Therapy Program: a faculty residency and an orthopedic residency.

Program Leadership

Michael Harris-Love, PT, MPT, DSc, FGSA, FAPTA

Associate Dean for Physical Therapy Education
Joanne Posner-Mayer Endowed Chair in Physical Therapy
Director, Physical Therapy Program

Daniel Malone PT, PhD, CCS

Associate Director, Physical Therapy Program

Jennifer Stevens-Lapsley, PT, PhD

Section Director, Research & Development
Director, PhD Program in Rehabilitation Science

Dana Judd, PT, DPT, PhD

Section Director, Student Affairs

Amy McDevitt, PT, DPT, OCS, FAAOMPT

Section Director, Curriculum

Jenny Rodriguez, PT, DPT, MHS

Section Director, Clinical Education

Website: <http://www.cuphysicaltherapy.org>

The Physical Therapy Program prepares each student to become a Doctor of Physical Therapy (DPT). Physical therapists are recognized as experts in movement and function who treat patients of all ages in many settings. Graduates of the CU Physical Therapy Program are prepared to collaborate with other health care providers to meet the musculoskeletal, cardiovascular, and neuromuscular needs of patients through direct access to care.

The CU Physical Therapy Program is ranked 13th out of 217 accredited physical therapy programs in the United States by the U.S. News and World Report (2020) and is one of the first 25 educational programs still in existence in the United States. This program has been continuously accredited since its inception in 1947, receiving an unconditional ten-year accreditation in 2020.

Mission:

To lead discovery and innovation to improve movement, participation, health and wellness for individuals and society through Excellence in education, research, clinical care, and service.

Vision:

To transform health and foster wellness in individuals and society through education, discoveries, engagement, and innovation.

Values:

Respect: For all individuals' safety, rights, dignity, and perspectives

Integrity: Because professional behavior reflects who we are

Altruism: In service to the individual, community, and organization

Diversity: For inclusivity in all endeavors

Accountability: To all those seeking care and providing care within our profession and health care systems

Passion: Because we are committed to lifelong learning, service, and community engagement

Collaboration: To leverage collective input from all individuals

Leadership: Within the university, profession, and community at large

Quality: To attain excellence in all we do

Applicants to the CU Physical Therapy Program

Applicants to the CU Physical Therapy Program come from a range of academic backgrounds. There are minimum prerequisites, similar to those for the MD Program, that emphasize basic sciences, quantitative ability, and psychology. In addition, many of the applicants have substantial experience in health care-related professions. Some have advanced degrees, and all have observed or worked in paid health care-related positions in physical therapy settings in preparation for application to the CU Physical Therapy Program.

Application Data 2021-2022

Completed Applications: 1,136

Interviewed: 198

Enrolled: 74

Cumulative GPA: 3.66

Last 60-Credits GPA: 3.77

Students of the CU Physical Therapy Program

Over 70 students enter the CU Physical Therapy Program each year. Just under half of the students are from Colorado, while other students are accepted to the program from across the United States, as well as internationally. Students enter this program with high qualifications, and graduates of the program pass a national licensure examination with scores that are competitive with or above the average for the United States.

The physical therapy students in the 2022 entering class have many unique life experiences that enhance and enrich the body of students who are also exceptionally qualified academically. Among this cohort, many students have had extraordinary research accomplishments, including multiple national publications and presentations. One student conducted research that supported the Mars 2020 mission. Valuable volunteer experiences include raising money for children's hospitals, Alzheimer's disease, and suicide prevention, along with firefighting and working with domestic violence survivors. This cohort also has noteworthy physical endeavors such as running, cycling, powerlifting, snowboarding, and collegiate basketball, track and field, volleyball, and pom dancing. Many have performed honorable service to their communities, and international programs for disadvantaged communities in Columbia and South Africa. Two members of this class have served in the United States military. Some students come from successful careers in marketing, environmental consulting, applied behavioral analysis, and adaptive sports. There are also students who excel in dancing, choreography, and guiding others in health and fitness.

The program is deeply committed to increasing diversity within the program and ultimately the physical therapy profession. The admitted Class of 2024 is comprised of 25% from a rural area, 24% first generation, and 29% who identify as racial or ethnic minorities. Ten students have Hispanic backgrounds, five students identify as Black/African-American, one as a Pacific Islander, and two students identify as two or more races/ethnicities. Other specific demographic data is included below.

Demographics of Admitted Students

Class:	2021	2022	2023	2024
Female	62%	65%	80%	74%
Male	38%	35%	20%	26%
CO Resident	48%	45%	44%	46%
Non-Resident	52%	55%	56%	54%
Minority	25%	26%	23%	29%
Average Age	25	24	24	24
Cumulative GPA	3.64	3.66	3.60	3.67
Math/Science GPA	3.65	3.61	3.43	3.54

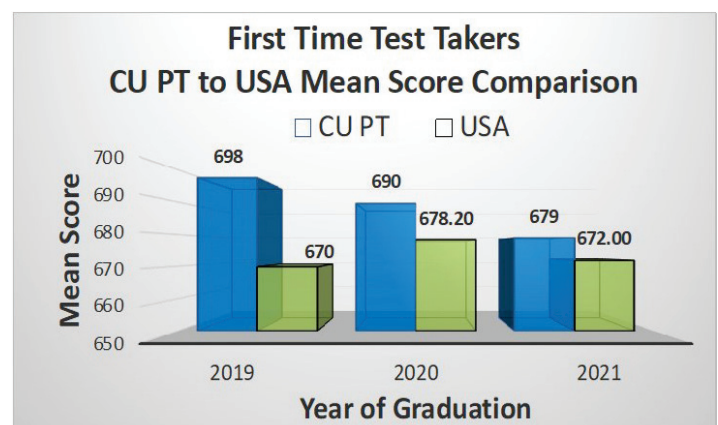
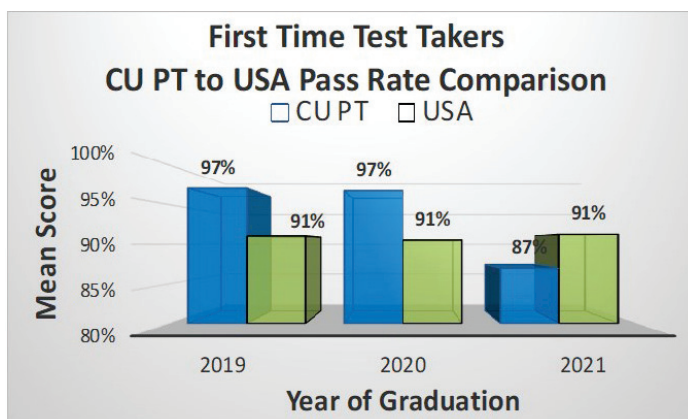
Graduates of the CU Physical Therapy Program

Graduates from the CU Physical Therapy Program perform exceptionally well on the national licensure examination, administered by the Federation of State Boards of Physical Therapy (FSBPT). Nearly 90% of our graduates have passed the exam on their first attempt, with 95% of our last four years of graduates having passed the exam on their first attempt. Graduates are employed in settings that range from outpatient to inpatient facilities and include patient populations that span pediatrics to geriatrics.



FEDERATION OF STATE BOARDS OF PHYSICAL THERAPY

Summary of scaled results based on FSBPT criterion-referenced passing score of 600.



Faculty

Faculty of CU Physical Therapy are innovative as leaders in physical therapy education and practice. Faculty are highly committed to the education of the CU PT students. They are experienced educators, many of whom contribute to clinical care. Several faculty members are recognized nationally and internationally for their scholarship. All are members of the American Physical Therapy Program Association (APTA) where they serve in leadership roles (e.g., on the board of directors of APTA; president of the cardiovascular and pulmonary section of APTA). They also serve other professional organizations (e.g., members of NIH grant review sections and committees), as well as service to the community (e.g., president of Colorado State PT Board, DORA; DAWN Clinic; Stout Street Clinic for individuals who are homeless). Since 2008, the faculty have developed a robust and substantial research agenda with a current research portfolio of over \$19 million.

Curriculum

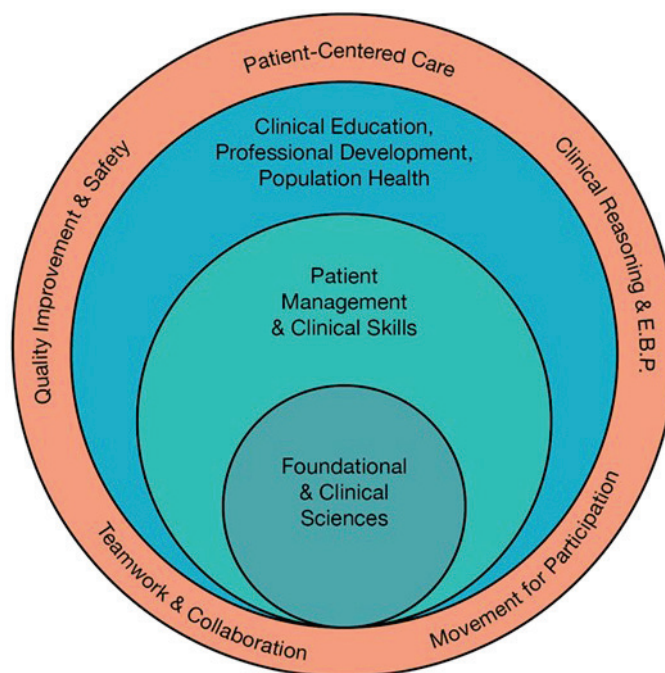
The curriculum is two and a half years in length comprised of seven semesters of didactic coursework and 38 weeks of clinical education. Some students continue in their final clinical experience after graduation in a paid internship. The curriculum prepares students to improve movement, participation, health and wellness in individuals and populations. As such, curricular content is divided into foundational and clinical sciences, patient management and clinical skills, professional development, and clinical education. There is intentional integration between all these components through threaded curricular elements. Students learn patient management for individuals across the lifespan with musculoskeletal, cardiovascular, and neurologic disorders, as well as physical therapy for patients with other medical conditions.

Clinical education experiences occur early and frequently, which allows situational learning and application at several points throughout the two and a half years. The curriculum includes a series of courses focused on developing professional identity, with emphasis on core professional values, effective communication and interpersonal skills, psychosocial aspects of care, clinical reasoning, and evidence-based practice. Students reflect on what it means to be a Doctor of Physical Therapy, leadership and career management, health care delivery systems, and social determinants of health in the context of individual and population health.

Faculty of the CU Physical Therapy Program review and revise the curriculum annually to ensure that content, emphasis, and pedagogy remain current and consistent with changes in the profession and healthcare.

The curriculum is carefully designed to integrate five content areas that are threaded throughout the curriculum:

- Patient-Centered Care
- Clinical Reasoning and Evidence Based Practice
- Movement for Participation
- Teamwork and Collaboration
- Quality Improvement and Safety



Center for Advancing Professional Excellence

The Center for Advancing Professional Excellence (CAPE) provides an innovative high-fidelity simulation environment for students to practice physical therapy examination, intervention, and communication skills. Two comprehensive examinations/assessments take place during the first and second years of the program. The Doctor of Physical Therapy Program is one of the few physical therapy programs in the United States where students can work with standardized patients and high-fidelity mannequins in conjunction with a full-service simulation center of excellence.

Interprofessional Education

The CU Physical Therapy Program participates in a longitudinal Interprofessional Education (IPE) curriculum, which is designed to prepare students for interprofessional collaborative practice. The curriculum focuses on developing competencies in teamwork/collaboration, values/ethics, and quality/safety. Each student is assigned to an interprofessional student team, which includes students from some of or all the following schools/programs: School of Medicine (Physical Therapy, Medicine, Child Health Associates/Physician Assistants), School of Pharmacy, College of Nursing, and School of Dental Medicine. Over the first two years of the curriculum, the interprofessional student team meets to understand and apply fundamental content in teamwork/collaboration, quality/safety, and values/ethics. In years two and three, students spend an afternoon in the Center for Advancing Professional Excellence to participate in collaborative patient care.

Clinical Reasoning Capstone Project

The didactic curriculum culminates in a capstone project. The capstone project includes the writing and presentation of a patient case report that synthesizes the didactic content of the curriculum with the student's clinical experiences, while highlighting the application of evidence-based practice and clinical reasoning.

Research Initiatives

Entry-level DPT students are encouraged to participate in research under the guidance of nationally recognized faculty mentors and present their findings through national scientific conferences and peer-reviewed publications. Several research facilities are available that enhance the ability of faculty to conduct rehabilitation research and to mentor students who seek to develop research skills while completing their physical therapy education. One facility, the Interdisciplinary Movement Science Laboratory, contains state-of-the-art equipment for motion analysis of gait and other functionally relevant tasks. A sister facility in the Geriatric Research, Education, and Clinical Center contains an instrumented treadmill with a motion analysis system that allows intervention and outcome research for populations with walking dysfunction. These motion analysis facilities are also equipped for studies involving electromyography and transcranial magnetic stimulation. In addition, faculty lead the Muscle Morphology, Mechanics, and Performance Laboratory, which includes equipment used to assess sarcopenia and myosteatosis, and the Spinal Cord Injury Imaging Research Laboratory, which focuses on the prognosis and treatment of individuals with spinal cord injury. The Rehabilitation Science Consortium houses graduate students, post-doctoral fellows, research assistants, and physical therapy students who assist with research projects.

Scholarships

The CU Physical Therapy Program is committed to providing sustainable scholarship support to help offset the cost of education to students. Scholarships are available to both prospective and current students and are awarded based on merit, diversity, and commitment to practice in specific areas such as rural communities. The CU Physical Therapy Scholarship and Endowment Board was formed in 2012 and has successfully increased the PT Program's committed funds from less than \$300,000 in 2011 to over \$5 million. Together, the Board, CU Physical Therapy Program leadership, and the alumni association have increased the endowment and current use funds to distribute over \$200,000 in scholarships annually.

Pediatric Physical Therapy Residency Program

The University of Colorado Physical Therapy Pediatric Residency Program is an accredited post-professional clinical and didactic education program for licensed physical therapists who have graduated from an accredited DPT program and seek to specialize in pediatric physical therapy. The mission of this residency program is to provide a comprehensive program of didactic, clinical, and professional experiences to develop pediatric physical therapy specialists. Through clinical care experiences, educational excellence, exposure to research and active engagement in scholarship, teaching opportunities, professional and community service, and participation in collaborative teamwork, residents will become future leaders in the profession.

The residency program is designed to significantly advance preparation of the pediatric physical therapist as a highly qualified provider of patient care services in multiple, complex clinical practice settings. Future leaders in pediatric physical therapy are developed through coursework and clinical experiences during the 13-month residency program. In addition to clinical opportunities in multiple settings with structured mentorship, the program also includes participation in the Leadership and Education in Neurodevelopmental Disabilities program through JFK Partners and access to the resources of the University of Colorado Physical

Therapy Program. The American Board of Physical Therapy Residency and Fellowship Education accredits all residency and fellowship programs, and the University of Colorado Pediatric Residency Program is fully accredited through September 2028.

Graduate residents are eligible to take the clinical specialist board examination to be recognized as Pediatric Board-Certified Clinical Specialists by the American Board of Physical Therapy Specialists in the year following completion of the residency, and our pass rate is 100%. Clinical sites during the residency include the ENRICH Early Intervention team through JFK Partners, Main Campus and Highlands Ranch Therapy Care Clinic of Children's Hospital Colorado, Rise School of Denver, Cherry Creek School District, Therapies for Hope, Adam's Camp, and acute inpatient care in Children's Hospital Colorado.

Faculty Residency Program

The University of Colorado Anschutz Medical Campus Faculty Residency is a structured, post-professional education program for licensed physical therapists who have graduated from an accredited DPT program who aspire to an academic faculty position. The program is designed to significantly advance preparation of the physical therapist as a highly qualified educator and productive scholar. Potential as a future leader in physical therapist education is developed through multiple teaching experiences, structured mentorship opportunities, and mentored educational scholarship throughout the program.

The mission of the University of Colorado PT Program Faculty Residency Program is to develop competent faculty who are prepared to engage in innovative education by providing a curriculum and mentored experience that supports excellence in the preparation of future healthcare providers and participation in academia. This residency received candidacy status from the American Board of Physical Therapy Residency and Fellowship Education in March 2021 and will seek initial accreditation following a site visit in fall 2022.

Orthopedic Physical Therapy Residency Program

The University of Colorado School of Medicine Physical Therapy Orthopedic Residency in partnership with UHealth is a structured, post-professional education program for licensed physical therapists who have graduated from an accredited DPT program and are seeking specialized training in orthopedic physical therapy. The orthopedic residency will offer experiences in outpatient and classroom settings through the resources of the University of Colorado Physical Therapy Program on the Anschutz Medical Campus and mentorship in clinical patient management in Denver area UHealth outpatient physical therapy clinics. The mission of the orthopedic physical therapy residency program is to elevate the profession and standard of patient care by developing specialized orthopedic physical therapists who demonstrate integrity, excellence, and leadership through innovative evidence-based patient management, as well as professional and community education.

The residency program is designed to significantly advance preparation of the orthopedic physical therapist as a highly qualified provider of patient care services in multiple, complex clinical practice settings. Future leaders in orthopedic physical therapy are developed through coursework and clinical experiences during the 13-month residency program. This residency received candidacy status from the American Board of Physical Therapy Residency and Fellowship Education in June 2021 and following accreditation site visit in April of 2021 expects final decision for accreditation to be made in September 2022. Graduate residents are eligible to take the clinical specialist board examination to be recognized as Orthopedic Board-Certified Clinical Specialists by the American Board of Physical Therapy Specialists in the year following completion of the residency.

PhD Program in Rehabilitation Science

Rehabilitation Science is an interdisciplinary and translational field of study that integrates knowledge from the basic and clinical sciences to improve our understanding of human movement, physical function, and disability across the lifespan. Students receive individual mentorship from nationally recognized rehabilitation scientists in state-of-the-art research facilities, with a customized curriculum to meet the interests of each student. Breadth of knowledge is acquired through foundational coursework in research design, biostatistics, and rehabilitation science, whereas depth of knowledge is gained through elective coursework in one of five areas of focus: clinical trials research, health services research, translational research, mechanistic research, and implementation science. This approach prepares students to become independent research scientists who integrate knowledge from multiple perspectives ranging from the molecular to the systems level to solve complex problems of physical disablement that will advance clinical practice in the field of physical rehabilitation.

Students of the PhD Program in Rehabilitation Science are highly successful, as evidenced by many measures, including grants and fellowships awarded to students during their pre-doctoral studies and contributions as co-investigators to investigations that are funded by foundations and NIH. Students regularly publish peer-reviewed manuscripts, as first or contributing authors. Since the Rehabilitation Science PhD Program began in 2011, eight students are currently enrolled, nine students have graduated, and 100% of graduates are either completing post-doctoral fellowship training or they have secured faculty positions.

2021 Program Honors

Cindy Armstrong, PT, DPT, CHT, CLT was elected to another 3-year term on the APTA Board of Directors.

Catherine Bilyeu, PT, DPT, OCS, along with Jennifer Gunlikson, PT, DPT, NCS, and **Jennifer Rodriguez**, PT, DPT, DCE, presented on *Creating a culture of excellence: Utilizing clinical-academic partnership to cultivate clinical instructor development opportunities*, at the Educational Leadership Conference in Atlanta, GA.

Lara Canham, PT, DPT, OCS was promoted to Chair of Admissions. She also published *Holistic Review in Doctor of Physical Therapy Admissions Can Lead to Enhanced Diversity in Admitted Students* in the Journal of Physical Therapy Education and delivered an educational session at CSM 2021 titled *All Diversity, Equity, and Inclusion Arrows Point to Holistic Review in Admissions: A Panel on Implementation*.

Cory Christiansen, PT, PhD, was a finalist for the National Postdoctoral Association Gallagher Mentor Award.

Lisa Dannemiller, DSC, PT, PSC, was recognized by the *Pediatric Physical Therapy Journal* for Best Article in 2020.

Robyn Gisbert, PT, DPT received the CU Physical Therapy Program 2021 Excellence in Teaching Award.

Michael Harris-Love, PT, MPT, DSc, FGSA was appointed as an Associate Editor for the journal, *Frontiers in Rehabilitation Sciences*. He transitioned from Visiting Professor status to a full Professor appointment. He also was the Research Day Keynote Speaker for the Mayo Clinic Physical Therapy Program, in Rochester, MN.

Amy Nordon-Craft, PT, DSc, **Mark Mañago**, PT, DPT, PhD, NCS, **Amy McDevitt**, PT, DPT, OCS, FAAOMPT, and **Dana Judd**, PT, DPT, PhD were among the faculty members who gave a poster presentation on *Blocked scheduling in physical therapist education as a curricular adjustment in response to COVID-19* at CSM in San Antonio.

Toby Kinney, PT, DPT, OCS, FAAOMPT, MBA, PhD(c) received the Bette Ann "B.A." Harris Scholarship in Interprofessional Studies, from the Massachusetts General Hospital Institute of Health Professions.

Amy McDevitt, PT, DPT, OCS, FAAOMPT was promoted to Associate Professor. She was selected for membership into the University of Colorado, School of Medicine, Academy of Medical Educators. She was also Winner of Best Overall Poster Presentation; American Academy of Orthopaedic Manual Physical Therapists Conference, Cleveland, Ohio, October 2021.

Paul Mintken, PT, DPT, OCS, FAAOMPT was elected to a 3-year term as a Nominating Committee member of the Academy of Orthopaedic Physical Therapy. He and **Amy McDevitt** were awarded Best Poster Presentation, First Place Overall, American Academy of Orthopaedic Manual Physical Therapists Annual Conference for *Pneumothorax following dry needling of periscapular muscles utilizing a rib bracketing technique: A case report*. He also received the Cerasoli Award for Outstanding Contributions to Physical Therapy Education from the University of Colorado Physical Therapy Program, 2021.

Mike Pascoe, PhD was promoted to Associate Professor. His abstract was accepted at the American Association for Anatomy, *Serving as an Anatomy Laboratory Teaching Assistant was not associated with Higher Scores on the USMLE Step 1 Exam*, April 2021. He secured the 2021 Rymer Grant from the Academy of Medical Educators for *Onboarding Medical Students, Interns and Residents onto Surgical Services using a Wiki*. He published *The effect of Snapchat on learner satisfaction and anatomical knowledge retention: Preliminary observations* in FASEB Bio Advances.

Andrew Smith, PT, DPT, PhD was the recipient of the 2021 APTA Academy of Neurologic Physical Therapy Spinal Cord Injury SIG Research Award. He was also accepted into the Comprehensive Opportunities in Rehabilitation Research Training NIH K12 Scholar program for its final year. Dr. Smith delivered 4 scientific presentations, was an AB Nexus Grant recipient, had 8 peer-reviewed manuscript publications, and was a Rocky Mountain Regional Spinal Injury System co-investigator.

Jennifer Stevens-Lapsley, PT, PhD, FAPTA was awarded an NIH grant: Advancing Rehabilitation Paradigms for Older Adults in Skilled Nursing Facilities. She was a Society of Critical Care Medicine Award Winner: Factors Associated With Home Health Rehabilitation Utilization Among Older ICU Survivors. She was the Irma Ruebling Distinguished Speaker at St. Louis University.

Center for Advancing Professional Excellence

The Center for Advancing Professional Excellence (CAPE) is a state-of-the-art standardized patient and simulation center. Working alongside faculty, current and future health care professionals gain access to the latest innovations in teaching and learning. Through simulation experiences, learners develop and improve patient-centered care. With 29,000 square feet, the CAPE is a unique resource to the Rocky Mountain region. This education environment allows learners to gain real-world experience working with patients, handling clinical situations, and collaborating with fellow health care professionals. The CAPE promotes excellence in the health professions through education and assessment of clinical skills including communication, physical examination, clinical reasoning, and teamwork. We continue to grow and innovate while accommodating more learners and health care professionals. Our community of supporters fuel our efforts to bring a world-class education within reach for current and future health professionals in the Denver metro area, the region, and beyond.

Annual Achievements

- Ongoing accreditation by the Society for Simulation in Healthcare.
- Transitioned the CAPE space to the newly constructed Anschutz Health Sciences Building.
- Continued partnership with the campus community to hold quarterly community series labeled “Being _____ on the CU Anschutz Medical Campus,” which allows diverse communities to speak of their experiences on campus to inspire understanding and empower collective action.
- Continued partnership with external partners including Denver Health, Red Rocks Community College, Colorado Mesa University, and Colorado State University to offer trainings and research in the areas of communication, teamwork, transition of care, and physical exam teaching utilizing simulated professionals and mannequins.
- CAPE employs 85 standardized patients, standardized teaching associates, communication coaches and facilitators, and simulation technologists who represent the state’s diverse population. In the past year, the standardized patient pool provided 37,244 hours of simulation work. CAPE provided over 35,000 learner contact hours for schools on campus.
- Continued partnership with the Colorado Department of Public Health and Environment to administer a competency-based skills assessment for health navigators who serve a diverse population across the state. In the past year, 32 health navigators have completed the assessment and added to the CDPHE registry for current and potential employers to access. Additionally, CAPE collaborated with area health education centers and administered the assessment in Durango to be accessible by health navigators practicing in and around the southwest region.
- Continued partnership with Children’s Hospital Colorado Simulation Lab to integrate simulated patients in additional boot camp trainings for interns, residents, and fellows.
- Partnership with the Center for Personalized Education for Physicians and faculty from Emergency Medicine, Anesthesiology, Neonatology, and Obstetrics and Gynecology to offer competency assessment, re-entry to clinical practice, and education services for health care professionals. In the last year, CAPE administered 22 assessments from referrals from the center.

Program Information

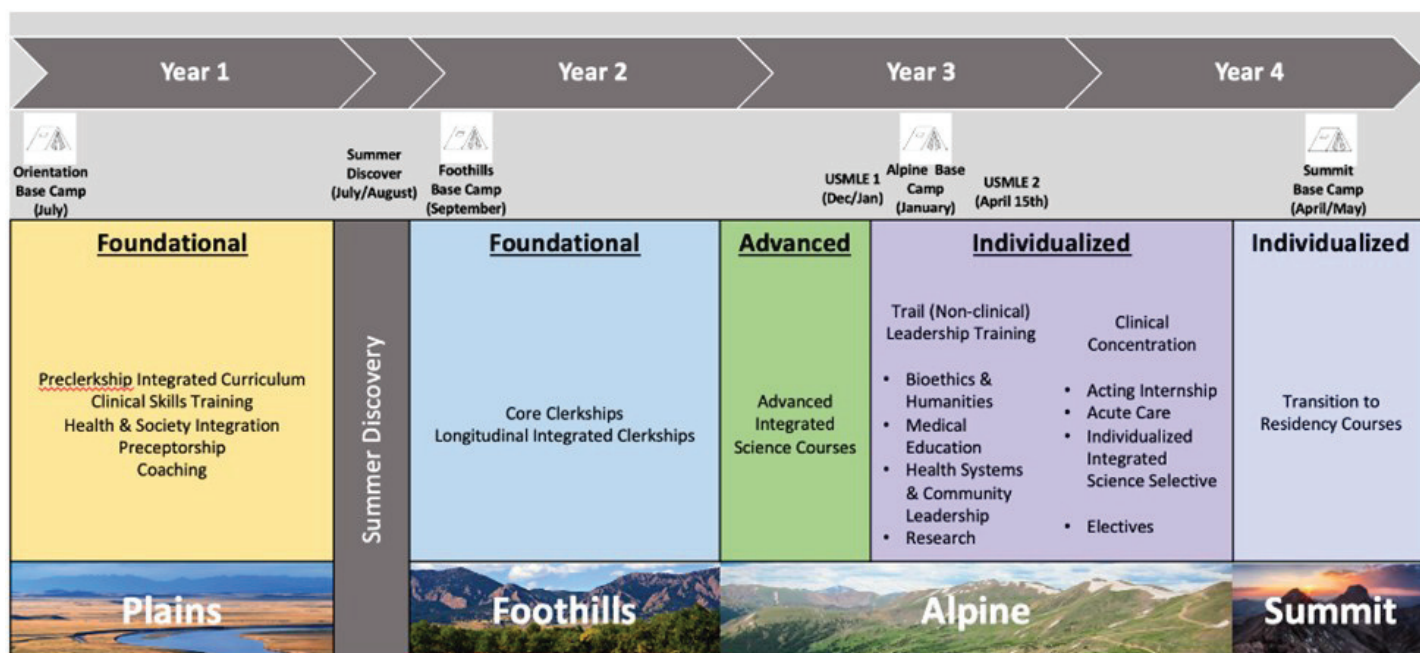
Elshimaa Basha, MPH, CHSE Director	Amy Nordon-Craft, PT, DSc Curriculum Design & Quality Improvement Specialist
Melissa Giardina, BA HR & Payroll Manager Brena Jones, BA Business Services Senior Professional Rebecca Vollmer, BA Education Support	Jedidiah Jensen, BA Simulation Technology Specialist
Devra Keyes, MS, Veronica Paradise, Tanya Russell, PhD, and Elizabeth Stanley, BA Simulation Education Project Coordinators	Jocelyn Blake, BA Community Relations and Communications Manager

Program website: <https://medschool.cuanschutz.edu/cape>

Undergraduate Medical Education

The Undergraduate Medical Education office oversees students entering medical school with the goal of earning the Doctor of Medicine degree. The students dedicate four or more years to an intensive period of study, clinical rotations, and personal growth. The Undergraduate Medical Education office is responsible for guiding the students throughout their journey to become a doctor of medicine. The process begins with selecting the students who are personally and academically prepared to make the journey. The students receive counseling, financial/career advising, a rigorous curriculum in basic and clinical sciences, state of the art experiences in simulation, rigorous assessments, and technological support throughout their medical school experience. This section of the Facts and Figures book will review some activities in each of these areas. Website: <http://medschool.cuanschutz.edu/education>.

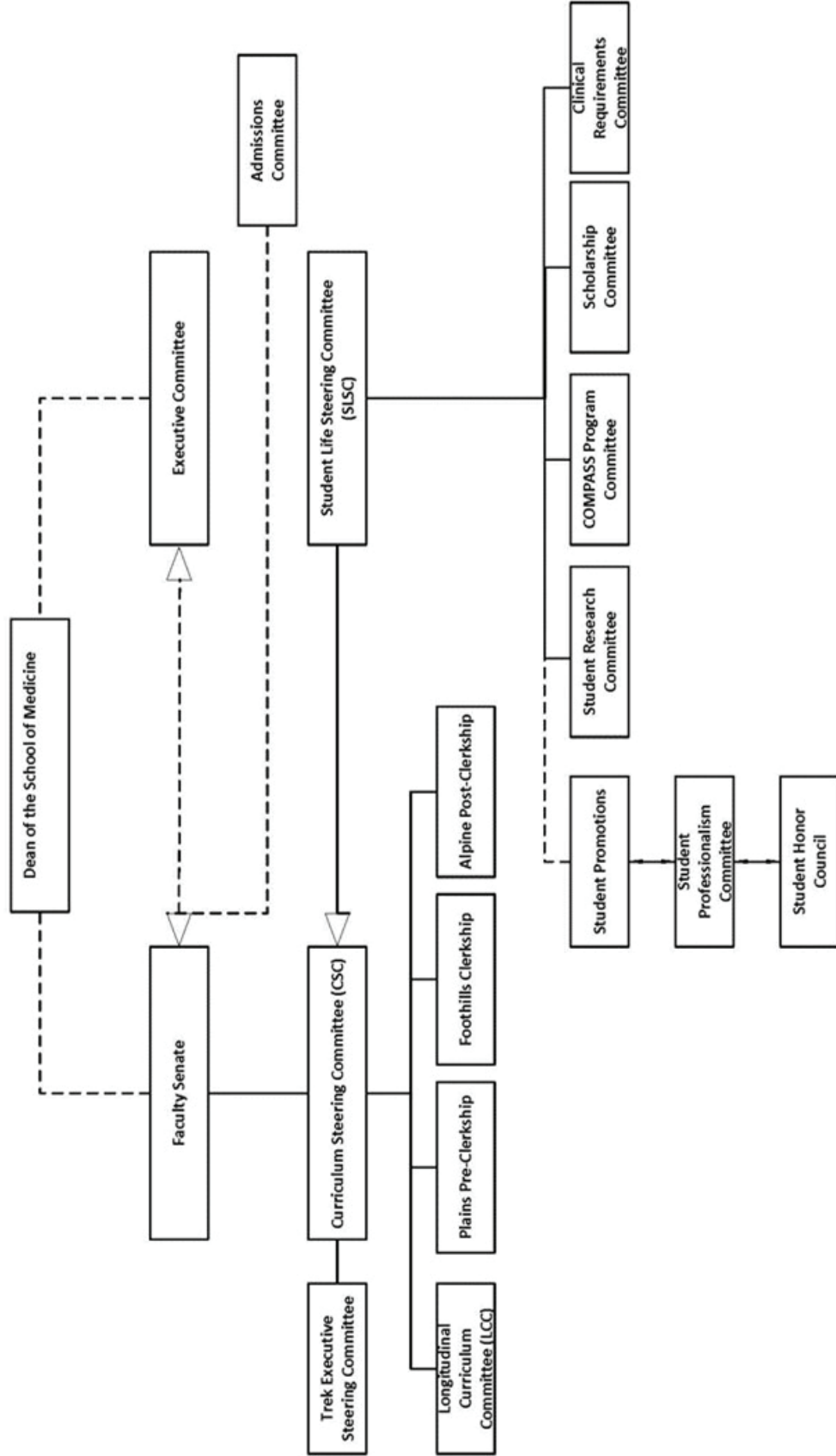
Following the successful visitation by the Liaison Committee on Medical Education (LCME) in March 2017 our undergraduate medical education team decided, with encouragement from Dean John J. Reilly, Jr., MD, to embark on a process to revise our curriculum focusing on preparing our graduates for the future of medicine, science, and health systems. On October 30, 2017, Senior Associate Dean for Education Shanta M. Zimmer, MD, led a kickoff retreat for the process. With approximately 150 participants, this introductory event served as a catalyst to share ideas and begin the hard work of deciding how our curriculum can be redesigned. We chose **leadership, curiosity, and commitment** as the principles that our future graduates need to practice compassionately and skillfully in the ever-changing health care systems and communities as superb clinicians, innovative educators, and creative investigators. Following the retreat, more than 25 committees planned an innovative new curriculum focusing on the pillars of Leadership, Curiosity and Commitment. Faculty from the School of Medicine led these committees, with membership of students, staff, clinicians, scientists, and community members who worked diligently to build the Trek curriculum. Trek integrates basic science elements longitudinally throughout the academic careers of our students to prepare them and to enhance their personal and professional development as clinicians. The first phase launched in July 2021.



The Plains is comprised of foundational experiences that take students through pre-clerkship integrated basic science curriculum, clinical skills training, preceptorship, and coaching. After completing their summer discovery period, students transition to the Foothills where they will participate in Longitudinal Integrated Clerkships (LICs). In the post-clerkship portion of the curriculum, students will work through advanced science courses and USMLE 2 and 1. Students will then find more individualized paths, called trails, which include electives, dedicated research and discovery, acting internships, critical care experiences, and transition to residency electives. Lastly, our students will reach the Summit of their undergraduate medical education where they transition to graduate medical education and the next phase of their training. Oversight of the curriculum includes multiple committees reporting to the Curriculum Steering Committee and the faculty senate.

The Trek curriculum reform website provides updates on curriculum planning and pilots: <https://medschool.cuanschutz.edu/education/current-students/curriculum/curriculum-reform>

Undergraduate Medical Education Committee Structure As of 06/30/2022



Represents reporting structure —

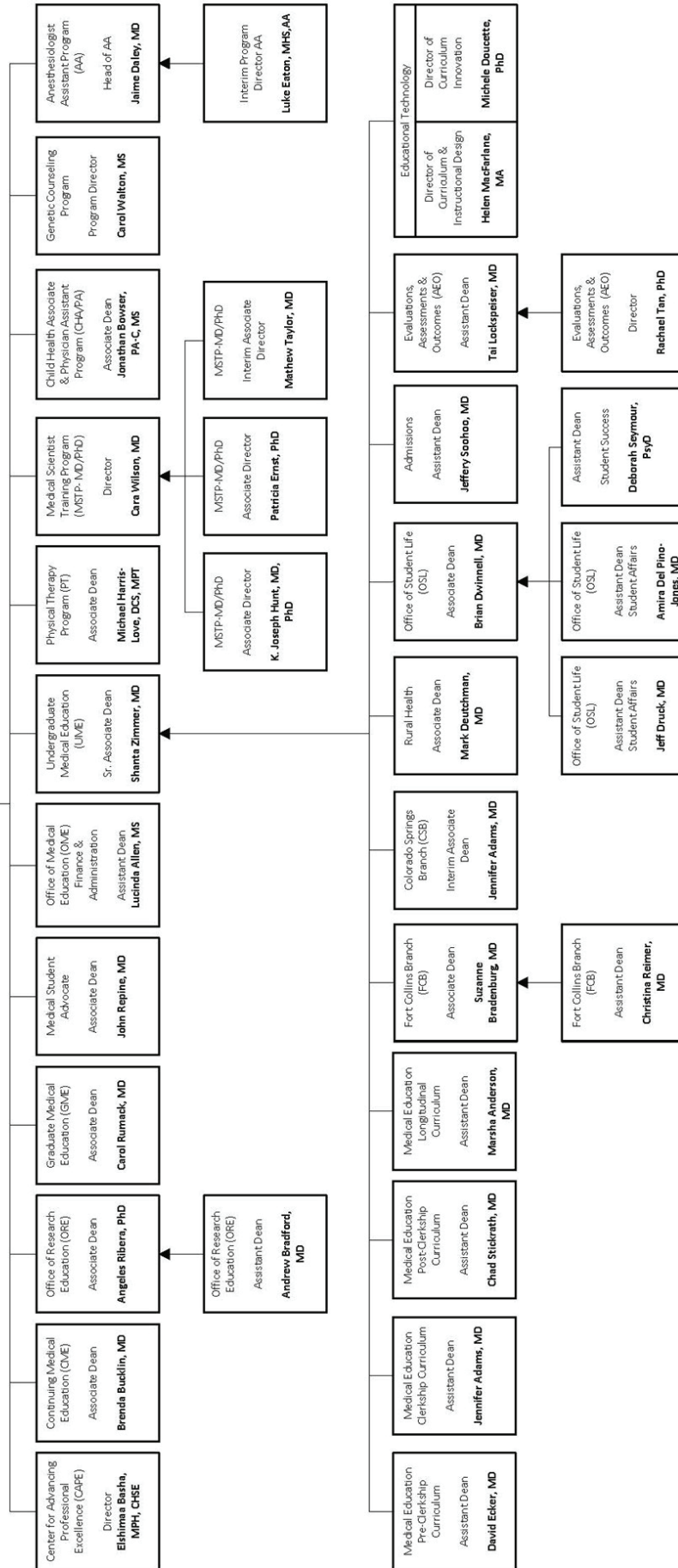
Represents line of communication - - -

Medical students are elected/appointed/ volunteer on all student committees. For additional information on participation please contact the Office of student Life (OSL)

University of Colorado School of Medicine
Office of Medical Education Leadership & Offices
7/30/2022

Senior Associate
Dean of Education
Shanta Zimmer, MD

Executive Assistant
to the Dean
Deborah Stevens



Curriculum Steering Committee

Chair: **Stu Linas, MD**

The Curriculum Steering Committee (CSC) is responsible for the oversight, design, implementation, integration, evaluation, review, and revision of the medical school curriculum. With appropriate faculty input, the CSC will:

- Oversee the medical education program as a whole, including design, integration, evaluation and improvement.
- Guide, review, approve course, block and thread content and educational formats.
- Systematically establish the evaluation procedures for curriculum, student, and faculty assessment.
- Focus on helping achieve specific curricular outcomes associated with graduating superior physicians.
- Periodically review and amend educational policies.
- Recommend, facilitate, and develop procedures to assure that suggested changes to the curriculum are implemented.

The Curriculum Steering Committee posts its materials on a SharePoint site available to its users.

New Members	Voting: Leslie Wright, Elshimaa Basha, MPH Non-Voting: Lotte Dyrbye, MD, MHPE
Continuous Quality Improvement (CQI) and Phase Reports	<ul style="list-style-type: none"> • Longitudinal Curriculum ○ Several Individual Plains Blocks ○ Approved Changes to CQI Process ○ GQ ○ Intern Survey ○ Fort Collins Plains ○ Colorado Springs LIC ○ Hybrid Year
Key Change(s) to Curriculum	Prepared for 2022 Bulge LIC COVID-19 Modifications
Oversight	<ul style="list-style-type: none"> • Internship Match Process • Scheduled Hours Compliance Process • Assignment process for P3 • Branch Campuses: Fort Collins and Colorado Springs • Approved changes to P1, P2 Assessment process • Hybrid Class of 2024 • TREK Class of 2025 forward • Legacy Class of 2021-2023 • Mental Health of all classes during pandemic

Student Life Steering Committee

Chair: **Deb Seymour, PsyD**

Overview

The CU medical school faculty has responsibility for overseeing the medical school curriculum and for contributing significant input and oversight into noncurricular aspects of medical student life. Constructive and systematic evaluation by faculty can be expected to result in thoughtful, consistent, and constructive oversight of student life issues such as selection, promotion, advising, including financial counseling, mentoring, professionalism, health and well-being, record-keeping, and visiting students. Such oversight may also result in creativity and innovation in adapting to changing aspects of medical student life which will enhance medical student professional development.

In view of a central role of the faculty and the dynamic nature of student life issues, the Student Life Steering Committee (SLSC) is charged with oversight of noncurricular student professional life policies and procedures. The SLSC will work closely with the senior associate dean for education, the associate dean for student life, and the committees of undergraduate medical education to develop, guide, revise, adjudicate, and implement policies and procedures relevant to medical student professional life. Actions of the SLSC will be reviewed by the senior associate dean for education and the associate dean for student life and reported annually to the faculty senate.

During the COVID-19 pandemic the SLSC reviewed proposals and policy changes needed to adapt to circumstances that had impact on non-curricular aspects of student life. New members were added to the committee to provide representation from the Fort Collins branch campus and new student representation from phase 1 and 2, and the student life advisory committee.

Charge

To oversee, review, guide, evaluate, recommend changes, review new policies and procedures when appropriate, and assure consistent implementation of established policies and procedures regarding noncurricular aspects of medical student professional life.

Recommend to the faculty senate and senior associate dean for education changes in policies and procedures relevant to noncurricular aspects of medical student professional life.

Assist with the development and implementation of policies and procedures that stimulate evolutionary change that optimize medical student professional life and professional development.

Monitor and constructively respond to data obtained from evaluation and outcome instruments regarding medical student noncurricular professional life.

Apply relevant Liaison Committee for Medical Education standards and elements to ensure that medical student noncurricular issues are monitored, addressed, and updated to ensure standard compliance and to enhance medical student professional development and well-being.

Address special student life and policy/procedure-related issues that arise that are relevant to medical students and are outside the purview of established undergraduate medical education and school of medicine oversight committees.

Reporting Procedures

SLSC will receive timely reports and updates from the student promotions committee including its sub-committee on student professionalism, and the scholarship committee, the associate dean for student life, the clinical requirements committee, and the admissions committee.

SLSC will inform the senior associate dean for education of ongoing issues and activities and report to the faculty senate.

Voting Membership

A clinical and a basic science faculty member involved with medical student activities

President, Medical Student Council

A Medical Scientist Training Program student

One Medical student representing Phases I or II

Faculty senate representative, recommended by the president of the faculty senate

Director of evaluation for undergraduate medical education

A community-based physician-educator faculty member

A faculty advisor from one of the School of Medicine's advisory colleges

Associate dean for diversity, equity and inclusion

Nonvoting Membership

- Senior associate dean for education
- Associate dean for student life
- Associate dean for curriculum
- Assistant dean for student affairs
- Assistant dean for admissions
- Director of student life
- Director of finance and administration for undergraduate medical education
- Director of educational technology
- Associate dean for Colorado Springs branch
- Assistant dean for Fort Collins branch campus
- Student members of student life advisory committee
- Other faculty, students or administrators with expertise as needed

Leadership

The SLSC will be chaired by a senior faculty member with experience in student life activities and appointed by the senior associate dean for education.

Terms of Appointment

Faculty members to this committee are appointed for three-year terms. Terms are renewable for one additional cycle of three additional years. Medical and Medical Scientist Training Program students are appointed by medical student council to a term of up to one to four years.

Plains Curriculum

The Plains (pre-clerkship) curriculum consists of 10 integrated courses that present the medical sciences, clinical sciences, and health systems sciences to prepare students for their clerkship year and beyond. **David Ecker, MD**, assistant dean of education, oversees the Plains curriculum. Each course lasts three to six weeks, and consists of didactic, active learning, experiential, laboratory, and small group discussion sections. In addition to learning and applying the medical sciences necessary for a developing physician, each week students engage in small groups with a physician coach to advance their clinical skills as part of the Developing Our Clinical Skills (DOCS) curriculum, which emphasizes a humanistic approach to medical care. During those half-days, students apply, practice, and receive feedback on their foundational communication, physical examination, and clinical reasoning skills through simulation and actual patient care experiences. Students also spend one-half day each week in small groups led by their physician COMPASS Guide participating in the health and society curriculum, which integrates behavioral and social sciences, informatics, evidence-based medicine, health care policy, culturally effective medicine and ethics, interprofessional education, and professionalism to prepare students to care for a diverse population. Students may also choose to participate in electives to personalize their curriculum and explore interests outside the standard curriculum. The overarching goal of the Plains curriculum is to provide the scientific foundation and critical thinking skills for our students' future medical education and to equip them for a lifetime of learning, research, clinical care, and community service.

Developing Our Clinical Skills Curriculum

The Developing Our Clinical Skills Curriculum is comprised of several elements: communication, physical examination, and clinical reasoning training, as well as preceptorship experiences. The DOCS Curriculum is a hands-on, experiential curriculum that is integrated with the other pillars of the Trek curriculum. Students will meet weekly in stable small groups with a DOCS Coach, who is a physician trained to develop students' clinical skills. The longitudinal relationships between students and their coaches will allow individualization of students' learning and development. Standardized patient encounters and regular clinical exposure in a physician preceptor's practice are key components of this curriculum. Course Director **David Ecker, MD**, and the Associate Course Directors **Deb Seymour, PsyD** (Communication), **Brandy Deffenbacher, MD** (Physical Exam), **Todd Guth, MD** (Clinical Reasoning), and **Catherine Callister, MD** (Preceptorship), continue to develop and produce a dynamic, integrated curriculum of foundational clinical and professional skills and experiences that equip students for their clinical years. The curriculum is aligned with material taught in the Plains Curriculum to encourage integration of classroom learning into clinical practice.

If you are interested in volunteering as a preceptor for the Developing Our Clinical Skills (DOCS) curriculum email som.docs-preceptorship@cuanchutz.edu.

Clinical Block Directors and Clerkship Phase Curriculum Committees

The Clinical Block Directors (CBD) Committee and the Clerkship Phase Curriculum Committee (CPCC) are responsible for the design, implementation, and evaluation of the Phase III and IV medical student curriculum. The committees meet regularly to develop and implement the curriculum.

2022 marked the transition point of the School of Medicine curriculum during the clinical curriculum reform. During this academic year, we implemented three simultaneous curricular programs with overlapping student classes. The two curricular committees managed these overlapping learners and curricula.

The legacy curriculum enrolled clerkship students in the Class of 2023 with students completing their core clerkship year from May 2021 to April 2022. Students were enrolled in a mix of traditional block rotations and longitudinal integrated clerkships. This curriculum was governed by the CBD committee.

The hybrid curriculum enrolled clerkship students in the Class of 2024 from January 2022 to November 2022. Students were enrolled in a mix of traditional block rotations and longitudinal integrated clerkships. This curriculum was governed by the CBD committee for the traditional block rotations and by the CPCC committee for longitudinal integrated clerkships.

The trek curriculum enrolled clerkship students in the Class of 2025 from September 2022 to August 2023. Students were enrolled entirely in longitudinal integrated clerkships. This curriculum was governed by the CPCC.

The following individuals served as Traditional Clinical Block Directors in 2021-22: Christopher King, MD, Janna Hardland, MD, Trevor Hawkins, MD, Jill Liss, MD, Paul Montero, MD, Kelley Roswell, MD, Joseph Sakai, MD, Jennifer Soep, MD

Assistant block directors included Brandy Deffenbacher, MD, Austin Butterfield, MD, Vera Fridman, MD, Teresa Jones, MD, Juan Lessing, MD, Amy Markese, MD, Meghan Treitz, MD, Juliana Wilson, MD.

The following individuals served as Longitudinal Integrated Clerkship Directors in 2021-22: Jennifer Adams, MD, Jaime Baker, MD, Heather Cassidy, MD, Anne Frank, MD, Emily Gottenborg, MD, Vishnu Kulasekaran, MD, Amy Reppert, MD, Roberto Silva, MD, Meghan Treitz, MD, Eric Young, MD

Assistant longitudinal integrated clerkship directors included: Mark Deutchman, MD, Kaitlin Heisel, MD

Jennifer Adams, MD is assistant dean of medical education and clinical curriculum and is responsible for planning, management, and leadership of Phases III and IV. Chad Stickrath, MD, is the assistant dean for Phase IV.

Clinical Core: Phase III

The Clinical Core Curriculum consists of competency-based clerkships that provide opportunities for mastery of the core knowledge, skills, and attitudes required of physicians. The curriculum provides intensive clinical experiences in the hospital, ambulatory clinics, emergency room, labor and delivery suite, and operating rooms. Increasing emphasis in the curriculum is placed on opportunities for students to increase continuity and authenticity of clinical experiences in the format of Longitudinal Integrated Clerkship. For each clerkship (both block and longitudinal), goals and learning objectives have been developed by the CBDs to reflect the clinical experiences and are mapped to ACGME competencies. In addition, overarching medical education program objectives have been developed by a consensus-based process. These objectives are defined in outcome-based terms that allow assessment of medical students' progress in developing competencies to be achieved at the time of graduation. These objectives reflect the expectations of physicians by the profession and the public.

Students use learning logs to record conditions observed, diseases, and procedures. Low and high-stakes assessments have been incorporated into each clerkship or block. Shelf exams or block-developed medical knowledge exams, clinical evaluations, mid-point feedback sessions, mid- or end-of-block standardized patient exams and clinical practice exams provide additional opportunities for assessment of students' clinical performance and opportunities for feedback on student performance. Clinical block directors monitor students' clerkship experiences at all clinical sites.

Clinical partnerships are essential for the training experiences of medical students in the clinical core. Core affiliate institutions include University of Colorado Hospital and other University of Colorado Health Hospitals including Poudre Valley Hospital and Memorial Hospital, Denver Health, the Veterans Administration, the Children's Hospital of Colorado, St. Joseph's Hospital, and innumerable community practice sites both affiliated with these organizations and independently operated. The clinical practice

environment has been highly impacted by the COVID-19 pandemic, staffing shortages, financial shortfalls, and competing priorities. Our clinical partners have maintained a strong commitment to medical education and their missions to patient care excellence. The school's ability to train medical students in the clinical curriculum is possible due to our strong clinical partners.

Group Accomplishments

During the 2021-22 academic year, the Clinical Block Directors Committee accomplished the following initiatives:

- Continuous quality improvement with in-depth review and discussion in workshop format of the following areas involving all courses: clinical teaching, sub-optimal learning environment, mistreatment, didactics, orientation, and unique curricular innovations.
- The ongoing COVID-19 pandemic required continued flexibility, adaptability, and changes to the clinical curriculum, including:
 - Meetings continued in a virtual format.
 - Continued integration of online modules and telehealth into clinical training allowing adaptability and achievement of clinical competencies.
 - Course directors and administrative staff remained continually responsive to evolving public health and hospital guidelines to maintain student safety and optimize clinical learning. The January 2022 surge of the Omicron variant posed challenges to our clinical curriculum because it coincided with the start of the hybrid curriculum with doubling of the class size in the clinical space with two overlapping classes. Students remained in the clinical training environment through this challenging time. The hybrid class clerkship orientation was moved online at short notice in response to the COVID surge as well as overlapping natural disasters (wildfire and blizzards) that occurred simultaneously.
- Implemented billable medical student documentation at all UCHHealth institutions. This required close partnership with compliance officers, training faculty, housestaff, and students, and ongoing communication and auditing efforts. Implementation was a significant gain for faculty and housestaff in allowing students to contribute more meaningfully to patient care and increase efficiency in care delivery. It also was a gain for medical education of our students in promoting authentic roles in patient care and improving feedback and coaching.
- Planning for the sunset of traditional block rotations has been complex. Specific areas of focused work have included:
 - Creation of make-up clerkships for students who are off-cycle and will need partial clerkship make-up work after the phase-out of block rotations when only longitudinal integrated clerkships are offered in the standard curriculum
 - As more students have entered longitudinal integrated clerkships curriculum, increased focus has been on comparable grading and assessment to ensure equity in grading across all students in hybrid year and to assist in planning for the Trek all-longitudinal integrated clerkships curriculum.
 - Planning for large grading meetings at the end of the academic year for the increasingly large number of longitudinal integrated clerkship students
- Movement of USMLE Step 1 examination to post-clerkship for the hybrid curriculum. This decision aligns the curriculum with plans for the Trek curriculum and is evidence-based with support based on higher scores post-clerkship. Consistent with what has been observed at other medical schools that have made this change, shelf exam failures have increased mandating changes in policies and increased remediation support of learners to ensure student success.
- The successful launch of nine new longitudinal integrated clerkship programs with the hybrid curriculum in January 2022. These programs enrolled over 50% of the class of 2024 and were strategically placed in each of the core affiliate institutions, allowing piloting of the longitudinal integrated clerkships concept prior to the full implementation of the Trek curriculum.
- Faculty development aiming to train >900 preceptors across the state of Colorado to teach in the longitudinal integrated clerkship model. Currently, close to 400 faculty have enrolled in workshop offerings ranging from half-day trainings in the community (Denver Health, Fort Collins, and Colorado Springs) and two 2-day trainings offered at the Anschutz Medical Campus. In addition, large numbers of faculty have participated in lunchtime sessions offered at Kaiser Permanente, TBL teaching workshops, and accessed a growing library of asynchronous materials posted on the Office of Community-Based Medical Education (OCBME) website. Most offerings have been made available for continuing medical education and maintenance of certification credit.

Post-clerkship Curriculum

The mission of the post-clerkship curriculum is to utilize unique clinical and non-clinical courses to develop well-rounded physicians who are prepared to be excellent house officers and leaders who are curious, lifelong learners with a commitment to serve the profession, our patients, and society.

The curriculum consists of 53 weeks of educational requirements, including a seven-week required advanced science course curriculum, a required four-week acting internship, six weeks of basecamps, and 36 weeks of elective time and a capstone presentation of students' mentored scholarly activity projects. Working with the Office of Student Life, the post-clerkship curriculum is designed to foster: 1) knowledge base and skill development; 2) career preparation/development; and 3) professional identity formation all in an individualized manner for each student.

The post-clerkship curriculum is led by:

Chad Stickrath, MD, FACP

Associate Professor of Medicine

Assistant Dean for Medical Education, Director of Post-clerkship Curriculum

University of Colorado School of Medicine

Jena James, MEd

Electives Coordinator

University of Colorado School of Medicine

More information about the post-clerkship curriculum can be found at:

<https://medschool.cuanschutz.edu/education/current-students/curriculum/clinical-core/phase-iv>

Integrated Clinical Core and the Trek Basecamps

First implemented in 2008, the Integrated Clinician Course (ICC) is an eight-week longitudinal curriculum that takes place during one- or two-week blocks of time throughout Phases III and IV. The course is designed to integrate multiple concepts into students' growing clinical experiences, such as advanced clinical and communication skills, translational basic science, medical-legal topics, medical errors and quality improvement, ethics and professionalism, scholarly activities, and career development and exploration. Led by Anna Neumeier, MD, Matthew Rustici, MD, and Cason Pierce, MD, the ICC curriculum is currently undergoing transformation into the Trek basecamp curriculum. The basecamp curriculum is a longitudinal curriculum delivered at three intentional time points of clinical transition: prior to the clerkship year, prior to the advanced clinical year, and prior to graduation. As such, through cultivation of continuous self-advancement, students solidify and advance relevant knowledge and skills required for their next stage in training. As they advance, their content learned will spiral in complexity and differentiate and map towards their individualized specialty of practice. Through this iterative reform process, students in the legacy, hybrid, and Trek classes will receive components of this new basecamp curriculum within the Integrated Clinicians Course. In 2021-22, the ICC/ basecamp curriculum was delivered through a hybrid in-person and virtual format to optimize safety during the COVID-19 pandemic as well as provide opportunity for high-fidelity simulation and in-person skills learning. The course has 400 instructors who donate over 1,600 hours of direct teaching time.

For more information visit the ICC website at: <https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum#ac-integrated-clinician-course-icc-2>.

Medical Student Research Track

Leadership:

Allan Prochazka, MD, MSc

Director of Medical Student Research Track

Professor of Medicine

The research track aims to foster development of an identity as a physician capable of being involved with and completing all aspects of a research project from the identification of a health care-related scientific question to the written dissemination of scientific information as a first author on a manuscript developed for submission. Since its inception in 2007, there are 250 students who have completed the track, with 73 currently enrolled in the program (19 in the Class of 2023, 21 in the Class of 2024, and 33 in the Class of 2025). The 65 students participating since 2019 have published 121 papers. Forty-six percent have published a first author paper, 32% a second author paper. Fifty-eight percent of all papers were first author publications.

Students work with an experienced faculty mentor through all four phases of the School of Medicine curriculum, including one full-time research month in the summer after the first year, and two additional full-time research months during their fourth year. Preliminary and final results are presented locally, regionally, and nationally. In addition, the track provides seminars related to research ethics, and teaches students how develop polished, professional research presentations and papers. Research track students will be prepared to continue working as researchers during their residencies and future medical careers.

The research track relies on the generous funding support of the following departments and endowments. Funding sources commit to support a student through their four years as a research track student, which includes three months of stipends for full time work, as well as travel to present at the Western Student Medical Research Forum and one national meeting in the student's area of specialty.

Funding Department or Source	Students sponsored in 2021-2022
Anesthesiology	3
Biochemistry and Molecular Genetics	0
Cancer Center	7
Center for Regenerative Medicine and Stem Cell Biology	1
Child Psychiatry	2
Data Science to Patient Value (D2V)	0
Fort Collins Branch	4
Immunology and Microbiology	4
Medicine	8
Neurology	4
Neurosurgery	1
Ob/Gyn	3
Orthopedic	9
Ophthalmology	6
Pathology	1
Pediatrics	12
Pediatric Urology Research Enterprise	1
Radiology	3
Physical Medicine and Rehabilitation	0
Schweppe Endowment	13
Surgery	8

Health Sciences Student Research Forum

The 36th Annual Student Research Forum was held on December 8, 2021. The forum was organized and funded by the School of Medicine Dean's Office and overseen by Allan Prochazka, MD, director of the research track. Eighty-one students presented their research, representing the School of Medicine, Skaggs School of Pharmacy and Pharmaceutical Sciences, School of Public Health and the Graduate School. Forty-four faculty members volunteered to judge posters. A total of \$13,440 in award money was given to the 42 highest scoring presentations in the form of \$320 monetary prizes.

Research Track Student Awards and Honors

Western Student Medical Research Forum

Eighteen research track students from the Class of 2023 presented at WSMRF in late January 2021 via zoom.

One research track student, Michal Schafer, was honored with the Mead Johnson WSMFR award at the meeting.

Hayley Hawkins, outstanding oral presentation, Carmel AFMR 2020

Alex Shu, outstanding poster presentation, Carmel AFMR 2020

Alyssa Shepherd, WAFM/WAP/WSCI student subspecialty award, Carmel AFMR 2020

Gates Foundation PhD Award

Kumar Thurimella won a scholarship from the Gates Foundation to pursue a PhD at Cambridge University.

Joseph and Regina Glaser Research Award

Alison Abele won the Joseph and Regina Glaser scholarship award at the 2022 MSA Capstone event for research excellence in clinical science.

Schweppe Outstanding Scholars

The Schweppe Scholars Program, funded by the Schweppe Foundation, is designed to support outstanding School of Medicine students from each class cohort in the research track. Support continues through all four years. AY 2021-2022 Schweppe Scholars were:

Christian Curran, Alyssa Shepherd, Sophia Wolfe	Class of 2022
Salman Ashraf, Zihan Feng, Emmeline Kim	Class of 2023
Bruck Gezahegn, Joy Huang, Preston Le	Class of 2024
Melissa Carpenter, Eric Fu, Tristan Seawalt, Hillary Ta	Class of 2025

Mentored Scholarly Activity Program

The Mentored Scholarly Activity (MSA) program, is a required longitudinal curriculum across all phases for all School of Medicine students. The goal of the MSA curriculum is to foster self-directed, lifelong learning over the course of medical careers, positioning students to be able to address gaps in medical knowledge, quality and safety, and public health practice. The MSA requires students to identify and work with a mentor to complete their projects, which prepares them for working with mentors in their careers, serving as mentors to others, and eventually leading teams in the medical profession. The MSA program has a broad definition of scholarship ranging from traditional research to literature reviews, quality improvement, medical education, and humanities. Students choose projects that represent their interests. We encourage students to participate in projects that address disparities in health outcomes and promote diversity and representation in the health professions. Projects culminate with a scholarly paper and a capstone poster presentation in the spring of the students' graduation year.

The 2021-2022 MSA leadership team and their topic expertise consisted of **Kristen Nadeau, MD, MS**, director (clinical research), **James Maloney, MD**, associate director (clinical research), **Leana May, DO, MPH**, associate director (global health), **Daniel Goldberg, JD, PhD**, associate director (bioethics, humanities, arts and education), **Sarah Rowan, MD**, associate director (public health and epidemiology), and **John Tentler, PhD**, associate director (laboratory-based biomedical science). Over 360 CU faculty members serve as mentors. MSA has partnered with the Colorado School of Public Health to work with the Colorado Biostatistics Consortium to assist medical students with their study design and data analysis. Librarian liaisons at the Strauss Health Sci-

ences Library provide expert consultations for literature reviews tailored to the student's project topic. Thirty-eight percent of MSA students have either published or had a manuscript accepted/pending publication. For the graduating Class of 2022 Capstone Poster Forum Event, approximately 95 faculty members volunteered to evaluate the posters of 176 student presenters, and each student evaluated posters of their peers.

For more information on becoming a volunteer faculty mentor, please contact the MSA program, at MSA.SOM@cuanschutz.edu. Website: <https://medschool.cuanschutz.edu/education/current-students/curriculum/longitudinal-curriculum/mentored-scholarly-activity>

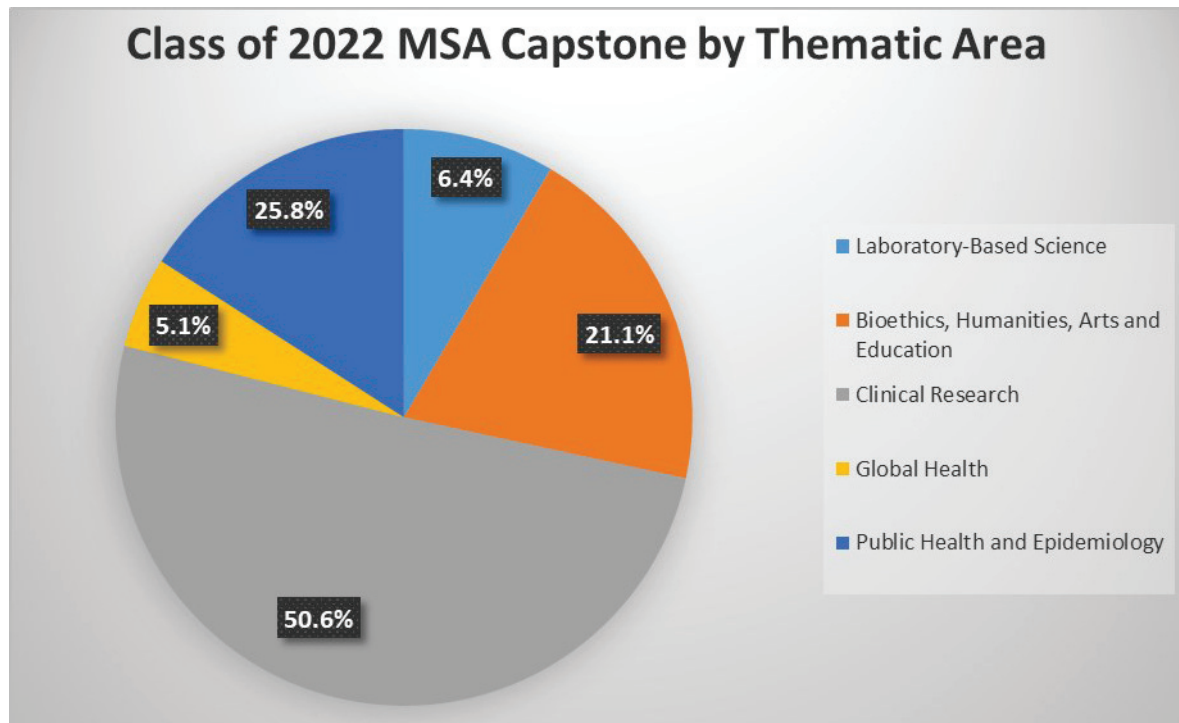


Figure 1: MSA Projects by Thematic Area, Class of 2022 N=176

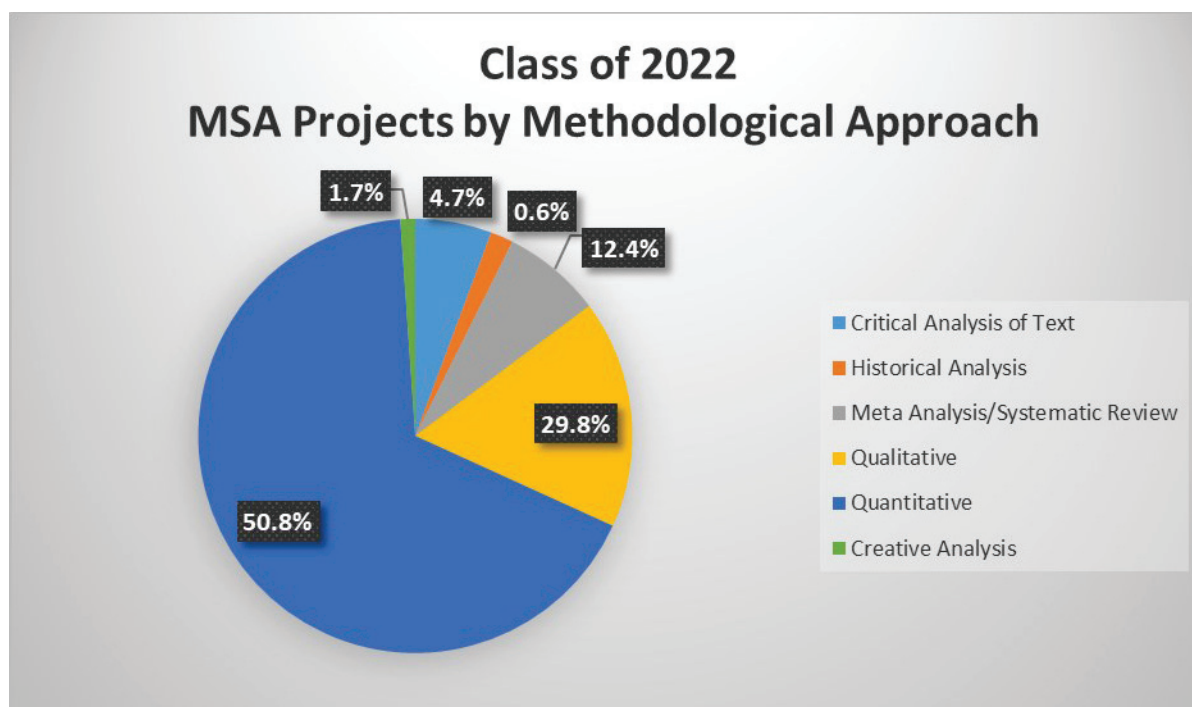


Figure 2: MSA Projects by Methodological Approach, Class of 2022 N=176

Education Technology

The Trek, hybrid and legacy curricula are delivered, supported, and evaluated with a collection of technologies. In addition to the maintenance and support of existing technologies, there were a range of new projects this year.

- Continued development of a student information database and interface for the Office of Student Life.
- Implementation of a new learning ecosystem called North Star, which will include the functions of a learning management system, curriculum management system, student assessment, course evaluation, and clinical experience tracking when fully implemented.
 - This system is being designed to meet the needs of the Trek curriculum.
 - The Plains curriculum management and learning management has been implemented in North Star.
 - Development of new processes with stakeholders to use North Star and meet the business needs of the program.
 - Continued support of the systems of the legacy and hybrid curricula.
- Creation and implementation of a system for mapping curriculum, where the curriculum is prepped before uploading to North Star or legacy systems.
- Review and research of learning experience loggers.
- Implementation of H5P, an online tool used to create and deliver interactive curricular content, which is integrated into North Star.
- Development and implementation of the longitudinal integrated clerkship placement system for the Trek Foothills.
- Continued improvement and refinement of technology support for students, staff, and faculty.

Education technology support is available to medical students and medical educators and administration through Zendesk.

Also, in support of the MD program, the instructional design team has created template documents that encourage good practices for accessibility and universal design. This team has developed training for North Star, Canvas, other learning systems, and the processes that support the delivery of the curriculum. Additionally, the instructional design team collaborates with course and content directors to use technology tools well and deliver curriculum well.

Office of Assessment, Evaluation, and Outcomes

This year, the UME Office of Assessment, Evaluation, and Outcomes (AEO) continued to work towards our mission of creating a data-driven culture that promotes growth and improvement of students, faculty, curricula, and the learning environment. We have hired additional faculty and staff to support the mission of the office, resulting in the assessment and evaluation of three different curricula occurring simultaneously during academic year 2021-2022: The reformed “Plains” curriculum (CO 2025), the “hybrid” curriculum (CO 2024), and the “legacy” curriculum (CO 2022 and 2023).

Assessment Accomplishments

One of the primary goals of the AEO office is to create a coordinated program of student assessment that promotes best practice and clearly facilitates student growth. During academic year 2021-2022, assessment activities included:

- **Formative assessment approach in Plains**

The approach to assessment changed significantly with the new curriculum. In addition to taking a summative, graded assessment at the culmination of each course, students received weekly formative, ungraded “checkpoints” to assess their learning of that week’s content. After checkpoint administration, the AEO office supported a process for students to review the most difficult items as a group to help guide their learning and studying for the summative, end of course (EOC) assessment.

- **Question writing for Plains assessments**

To align assessment with the new curriculum and improve question quality, the AEO assessment team led significant efforts to train faculty on best practices in question-writing for the over 3,000 multiple-choice questions written for the Plains. Feedback was provided to faculty prior to and after test administration.

- **Content and psychometric validation for hybrid and Plains assessments**

After administration, all questions underwent a statistical review to ensure adherence to psychometric guidelines. Course directors and other content experts determined whether each question was relevant and fair, and any flawed questions were removed before final scoring of the assessment. This process was critical to ensure the resulting assessments were fair and reliable, and student scores were valid.

- **Standard setting for Plains assessments**

The EOC assessments were graded as pass/fail by comparing student performance against a passing standard/cut score which is the minimum number of questions a student must answer correctly to pass. Each cut score was determined by a rigorous psychometric process called standard setting. Using this approach provided additional validity evidence for the chosen cut scores, which helped ensure pass/fail decisions were accurate and fair.

- **Creation of a new approach for assessment in the Clinical year**

In preparation for the launch of the new Foothills phase in 2022, the AEO assessment team led an effort to overhaul the approach to assessment and grading in the clinical phases of the curriculum. This involved using national best-practices create all new assessment forms as well as a criterion-based approach to clinical grading.

Evaluation accomplishments

To support the continuous quality improvement of the educational program, the AEO office collects, synthesizes, and reports de-identified, quantitative, and qualitative student data to promote faculty growth and curricular improvement. During academic year 2021-2022, students completed 14,836 course (n=13,060 in academic year 2020-2021) and 64,617 teaching evaluations (n=68,336 in academic year 2020-2021) administered by the AEO office. Routine reporting activities included:

- **Generating and distributing faculty and resident teaching reports**

All faculty and residents receive a teaching report if they have been evaluated by at least three students. For university-affiliated faculty who teach students, the AEO office uploads the summary teaching evaluation directly into PRISM. The AEO office distributed approximately 1,581 attending and preceptor evaluation reports and 816 resident evaluation reports to residents and their program directors at the 58 residency programs at University of Colorado School of Medicine, Denver Health, Exempla St. Joseph's, and HealthOne-PSL.

- **Producing Continuous Quality Improvement (CQI) reports and Clinical Core Dashboards**

The AEO office generated 19 CQI reports for the hybrid and legacy curricula, one for each required course, block, clerkship, and thread. AEO continued to produce individualized dashboards for each clinical course to provide visual representation of the data and facilitate comparisons across courses and years. In the clinical core, members of the AEO office meet individually with each course director to review their feedback and help in creating a plan for improvement for the next year. For the Trek curricula, the CQI process was expanded to include 10 content areas (e.g., immunology, pharmacology) in addition to 10 courses.

- **Evaluating curricular changes**

Numerous new evaluation forms were created for the new curriculum, and significant attention was given to simplifying rating scales and assuring consistent scales across forms. Focus groups were conducted in the Plains curriculum and in the longitudinal integrated clerkships in the clinical phase. In addition, a new approach to reporting student comments was instituted in which every single comment on all evaluations and focus groups is reviewed before releasing to course leadership or faculty. The AEO office also now provides qualitative/thematic analyses of comments to the larger stakeholder audience to protect the confidentiality of students.

Outcomes accomplishments

The AEO office supports program development efforts and provides data and analyses by request to assist educational activities and curricular program decision-making. During academic year 2021-2022, other AEO activities included:

- **Dashfolio**

The student Dashfolio was officially rolled out this year after several pilot years. This dynamic dashboard creates a visual display of student performance to help students identify areas of strength and weakness and guide learning over time. Performance on all Plains assessments (at the question level) can be viewed longitudinally by disciplines and systems, with each area designated as a strength, borderline, or area for improvement. Students can also view their overall performance on written and practical exams (anatomy and clinical skills), as well as NBME standardized exams, and measures of student professionalism.

- **Evaluating the impact of the MD Program Experience**

The AEO office collects outcomes data annually via “end of phase” surveys administered to all students at the end of each year of medical school. The surveys collect valuable feedback about curricular experiences and students’ attitudes and beliefs. An incoming student survey was added this year to collect baseline data. In addition, the AEO office analyzes and reports on the results of the AAMC Graduation Questionnaire and AAMC resident readiness survey to compare the School of Medicine with other medical schools around the country.

- **Student Data Advisory Committee**

The Student Data Advisory Committee (SDAC), led and managed by the AEO office, oversees all research using medical students as subjects. The committee reviews all surveys and requests for data. Approved surveys are emailed to students in bi-weekly digests, and requests for data are fulfilled by the AEO office.

- **Providing educational research support to students and faculty**

The AEO office regularly works with students and faculty to support their research projects and collect high-quality data from medical students while protecting confidentiality. The AEO office support in this arena is broad-ranging and many of the studies that are ultimately approved by the Student Data Advisory Committee receive considerable input and advice from members of the AEO office.

Assessment, Evaluation, and Outcomes office faculty and staff include:

Tai Lockspeiser, MD, MHPE – Assistant Dean of Medical Education – Assessment, Evaluation, and Outcomes

Rachael Tan, PhD – Director of Office of Assessment, Evaluation, and Outcomes

Susan Peth – Evaluation Program Manager

Erin Broening – Evaluator

Sean Marshall, MA – Outcomes Program Manager

Wendy Christensen, PhD – Statistician

Sheilah Jiménez – Professional Research Assistant

Marisha Roberts – Coordinator

The AEO office website can be found here: <https://medschool.cuanschutz.edu/education/current-students/curriculum/assessment-evaluation-and-outcomes>.

**Summary of Academic Year 2021-2022 Student Ratings of Courses and Faculty
with Academic Year 2020-2021 Comparisons**

Pre-clinical curriculum	Mean	
	AY 20-21	AY 21-22
“Rate the overall quality of the course”	3.78	3.76
“Overall teaching” rating for lecturers	4.27	4.05
“Overall teaching” rating for small group facilitators	4.52	4.28

(5-point scale, e.g., 1=*Unacceptable*; 5=*Excellent*)

Clinical Curriculum	Mean	
	AY 20-21	AY 21-22
Core Curriculum (Phase III)		
“What was the quality of the clerkship as a whole?”	4.12	4.21
Advanced Studies (Phase IV)		
“What was the quality of the acting internship as a whole?”	4.48	4.57
“Rate the quality of this elective as a whole.” (<i>Clinical Electives</i>)	4.49	4.57
Clinical Teaching Evaluations (combined Phase III and IV)		
“Overall, how effective is this attending's teaching?”	4.67	4.7
“Overall, how effective is this resident/fellow's teaching?”	4.66	4.7

(5-point scale, e.g. 1=*Poor*; 5=*Excellent*)

Office of Student Life

The Office of Student Life (OSL) houses student affairs and admissions. The student affairs team is led by two assistant deans of student affairs, Jeff Druck, MD, and Amira del Pino-Jones, MD. Jeff Soohoo, MD, MBA, is assistant dean for admissions. OSL has hired outstanding managers for admissions, Karina Goodwin, and student affairs, Melanie Trinkwald, to oversee the OSL staff. Deb Seymour, PsyD, who served as an interim assistant dean of student affairs last year, was appointed as assistant dean of student success, bringing experience in coaching students on academic success and communication strategies. Seymour is joined by the director clinical remediation, Nida Awadallah, MD, as our learning specialist team that supports students' academic needs directly, and also provide faculty development to strengthen our net of support. Led by Brian Dwinnell, MD, associate dean for student life, who along with his leadership team, has coordinated the office's challenges during COVID to appropriately support our students and continue the pipeline of excellence in medical student development. Rounding out the OSL leadership is Haylee Shacklock, who manages the staff in the Office of Medical Education and has developed workflows needed to make OSL as productive as possible.

The mission of OSL is to provide support for applicants and students throughout their cycle with the School of Medicine and to specifically provide multiple levels of support to a diverse group of students to ensure their academic success and to support their personal well-being. OSL provides services for prospective students, current students, and graduates, beginning when a candidate expresses interest in being considered for the MD program, continuing through matriculation and time as a student, and into their careers as they need support for medical licensing. The office provides guidance, advice, and administrative assistance to applicants and students. The office is responsible for the admissions interview and selection process, monitoring student registration, student progress and graduation. OSL organizes and manages many events including the second look day, the first-year orientation, the matriculation (white coat/stethoscope) ceremony, Match Day, and the hooding and oath ceremony at graduation. With the onset of the pandemic, nearly all large events were converted to a virtual format. OSL converted all major ceremonies to in-person this year. OSL also instituted regular live and virtual office hours. Coming out of the pandemic some students experienced mental health and financial issues, which required additional OSL intervention.

The most significant addition to OSL has been the development of the COMPASS Program (**CO**aching, **M**indful reflection, **P**rofessional identity formation, **A**ssessment, **S**elf-directed learning, and **S**elf-care). Each student is placed in a COMPASS group at matriculation, and each group is led by two highly trained faculty referred to as COMPASS guides. A longitudinal coaching relationship is the centerpiece of the program. Each student has regular coaching sessions with their guide to review their professional development. The guides also deliver curriculum from health and society and professional identity formation. There are also a group of COMPASS navigators who are senior students working alongside the guides. The program hired a new director, Larry Haber, MD, who reports to Brian Dwinnell, MD, associate dean for student life.

OSL provides organization and support for the student promotions committee, which routinely involves complicated student cases. OSL also organizes and supports the student life steering committee (formed in 2014), which provides faculty and student input and oversight of functions related to the office. There is a separate student life advisory committee, which is comprised of students from all levels and serves as an advisory group to the associate dean of student life and the student life steering committee. The OSL deans attend medical student council to provide students with updates and to address student concerns. In addition, the OSL deans actively participate in ASAL, the campus-wide committee for student affairs issues for all of the campus professional schools. Financial aid and scholarships are also managed and/or tracked by OSL. Thanks to the efforts of our financial aid officer, Deedee Colussy, along with expanded scholarship efforts led by Senior Associate Dean for Education Shanta Zimmer, MD, Assistant Dean of Finance Cindy Allen, and the Office of Advancement, we have been able to reduce student debt to the national average.

For more information visit our website at: <https://medschool.cuanschutz.edu/education/current-students>

Scholarship Committees

During the 2021-22 academic year, the office continued to manage the School of Medicine scholarship committees, the Adler Scholarship Committee, as well as the ARCS scholarship process and several other scholarships. We are transitioning leadership of tracking to a newly hired financial professional who will work closely with student affairs and admissions. In this year, the School of Medicine provided scholarships to over 219 medical students, 31% of whom were entering students and 69% continuing. The total amount of scholarship money awarded was \$5.4 million.

The Dean's Distinguished Medical Scholarship program, a four-year half- and full-tuition recruitment scholarship, was awarded to 21 incoming medical students who matriculated in 2021 as members of the class of 2025. Named Dean's Distinguished

scholarships included the following: Blackwood, Gibbs Family, Albert Scholar, Lofton, Berman, Crino, Cobb, Rumack, Richardson, Bownkamp, Horam, Lopez, McGlone, Laurie Odom, Mile High Medical Society, Barbara Smith Reilly, Nancy Nelson, Cogen Family, and CU School of Medicine Classes of 1967, 1969, 1982, and 1987.

Ten seniors from the class of 2021 received a total of \$20,000 in Adler MSA Scholarship in recognition of excellence for their completed MSA projects.

Ten students received ARCS Scholarships based on research excellence for \$6,500 each, totaling \$65,000.

For more information visit our website at: <https://medschool.cuanschutz.edu/education/md-admissions/requirements/financial-aid-costs>

Student Affairs

The Student Affairs group is headed by Brian Dwinnell, MD, who serves as associate dean for student life, having responsibility for both admissions and student affairs. Jeff Druck, MD, begins his eighth year as assistant dean for student affairs, and Amira del Pino-Jones, MD, will be in her third year in the position. Melanie Trinkwald began as the manager of student affairs this year, reporting to Haylee Shacklock, who has consolidated the structure of staffing in her new role as director for medical education and student affairs.

Druck also serves in the role of co-director of the Office of Professional Excellence (OPE), which allows for synergy in our efforts to improve the learning environment, particularly as it relates to wellness and unprofessional behavior by faculty and residents towards medical students. We monitor our mistreatment index on the AAMC Graduation Questionnaire to assure our students can have the role models that they deserve. We will continue to work with Druck and OPE to improve our educational environment further.

With the changes due to varying curricula, new requirements in applications to residency, and intermittent COVID changes, the Student Affairs arm of the Office of Student Life has been busy. Dwinnell, Druck, and del Pino-Jones made themselves available to students constantly, and the office worked to create the COMPASS (**CO**aching, **M**indful reflection, **P**rofessional identify formation, **A**ssessment, **S**elf-directed learning, & **S**elf-care program), an individualized mentoring program that pairs students in groups of 10 with a single faculty member, focused on supporting that student throughout all four years of medical school. Student navigators, who are fourth-year students, are also assigned.

The Office of Student Life (OSL) is responsible for the oversight of most student support services including academic, career and personal advising, financial aid, residency applications, support and referrals for struggling students, and USMLE Step Exam preparation. The office works closely with several campus resources including ODAI (Office of Disability Access and Inclusion), student mental health, student engagement and outreach, and the Phoenix Center. Our remediation team with Deb Seymour, PsyD, newly appointed assistant dean of academic success, and Nida Awadallah, MD, as director of clinical remediation, continues to have a measurable impact. There has been a reduction in the Step 1 failure rate, even with the added stress of the pandemic and resulting disruption of testing access. We continue to explore expanding remediation efforts, including a more proactive approach to identifying and providing early intervention for struggling learners and faculty development with our COMPASS Guides and longitudinal integrated clerkship sites to expand our web of support. OSL is responsible for the coordination of major student activities including student interest groups, orientation, the match process, Match Day, graduation, visiting externs, student scheduling, and the student promotions committee. This year's Match Day and graduation ceremonies were held in-person, and students celebrated the return.

As the new Trek Curriculum rolled out this academic year, OSL has adapted. Our assessment team has worked with us to create a Dashfolio that provides valuable performance information for each student, and the student affairs group was able to transition from an outdated access database to a revamped, streamlined web-based student tracking system.

Three years ago, the university approved creation of a Master's in Medical Science degree for students who complete the first two years of medical school but do not to continue in the MD program. This degree recognizes the significant amount of effort and discrete knowledge our students gain during these two years and may assist in obtaining employment in a variety of fields going forward.

Areas of responsibilities and service include:

- Working with students having academic or personal struggles, connecting them with our learning resource experts or making other appropriate referrals.
- Career advising and creation of the medical student performance evaluation.
- Overseeing major events, including orientation, Match Day, and graduation.
- Overseeing USMLE Step 1 and preparation.
- Providing programming and support for students for personal and professional development, career exploration and planning, stress and burnout, student wellness and study/time management skills, and preparation for the Match.
- Providing programming and support for faculty who are mentoring or advising students.
- Providing a part-time learning specialist to assist students with academic preparation.
- Working with specialists in the financial aid office to support student debt management.
- Working with donors and departments to provide and administer scholarships and awards.
- Scheduling Phase III and Phase IV students and confirming grades for all four phases.
- Manage the visiting student (extern) process, both from the home school and the host school.
- Tracking student data including grades, evaluations, absences, clinical requirements.
- Advocating for students by sitting on the various curriculum committees at the School of Medicine.
- Overseeing and providing support for medical student council, OSR, student interest groups, AOA, and GHHS.
- Working with the student promotions committee for successful transitions and remediation. When necessary, working to facilitate the decisions of the student promotions committee.
- Interfacing with national organizations regarding medical student experiences.
- Coordinating with legal counsel regarding policy and individual student issues.
- Communicating with Colorado Physician Health Program regarding students referred for additional support

On March 18, 2022, Match Day was held in the Marcy and Bruce Benson Atrium of the Anschutz Health Sciences Building on the Anschutz Medical Campus. One hundred eighty students matched into residency positions. The table below shows a full list of specialty matches. Thirty-nine percent matched in primary care specialties (family medicine, internal medicine, medicine – primary track, med-peds, obstetrics-gynecology, and pediatrics). Some of these students may ultimately choose to specialize in a non-primary care field.

The top residency choices included internal medicine (30 categorical matches), emergency medicine (27 matches), anesthesiology (13 matches), family medicine (11 matches), pediatrics (11 matches), obstetrics-gynecology (6 matches) and medicine-preliminary, transitional year, surgery prelim (20 combined matches).



Colorado will retain 26% of the class. California will receive 17% of the class, Washington will receive 8%, Texas and Michigan will each receive 5% of the class, North Carolina will receive 4%, Pennsylvania, Minnesota, Oregon, and New York will each receive 3%, while Illinois, Ohio, Massachusetts, Utah, Vermont and New Jersey will each receive 2% of the class. The remaining 11% of the class will be spread throughout 18 other states. On May 27, 2022, 181 students graduated with MD degrees during an in-person ceremony on Boettcher Commons on the Anschutz Medical Campus.

For more information visit our website at: <https://medschool.cuanschutz.edu/education/current-students>

2022 Residency Match Data

Number of Students	Specialty Choice
13	Anesthesiology
1	Combined Adult/Child Psych
2	Dermatology
27	Emergency Medicine
11	Family Medicine
9	General Surgery
1	Int Med/Det
1	Internal Med/Hospitalist
1	Internal Med/Research
30	Internal Medicine
1	Medicine-Emergency Med
8	Medicine-Pediatrics
6	Medicine-Preliminary
5	Medicine-Primary
1	Medicine-Psychiatry
1	Med-Prelim/Radiology
3	Neurological Surgery
2	Neurology
1	Ob-Gyn-Preliminary
6	Obstetrics-Gynecology
1	Ophthalmology
1	Ortho Surgery/Research
8	Orthopedic Surgery
2	Otolaryngology
1	Pathology
11	Pediatrics
1	Pediatrics/Health Equity
1	Pediatrics/Research Trk
1	Peds/Urban Health
2	Phys Medicine & Rehab
1	Plastic Surgery (Integrated)
8	Psychiatry
1	Psychiatry/Research
2	Psychiatry-Family Med
4	Radiology-Diagnostic
1	Surgery
11	Surgery-Preliminary
1	Thoracic Surgery
3	Transitional
2	Urology
180	Total Distinct Students

Admissions

The Office of Admissions is led by Jeffrey SooHoo, MD, MBA, assistant dean of Admissions. Since the beginning of the COVID-19 pandemic, interviews for the School of Medicine have been conducted virtually. The School of Medicine received 10,897 primary applications for 184 seats in the Class of 2026. Of these 184 entering students, 10 students entered the MD/PhD Program, 20 will participate in the Colorado Springs Branch Campus longitudinal integrated clerkship and 12 will enter the CU/CSU branch campus in Fort Collins. Additionally, the Office of Admissions recruited and interviewed applicants for multiple pathway programs, accepting students into the University of Colorado Denver BA/BS-MD Program and the University of Colorado Denver Post-Baccalaureate Program.

The Office of Admissions continues to employ a holistic admission process. Grades and MCAT scores are significant variables in deciding who is invited for interviews, but greater emphasis is placed on the total application which includes letters of recommendation, primary and supplemental essays, and the applicant's experiences and attributes. The admissions process also requires the applicants to complete an online situational judgment test to better assess non-cognitive competencies expected of entering medical students.

Demographics

Class of	2024	2025	2026	Applicant Data 2021-2022 Primary AMCAS Applications: 10,897 Completed Secondary Applications: 5,663 Interviewed: 723 Offers of Admission: 351
Class Size	160	184	184	
Female	90	101	99	
Male	70	83	85	
CO Resident	71	86	94	
Non-Resident	89	98	90	
URiM*	32	46	49	
Average Age	25	25	25	
Cumulative GPA	3.75	3.76	3.73	
Math/Science GPA	3.68	3.65	3.69	
MCAT (total)	512	512	514	
* Underrepresented in Medicine as defined by CUSOM Diversity Plan				

Annual achievements include:

- Successful recruitment for the first year of the new Trek curriculum, including 12 students who matriculated at the new CU/CSU Branch Campus in Fort Collins.
- Continued partnership with the Office of Advancement and scholarship committee, with a record number of Dean's Distinguished Scholarships distributed to incoming students.

The office continues to seek faculty for committee membership. If interested, please contact the Office of Admissions at SOMAdmin@ucdenver.edu.

Additional detailed information may be found at: <https://medschool.cuanschutz.edu/education/md-admissions>

Senior Program Leadership

Jeffrey R. SooHoo, MD, MBA

Assistant Dean of Admissions

Brian Dwinnell, MD

Associate Dean for Student Life





Faculty Affairs

Office of Faculty Affairs

Mission: To provide services, guidance and support to faculty members, departments, and programs, to advance the teaching, research, scholarship, patient care, and service missions of the School of Medicine. In pursuing its missions, the Office of Faculty Affairs will develop and implement policies and practices that prioritize faculty well-being and professional growth, and that promote a culture of diversity, equity, inclusiveness, and professionalism across the School of Medicine.

Specific Objectives: The Office of Faculty Affairs will work collaboratively with School of Medicine, campus and university leaders to promote faculty and organizational success. Specifically, the Office of Faculty Affairs will:

- Assist departments and other academic units within the School of Medicine to recruit, develop, promote and retain outstanding teachers, clinicians and scholars.
- Assist faculty, department chairs, and administrators to understand and comply with the rules of the University of Colorado, the Anschutz Medical Campus and the School of Medicine.
- Develop and implement policies and practices that promote diversity, equity, and inclusiveness, professionalism, collaboration, and academic integrity across the School of Medicine.
- Develop and implement policies and practices that ensure fair and consistent treatment of faculty, according to the rules of the university, campus and School of Medicine.
- Develop and implement programs, policies, and practices to build and sustain faculty well-being, professional growth, fulfillment, vitality, and academic success, through faculty development, mentorship, sponsorship, coaching, leadership training, and addressing workplace stresses.
- Develop and maintain a comprehensive faculty evaluation, promotion, tenure, and post-tenure review system that uses valid and relevant measures of faculty performance, ensures faculty accountability, is linked to faculty self-improvement, provides reliable data for promotion and tenure decisions, and reflects and reinforces the missions and values of the School of Medicine.
- Conduct periodic faculty surveys to measure faculty satisfaction, vitality, well-being, and career success, and develop and implement policies to address challenges and guide change.
- Provide administrative support for faculty appointments, promotions, tenure awards, post-tenure, and annual performance reviews, faculty governance, and other activities.

Faculty Affairs Leadership:

Liselotte (Lotte) Dyrbye, MD, MHPE, Senior Associate Dean of Faculty and Chief Well-being Officer

Steven R. Lowenstein, MD, MPH, Associate Dean for Faculty Affairs

Heather Cassidy, MD, FACP, Assistant Dean for Community Based Medical Education

Cheryl Welch, MPA, Director, Office of Faculty Affairs

Website: medschool.cuanschutz.edu/faculty-affairs/

Full-Time ($\geq 50\%$ FTE) Faculty, Listed by Department (Instructor and Above) July 1, 2022			
	University Paid	Affiliate Paid	Total
Total Full-Time Faculty Count	4,258	957	5,215
Basic Science Departments			
Biochemistry & Molecular Genetics	36	1	37
Biomedical Informatics	38	0	38
Cell & Developmental Biology	29	1	30
Immunology and Microbiology	37	15	52
Pathology	94	22	116
Pharmacology	29	0	29
Physiology & Biophysics	17	0	17
Subtotal	280	39	319
Clinical Science Departments			
Anesthesiology	314	30	344
Dermatology	38	4	42
Emergency Medicine	132	44	176
Family Medicine	162	83	245
Medicine	842	369	1,211
Neurology	104	17	121
Neurosurgery	67	3	70
Ob/Gyn	142	21	163
Ophthalmology	57	5	62
Orthopedics	159	18	177
Otolaryngology - Head and Neck Surgery	72	6	78
Pediatrics	1,066	74	1,140
Physical Medicine & Rehabilitation	80	29	109
Psychiatry	309	137	446
Radiation Oncology	27	0	27
Radiology	115	43	158
Surgery	292	35	327
Subtotal	3,978	918	4,896

Full-Time ($\geq 50\%$ FTE) Faculty, Listed by Rank			
(Instructor and Above)			
July 1, 2022			
	University Paid Faculty	Affiliate Paid Faculty	Total
Instructor	1,748	240	1,988
Assistant Professor	1,064	320	1,384
Associate Professor	825	247	1,072
Professor	621	150	771
Total Full-Time Faculty Count	4,258	957	5,215

Clinical Faculty	
July 1, 2022	
Volunteer	2,973
Paid (<.50 FTE)	440
Total Clinical Faculty Count	3,413



@CUMedicalSchool, September 16, 2022.





Medical Scientist Training Program

Medical Scientist Training Program

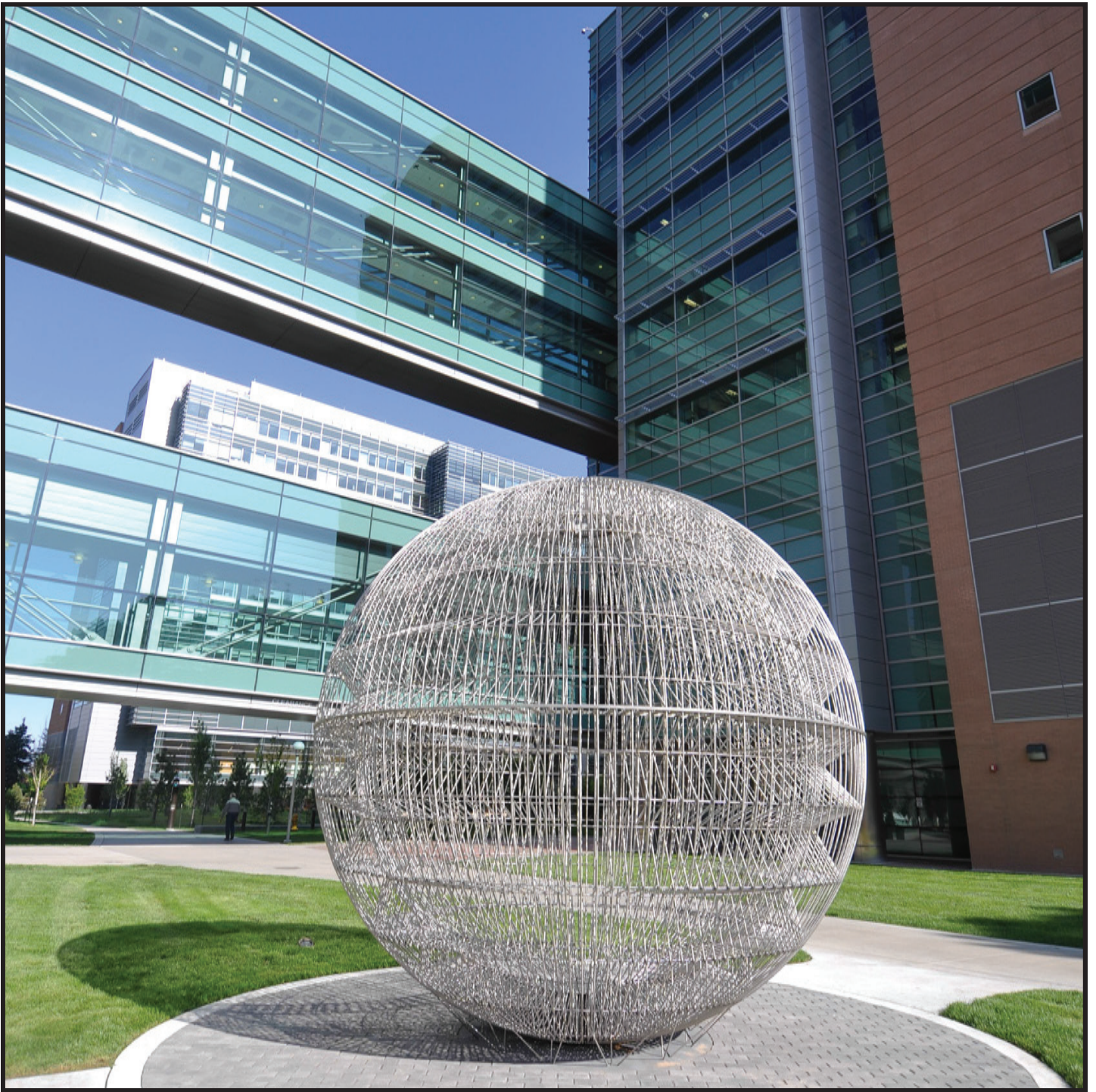
The Medical Scientist Training Program is a multidisciplinary, inter-institutional MD/PhD dual-degree training program, educating students in clinical medicine and biomedical research. Its mission is to provide students with the breadth and depth of training necessary to excel as a physician-scientist. Post-baccalaureate students are recruited from a national pool of ~600 applicants, and those selected have proven exceptional talents in research science, a curiosity to solve mechanisms of disease, a drive for discovery, a well thought-out motivation to pursue a career in medicine, and exceptional leadership.

The program was formed in 1983, and in 1992 it received MSTP status when it was awarded NIH T32 funding (currently ~\$1M/year to support 16 trainees per year). The program has strong leaders and mentors. MSTP is led by Cara Wilson, MD, an established physician-scientist with a consistent record of NIH research funding and extensive experience in mentoring and career development of trainees. Patricia Ernst, PhD, serves as the pre-clinical associate director and provides individualized guidance to each student via regular meetings and interactions prior to and during their thesis years. Joe Hurt, MD, PhD, and Matt Taylor, MD, serve as clinical associate directors providing individualized guidance to students as they transition back to medical school for their clinical training and through their residency applications. The program continues to be reviewed and funded by the NIH each year. The 2022/23 academic year will mark the 30th consecutive year of NIH support.

The MSTP is an intercampus student training program, with over 200 faculty members in 17 PhD programs at the Anschutz Medical Campus, National Jewish, and CU Boulder that can serve as PhD mentors. There are currently 89 students in the program: 10 in the first year (MS-I), 10 in the second year (MS-II), 39 in the PhD research years, and 30 in the Medical School clinical years (MS-III and MS-IV). Since 1983, 274 students have matriculated in the MSTP, with 158 having graduated with both degrees in an average of 8.4 years. Graduates of the MSTP obtain residencies at the nation's elite programs and about 75 percent of those completing training are now employed in academic medicine, government (NIH or CDC), or industry, including starting up their own biotech companies.

Importantly, we have an increasing number of MSTP graduates (16) who are now faculty at the University of Colorado Anschutz Medical Campus and another 14 who are completing their residency and/or fellowship training here. The Colorado MSTP and its leaders have been key in establishing the National Association of MD/PhD Directors and Administrators, the MD/PhD Section of the Association of American Medical Colleges Graduate Research, Education, and Training Group (GREAT), and the Annual National MD/PhD Student Conference. Finally, we have taken the initiative to bring together, via social and academic venues, all MD/PhDs on the Anschutz Medical Campus, across all stages of training, from student to faculty status, to establish an interactive, supportive cadre of physician-scientists.

Additional details of the Medical Scientist Training Program can be found at <https://medschool.cuanschutz.edu/mstp>





Research



Research Advisory Committee

The Research Advisory Committee (RAC) was established by the Research Strategic Plan of 2003 to advise the Dean of the School of Medicine and Vice Chancellor for Research on matters related to research. The committee meets monthly. RAC deliberations over this past year included a comprehensive review of the current list of core facilities on campus. The RAC updated the core list and created a proposed definition of a core facility to help keep this list current. A recommendation regarding core support was provided to the Dean. The RAC also conducted a campus-wide survey to collect projected animal space needs to help with space development plans for upcoming years. A recommendation to reevaluate the master plan for campus development to address the expanding animal space needs was provided to the Dean.

<https://medschool.cuanschutz.edu/research/research-development/research-advisory-committee>

Research Advisory Committee (RAC)	
Eric Clambey, PhD – Committee Chair	Melissa Haendel, PhD
Steven Andrews, PhD	Edward Janoff, MD
Emily Bates, PhD	Thomas Jansson, PhD
Peter Buttrick, MD	Kerrie Moreau, PhD
Bryan Bergman, PhD	Roberta Pelanda, PhD
Thomas Campbell, MD	Cody Rester, BS
Jason Christie, PhD	Suzann Ruedeman
James Costello, PhD	Ron Sokol, MD
Thomas Flaig, MD	Lori Sussel, PhD
Casey Greene, PhD	Mary Weiser-Evans, PhD

Bridge Funding

The bridge funding program of the CU School of Medicine was established in 2006 to provide support to principal investigators while they re-apply for funding. The Bridge Funding Committee is advisory to the Dean. Applications are reviewed twice a year, typically in April and October. Between 2006 and April 2021, 233 awards have been made to 194 faculty members in a total amount of \$11.4 million. From the start through April 2016, 136 of these awardees, who received \$8.18 million in bridging awards, have gained \$111.0 million in total research dollars, a more than 13.5-fold return on investment on bridge-funding grants.

<https://medschool.cuanschutz.edu/research/research-development/bridge-funding>

Bridge Funding Committee
Raphael Nemenoff, PhD – Committee Chair
Peter Buttrick, MD
John Cambier, PhD, MS
Mair Churchill, PhD
Nancy Hadley-Miller, MD
Wendy Kohrt, PhD
Ed Melanson, PhD
Kurt Stenmark, MD

Strategic Infrastructure for Research Committee

The Strategic Infrastructure for Research Committee (SIRC), created in 2003, reviews proposals to fund research infrastructure that can be available as a core facility or program to all appropriate users on campus. One of the major benefits of the SIRC process is critical peer review and the return of constructive comments that have strengthened the quality and productivity of the School of Medicine's research and have improved the cost-effectiveness of the Dean's Academic Enrichment Fund (AEF). Applications for ongoing cores must include a plan for sustainability. This committee is advisory to the Dean.

SIRC applications are solicited quarterly. Through the August 2021 review the SIRC process has made 106 awards totaling \$18.2 million in Dean's funds. Six additional 2-to-5-year awards, totaling \$7.3 million, were made to projects identified at a 2009 research retreat.

SIRC-approved research infrastructure includes:

- Core facilities in high-throughput genomics and metabolomics, biomedical informatics, advanced light microscopy, tissue banking, small-animal imaging, mouse behavior, and the Clinical-Translational Research Imaging Core.
- Core programs granting an MS or PhD in medical science for medical and graduate students and faculty, year-long mentorship in outcomes research, biostatistics support, patient databases in pregnancy and developmental disabilities, and a biorepository.

<https://medschool.cuanschutz.edu/research/research-development/strategic-infrastructure-for-research-committee>

Strategic Infrastructure for Research Committee (SIRC)
Laurel Lenz, PhD – Committee Chair Lisa Brenner, PhD Peter Buttrick, MD Chris Gignoux, PhD Sue Kinnamon, PhD Huntington Potter, PhD Cody Rester, BS Rebecca Schweppe, PhD Lori Sussel, PhD Cristin Welle, PhD

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Steven H. Abman, MD Professor	<i>Role of VEGF in Perinatal Hypertension</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Cheryl Lynne Ackert-Bicknell, PhD Associate Professor	<i>Identification of Gene Regulating PTH-mediated Skeletal Strength</i>	National Institute of Arthritis & Musculoskeletal and Skin Diseases/NIH/DHHS
Cheryl Lynne Ackert-Bicknell, PhD Associate Professor	<i>Identification of Novel Genes Impacting Osteoblast Activity</i>	National Institute of Arthritis & Musculoskeletal and Skin Diseases/NIH/DHHS
Enrique Alvarez, III, MD, PhD Associate Professor	<i>A Phase III Multicenter, Randomized, Double-Blind, Double-Dummy, Parallel-Group Study to Evaluate the Efficacy and Safety of Fenebrutinib Compared with Ocrelizumab in Adult Patients with Primary Progressive Multiple Sclerosis</i>	Genentech, Inc.
Valerie Arboleda, MD, PhD Assistant Professor	<i>Genomic Approaches to Population Health in Multi-Ethnic Hospital Systems</i>	National Human Genome Research Institute/NIH/DHHS
Edwin J. Asturias, MD Professor	<i>Respiratory Virus Transmission Network</i>	Vanderbilt University Medical Center
Francisco J Asturias, PhD Associate Professor	<i>Ultra-potent HIV capsid inhibitors</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Francisco J Asturias, PhD Associate Professor	<i>Roles of HIV-1 capsid-binding FG-motif containing cellular cofactors in infection</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Kathleen Carole Barnes, PhD Professor	<i>Multi-omic studies of asthma severity in an African ancestry population</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Joshua Adam Barocas, MD Visiting Associate Professor	<i>Development of a novel community-based high-performance surveillance network for drug use</i>	National Institute on Drug Abuse/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Karl Ulrich Bayer, PhD Professor	<i>Postsynaptic kinase/phosphatase networks in amyloid beta-induced synaptic dysfunction</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Timothy A. Benke, MD, PhD Professor	<i>Multi-site validation of biomarkers and core clinical outcome measures for clinical trials readiness in CDKL5 Deficiency Disorder</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Tellen Demeke Bennett, MD Associate Professor	<i>Novel Pediatric Sepsis Criteria and Clinical Decision Support Tools</i>	Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)/NIH/DHHS
David L. Bentley, PhD Professor	<i>Coupling of transcription elongation and termination with pre-mRNA processing</i>	National Institute of General Medical Sciences/NIH/DHHS
Bryan C Bergman, PhD Professor	<i>Intermuscular adipose tissue (IMAT): protagonist in sarcopenia and insulin resistance in humans</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Audrey M. Bergouignan, PhD Assistant Professor	<i>Breaking up sedentary behaviors to improve glucose control in a population at risk for developing type 2 diabetes</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Brianne M Bettcher, PhD Associate Professor	<i>Investigating the Contribution of Peripheral versus Central Nervous System Immune Dysfunction to Cognitive Aging</i>	National Institute on Aging/NIH/DHHS
Marian E. Betz, MD, MPH Professor	<i>Online Storage Maps to Facilitate Voluntary Firearm Storage: Mixed Methods Evaluation</i>	National Institute of Mental Health/NIH/DHHS
Marian E. Betz, MD, MPH Professor	<i>Preventing Firearm Suicide: Effect of a Military Health System Intervention for Clinician Training and Linkage to Community Firearm Retailers</i>	Department of Defense

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Marian E. Betz, MD, MPH Professor	<i>"Safety in Dementia": An Online Caregiver Intervention.</i>	National Institute on Aging/NIH/DHHS
Marian E. Betz, MD, MPH Professor	<i>Phase 2: Protective Environments: Military Community Engagement to Prevent Firearm-Related Violence</i>	Advanced Technology International
Stanca A Birlea, MD, PhD Associate Professor	<i>Study of cellular and molecular effects of PDE4-inhibitors on primary MC cell lines and Melanoderm model system</i>	Pfizer, Inc
Benjamin Guy Bitler, PhD Assistant Professor	<i>A machine learning approach to chemotherapy-induced remodeling of the tumor</i>	Ovarian Cancer Research Alliance
Petter Mathias Bjornstad, MD Assistant Professor	<i>Puberty, diabetes, and the kidneys, when eustress becomes distress</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Petter Mathias Bjornstad, MD Assistant Professor	<i>TODAY2 Metabolomics and Proteomics Core</i>	George Washington University
Audrey Blakeley-Smith, PhD Associate Professor	<i>Group Cognitive Behavioral Treatment for Anxiety in Adolescents with ASD and Intellectual Disability: A Randomized Controlled Trial</i>	Department of the Army
Virginia F. Borges, MD Professor	<i>Paul Calabresi Award in Clinical Oncology Research</i>	National Cancer Institute/NIH/DHHS
Paul Buehler, PhD Assistant Adjoint Professor	<i>The paradoxical response to iron in pulmonary hypertension of sickle cell disease</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Paul Buehler, PhD Assistant Adjoint Professor	<i>Aerosolized therapy for hemoglobin toxicity in the treatment of hemolytic diseases</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
John Caldwell, PhD Professor	<i>Optimization of a Minimally-Invasive Bidirectional Optogenetic Peripheral Nerve Interface with Single Axon Read-in & Read-out Specificity</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
David Ross Camidge, MD, PhD Professor	<i>DZ2019E0001 Ph I/II, Open-Label, Multicenter Study to Assess the Safety, Tolerability, Pharmacokinetics and Anti-tumor Efficacy of DZD9008 in Patients with Advanced Non-Small Cell Lung Cancer (NSCLC) with EGFR or HER2 mutation</i>	Dizal Pharmaceutical Co. Ltd.
David Ross Camidge, MD, PhD Professor	<i>NC318-01 Ph 1/2, Open-Label, Dose-Escalation, Safety and Tolerability Study of NC318 in Subjects with Advanced or Metastatic Solid Tumors</i>	NextCure, Inc.
Victoria A Catenacci, MD Associate Professor	<i>Does When You Exercise Matter? A Randomized Trial Comparing the Effect of Morning versus Evening Aerobic Exercise on Weight Loss and Compensatory Behaviors</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Victoria A Catenacci, MD Associate Professor	<i>Novel dietary interventions for reducing obesity-associated breast cancer</i>	National Cancer Institute/NIH/DHHS
Antonia Elisabetta Chiesa, MD Associate Professor	<i>CARENetwork (Child Abuse Response and Evaluation Network)</i>	Colorado Department of Public Health and Environment/COLO
Bennett Chin, MD Professor	<i>SPLASH: Study Evaluating Metastatic Castrate Resistant Prostate Cancer Treatment Using 177Lu-PNT2002 PSMA Therapy After Second-line Hormonal Treatment</i>	PSI Pharma Support America
Michel Benjamin Chonchol, MD Professor	<i>Inspiratory muscle strength training for lowering systolic blood pressure in midlife and older adults with chronic kidney disease</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Michel Benjamin Chonchol, MD Professor	<i>Kidney Stone Disease In ADPKD</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
James C. Costello, PhD Associate Professor	<i>Systems analysis of aggressive prostate cancer pathology</i>	National Cancer Institute/NIH/DHHS
Scott Devoll Cramer, PhD Professor	<i>Systems analysis of aggressive prostate cancer pathology</i>	National Cancer Institute/NIH/DHHS
Angelo D'Alessandro, PhD Assistant Professor	<i>The paradoxical response to iron in pulmonary hypertension of sickle cell disease</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Jesse Davidson, MD, MPH Associate Professor	<i>Metabolic profiling and comprehensive metabolic pathway mapping: a systems biology approach to cardiovascular failure and organ injury following infant congenital heart disease surgery</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Kevin D Deane, MD, Professor	<i>Collaborative Research Agreement- Understand the natural history of Rheumatoid Arthritis (RA) development from the period of preclinical disease to classifiable disease.</i>	University of California at San Diego
Matthew W. DeCamp, MD, PhD Associate Professor	<i>REACH-OUT (Research, Engagement and Action on COVID-19 Health Outcomes via Testing)</i>	National Institute on Minority Health and Health Disparities (NIMHD)/NIH/DHHS
Mark L Dell'Acqua, PhD Professor	<i>Postsynaptic kinase/phosphatase networks in amyloid beta-induced synaptic dysfunction</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Mary Kristen Demoruelle, PhD Associate Professor	<i>Neutrophil Extracellular Traps in the Lung and Development of Rheumatoid Arthritis-Related Autoimmunity and Arthritis</i>	National Institute of Arthritis & Musculoskeletal and Skin Diseases/NIH/DHHS
Stacy Elaine Dixon, PhD Assistant Professor	<i>A Phase 3, Multi-Center, Open-label, Safety Extension Study of Oral Edaravone Administered over 96 Weeks in Subjects with Amyotrophic Lateral</i>	Mitsubishi Tanabe Pharma Development America, Inc
Kelly S. Doran, PhD Professor	<i>Host and bacterial mechanisms governing Group B streptococcal persistence in the female genital tract</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Stephen C Dreskin, MD, PhD Visiting Clinical Professor	<i>Exploiting and enhancing IgE-binding epitopes of the 2S albumins of peanuts and tree nuts</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Cory Adeline Dunnick, MD Professor	<i>JAK Inhibition in Down Syndrome</i>	National Institute of Arthritis & Musculoskeletal and Skin Diseases/NIH/DHHS
Kristine M. Erlandson, MD Associate Professor	<i>The High-Intensity Exercise to Attenuate Limitations and Train Habits (HEALTH) in Older Adults with HIV</i>	National Institute on Aging/NIH/DHHS
Joaquin Maximiliano Espinosa, PhD Professor	<i>JAK Inhibition in Down Syndrome</i>	National Institute of Arthritis & Musculoskeletal and Skin Diseases/NIH/DHHS
Heide L Ford, PhD Professor	<i>Role of Eya3 in regulating the immune microenvironment to promote breast tumor progression</i>	National Cancer Institute/NIH/DHHS
Heide L Ford, PhD Professor	<i>Deciphering Mechanisms by which Tumor Cells Collaborate to Mediate Metastasis</i>	National Cancer Institute/NIH/DHHS
Sandra Lee Friedman, MD, MPH Professor	<i>JFK Partners UCEDD</i>	Administration for Community Living/DHHS
Mayumi Fujita, MD, PhD Professor	<i>The role of IL-37 in human regulatory T cells</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Satish K Garg, PhD Professor	<i>Evaluation of the Safety and Effectiveness of the Dexcom Continuous Glucose Monitoring (CGM) System PTL 904368</i>	Dexcom, San Diego, CA
Moumita Ghosh, PhD Visiting Associate Professor	<i>Progenitor cell malfunction, mutations and changes in microenvironment: A dynamic risk spectrum for cancer evolution</i>	National Cancer Institute/NIH/DHHS
Emily A Gibson, PhD Associate Professor	<i>Shedding light on brain circuits mediating navigation of the odor plume in a natural environment</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Emily A Gibson, PhD Associate Professor	<i>Optimization of a Minimally-Invasive Bidirectional Optogenetic Peripheral Nerve Interface with Single Axon Read-in & Read-out Specificity</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Emily A Gibson, PhD Associate Professor	<i>Development of 3D-FAST Optical Interface for Rapid Volumetric Neural Sensing and Modulation</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Christopher Gignoux, PhD Associate Professor	<i>Genomic Approaches to Population Health in Multi-Ethnic Hospital Systems</i>	National Human Genome Research Institute/NIH/DHHS
Adit A. Ginde, MD, MPH Professor	<i>TREAT NOW-Trial of Early Antiviral Therapies during Non-hospitalized Outpatient Window (TREAT NOW) for COVID-19 to Reduce the Burden of Illness for U.S. Service Members</i>	ABSS Solutions, Inc. ("ASI")
Adit A. Ginde, MD, MPH Professor	<i>Human Interferon Beta-1a in Severe Coronavirus (HIBISCUS)</i>	ABSS Solutions, Inc. ("ASI")
Berenice Y Gitomer, PhD Research Professor	<i>Kidney Stone Disease In ADPKD</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Russell E Glasgow, PhD Research Professor	<i>Pragmatic implementation Science Approaches to Assess and Enhance Value of Cancer Prevention and Control in Rural Primary Care</i>	National Cancer Institute/NIH/DHHS
Michael Graner, PhD Research Professor	<i>Development of Validation of Phage-Displayed Random Peptide Libraries Technologies for Rapid Isolation and Characterization of Extracellular Vesicles from Patients with Brain Tumors</i>	National Institute of Mental Health/NIH/DHHS
Melanie Cree Green, MD, PhD Associate Professor	<i>Impact of GLP-1 on hepatic fat and energy utilization in obese girls with polycystic ovarian syndrome</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Casey Stephen Greene, PhD Professor	<i>Network-based algorithms for target identification and drug repositioning from genetic associations</i>	National Human Genome Research Institute/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Jonathan A Gutman, MD Associate Professor	<i>ECT-001-CB.004, A PHASE II OPEN-LABEL STUDY OF UM171-EXPANDED CORD BLOOD TRANSPLANTATION IN PATIENTS WITH HIGH AND VERY HIGH-RISK ACUTE LEUKEMIA</i>	ExCellThera, Inc.
Jonathan A Gutman, MD Associate Professor	<i>P-105-202, Phase 2, Multicenter, Randomized, Double-Blind, Placebo-Controlled Study to Assess the Safety and Efficacy of ViraMune-M Compared to Placebo for the Prevention of AdV, BKV, CMV, EBV, HHV-6, and JCV Infection and/or Disease, in High-Risk Patients After Allogeneic Hematopoietic Stem Cell Transplantation</i>	AlloVir
Matthew Haemer, MD Associate Professor	<i>Family Inclusive Childhood Obesity Treatment designed for Low Income and Hispanic Families</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Melissa A Haendel, PhD Professor	<i>A National Center for Digital Health Informatics Innovation</i>	National Center for Advancing Translational Sciences/NIH
Melissa A Haendel, PhD Professor	<i>Collaborative Analytics for EHR and Other Real-World Data in N3C</i>	New York University School of Medicine
Melissa A Haendel, PhD Professor	<i>A phenomics-first resource for interpretation of variants</i>	National Human Genome Research Institute/NIH/DHHS
Melissa A Haendel, PhD Professor	<i>The Monarch Initiative: Linking Diseases to Model Organism Resources</i>	Office of the Director, National Institutes of Health/NIH/DHHS
Melissa A Haendel, PhD Professor	<i>A Common Dialect for Infrastructure and Services in Translational Research</i>	National Center for Advancing Translational Sciences/NIH

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Kathryn M Haskins, PhD Professor	<i>Hybrid Peptides as Autoantigens for Diabetogenic CD4 T Cells</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Bradley M Haverkos, MD Associate Professor	<i>Single-Arm, Phase 2 Study of Valemetostat Tosylate Monotherapy in Subjects with Relapsed/Refractory Peripheral T-Cell Lymphoma</i>	Daiichi Sankyo, Inc.
Pei Jai Michael Ho, MD Professor	<i>Personalized Patient data and behavioral nudges to improve adherence to chronic cardiovascular medications</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Vernon M Holers, MD Professor	<i>CU Center for the Study of Mucosal Immunobiology in Rheumatic Disease Pathogenesis</i>	National Institute of Arthritis & Musculoskeletal and Skin Diseases/NIH/DHHS
Fernando Holguin, MD Professor	<i>SANDIA: Supplementing L-citrulline to overweight late Asthma onset phenotypes to increase airway L-arginine/ADMA ratio and Improve Asthma control</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Fernando Holguin, MD Professor	<i>Study to improve deployment related Asthma by using L-citrulline Supplementation (SEALS)</i>	Department of the Army
Jodi Summers Holtrop, PhD Professor	<i>PATHWEIGH: pragmatic weight management in primary care</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Lawrence E Hunter, PhD Professor	<i>Colorado Biomedical Informatics Training Program</i>	National Library of Medicine/NIH/DHHS
Kent Edward Hutchison, PhD Visiting Professor	<i>Novel Approaches to Opiate Use Reduction</i>	National Institute on Drug Abuse/NIH/DHHS
David C. Irwin, PhD Associate Professor	<i>The paradoxical response to iron in pulmonary hypertension of sickle cell disease</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
David C. Irwin, PhD Associate Professor	<i>Aerosolized therapy for hemoglobin toxicity in the treatment of hemolytic diseases</i>	National Heart, Lung, and Blood Institute/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Antonio Jimeno-Largo, MD Professor	<i>Colorado Head and Neck Cancer SPORE</i>	National Cancer Institute/NIH/DHHS
Richard J Johnson, MD Professor	<i>Silica Nephropathy and Chronic Kidney Disease of Unknown Etiol- ogy</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Craig T. Jordan, PhD Professor	<i>Therapeutic targeting of AML stem cells</i>	Leukemia and Lymphoma Society
Craig T. Jordan, PhD Professor	<i>Kura Oncology, Inc. Functional analysis of menin inhibition of AML survival in A. in-vitro assays and B. in-vivo preclinical PDX animal models</i>	Kura Oncology, Inc.
Craig T. Jordan, PhD Professor	<i>Syros Pharmaceuticals, Inc. Func- tional analyses of SY-1425, Ven, and Aza activity in in vitro and in vivo models derived from Ven/Aza-sensitive and Ven/Aza- resistant ND Unfit AML patients</i>	Syros Pharmaceuticals, inc
Peter Kabos, MD Associate Professor	<i>EFC15935 Randomized, Multi- center, Double-blind, Ph 3 Study of SAR439859 plus Palbociclib Versus Letrozole plus Palbociclib for the Treatment of Patients with ER (+), HER2 (-) Breast Can- cer who have not Received any Prior Systemic Anti-Cancer Treat- ment for Advanced Disease</i>	Sanofi US Services, Inc
Peter Kabos, MD Associate Professor	<i>Novel dietary interventions for reducing obesity-associated breast cancer</i>	National Cancer Institute/NIH/DHHS
Madeleine Kane, MD, PhD Professor Emerita	<i>Paul Calabresi Award in Clinical Oncology Research</i>	National Cancer Institute/NIH/DHHS
Sana Karam, MD, PhD Associate Professor	<i>Phase I/II trial of radiotherapy in combination with Atezolizumab prior to surgical resection for HPV-unrelated squamous cell carcinoma of the head and neck (HNSCC)</i>	Genentech, Inc.

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Ross McNaul Kedl, PhD Professor	<i>Training Program in Immunology</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Sayuri Kelly Research Instructor	<i>Long Term Care (LTC) Survey Process Operational Support and Analysis</i>	Insight Policy Research
Matthew James Kennedy, PhD Associate Professor	<i>Postsynaptic kinase/phosphatase networks in amyloid beta-induced synaptic dysfunction</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Matthew James Kennedy, PhD Associate Professor	<i>Novel approaches for interrogating and manipulating synaptic function, structure and plasticity</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Jeffrey Scott Kieft, PhD Professor	<i>Structure, function, and dynamics of viral RNAs and RNA-containing complexes</i>	National Institute of General Medical Sciences/NIH/DHHS
Sunnie S Kim, MD Assistant Professor	<i>A Phase II study of induction SBRT and olaparib followed by combination pembrolizumab/olaparib in gastric and gastroesophageal junction (GEJ) cancers</i>	Merck Sharp & Dohme Corp
Kyle E. Knierim, MD Associate Professor	<i>Maternal and Child Health Pilot Program</i>	State of Colorado
Elizabeth J Kovacs, PhD Professor	<i>Aging, Macrophage Mediators, and Burn Trauma</i>	National Institute on Aging/NIH/DHHS
Mamuka Kvaratskhelia, PhD Professor	<i>Ultra-potent HIV capsid inhibitors</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Mamuka Kvaratskhelia, PhD Professor	<i>Roles of HIV-1 capsid-binding FG-motif containing cellular cofactors in infection</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Elaine Tat Lam, MD Associate Professor	<i>HPN424-1001 Ph 1 Open-label, Multicenter, Dose Escalation and Dose Expansion Study of the Safety, Tolerability, and Pharmacokinetics of HPN424 in Patients with Advanced Prostate Cancer Refractory to Androgen Therapy</i>	Harpoon Therapeutics, Inc.

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Julie A Lang, PhD Assistant Research Professor	<i>Characterizing and Improving Humanized Immune System Mouse Models</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Alexis D. Leal, MD Assistant Professor	<i>A Phase II study of Cabozantinib and Nivolumab in Refractory Metastatic Microsatellite Stable (MSS) Colorectal Cancer</i>	Bristol Myers Squibb Pharmaceutical
Alexis D. Leal, MD Assistant Professor	<i>M20-732 Ph 1b/2, Randomized, Controlled, Open-Label Study Evaluating the Safety and Efficacy of ABBV-927 Administered in Combination with Modified FOLFIRINOX (mFFX) With or Without Budigalimab compared to mFFX in Subjects with Untreated Metastatic Pancreatic Adenocarcinoma</i>	AbbVie, Inc.
Kristina T. Legget, PhD Assistant Professor	<i>Sex-based differences in the neuronal mechanisms of food intake behavior</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Myron J Levin, MD Professor	<i>Progress Report, Part D Women, Infants, Children, and Youth (WICY) Services, FY 2016</i>	Health Resources and Services Administration/DHHS
Myron J Levin, MD Professor	<i>mRNA-1273-P204</i>	PPD Investigator Services, LLC
Karl Douglas Lewis, MD Professor	<i>GO42273 PH Ib, OPEN-LABEL, MULTICENTER STUDY TO EVALUATE THE SAFETY, PHARMACOKINETICS, AND ACTIVITY OF BELVAFENIB AS A SINGLE AGENT AND IN COMBINATION WITH EITHER COBIMETINIB OR COBIMETINIB PLUS ATEZOLIZUMAB IN PATIENTS WITH NRAS-MUTANT ADVANCED MELANOMA WHO HAVE RECEIVED ANTI-PD 1/PD-L1 THERAPY</i>	Genentech, Inc.

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Tianjing Li, PhD Associate Professor	<i>Comparative Effectiveness Research & Cochrane Eyes and Vision (CEV)</i>	National Eye Institute/NIH/DHHS
Christopher H Lieu, MD Associate Professor	<i>Pressure Enabled Drug Delivery by Pancreatic Retrograde Venous Infusion for Locally Advanced Pancreatic Carcinoma</i>	TriSalus Life Sciences
Wendy Macklin, PhD Distinguished Professor	<i>The role of mTOR signaling in oligodendrocyte differentiation and CNS myelination</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Paul Scown MacLean, PhD Professor	<i>Colorado Nutrition Obesity Research Center</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Paul Scown MacLean, PhD Professor	<i>Novel dietary interventions for reducing obesity-associated breast cancer</i>	National Cancer Institute/NIH/DHHS
Chelsea Marie Magin, PhD Assistant Professor	<i>Hybrid Hydrogel Biomaterials Comprising Clickable Decellularized Extracellular Matrix for Engineering Dynamic 3D Models of Fibrosis</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Laurel H. Messer, PhD, RN Assistant Professor	<i>SEEDS Pathway: Shared Empowerment for Early Device Success</i>	Leona M. And Harry B. Helmsley Charitable Trust
Ara Metjian, MD Visiting Associate Professor	<i>MOM-M281-006, Efficacy and safety of M281 in adults with warm autoimmune hemolytic anemia: A multi-center, randomized, double-blind, placebo-controlled study with a long-term open-label extension.</i>	Janssen Research & Development LLC
Aaron W. Michels, MD Associate Professor	<i>Failed Genetic Protection: T1D in the presence of DQB1*06:02</i>	Leona M. And Harry B. Helmsley Charitable Trust
Shelley D Miyamoto, MD Professor	<i>Targeting Mitochondria in Single Ventricle Heart Disease</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Makoto Miyazaki, PhD Research Professor	<i>The role of MLKL in the regulation of vascular calcification in CKD</i>	National Heart, Lung, and Blood Institute/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Linda C Montgomery, PhD Professor	<i>COFM Expansion Slot 1</i>	University of Colorado Hospital
Thomas Edward Morrison, PhD Professor	<i>Impairment of B cell Responses by Pathogenic Chikungunya Viruses</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Marc Moss, MD Professor	<i>Aspiration in Acute Respiratory Failure Survivors</i>	National Institute of Nursing Research NIH/DHHS
Marc Moss, MD Professor	<i>CCC for NHLBI Prevention and Early Treatment of Acute Lung Injury (PETAL) Extension</i>	Massachusetts General Hospital
Maria Acena Nagel, MD Research Professor	<i>A major contributor of serious multisystem disease in the elderly: varicella virus-induced inflammation</i>	National Institute on Aging/NIH/DHHS
Donald E Nease Jr, MD Professor	<i>REACH-OUT (Research, Engagement and Action on COVID-19 Health Outcomes via Testing)</i>	National Institute on Minority Health and Health Disparities(NIMHD)/NIH/DHHS
Keith Benjamin Neeves, PhD Professor	<i>A SYSTEMS BIOLOGY APPROACH TO IDENTIFYING THE MECHANISMS OF SEX HORMONE INDUCED THROMBOEMBOLISM IN PRE-MENOPAUSAL WOMEN</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Paul J Norman, PhD Associate Professor	<i>Insights Into Immune-Related Diseases Born from Population Genomics</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Paul J Norman, PhD Associate Professor	<i>Natural Killer cells and the Immunogenetics of COVID-19</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
David A Norris, MD Professor	<i>JAK Inhibition in Down Syndrome</i>	National Institute of Arthritis & Musculoskeletal and Skin Diseases/NIH/DHHS
Kristen Lynn Nowak, PhD, MPH Associate Professor	<i>Inspiratory muscle strength training for lowering systolic blood pressure in midlife and older adults with chronic kidney disease</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Sean T. O'Leary, MD Professor	<i>Evaluation of the Presumptively Initiating Vaccines and Optimizing Talk with Motivational Interviewing (PIVOT with MI) Intervention</i>	Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)/NIH/DHHS
Sean T. O'Leary, MD Professor	<i>PCOM2 - The Physician Communication Intervention, Version 2.0</i>	National Cancer Institute/NIH/DHHS
Tamara Kay Oser, MD Associate Professor	<i>CGM in Primary Care- REFER or LEARN: Implementation and Evaluation</i>	Leona M. And Harry B. Helmsley Charitable Trust
Jose M Pacheco, MD Assistant Professor	<i>HPN328-4001 Ph 1/2 Open-label, Multicenter, Dose Escalation and Dose Expansion Study of the Safety, Tolerability, and Pharmacokinetics of HPN328 in Patients with Advanced Cancers Associated with Expression of Delta Like Canonical Notch Ligand 3 (DLL3) Who Have Failed Standard Avail-</i>	Harpoon Therapeutics, Inc.
Karin A. Payne, PhD Associate Professor	<i>Collaborative Research: RECODE: Organoid model of growth plate development</i>	National Science Foundation
Anthony Wei Peng, PhD Associate Professor	<i>Aging and Dysfunction in the Peripheral Vestibular System</i>	National Institute on Aging/NIH/DHHS
Leigh Perreault, MD Visiting Associate Clinical Professor	<i>PATHWEIGH: pragmatic weight management in primary care</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Daniel Aaron Pollyea, MD Associate Professor	<i>CC-486 and Venetoclax in Previously Untreated Elderly Patients with Acute Myeloid Leukemia</i>	Celgene Corporation

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Huntington Potter, PhD Professor	<i>GM-CSF/Sargramostim Treatment to Improve Cognition in Down Syndrome</i>	National Institute on Aging/NIH/DHHS
Huntington Potter, PhD Professor	<i>Phase II trial of GM-CSF/sargramostim in Alzheimer's Disease</i>	National Institute on Aging/NIH/DHHS
Catherine Anne Proenza, PhD Associate Professor	<i>Regulation of excitability in sino-atrial myocytes</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Rachel Abrams Rabinovitch, MD Professor	<i>NRG Oncology Member Institution Clinical Trial Fixed Price Subaward Agreement</i>	NRG Oncology
Katherine J Rennie, PhD Associate Professor	<i>Aging and Dysfunction in the Peripheral Vestibular System</i>	National Institute on Aging/NIH/DHHS
Diego Restrepo, PhD Professor	<i>Shedding light on brain circuits mediating navigation of the odor plume in a natural environment</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Diego Restrepo, PhD Professor	<i>Scalable 3D molecular imaging and data analysis for cell census generation</i>	Arizona State University
Marian J Rewers, PhD Professor	<i>THE TEDDY STUDY - COLORADO CLINICAL CENTER</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Marian J Rewers, PhD Professor	<i>Natural History of Pre-Diabetic Autoimmunity (DAISY)</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Rosemary Rochford, PhD Professor	<i>The synergistic contributions of EBV and malaria to the etiology of Burkitt lymphoma</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Carlos A Roncal Associate Research Profes- sor	<i>Silica Nephropathy and Chronic Kidney Disease of Unknown Etiol- ogy</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Dennis R Roop, PhD Professor	<i>Translating stem cell therapies for EBS into the clinic</i>	DEBRA International
Cecile Rose, MD, MPH Professor	<i>Study to improve dEmployment related Asthma by using L- citrulline Supplementation (SEALS)</i>	Department of the Army
Cordelia C Robinson Rosen- berg, PhD, RN Professor	<i>Creation of a Colorado Office of Employment First to coordinate cross-departmental efforts to implement Employment First policies, regulations, and practi- ces. Employment First benefits people with disabilities by provid- ing critical support related to achieving increased successful employment outcomes</i>	Colorado Department of Labor and Employ- ment/COLO
Scott D Sagel, MD, PhD Professor	<i>Promise-OB-18</i>	Cystic Fibrosis Foundation Therapeutics
Regie Lyn P. Santos-Cortez, MD, PhD Associate Professor	<i>Genetic and epigenomic determi- nants of hearing loss in Hispanic populations</i>	National Institute on Deafness and Other Communication Disorders/NIH/DHHS
Laura Danielle Scherer, PhD Assistant Professor	<i>Understanding affective pro- cessing of scientific evidence to promote informed choice for breast cancer screening</i>	National Cancer Institute/NIH/DHHS
David A Schwartz, MD Professor	<i>Sponsored Research and License Agreement</i>	Eleven P15, Inc.
David A Schwartz, MD Professor	<i>Preclinical Pulmonary Fibrosis, an opportune rare disease cohort</i>	National Heart, Lung, and Blood Insti- tute/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Rebecca E Schweppe, PhD Professor	<i>Targeting FAK and Src in thyroid cancer</i>	National Cancer Institute/NIH/DHHS
Douglas P Shepherd, PhD Assistant Adjoint Professor	<i>Role of VEGF in Perinatal Hypertension</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Bradford J Smith, PhD Assistant Professor	<i>Predicting and Preventing Ventilator-Induced Lung Injury</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Ronald J Sokol, MD Professor	<i>Colorado Center of Childhood Liver Disease Research Network</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Mark C Spitz, MD Professor	<i>Automated Seizure Detection for Home Seizure Monitoring with Epilog Sensors</i>	Epitel, Inc.
Brian Stauffer, MD Professor	<i>Targeting Mitochondria in Single Ventricle Heart Disease</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Andrea Katharina Steck, MD Professor	<i>TrialNet: Data Coordinating Center for Type 1 Diabetes</i>	University of South Florida
Kurt R Stenmark, MD Professor	<i>Complement Mediated Remodeling in Pulmonary Vascular Disease</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Christopher J Stille, MD, MPH Professor	<i>Health System Research Network for Children and Youth with Special Health Care Needs (CYSHCNet)</i>	Health Resources and Services Administration/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

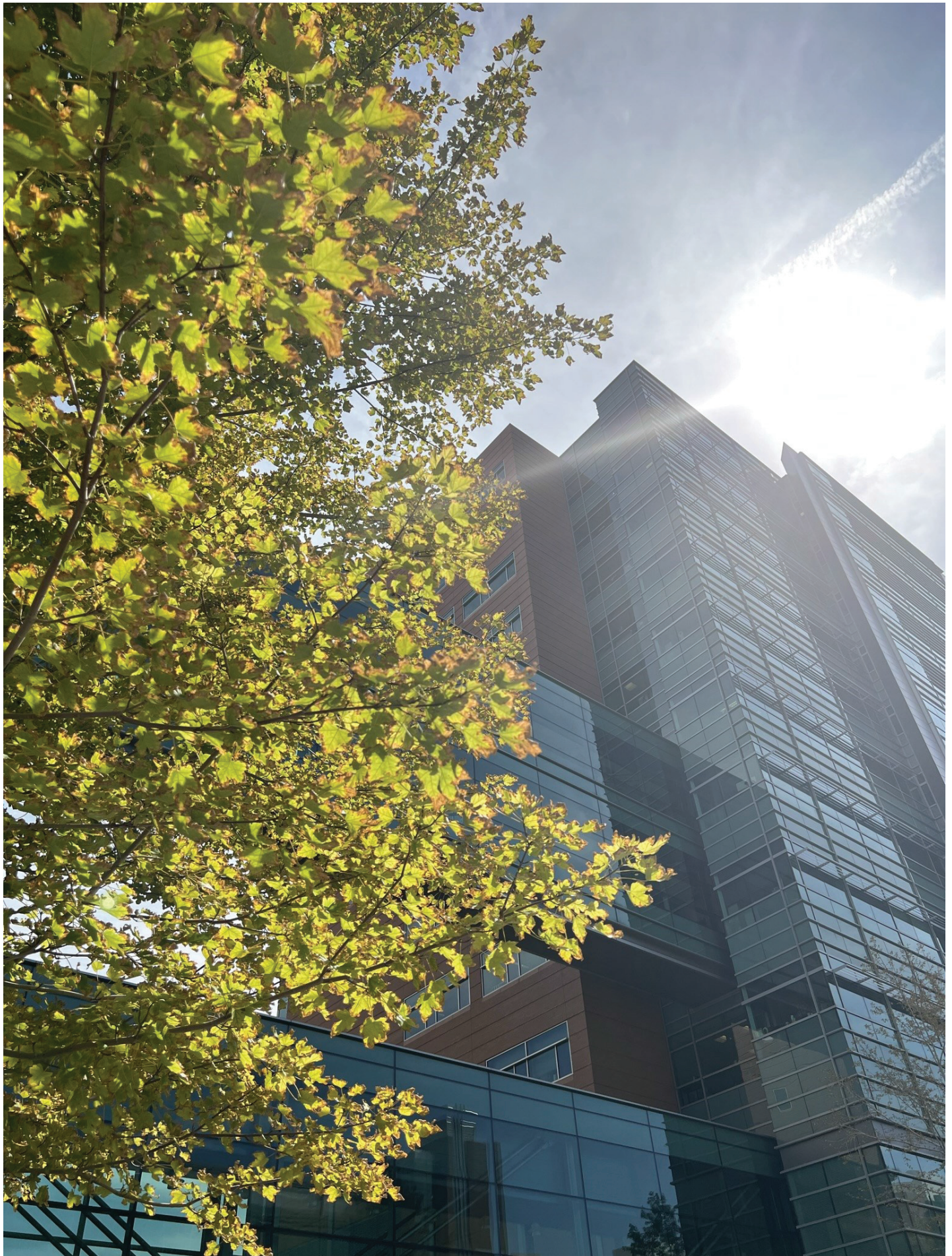
Name	Title	Funding Agency
Christopher C Striebich, MD, PhD Associate Professor	<i>A Phase III, Randomized, Double-Blind, Placebo-Controlled, Multi-center Study to Evaluate the Efficacy and Safety of Obinutuzumab in Patients with Systemic Lupus Erythematosus</i>	Genentech, Inc.
Jamie L Studts, PhD Visiting Professor	<i>Precision Lung Cancer Survivorship Care Intervention: A Randomized Controlled Trial Serving Rural Survivors and Communities</i>	National Cancer Institute/NIH/DHHS
Prem S Subramanian, MD, PhD Professor	<i>Outcomes of clinical interventions for diplopia and/or compressive optic neuropathy in patients with Thyroid Eye Disease</i>	Horizon Therapeutics U.S.A., Inc
Carmen Cristina Sucharov, PhD Professor	<i>Targeting Mitochondria in Single Ventricle Heart Disease</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Stanley J Szefer, MD Professor	<i>Reducing Asthma Attacks in Disadvantaged School Children with Asthma</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Minghua Tang, PhD Assistant Professor	<i>Dietary influence on infant growth and the gut microbiota</i>	National Institute of Diabetes and Digestive and Kidney Diseases/NIH/DHHS
Nicole Renee Tartaglia, MD Professor	<i>The eXtraordinary Babies Study: Natural History of Health and Neurodevelopment in Infants and Young Children with Sex Chromosome Trisomy</i>	Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)/NIH/DHHS
Anne Thessen, PhD Visiting Associate Research Professor	<i>A Common Dialect for Infrastructure and Services in Translator</i>	National Center for Advancing Translational Sciences/NIH
Vesna Dragomir Todorovic, MD, PhD Professor	<i>Novel neurosteroid anesthetics and developmental synaptogenesis</i>	Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)/NIH/DHHS
Raul Martin Torres, PhD Professor	<i>Humoral Immunity by Anergic B cells</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS
Raul Martin Torres, PhD Professor	<i>Training Program in Immunology</i>	National Institute of Allergy and Infectious Diseases/NIH/DHHS

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Michael Richard Verneris, MD Professor	<i>Tumor Microenvironment Disruption to Augment CAR T Therapy in Dog Osteosarcoma Model</i>	V Foundation for Cancer Research, The
Xiao-Jing Wang, PhD Professor	<i>Training in Translational Research of Lung, Head and Neck Cancer</i>	National Cancer Institute/NIH/DHHS
Sachin Wani, MD Professor	<i>A Multicenter Randomized Trial of Seattle Biopsy Protocol Versus Wide-Area Transepithelial Sampling in Patients with Barrett's Esophagus Undergoing Surveillance (The SWAT-BE Study)</i>	CDx Diagnostics, Inc.
Richard F Weir, PhD Associate Research Professor	<i>Optimization of a Minimally-Invasive Bidirectional Optogenetic Peripheral Nerve Interface with Single Axon Read-in & Read-out Specificity</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Mary C.M. Weiser-Evans, PhD Professor	<i>Reprogramming of mature smooth muscle cells to vascular progenitor cells</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Mary C.M. Weiser-Evans, PhD Professor	<i>PTEN promoter hypermethylation underlies vascular disease progression</i>	National Heart, Lung, and Blood Institute/NIH/DHHS
Cristin G Welle, PhD Associate Professor	<i>Development of 3D-FAST Optical Interface for Rapid Volumetric Neural Sensing and Modulation</i>	National Institute of Neurological Disorders and Stroke/NIH/DHHS
Arek J Wiktor, MD Associate Professor	<i>Randomized Trial of Fresh Frozen Plasma versus Albumin in Acute Burn Resuscitation</i>	Department of the Army
Breelyn Ann Wilky, MD Associate Professor	<i>0739-CL-0101 Ph 1/2 Open-label Study Investigating the Safety, Tolerability and Efficacy of ASP0739 as a Single Agent and in Combination with Pembrolizumab in Patients with Advanced Solid Tumors known to Express NY-ESO-1</i>	Astellas Pharma Global Development, Inc.

New Research Grants > \$500,000 Awarded 2021-2022

Name	Title	Funding Agency
Franklin L Wright, MD Assistant Professor	<i>A new paradigm in trauma care: The lethal tetrad of injury- induced hypocalcemia, acidosis, coagulopathy and hypothermia</i>	Metis Foundation
Ivana Yang, PhD Professor	<i>Genetic and epigenomic determi- nants of hearing loss in Hispanic populations</i>	National Institute on Deafness and Other Communication Disorders/NIH/DHHS
Liping Yu, MD Associate Research Profes- sor	<i>Core Clinical Laboratory for Type 1 diabetes Research Trials</i>	University of South Florida
Xiaoli Yu, PhD Assistant Research Profes- sor	<i>Development of Validation of Phage-Displayed Random Pep- tide Libraries Technologies for Rapid Isolation and Characteriza- tion of Extracellular Vesicles from Patients with Brain Tumors</i>	National Institute of Mental Health/NIH/DHHS
Rui Zhao, PhD Professor	<i>Role of Eya3 in regulating the immune microenvironment to promote breast tumor progres-</i>	National Cancer Institute/NIH/DHHS
Yuwen Zhu, PhD Associate Professor	<i>Predictive biomarkers for the therapy of vascular normaliza- tion</i>	Dynamicure Biotechnology LLC



Office of Grants and Contracts

University of Colorado Denver Awards by School

Award Trends - Fiscal Year to Date 2021 and 2022

Office of Grants and Contracts
University of Colorado Denver | Anschutz Medical Campus
Award Trends - Fiscal Year 2021 and 2022
Awards by School/Department

School/College/Chancellor's Office	Department/Division/Center	FY 2021			FY 2022			% of FY 21 Funding
		Direct Cost	Indirect Cost	Total Cost	Direct Cost	Indirect Cost	Total Cost	
Academic and Student Affairs (DDC)		1,418,408	222,212	1,640,620	2,547,171	96,564	2,643,735	161%
Academic and Student Affairs (Anschutz)					27,775	2,225	30,000	
Library (Anschutz)		126,777	33,935	160,712	115,657	25,521	141,178	88%
Library (DDC)		31,783	0	31,783	27,620	0	27,620	87%
Central Services Administration (Anschutz)	Anschutz Innovation	2,724,620	1,067,744	3,792,364	2,194,828	597,217	2,792,045	74%
	University Police	55,079	14,321	69,400	0	0	0	0%
	Facilities Management	0	0	0	250,000	0	250,000	
	Total CSA	2,779,699	1,082,065	3,861,764	2,444,828	597,217	3,042,045	79%
CSA Centers and Institutes (Anschutz)	Center for Behavioral Health Initiatives	10,053	2,614	12,667	21,393	5,987	27,379	216%
	Center on Aging	4,184,867	1,708,944	5,893,811	3,676,044	1,789,459	5,465,503	93%
	Health Affairs Health Care Ethics	873,305	16,105	889,410	872,000	16,000	888,000	100%
	Colorado Center for Personalized Medicine	2,095,045	344,130	2,439,175	2,267,663	461,020	2,728,683	113%
	Colorado Clinical Translational Sciences Institute	11,337,136	3,936,818	15,273,953	9,431,827	2,367,868	11,799,695	77%
	Marcus Brain Institute	4,372,418	363,636	4,736,054	7,461,568	746,157	8,207,725	173%
	Total CSA Centers and Institutes (Anschutz)	22,872,823	6,371,247	29,244,070	23,730,483	5,406,488	29,136,972	100%
Central Service Administration (DDC)		296,206	23,704	320,000				
College of Architecture and Planning		787,661	25,338	812,999	883,888	39,920	923,808	111%
College of Arts and Media		107,940	104,312	212,252	40,080	20,062	60,142	21%
College of Engineering and Applied Sciences		5,002,383	1,239,950	6,242,334	3,549,652	931,430	4,481,082	72%
College of Liberal Arts and Sciences		6,590,203	2,219,404	8,809,607	4,904,156	1,513,781	6,417,937	73%
College of Nursing		7,353,559	1,249,034	8,602,593	7,409,137	1,371,450	8,780,587	102%
The Business School		0	0	0	0	0	0	
The Graduate School		767,599	30,589	798,188	664,742	34,550	699,292	88%
School of Dentistry		2,441,925	677,865	3,119,791	3,337,620	1,089,413	4,427,033	142%
School of Education and Human Development		3,765,822	473,529	4,239,351	2,423,912	276,578	2,700,490	64%
School of Medicine	Anesthesiology	3,927,034	1,480,009	5,407,043	4,944,967	1,916,486	6,861,452	127%
	Biochem/Biophy/Molecular Genetics	6,814,387	2,765,463	9,579,850	9,955,077	4,007,258	13,962,335	146%
	Biomedical Informatics	1,110,743	403,724	1,514,467	25,942,340	4,750,614	30,692,954	2027%
	Cell and Developmental Bio	4,917,096	2,110,162	7,027,258	7,617,280	2,753,950	10,371,230	148%
	Dean's Office	327,272	32,720	360,000	1,256,084	56,754	1,312,837	365%
	Dermatology	2,166,946	606,080	2,773,026	3,644,423	1,107,436	4,751,859	171%
	Emergency Medicine	12,320,537	3,626,378	15,946,915	15,656,040	4,634,214	20,290,253	127%
	Family Medicine	4,500,036	666,695	5,166,731	7,170,320	1,024,319	8,194,639	156%
	Graduate Medical Education	59,999	0	59,999	84,910	0	84,910	142%
	Immunology Microbiology	14,261,323	5,681,524	19,942,847	16,626,483	6,400,499	23,026,982	115%
	Medicine	97,084,408	36,960,504	133,044,913	106,221,704	31,900,586	138,122,290	104%
	Neurology	19,070,684	5,451,074	24,521,758	13,959,374	4,560,158	18,519,532	76%
	Neurosurgery	2,509,777	938,658	3,448,435	6,649,410	1,768,724	8,418,134	215%
	Obstetrics and Gynecology	6,868,311	2,179,371	9,047,682	6,049,480	1,823,161	7,872,641	89%
	Ophthalmology	4,954,070	1,666,059	6,620,129	3,722,050	1,042,966	4,765,015	72%
	Orthopedics	4,747,308	1,070,711	5,818,019	5,482,724	1,338,564	6,821,288	117%
	Otolaryngology	3,001,354	1,356,003	4,357,357	3,091,661	1,153,509	4,245,170	97%
	Pathology	2,867,058	963,556	3,830,614	3,561,618	1,304,633	4,866,251	126%
	Pediatrics	69,283,882	18,564,779	87,848,661	75,189,579	17,356,588	92,546,167	105%
	Pharmacology	13,593,080	6,648,668	20,241,748	10,492,227	4,884,176	15,376,403	75%
	Physiology/Biophysics	5,113,162	2,382,342	7,495,504	6,224,680	3,225,048	9,449,728	126%
	Psychiatry	12,070,499	2,656,021	14,726,520	11,104,681	3,366,377	14,471,057	98%
	Radiation Oncology	2,488,487	704,067	3,192,554	1,066,764	482,961	1,549,725	48%
	Radiology	1,861,454	400,327	2,261,781	3,580,644	1,088,641	4,669,285	206%
	Rehabilitation Medicine	5,962,531	615,471	6,578,002	4,805,513	587,545	5,393,057	81%
	Surgery	12,405,936	4,345,117	16,751,054	11,427,964	3,940,021	15,367,984	92%
	Total School of Medicine	314,197,454	103,468,088	417,665,542	384,800,455	108,265,188	493,065,643	113%
SOM Institutes and Centers	Barbara Davis Center	14,933,210	5,105,513	20,038,723	16,543,670	4,705,429	21,249,099	106%
	Cancer Center	36,405,606	10,641,612	47,047,218	36,916,061	10,937,612	47,853,672	102%
	Center of Bioengineering	4,095,627	1,039,319	5,134,945	5,128,426	1,511,709	6,640,135	129%
	Colorado Health Outcomes	14,931,426	3,965,300	18,896,726	19,811,493	5,123,154	24,934,647	132%
	Depression Center	4,762	1,238	6,000	471,243	131,621	602,864	10048%
	Health and Wellness Center	493,672	147,546	641,218	985,134	511,665	1,496,799	233%
	Linda Crnic Institute	4,363,692	2,086,603	6,450,295	1,946,728	1,067,777	3,014,505	47%
	Webb-Waring Center	57,697	4,616	62,313	283,000	157,065	440,065	706%
	Center for Children's Surgery	0	0	0	6,620	1,306	7,926	
	Total SOM Institutes and Centers	75,385,700	23,851,826	99,237,526	82,093,063	24,227,837	106,320,900	108%
	Total SOM Department/Centers	389,583,154	126,510,813	516,093,967	466,893,518	130,492,726	597,386,244	112%
School of Pharmacy		10,149,303	4,719,509	14,868,812	11,832,155	3,652,909	15,485,064	104%
School of Public Affairs		1,622,979	268,330	1,891,309	1,436,520	218,125	1,654,645	87%
School of Public Health		36,869,790	9,290,527	46,160,317	41,764,202	10,953,074	52,717,276	114%
	Total	492,888,892	154,568,364	647,457,256	553,813,156	156,723,713	710,536,869	110%

Anschutz Medical Campus
Denver Campus

FY 2021			FY 2022		
Direct Cost	Indirect Cost	Total Cost	Direct Cost	Indirect Cost	Total Cost
472,914,719	149,981,586	622,896,305	538,000,137	153,626,454	691,626,591
19,683,373	4,576,778	24,260,151	15,793,019	3,097,260	18,890,278
492,608,092	154,558,364	647,166,456	553,813,156	156,723,713	710,536,869

The Office of the Dean proudly presents the
2022-2023 Dean's Distinguished Seminar Series

All seminars will be held on the Anschutz Medical Campus, (unless otherwise noted),
in the Research North building, Hensel Phelps West Auditorium, 4:00-5:00pm.
Prior to each seminar, lecture topics will be announced. Please follow the hyperlinks below to learn more about
our speakers and their fields of expertise.

For questions about the series, contact Judy Sherman, 303-724-5375, judy.sherman@cuanschutz.edu

Tuesday, September 13, 2022

[SMITA BHATIA, MD, MPH](#)

Director, Institute for Cancer Outcome and Survivorship
Gay and Bew White Endowed Chair in Pediatric Oncology
Distinguished Professor and Vice Chair, Dept. of Pediatrics
University of Alabama at Birmingham School of Medicine

Tuesday, October 11, 2022

[JILL GOLDSTEIN, PHD](#)

Executive Director & Founder, Innovation Center on Sex Differences in Medicine (ICON-X),
Massachusetts General Hospital (MGH)
Professor of Psychiatry & Medicine, Harvard Medical School
Department of Psychiatry, MGH
Helen T. Moerschner Endowed MGH Research Institute, Chair in Women's Health

Tuesday, January 10, 2023

[EDWARD MAIBACH, PHD, MPH](#)

Distinguished University Professor and Director
George Mason University Center for Climate Change Communication

Tuesday, March 14, 2023

[MARIANNE BRONNER, PHD](#)

Distinguished Professor
Edward B. Lewis Professor of Biology
Director of the Beckman Institute
Division of Biology and Biological Engineering, California Institute of Technology

Tuesday, April 11, 2023

[BRUCE OVBIAGELE, MD, MSc, MAS, MBA, MLS, FAAN](#)

Professor of Neurology, Weill Institute for Neurosciences
Associate Dean, University of California, San Francisco School of Medicine
Chief of Staff, San Francisco Veterans Health Care System

Tuesday, May 9, 2023

[LOUISE ARONSON, MD, MFA](#)

Professor of Medicine, University of California, San Francisco
Deputy Director, The Wistar Institute Cancer Center
Christopher M. Davis Endowed Professor & Program Leader,
Immunology, Microenvironment & Metastasis Program



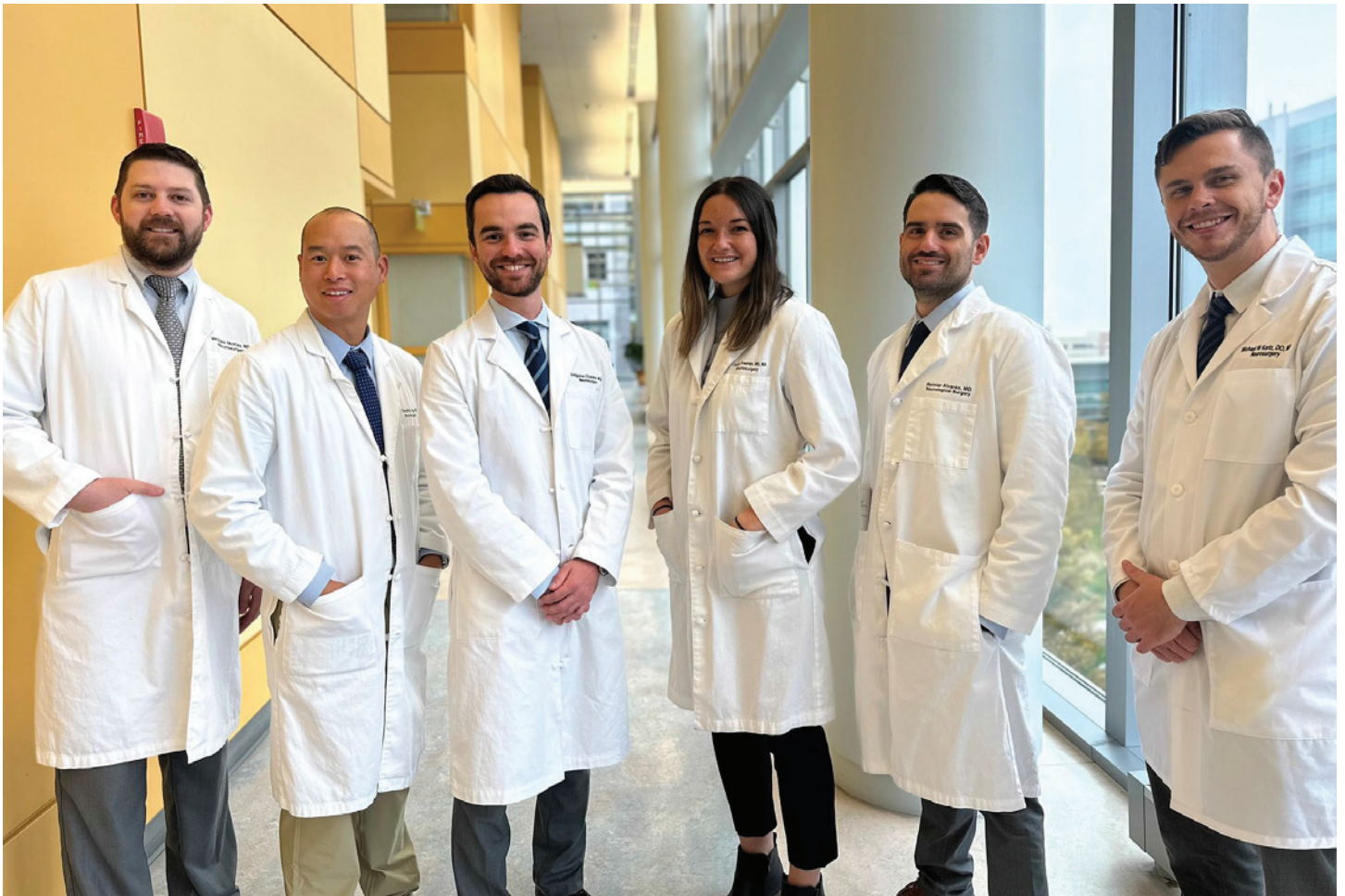


Photo of neurosurgery residents posted by @TimothyUngMD on Twitter on Oct. 4, 2022

Centers, Institutes, and Programs

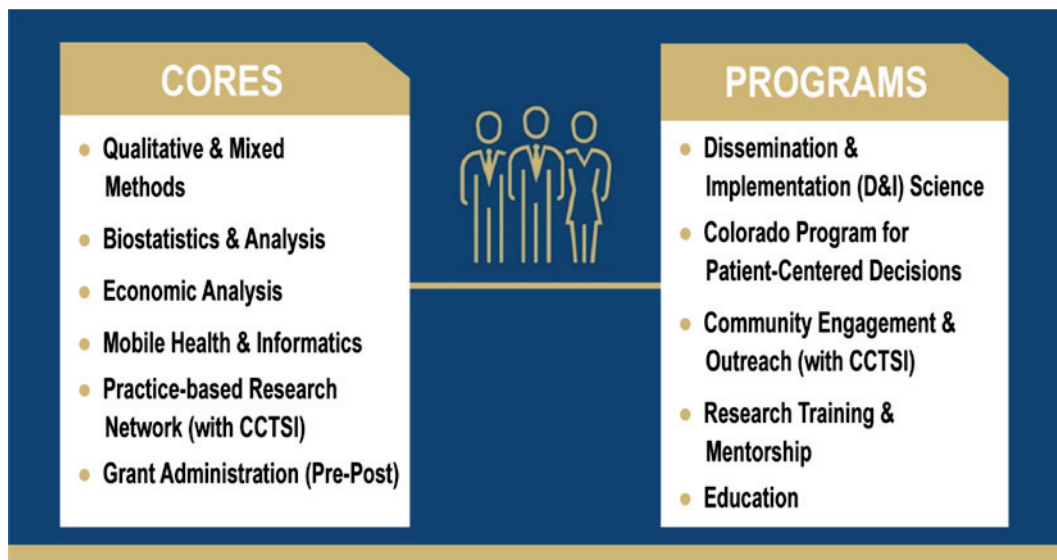


Adult and Child Center for Outcomes Research and Delivery Science

Supported by the University of Colorado School of Medicine and Children's Hospital Colorado (CHCO), the Adult and Child Center for Outcomes Research and Delivery Science (ACCORDS) provides a collaborative and multi-disciplinary environment that supports outcomes, health services, and implementation research for CU Anschutz Medical Campus faculty. The founding Director is **Allison Kempe, MD, MPH**. ACCORDS became a center this year.

Mission - To improve health, locally and nationally, by supporting state-of-the-art outcomes and community translational research to guide clinical practice and health policy.

ACCORDS provides research consultation, training, and help with grant preparation to all School of Medicine faculty. ACCORDS also collaborates with the Colorado School of Public Health, the Skaggs School of Pharmacy and Pharmaceutical Sciences, and the College of Nursing. ACCORDS has strong research affiliations with the Colorado Clinical and Translational Sciences Institute (CCTSI), Denver Health, Kaiser Permanente, U.S. Department of Veterans Affairs, Colorado Department of Public Health and Environment, and the Colorado Department of Health Care Policy and Financing. ACCORDS is an incubator for research ideas, fosters interdisciplinary collaboration, and develops focused areas of research of national prominence by bringing together T3-T4 researchers from across the CU Anschutz Medical Campus.



Objectives

- Increase competitiveness of the School of Medicine/CHCO for funding from multiple research, education, and training program sponsors, especially Patient-Centered Outcomes Research Institute, the Agency for Healthcare Research and Quality, and the National Institutes of Health.
- Strengthen affiliations with key external partners, to increase access to populations and collaborators necessary for certain grants.
- Improve faculty development for both senior and junior faculty interested in outcomes and delivery research by providing an interdisciplinary home for developing research, a mentored training ground, and substantial educational activities.
- Improve the ability of the School of Medicine/CHCO to recruit senior and junior faculty interested in health outcomes, health services research, dissemination and implementation science, comparative effectiveness, and patient-centered outcomes research.
- Achieve greater national visibility for the School of Medicine/CHCO in the areas of health outcomes, dissemination and implementation science, comparative effectiveness research, and training.

Key Research Support Accomplishments:



Educational Offerings

We offered
**20 campus seminars
& workshops**

with over
**1000
attendees**



Fellowships

We train
**post-doctoral
professionals**
to become
**primary care
research leaders**
addressing the nation's
primary care health
delivery challenges



Early Career Faculty

We support over
**50 junior faculty
members**
with
**Career
Development
Awards**



Grant Proposals

We help
**65 research
investigators**
submit over
**100 grant
proposals**



Grant Success

36%
success rate
for all
proposal types



Consultations

We provide over
**350 research
consultations**
across 25 different
campus departments/
divisions

University of Colorado Alzheimer's and Cognition Center

The University of Colorado Alzheimer's and Cognition Center (CUACC) is designated by the Colorado legislature as the "University of Colorado School of Medicine's Dementia Diseases and Related Disabilities Treatment and Research Center." Our tagline is: "Healthy Brain Aging Starts Here."

At the CUACC, we are providing standard and innovative clinical care to our patients while advancing research into effective early diagnostics, preventions, treatments, and, ultimately, cures for Alzheimer's disease and other neurodegenerative diseases and conditions. In the Memory Disorders Clinic of the CUACC, we assess and care for aging patients with late-onset Alzheimer's disease, younger patients with early-onset Alzheimer's disease, patients with non-memory/atypical Alzheimer's disease, patients with related dementias, and patients with developmental disorders such as Down syndrome, thus serving as a premier, comprehensive Alzheimer's disease center. We also support clinical, translational, preclinical, and basic science research aimed at improving the diagnosis, treatment, and prevention of Alzheimer's disease and related dementias, including Down syndrome-Associated Alzheimer's disease.

CUACC Director **Huntington Potter, PhD**, is Kurt N. and Edith von Kaulla Memorial Professor of Neurology, vice chair for basic research in neurology, and director of the Alzheimer's Disease Program for the Linda Crnic Institute for Down Syndrome. **Samantha Holden, MD**, associate professor of neurology, is director of the CUACC Neurobehavior and Memory Disorders Clinic, and **Delia Bakeman, DO**, is associate director. Holden is also associate director of the behavioral neurology section and clinical director of outpatient neurology for UHealth. Brianne Bettcher, PhD, associate professor of neurology, is director of neuropsychology research. Victoria Pelak, MD, professor of neurology and ophthalmology, serves as vice chair of faculty affairs for the Department of Neurology. Christopher M. Filley, MD, professor of neurology and psychiatry, is director of the behavioral neurology section and senior scientific advisor at the Marcus Institute for Brain Health. Brice McConnell, MD, PhD, assistant professor of neurology, is director of the sleep research program. Integral to both the CUACC clinical care and research are Associate Professor Peter Pressman, MD, Assistant Professors Zachary Macchi, MD, Jessica Solomon Sanders, MD, and Tara Carlisle, MD, PhD. They are all aided by a team of clinical staff including two advanced practice providers, two clinical nurses, and clinical coordinators.

The CUACC Neurobehavior and Memory Disorders Clinic interacted with 2,776 unique patients from 7/1/21–6/30/22 (an 11% increase this year) and had 3,092 total visits (a 41% increase this year). The clinic also includes the Neuropsychology Clinic. Closely allied with the CUACC Neurobehavior and Memory Disorders Clinic is CUACC neuro-ophthalmologist/behavioral neurologist Victoria Pelak, MD, whose office is on the Anschutz Medical Campus. Jessica Solomon Sanders, MD, has started a developmental disorders clinic and is studying the effects of the COVID-19 pandemic on intellectual and developmental disorders.

While the COVID-19 pandemic has been challenging for CUACC patients, clinicians, and researchers, our clinical care and laboratory research have now returned to pre-COVID levels, with appropriate cautionary measures as new variants become dominant.

The CUACC has built on the results of its clinical trial to assess the safety and efficacy of Granulocyte-Macrophage Colony-Stimulating Factor (GM-CSF/Leukine[®]) as a treatment for mild-to-moderate Alzheimer's disease, showing that it was safe and also showing improvement in memory and in blood biomarkers of brain damage (i.e., amyloid, Tau and Neurodegeneration). Specifically, a revised protocol for a longer six-month efficacy trial for Leukine[®] led by Huntington Potter and Peter Pressman, MD, was approved and funded by a \$7.5 million NIH grant, and study participant recruitment screening has started.

A recently published study led by Md. Mahiuddin Ahmed, PhD, from the CUACC Laboratory shows that treatment with GM-CSF improves memory/learning in animal models of Down syndrome and normal aging. This led to a clinical trial of GM-CSF/Leukine[®] in young adults with Down syndrome (funded by a \$4.5 million NIH grant). Work in collaboration with the laboratory of Kenneth Tyler, MD, showed that GM-CSF treatment reduces mortality in a mouse model of West Nile virus infection. Collaboration with Lon Kendall, PhD, and Angela Bosco-Lauth, PhD, at Colorado State University showed that GM-CSF treatment increases the immune response, decreases viral load, and reduces mortality in a mouse model of COVID-19. Investigations into other potential applications of GM-CSF are ongoing, including a study led by Athena Wang, PhD, which is focused on GM-CSF as a possible treatment for type-2 diabetes.

Brianne Bettcher, PhD, specializes in observational studies designed to investigate the underlying causes of Alzheimer's disease and cognitive decline. Bettcher is currently leading two healthy older adult observational studies, termed LIIA and ImTAB, along with the Bio-AD study described below. The Longitudinal Innate Immunity and Aging (LIIA) study is recruiting 200 healthy older adults with no memory concerns to learn more about how immune system markers, measured in blood and spinal fluid, relate to clinical features of aging over time. This study is also incorporating COVID-19 antibody testing to investigate how COVID-19 affects neurological outcomes, as a part of an administrative supplement to her NIH R01 grant. The Immunity and Alzheimer's Biomarkers (ImTAB) study is learning how a mild traumatic brain injury (mTBI) in late life relates to inflammation, markers of Alzheimer's dis-

ease-related proteins, and clinical features of aging over time. The ImTAB study is sponsored through a U.S. Department of Defense (DoD) grant and is recruiting 125 healthy older adults over the next two years, including some who have had a mTBI in the past five years, but no significant memory or cognition concerns. Bettcher was also awarded an NIH grant to compare tele-neuropsychology testing to traditional in-person testing.

In the past five and a half years, we have enrolled 174 individuals in our ongoing, prospective longitudinal study, Bio-AD, which follows aging- and Alzheimer's disease-related changes in a planned cohort of up to 400 aging adults and will offer new insights into the causes and progression of Alzheimer's disease and related dementias while also informing the development of novel therapies. Many other CUACC investigators are also using the Bio-AD cohort for their clinical research studies. For example, Brice McConnell, MD, PhD, is leading efforts to understand the neuroprotective aspects of sleep that protect the brain from developing age-related neurodegenerative diseases, including Alzheimer's disease, and he is conducting diagnostic research on sleep and memory for which he has been awarded a Diversity Supplement to Bettcher's NIH grant. Additionally, using data from the Bio-AD cohort, our group also published a validation study of a novel posterior cortical symptom questionnaire (titled the Colorado Posterior Cortical Questionnaire [CPC-Q]) to help better identify people with non-amnesic cognitive syndromes, namely early posterior cortical atrophy (visual variant of Alzheimer's disease). We plan to deploy this screener in our own Memory Disorders Clinic, as well as partner with ophthalmology and optometry clinics, to help distinguish vision changes related to eye issues from brain issues and lead to earlier diagnosis and appropriate treatment for posterior cortical syndromes.

Peter Pressman, MD, continues work funded by an NIH National Institute on Aging Mentored Patient-Oriented Research Career Development Award (K23) to study computational speech analysis (CSA) as a potential screening tool for patients with neurocognitive disorders. With this grant, he is investigating the utility of using CSA measures in people with Alzheimer's disease, mild cognitive impairment, other neurocognitive disorders, and healthy controls to correlate spontaneous speech measures with standardized linguistic, neuropsychological, and biological measures. He also plays key roles in community outreach to the African American and Hispanic/LatinX communities described below. Pressman is site-PI for ALLFTD, a network of 18 North American research and care centers dedicated to advancing our understanding of frontotemporal lobar degeneration (FTLD) and advancing research to develop treatments for this disorder.

Research conducted by Zachary Macchi, MD, aims to enhance palliative care for patients with Alzheimer's disease, Parkinson's disease, and other forms of neurodegeneration. His current projects explore the perspectives of individuals with early-onset dementia, methods to enhance advance care planning for early-stage Alzheimer's disease and related dementias, ways to improve caregiver support and ways to improve current practices among movement disorders specialists in recognizing aggression in patients with Lewy Body disease.

Tara Carlisle, MD, PhD, has a specific interest in cognitive reserve and cognitive resiliency. She currently has a project funded through the Movement Disorders Center pilot program and the Neurology Department intradepartmental grant with the goal of developing a clinical tool focusing on reversible risk factors to predict those at high risk of developing cognitive decline in Parkinson's disease. Using this tool, she will also be investigating individuals that display cognitive reserve.

The University of Colorado Department of Neurology Lewy Body Dementia Association Research Center of Excellence (RCOE) is directed by CUACC members Victoria Pelak, MD, and Samantha Holden, MD. Macchi has been awarded several Clinical Research Training Scholarship grants to study Lewy Body Disease. Specifically, he will lead a national survey of neurologists and movement disorder specialists across the Lewy Body Disease Association's Research Centers of Excellence in order to gauge current practices in the detection and management of aggression towards caregivers in Parkinson's disease and Dementia with Lewy Bodies.

Noah Johnson, PhD, and members of the CUACC Laboratory have discovered several drugs that inhibit the essential function of apolipoprotein E in catalyzing the formation of neurotoxic amyloid filaments in the Alzheimer brain. Inheriting the apoE4 allele is the greatest risk factor for developing Alzheimer's disease besides age itself. Two of the effective, non-toxic drugs are long-time FDA approved for other indications, and our retrospective study shows them to increase the likelihood that human Alzheimer's disease patients will improve in cognitive ability and change their diagnosis to mild cognitive impairment or even normal cognition. The most promising drug, imipramine, is being tested in animal models of Alzheimer's disease, and we plan to submit a grant to fund a clinical trial by February 2023. Promising drugs are also being tested by Johnson's team in cerebral organoids (minibrains grown in culture) using induced pluripotent stem cells derived from skin cells of Alzheimer's, normal, and Down syndrome donors.

Christina Coughlan, PhD, is the director of the CUACC biorepository team that stores tens of thousands of individual samples from patient biofluids and tissues of animal models. These samples are made available to researchers, both within the team, and with careful consideration of their goals, to collaborators, by request, in the interest of expediting the development of Biomarkers to predict the onset and severity of Alzheimer's disease and other forms of neurodegenerative disease, including Down syndrome, Parkinson's disease, Huntington's disease, and frontotemporal dementia. She also founded and co-directs the CUACC exosome core laboratory and has identified promising surface markers that may be used to identify brain-derived exosomes in the blood. In addition, Coughlan collaborates with many exosome teams who have interests that include cancer, viruses, fibrotic lung disease, heart defects, cerebral palsy, diabetes, stroke, Alzheimer's disease and Down syndrome. The goal is to understand the role of exosomes in health and pathology, and to test new drugs to inhibit pathological pathways facilitated by exosomes.

Heidi Chial, PhD, serves as the director of grant strategy and development for the CUACC, and she also co-leads an investigation into cell cycle and chromosome segregation defects, including in neurons, in brains of patients and animals with neurodegeneration. This project recently won a \$300,000 foundation grant to study the defect in Huntington's disease.

Mingxia Wang, PhD, Natalia Vergara, PhD, and Athena Wang, PhD, are carrying out studies to determine the effects of traumatic brain injury in animal models of Alzheimer's disease.

Other CUACC research includes gaining an in-depth understanding of normal aging and neurodegeneration with a special focus on the role of inflammation, working to develop better diagnostic and predictive tests, both clinical and biochemical, and replicating Alzheimer's disease pathology in cerebral organoids (minibrains).

Over the last year, members of the CUACC continue to be supported by funding from the NIH, the DoD, the Alzheimer's Association, the State of Colorado, and generous philanthropists. CUACC members have published extensively and presented their latest research findings at many scientific meetings, including at the Alzheimer's Association International Conference (AAIC 2022), which was held in San Diego, CA, in July. A list of recent publications can be found on our website below.

The CUACC continues to provide dozens of presentations and lab tours per year to the lay public with a special focus on outreach to underrepresented populations, including African American and Hispanic/LatinX community members. Drs. Potter and Holden were invited to join the State of Colorado Alzheimer's Disease and Related Disorders Advisory Committee, which has a special mandate to focus on underserved populations. A study group established in 2018 by former CUACC Fellow Luis Medina, PhD, and Peter Pressman, MD, using Boot Camp Translation (BCT) has been renamed the African American Alzheimer's Advisory Committee and includes 16 members. The CUACC is also a part of a grant, secured by Medina, who is now a faculty member at the University of Houston (UH), in partnership with UH and the University of Nevada, Las Vegas, and completed BCT with 16 members of the Hispanic/LatinX community in Denver, Houston, and Las Vegas called the Engaging Communities of Hispanics for Aging Research (ECHAR) network. This training also included a translator, allowing them to provide information in both Spanish and English. The BCT process wrapped up this fall, and members were invited to form a Community Advisory Board, which has been established.

Promotions- – Md. Mahiuddin Ahmed, PhD, was promoted to research Assistant Professor, Peter Pressman, MD, was promoted to Associate Professor, Samantha Holden, MD, was promoted to Associate Professor, Tara Carlisle, MD, was promoted to Assistant Professor, and Zachary Macchi, MD, was promoted to Assistant Professor.

Degrees Awarded – Esteban Lucero, a graduate student in the laboratory of Huntington Potter, who was co-mentored by Heidi Chial, PhD, received his PhD from the Human Medical Genetics and Genomics Graduate Program and holds a prestigious NIH F99/R00 grant that is now supporting his postdoctoral training with Chris Gignoux. Coughlan received a Masters in Clinical Sciences (MSCS) from the Clinical Sciences Graduate Program (CLSC), Anschutz Medical campus, focused on translational research, and translating bench-side findings to bedside.

The CUACC is dedicated to and recognizes the importance of collaboration in all of our clinical care activities and research projects. Therefore, we would like to note that all of the clinics, grants, and projects discussed above include multiple senior co-investigators besides the principal clinician or scientist and that all are dependent on the hard work of other CUACC colleagues, including: **Faculty Contributors:** Stefan Sillau, PhD, Nichole Carlson, PhD, and Ashesh Thaker, MD. **Advanced Practice Providers:** Lindsey Schulz, MS, PA-C, and Kelly Finch, FNP-BC, RN, and **Research Services Professionals, Students, and Administrative Staff:** Esteban Lucero, PhD, Mihret Elos, MS, Leila Aghili, MS, John O'Shaughnessy, MS, Michelle Stocker, Jennifer Krupa, Natalie Lopez-Esquivel, Francesca Dino, Lindsey Medenblik, Erin Weinhold, Nelly Solorzano, Franklin Roberts, Laura Gorla, Isabela Romano, Asher Mahmood, Danelle Carter, Lauren McCall, MS, Adriana Solano, Gillian Cooke, Paula Grissom, Breanna Dooling, Deanna Ragsdale, and Jerri Lusk.

Publications – <https://medschool.cuanschutz.edu/alzheimer/home-page/recent-publications>

Website – <http://medschool.cuanschutz.edu/alzheimers>

Anschutz Health and Wellness Center

The **CU Anschutz Health and Wellness Center (AHWC)**, established within the CU School of Medicine, opened in April 2012. Our vision is a campus where wellness is a foundation of everything we do. To foster this vision, the staff of the AHWC collaborate with campus partners to develop and deliver programs and services targeting physical activity, nutrition, and mental wellbeing that enhance the lives of people who come here. The AHWC serves as a campus resource that provides support and a space for innovation and collaboration for researchers, clinicians, patients, students, campus employees, and community members. The center is led by Director **Daniel Bessesen, MD**; Director of Wellness and Innovation **John Peters, PhD**; Director of Finance and Administration **Luciana Smith, MSO, MCPH**; and Director of Research and Education Integration **Paul MacLean, PhD**. More information can be found at anschutzwellness.com.

Some of the center's functional areas and programs include:

- The AHWC Fitness Center offers 50 weekly group exercise classes, personal training services, massage, and motivational support for nearly 3,000 members from the campus and the surrounding community. The fitness center also supports NIH-funded research studies investigating the basic physiological effects of physical activity and the associated health benefits. In addition to on-site programs and services, the Fitness Center has engaged with the Anschutz Medical Campus through outreach. This year, in addition to NIH-funded research programs already utilizing the Fitness Center (SPARX, TACTICS, ARROW, TIMEX, Intermittent Fasting, and SYNERGY), the VA Gerofit program began utilizing the center as its exercise site. Personal trainers have supported exercise programming for clinical populations including people with cancer through the BfitBwell program, for people with traumatic brain injury with the Marcus Institute for Brain Health, and people recovering from addiction treated at the CeDAR program. Massage therapists have been able to re-engage in outreach with campus partners including the School of Dental Medicine, the Department of Psychiatry, and at the CU Heroes Alumni event. Staff has also supported Caring for the Frontline programs delivered to nurses and other campus staff by providing yoga and massage. The group exercise department has delivered programs for our members and community this year including Yoga and Healing Sound Bath wellness events, a Pride Ride rooftop cycling class for Pride Month, and a series of celebratory classes for the 10th anniversary of AHWC.
- The CU Weight Management and Wellness Clinic offers multi-disciplinary weight management and wellness services, including physician-directed weight management; evidence-based weight management programs; nutrition consultations with registered dietitians; behavioral health services; and body composition, metabolic assessment, and diagnostic testing. Part of CU Medicine and the Anschutz Health and Wellness Center, the clinic offers patients and visitors integrated resources within a state-of-the-art facility. The clinic hosts a full spectrum of weight management programs including:
 - o My New Weigh – (FY21-22: 172 participants) 20-week program utilizing behavior change and a highly structured meal plan for significant weight loss.
 - o New Development Program – (FY21-22: 42 participants) 16-week pilot program focused on nutrition education and mindset transformation.
 - o Weight Loss 4 Life – (FY21-22: 65 participants) bi-monthly ongoing support that gives participants the foundational tools and accountability needed to sustain long-term weight loss.

AHWC Clinic Volumes	FY21	FY22	Percent increase
CU Weight Management and Wellness Clinic	5,842	6,314	8%

Clinic Visits in Person or Virtual in FY22	In Person	Other (telehealth or phone)
CU Weight Management and Wellness Clinic	24%	76%

The clinic currently offers both virtual and in-person appointment options. For more information:

Clinic: 303.724.9030 or AHWC.Clinic@cuanschutz.edu

Weight Management Programs: 303.724.9000 or AHWC.Programs@cuanschutz.edu

- **Campus and Community Programs** strive to offer wellness programming to our partners that focus on the primary pillars of wellness at AHCW: physical activity, mental well-being, and healthy eating. Our metabolic and demonstration kitchens serve as the hub for much of our programming, along with a series of virtual offerings. We focus on providing research-based, best-practice programming to our partners with the help of our team of content experts at AHCW, including registered dietitians, psychologists, and physical activity experts.
 - **Caring for the Frontline:** This program is a half-day of wellness that focuses on our three pillars of wellness: nutrition, mental well-being, and physical activity. Attendees participate in sessions throughout the day that highlight each of these areas, including a mindfulness session, restorative yoga, and a cooking demonstration. The content of this day is specifically curated for frontline workers and focuses on a day of self-care, restoration, and renewal. We work to provide a day focused primarily on participants' wellness while also providing tools they can implement in their daily lives. Our team focuses on the importance of self-compassion, taking time for yourself, and self-care while caring for others.
 - 188 participants from UHealth, including the majority of charge RNs
 - 33 participants from CHCO
- **Brain. Food. Recovery:** Together with the Marcus Institute for Brain Health (MIBH), this program includes a hands-on cooking program for MIBH patients with traumatic brain injuries along with a virtual session focusing on nutrition education, both led by a registered dietitian. This program focuses on the importance of nutrition in healing, and treatment of common symptoms participants may be experiencing, including migraines and inflammation.
 - 47 participants in FY22
- **CU Eat Well:** As all CU Anschutz students transitioned to remote learning, AHCW transitioned CU Eat Well to a virtual offering. The new format offered curbside pick-up of ingredients, followed by a virtual cooking class taught by our registered dietitians. This format expanded our participation numbers and served as an important opportunity for students to connect while being remote. This program resumes in person in fall 2022.
 - This program is sponsored by the Chancellor's Office to address food insecurity on campus. In FY22, we provided 134 meals to students on campus.
- **Lab Collaborative:** In partnership with the Graduate School, International Scholars, and the Postdoctoral Association, this cooking program is open to students, staff, and faculty associated with the partner organizations. The format is modeled on the CU Eat Well program, with the offering of curbside pick-up of ingredients followed by a virtual cooking class taught by a registered dietitian. This program has been a significant success and it is expected to grow. This program will resume some in-person programming in fall 2022.
 - 103 participants in FY22
- **Culinary Medicine:** This weekly demonstration class is conducted with UHealth, Integrative Medicine, and community volunteers. This program is offered virtually, allowing for a wide reach of participants across campus and partner organizations.
 - 313 participants in FY22
- The center is home to the following research groups, which secured \$9.8 million in annual funding in direct and indirect funds.
 - The **Colorado Nutrition Obesity Research Center (NORC)** (funded by NIH/NIDDK grant P30 DK048520, \$1.4 million annually) (<http://cunorc.org/>) has secured ~\$6 million through 2025 to promote interdisciplinary, translational research, and develop young investigators interested in nutrition and obesity research. The NORC research base includes 118 funded faculty members and 60 affiliated trainees, educators, and researchers, with a research portfolio of \$50 million of nutrition- and obesity-related research across five campuses in the Rocky Mountain region. This portfolio includes over \$6 million in investigator-initiated research carried out in the AHCW. The NORC supports three biomedical research cores (Clinical Intervention and Translation; Energy Balance Assessment; Molecular Cellular Analytic), an enrichment program, and a pilot/feasibility program for young investigators. Over the past 2 years, the NORC leveraged an additional \$150,000 from NIH for pilot funding directed to researchers from underrepresented populations, with disabilities, or disadvantaged backgrounds.

- o **Investigator-Initiated Research** (\$3.3 million annually) Center faculty are engaged in investigator-initiated research studies funded by the NIH and other organizations. Many studies are focused on improved understanding of body weight regulation and the treatment of obesity. The AHCW received funds from the Dean of the School of Medicine when the new director was recruited. These resources have been used to recruit the following research faculty who have contributed to the research base of the campus.
 - **Kartik Shankar, PhD:** Shankar is an expert in the microbiome, metabolomics and data analysis of complex data sets. He was a joint recruitment with the Department of Pediatrics and is a co-director of a NORC core. He has contributed to a wide range of grants in his role as PI or co-I on grants from the Bill and Melinda Gates Foundation, USDA, and the NIH: 1R01ES032176, 1R01HD102726, 3P30DK048520, 5R01 DK121497 and 2T32DK007658.
 - **Darleen Sandoval, PhD:** Sandoval was a joint recruitment with the Department of Pediatrics and the Division of Endocrinology in the Department of Medicine. She has expertise in the neural regulation of appetite and body weight regulation. She has contributed to the research base on campus with her role on the following NIH grants: R01 DK121995-04, ADA 1-19-IBS-252, R01 DK115583, 5 R01 DK107282, P01 DK117821.
 - **Kevin Masters PhD:** Masters is a respected health psychologist and expert in theories of behavior change. He was a joint recruitment with the University of Colorado Denver College of Arts and Sciences and has an appointment with the Department of Psychiatry on the Anschutz Medical Campus. He has provided important behavioral theory expertise for programs and research projects at the AHCW and is the PI on the William G. McGowan Charitable Fund ELM lifestyle intervention for metabolic syndrome.
 - **Audrey Bergouignan, PhD:** With investment from the AHCW, Bergouignan has conducted studies on the adverse health effects of sedentary behavior and the potential of short frequent bouts of activity to combat these adverse effects. Her work is now supported by an NIH grant: R01DK123334-02. She has also been instrumental in establishing a new international collaboration with International Research Laboratory ACTIMOVE between CNRS IPHC-DEPE, France, and Division of Endocrinology here at the University of Colorado.
 - **Bryan Haugen, MD:** An investment by the AHCW along with the University of Colorado Cancer Center and the Department of Medicine allowed the Anschutz Medical Campus to retain Haugen as Head of the Division of Endocrinology, Metabolism and Diabetes. He contributes to research on campus in part through the funding he receives from the NIH R01CA233546
 - **Ryan Marker, PT PhD:** Marker holds PT and PhD degrees. He was recruited to lead the clinical populations programs at the AHCW and to provide a research link between exercise and the University of Colorado Cancer Center leveraging the BfitBWell exercise program. He contributes to R01CA258766 (MacLean PI), has a Cancer League Pilot project, and is supported in part with an NCI LRP award. He was selected as a Paul Calabresi Clinical Oncology Scholar on the CU Cancer Center's NCI-funded K12 award.
 - **Seth Creasy, PhD:** Creasy is supported by NIH K01HL145023. With support from the AHCW, he worked with Vicki Catenacci, MD, to conduct preliminary studies examining the health effects of exercising in the morning vs the evening. These preliminary studies led to the funding of a new NIH grant: R01DK126814.
 - Resources from the AHCW have also been used to support **Annie Caldwell, PhD**, an investigator in behavior change theory who is supported by K01HL143039, **Jacinda Nicklas MD:** an investigator in the treatment of pregnancy-associated weight gain via m-health strategies; **Kristen Nowak PhD:** an investigator in the renal division of the Department of Medicine who using resources of the AHCW received funding from the NIH (R01DK129259) for a study of weight loss for polycystic kidney disease. In FY 2022 **Vicki Catenacci, MD** continued her work on R01DK111622 a study of intermittent fasting for weight loss. **Dan Bessesen, MD**, continued work on R01DK114272, which examines adaptive responses to weight loss. He continued his work on U54AG062319 SCOR a study of the role of follicular stimulating hormone in weight gain following menopause and U01AR071124 the common fund project: Molecular Transducers of Physical Activity. **Wendy Kohrt, PhD**, is the PI on both of these projects. In FY22, R01CA258766 was funded on dietary interventions for breast cancer. This project is a collabor-

tion between **Maclean, Catenacci, Marker and Peter Kabos, MD.**

- The **Clinical Trials Division** (\$1 million annually) conducts industry-sponsored research with a focus on nutrition. Areas of study include weight loss, weight maintenance, metabolic syndrome, components of a healthy diet, and diabetes. The division specializes in behavioral approaches to weight loss, delivered through group classes and/or one-on-one counseling. The clinical trials division currently supports projects funded by Novartis, Novo Nordisk, McCormick & Co., the American Pecan Council, and the National Cattlemen's Beef Association.
- **Enhanced Lifestyles for Metabolic Syndrome (ELM)** (\$363,000 annually) Funded by the William G. McGowan Charitable Fund, this multisite randomized controlled trial spans six years (10/01/2018-07/31/2024) and examines two comparative lifestyle interventions for the long-term, sustained, remission of metabolic syndrome.
- The center is establishing fitness and wellness programs for clinical populations.
 - The **BfitBwell Cancer Exercise Program** (<https://anschutzwellness.com/bfitbwell/>) is the flagship of these programs. Having worked with over 800 cancer survivors since being established in 2013, it is a collaboration between the University of Colorado Cancer Center and the AHCW. This program provides a three-month personalized exercise program to cancer survivors from the CU Cancer Center, consisting of individual and small group classes. The clinical program provides research data and infrastructure for cancer exercise research. The program is also involved in projects funded by seed grants, including work establishing and validating a virtual program, with the goal of increasing program outreach to rural and underserved populations.
 - A physical fitness program has been developed and provided to inpatient residents of the Center for Dependency, Addiction, and Rehabilitation (CeDAR).
 - Other disease-specific programs include a program for patients deferred from kidney transplant due to physical deconditioning or obesity, and a program for individuals who have undergone bariatric surgery. Both programs are being piloted and utilize the newly developed virtual capabilities practiced by the BfitBwell Program.
- The AHCW is home to educational programs that support both clinical and research activities.
 - Our **Obesity Medicine Fellowship Training Program** (<http://cunorc.org/obesity-medicine-fellowship/>) started on July 1, 2020 with a \$100,000 Obesity Medicine Fellowship Program Development Grant from the Obesity Medicine Fellowship Council. This one-year clinical fellowship will lead to eligibility for the American Board of Obesity Medicine. Gessa Suboc, MD, graduated in June and now is an obesity medicine specialist at Advocate Health Care in Chicago. John Michael Taormina, MD, started in August after completing family residency training at the University of Pittsburgh.
 - The center and affiliated researchers continue to support a T32 training grant from the National Institutes of Diabetes and Digestive and Kidney Diseases, (T32DK120521, 7/1/2020-6/30/2025): Training Program in Metabolism, Obesity and Type 2 Diabetes. AHCW Director Daniel Bessesen, MD, is the principal investigator on this grant. The four fellows this year include: 1) Carmen Ortega, PhD in Exercise and Nutritional Sciences from Arizona State University, who will work with Audrey Bergouignan, PhD, on the molecular mechanisms underlying the benefits of short bouts of physical activity on carbohydrate metabolism; 2) Andrew Libby, PhD in Integrative Physiology from the University of Colorado Anschutz Medical Campus, who will be working with Paul MacLean, PhD, on the effects of diet-induced weight loss and regular exercise on adipose tissue function in mice following ovariectomy; 3) Mark Ezpeleta, PhD in Nutrition from University of Illinois at Chicago, working with Bessesen on physiologic measures relevant to weight regulation including appetite, food intake, energy expenditure, nutrient metabolism, metabolic tracer methods and physical activity; and 4) Kelly Fuller, PhD in Molecular and Integrative Physiology from University of Kansas Medical Center, working with Melanie Cree-Green, MD, PhD, and Darleen Sandoval, PhD, on translational research in pathophysiology of obesity and metabolic disease). An additional fellow is supported on a diversity supplement to this training: David Ramirez, PhD in Bioengineering from the University of Colorado Boulder. He will work with Jane Reusch, MD, to do studies comparing microbubbles with intravital microscopy to assess skeletal muscle perfusion in individuals with type 2 diabetes.

AHCW Mental Wellbeing: Elizabeth Chamberlain, PhD, is a clinical psychologist who leads mental wellbeing projects and initiatives for the AHCW. In FY22, she was named Faculty Wellness Officer for the Department of Psychiatry. Over this last year, she conducted the following activities:

- Clinical
 - 645 Psychotherapy sessions completed (100% telehealth).
- Invited Presentations
 - Practical Mindfulness for Helping Professionals: Finding Self-Compassion Every Day. Caring for the Frontline Pro-

- gram.
- o Stantec, Women@Stantec Professional Group.
- o AHCW July, August, September Town Hall Meeting.
- Programs – Community/Commercial
 - o Managing Stress Eating. STRIDE Program. Anschutz Health and Wellness Center.
 - o Coming to Our Senses Using Stop, Breathe, Be webinar. National ELM Health Network. Anschutz Health and Wellness Center.
 - o Habits, Stress Eating, Mindful Self-Compassion Modules for New Developmental Weight Loss Program webinar. Anschutz Health and Wellness Center.
 - o Practical Mindfulness for Stress: Finding Self-Compassion Every Day webinar. Ludeman Family Center for Women's Health Research – “Let’s Talk” webinar. Anschutz Health and Wellness Center.
- Media presentations for the community
 - o It’s time to start talking with family about COVID and the holidays
 - <https://kdvr.com/news/coronavirus/its-time-to-start-talking-with-family-about-covid-and-the-holidays/>
 - o Mental health providers can’t keep up with growing demand
 - <https://kdvr.com/news/local/mental-health-providers-cant-keep-up-with-growing-demand/>
 - o ‘Are you vaccinated?’ How to approach the tough questions this holiday season.
 - <https://kdvr.com/news/coronavirus/covid-19-vaccine/are-you-vaccinated-how-to-approach-the-tough-questions-this-holiday-season/>
 - o How you can find affordable therapy
 - <https://kdvr.com/news/local/how-you-can-find-affordable-therapy/>
- Campus Wellbeing initiatives
 - o The AHCW has an Advisory Board whose membership included Peter Buttrick, MD; Jean Kutner, MD, MPH; Stephen Daniels, MD, PhD; Richard Schulick, MD, MBA; C. Neill Epperson, MD; Ronald Sokol, MD; Venu Akuthota, MD; Wendy Kohrt, PhD; Tom Purcell, MD MBA; and Matt Vogl, MPH. With Purcell leaving the University in FY22, Peter Kabos, MD, joined as physician champion for the BFitBWell cancer fitness/survivor program. Bessesen has maintained contact campus wellness leaders Rachel Davis, MD from the Department of Psychiatry; Elizabeth Harry, MD, senior medical director of well-being for UHealth; and Katie Morrison, MD, director of the Department of Medicine Wellness Initiative, Justin Ross, PsyD, director of the workplace wellbeing program at UHealth; and Lotte N. Dyrbye, MD, MHPE, chief well-being officer for the School of Medicine. The AHCW also has received support from Jim Hodge, Elizabeth Hepworth, and Scott Arthur from the Advancement office.
 - o The AHCW’s goal is to be a campus resource in for health and wellness. AHCW will continue to use its resources to promote nutrition, physical activity, and mental well-being as pillars to support students/trainees, faculty, patients, campus employees, research investigators, and the community surrounding campus. The COVID pandemic reinforced the importance of well-being for optimal functioning of the medical campus, and AHCW is committed to facilitating well-being activities.

Barbara Davis Center for Diabetes

The Barbara Davis Center for Childhood Diabetes (BDC) is one of the largest centers in the world specializing in type 1 diabetes research and care for children and adults. Clinicians, clinical researchers, and basic biomedical scientists work at the BDC to find the most effective treatment, prevention, and cure for type 1 diabetes.

Clinical Care

The center provides state-of-the-art care for over 7,600 children and adults with diabetes. Barbara Davis Center clinics offer extensive education and support for patients and their families, as well as specialized programs such as the Pregnancy and Diabetes Clinic, the Hispanic/Latino Diabetes Care Program, and a model telehealth program. The Barbara Davis Center provides type 1 diabetes care for Children’s Hospital Colorado diabetes and endocrine program, currently ranked No. 4 in the country by U.S. News & World Report.

- BDC serves >90% of Colorado children diagnosed with type 1 diabetes.
- Patients from 46 U.S. states receive care at the BDC.

- Patients from over 33 countries receive care at the BDC.
- 66% of pediatric patients use insulin pumps and 77% use continuous glucose monitors.
- >55% of adult patients use insulin pumps and 75% use continuous glucose monitors.
- BDC clinics accept >700 new patients annually.

Research

BDC research goals include investigation of the causes of type 1 diabetes, the early detection of autoimmunity, prevention, and early intervention. BDC clinical faculty members are developing new strategies and treatments for improved outcomes of care including prevention strategies for complications of both type 1 and type 2 diabetes. Investigators of the BDC were awarded >\$38 million in direct cost competitive funding in 2021 and published over 150 peer-reviewed papers in high-profile journals.

Clinical Research Highlights:

BDC investigators continue to increase the body of knowledge around the identification, cause, treatment, and outcomes of type 1 diabetes. Recent contributions include:

- BDC clinical trials pivotal for FDA approval of therapies and devices including: the first hybrid closed-loop system to automate insulin dosing; insulin FiAsp; nasal glucagon (Baqsimi); and Control IQ hybrid closed loop system for patients ≥ 14 yrs and for patients 6-13 yrs.
- Diabetic ketoacidosis at diagnosis of diabetes in children has increased to 59% (2017) and 68% during COVID-19 pandemic; it predicts poor diabetes control.
- SGLT adjunctive therapy improves outcomes in type 1 diabetes patients.
- Enteroviral infections predict islet autoimmunity.
- Autoimmunity Screening for Kids (ASK) study finds 1% of children in Denver have early type 1 diabetes and 2% have undiagnosed celiac disease.

Basic Science Research Highlights:

In the Basic Research Division, the addition of new faculty has contributed to a period of rapid growth and increased sponsored project productivity. The Diabetes Research Center award has accelerated collaboration across campus providing resources for diabetes researchers including the AMC Diabetes Registry, a living biobank, laboratory service cores, disease modeling, and pilot and feasibility funding. Additional investments in research infrastructure will enable us to establish or accelerate studies of:

- the role of the immune system both in the destruction of pancreatic beta cells and as a pathway to assessing risk and developing preventive vaccines.
- the potential of stem cells or artificially grown insulin cells to replace lost pancreatic cells and restore functionality.
- understanding the role of the pancreatic beta cells in contributing to the disease process and developing methods to protect the beta cells from autoimmune attack.
- new drugs to improve glycemic control, together with new and more reliable means of insulin delivery and monitoring.
- the development of next-generation treatments, e.g., artificial pancreas, and preventive strategies.
- earlier identification and counteractive therapies for vascular damage leading to eye, kidney and heart complications.

Leadership: BDC investigators sit on planning and leadership committees for organizations including the American Diabetes Association, the American Heart Association, International Society for Pediatric and Adolescent Diabetes, Keystone Research Symposium, nPOD and the T1D Exchange Clinic Registry.

Service Centers

The BDC Research Division provides cytometry and islet preparation services for diabetes researchers across CU. The molecular biology service center provides basic molecular biology support, DNA sequencing, cell line authentication, and mycoplasma testing. In 2019, BDC established the microscopy program providing access to equipment and expertise for better visualizing the tissues affected in type 1 diabetes. In 2021, BDC also participated in the establishment of a new human organoid core to facilitate the study of how human tissues are affected in type 1 diabetes. The CAP- and CLIA-certified autoantibody/HLA service center performs studies which include assays for islet autoantibodies and markers of other autoimmune disorders, including celiac and Addison's disease. This laboratory serves as the core laboratory for numerous national and international trials for the prevention of

type 1 diabetes.

Education

The BDC provides an outstanding training environment for developing physician-scientists, clinicians, and basic science researchers. Faculty members provide laboratory and clinical research training opportunities for young investigators from around the world including participants in the highly successful T32 Pediatric Endocrinology Fellowship Training Program, K12 Pediatric Endocrinologist Career Development Program, and a newly established T32 Interdisciplinary Bioengineering Research Training in Diabetes. The annual Keystone Conference remains the center's flagship in continuing medical education in management of diabetes, regularly selling out with over 600 participants.

The Barbara Davis Center is led by **Marian Rewers, MD, PhD**, executive director; **Paul Wadwa, MD**, director of pediatric diabetes division; **Satish Garg, MD**, director of adult diabetes division; **Lori Sussel, PhD**, director of basic and translational research division; and **Janet Snell-Bergeon, PhD**, director of clinical epidemiology division. Website: www.barbaradaviscenter.org

Cardiovascular Institute

The University of Colorado Cardiovascular Institute is co-directed by **Peter M. Buttrick, MD**, and **Leslie Leinwand, PhD**, with a focus on the integration of cardiovascular research, treatment, and discovery through a collaboration of the University of Colorado Anschutz Medical Campus and the University of Colorado Boulder. **Michael R. Bristow MD, PhD**, is the director of the pharmacogenomics section and **Matthew R.G. Taylor MD, PhD**, and **Luisa Mestroni, MD**, are co-directors of the molecular genetics section. **Timothy A. McKinsey, PhD**, provides leadership in both sections.

The scientific goals of the institute are to understand the genetic basis and specific molecular mechanisms responsible for heart muscle disease and heart failure, and to produce new diagnostic techniques and treatments for patients. By integrating the effort of those committed to curing heart muscle disease and heart failure, the collaborative nature of the institute encourages sharing findings and data across both the Boulder and the Anschutz campuses, which translates into improved diagnosis and therapies for patients.

In molecular genetics, our mission is to investigate and identify causes of heart muscle disease and heart failure and in pharmacogenomics, our mission is to identify and develop therapies that favorably affect pathologic myocardial gene expression or the clinically important consequences of variant gene products. The institute has always placed high value of the development of novel intellectual property that leads to partnerships with biotech and industry that links to advances in clinical care.

In the past year, Cardiovascular Institute members have published over 50 peer-reviewed papers, have secured numerous funding awards, and have launched several clinical trials. CVI members hold leadership positions or committee memberships in the National Institutes of Health, American Heart Association, Heart Failure Society of America, and the International Society for Heart Research.

<https://medschool.cuanschutz.edu/cardiovascularinstitute>

Center for Bioengineering

Leadership

Robin Shandas, PhD, Distinguished Professor and Founding Chair, Department of Bioengineering
University of Colorado Denver | Anschutz Medical Campus
Professor of Pediatrics (cardiology) and Surgery
Director, Center for Bioengineering
University of Colorado School of Medicine

Mission

The Center for Bioengineering aims to support, catalyze, and grow research, training, and entrepreneurship at the intersection

of clinical medicine and engineering on the Anschutz Medical Campus.

Website address

<https://medschool.cuanschutz.edu/bioengineering>

Accomplishments

New Faculty

Mary Bevilacqua has been appointed as an Instructor in the Department of Bioengineering. She teaches and does research on Biomedical Device Design, with particular emphasis on developing models for design innovation within low resource environments. She works with the Center for Global Health to facilitate device design workshops in Guatemala.

New Awards

Brisa Peña Castellanos, PhD, received an Early Career Faculty Research Development Award from the Ludeman Family Center for Women's Health Research for a project, "Investigating Sex Differences in Heart Failure by Correlating Direct Measurement of Heart-Failure Tissue Mechanics with Fibrotic Gene Expression." The goal of this project is to identify cardiac transcripts and pathways, associated with fibrosis, that are most different between males and females using the TOPMed dataset and then, to analyze the biomechanics of male and female hearts with the most extreme transcriptome differences.

Chelsea Magin, PhD, and Brad Smith, PhD, received a National Science Foundation RECODE (Reproducible Cells and Organoids via Directed-Differentiation Encoding) award entitled "Defining Environmental Design Criteria for Directed Differentiation of Type 1 from Type 2 Lung Alveolar Epithelial Cells" for \$1.5 million over three years. They are joined by co-PIs Daniel Weiss, MD, PhD, at University of Vermont and Amy Ryan, PhD, at University of Iowa. The goal of this proposal is to design and validate a robust system for delineating the mechanisms by which extracellular matrix composition and stiffness regulate a key step in lung repair and regeneration: differentiation of alveolar type 2 epithelial cells (AT2) to alveolar type 1 epithelial cells (AT1).

Keith Neeves, PhD, and Tarik Walker, MD, MPH, received a National Institutes of Health R25 award for "ESTEEMED Scholars Program in Bioengineering at the University of Colorado at Denver" for \$1.1 million over four years. The goal of this research education program seeks to recruit, retain, and graduate underrepresented minority students who are community college transfers into our BS program and prepare them for the pursuit of a PhD or MD/PhD.

Other new awards:

8/1/21	Richard Weir, PhD, Arjun Fontaine, PhD, R21 NS124313
8/5/21	Richard Benninger, PhD, 5 R01 DK106412-06A1 competing continuation
9/1/21	Robin Shandas, PhD, T32 HL072738-17A1 competing continuation
9/1/21	Emily Gibson, PhD, Cristin Welle, PhD, R01 NS123665211171
9/1/21	Jennifer Briggs NSF Graduate Research Fellowship (Benninger)
12/1/21	Jay Lemery, MD, Robin Shandas, PhD, DoD Combat
3/1/22	Kravets BWEL BCN NRL INTR H-DC

Description

The Center for Bioengineering and the Department of Bioengineering represent the research and academic components of the bioengineering program at the University of Colorado Denver | Anschutz Medical Campus. Built to improve patient care by fully integrating engineering principles of design with biological systems and biomedical technologies, the program continues to expand. Over \$26 million in new grant funding was generated last year by center faculty. More than 100 CU Anschutz, Denver, and Boulder faculty have affiliations with the Center for Bioengineering.

The Department of Bioengineering in the College of Engineering, Design and Computing employs 10 tenure-track and 25 non-tenure track bioengineering teaching and research faculty that deliver both graduate and undergraduate degree programs. The majority of this instruction occurs on the Anschutz Medical Campus, also home of the Bioengineering Opportunities and Leadership Training (B.O.L.T.), focused on introducing high school and middle school students to bioengineering, and the BioEngineering Empowerment Program (B.E.E.P.), focused on expanding opportunities for underrepresented students in bioengineering and related STEM disciplines.

Bioscience 2, in the Fitzsimons Innovation Community adjacent to the Anschutz Medical Campus, is the primary location for the academic programs, where bioengineering students learn how to apply engineering skills and knowledge to solve clinical problems. Opportunities for research and innovation in medical technology were recently enhanced through the opening of Bioscience 3, which houses new research labs, the Center for Inclusive Design and Engineering (CIDE), and design innovation studios

to incubate new medical technologies.

Funded research projects include studies that use cardiac cells to repair congenital heart defects; studies in ventilator-induced lung injury in pediatric patients; projects in disability and aging; projects in neuro-optics and prosthetics; and research in thrombosis and hemostasis. Research in the Center for Bioengineering is carried out in research space in Bioscience 2 and Bioscience 3. Additional research space is utilized on the downtown campus by the CIDE as well as in the Barbara Davis Center, Research 1 North, Research 2, and the Research Institute at the Children's Hospital Colorado.

Robin Shandas, PhD, is the director of the Center for Bioengineering and chair of the Department of Bioengineering. Faculty membership is representative of the diverse and translational research projects that bridge engineering and medicine, and our program collaborates with more than 100 faculty in the CU School of Medicine. The Center for Bioengineering has active research collaborations with the Colorado Translational Research Imaging Center, the neuroscience program, the Barbara Davis Center for Diabetes, Data Science to Patient Value, the Division of Pulmonary Sciences and Critical Care Medicine, the Ludeman Family Center for Women's Health Research, Gates Center for Regenerative Medicine, Hemophilia and Thrombosis Center, Center for Cancer and Blood Disorders, Developmental and Behavioral Biology, Orthopedics, Geriatrics, Physical Medicine and Rehabilitation, the Linda Crnic Institute, the Clinical Translational Research Center, Organoid and Tissue Modeling program, and the iPSC Core at the CU School of Medicine.

Faculty in bioengineering have active collaborations with the Heart Institute, the Breathing Institute, the Gait Lab, the Cardiovascular Pulmonary Research Lab, the Pediatric Heart-Lung Center, the Colorado Fetal Care Center, and the Single Ventricle Care Program at Children's Hospital Colorado. Faculty have active collaborations with the VA medical center, National Jewish Health, CU Boulder, Colorado State University, and Colorado School of Mines. The Department of Bioengineering and the Center for Bioengineering also collaborate with the Colorado Bioscience Institute as well as with many local industry partners, including Medtronic, Securisyn, EndoShape, Inc., EnteroTrack, LLC, Stryker, AlloSource, Inc., Couragion Corporation, mindSpark Learning and Aurora Public Schools, Sharklet Technologies, Inc., Point Designs, National Seating and Mobility, NuMotion, BenchMark Advanced Manufacturing, and Google.

The center features strong and successful programs in medical device innovation and entrepreneurship. Faculty and students have started 12 companies, several in collaboration with School of Medicine faculty. Several technologies have been invented at the center and over 110 patents or patent applications have been generated.

Center for Children's Surgery

The Center for Children's Surgery (CCS), a multi-disciplinary center housed within the School of Medicine, was established in 2011 to represent faculty who specialize in providing surgical care to children. The CCS promotes the continued growth and development of CCS members to fulfill the multiple missions of the School of Medicine and the Children's Hospital Colorado (CHCO). The center's continued focus on strengthening and deepening the partnership and synergies between these two entities will remain an important factor in supporting the advancement of the Anschutz Medical Campus.

CCS faculty leadership includes **Duncan Wilcox, MBBS, MD**, director and surgeon-in-chief at Children's Hospital Colorado, **Michael Handler, MD, FACS, FAAP**, associate surgeon-in-chief, **Jill Kaar, PhD**, director of outcomes research, **Cindy Barrett, MD, MPH**, medical director for surgical quality and safety. Staff leadership includes **Sandra Talley, MPH**, director of finance and administration, as well as CHCO partners, **Garrett Risley, MBA**, director of operations, and **Sarah Riggs, MBA** service line executive director. The CCS is comprised of the following pediatric divisions/sections: adolescent and pediatric gynecology, pediatric cardiothoracic surgery, pediatric neurosurgery, pediatric ophthalmology, pediatric orthopedics, pediatric otolaryngology, pediatric surgery, pediatric plastic surgery, pediatric urology, pediatric transplant surgery, pediatric dentistry, and pediatric dermatology.

The past year saw significant progress on CCS goals, including receiving ACS verification, appointing new pediatric section heads in Otolaryngology and Orthopedics, as well as securing and initiating use and training of a new DaVinci robot. We have also made significant progress in obtaining stakeholder and leadership feedback for our new five-year strategic plan.

In the coming year, the CCS will continue and finalize our strategic planning efforts, engaging faculty, staff, and leadership across the center, CHCO and University. We will also focus on continuing to develop our quality and safety program, publishing outcomes on our website, investing in and supporting new pediatric section leaders, as well as appointing a new Director of Surgical Operations for Network of Care.

Center for Health Artificial Intelligence

The Center for Health Artificial Intelligence (CHAI) fosters a thriving community of researchers on the Anschutz Medical Campus who are inventing and deploying advanced analytical approaches. The center's mission is to make the Anschutz Medical Campus a leader in translating data and artificial intelligence (AI) methods into advances in research practice, health care delivery, and population health, and scaling these to provide nationwide benefit through innovative technologies. In its launch phase, the center is laying the groundwork for inclusive, supportive, and collaborative communities of practice and center membership; leading the recruitment of faculty with research programs in advanced analytical methods; and addressing gaps in computational infrastructure.

Founded in 2020, CHAI is led by Director **Casey Greene, PhD**; Director of Finance and Administration **Audrey Wen, MS**; and Deputy Director **Sean Davis, MD, PhD**. The CHAI team was joined by Chief Research Informatics Officer (CRIO), **Melissa Haendel, PhD**, Director of the Computational Biosciences PhD Program **Lawrence Hunter, PhD**, Section Head of Informatics and Data Science in the Department of Pediatrics **Tellen Bennett, MD, MS**, and Division Head of Biomedical Informatics and Personalized Medicine in the Department of Medicine, **Ivana Yang, PhD**, in efforts to create a new Department of Biomedical Informatics (DBMI). This group formed the Departmental Advisory Committee which spearheaded DBMI's creation and launch, effective July 1, 2022. With the creation of DBMI, CHAI now sits administratively within the department.

Building Community

The center moved into the new Anschutz Health Sciences Building, which will put the center in proximity to teams from the Colorado Center for Personalized Medicine, the Colorado Clinical and Translational Sciences Institute, and the Adult and Child Center for Health Outcomes Research and Delivery Science, and other data-intensive research programs. The center, which has 9,700 square feet of space in the building, currently houses faculty from the Departments of Biomedical Informatics, Medicine, and Obstetrics and Gynecology. CHAI leadership is conscious about using space, break rooms, and other elements to enhance communication and collaboration with other units located in the building. CHAI has begun hosting times for students from data-intensive graduate programs to gather with the goal of building community within these programs and between these programs and associated faculty.

Enhancing Extramural Support

The center and associated faculty have submitted a Bridge2AI coordinating center application. The Bridge2AI program represents an investment of more than \$100 million by the NIH in generating AI-ready datasets. The center's application was exceptionally well-scored, and CHAI will house the Teaming and Standards cores of the Bridge2AI program, a \$10 million four-year award. CHAI has also recruited two grant and scientific writers to enhance applications for support for data-intensive programs. We will continue to invest in our ability to bring NIH funding to the campus by establishing the processes, expertise, and infrastructure required for highly competitive data-intensive research programs. CHAI looks forward to continuing to grow its research programs and impact the Anschutz Medical Campus in the years ahead.

Advancing Education

CHAI has hosted a seminar series with speakers who use data-intensive strategies to make tangible impacts on research and care. It has also hosted a lunch and learn series, which aims to demystify advanced artificial intelligence technologies for the lay person. In the years ahead, the center will seek to enhance education and training opportunities focused on data-intensive research, in part through leveraging the Orchestra training platform developed by center faculty. The center will also work to establish partnerships with key stakeholders on the Anschutz Medical Campus and in the broader University of Colorado system, including academic departments, communities, and operational units focused on information technology.

Recruiting Data-intensive Faculty

The center conducted two faculty searches over the most recent year. New recruits include **Gregory Way, PhD**; **Arjun Krishnan, PhD**; **Janani Ravi, PhD**; and **Joanne Cole, PhD**. These faculty, housed in DBMI, are building collaborations with the Skaggs School of Pharmacy and Pharmaceutical Sciences, Colorado Center for Personalized Medicine, the Department of Medicine, the Department of Microbiology and Immunology, and more.

Looking Ahead

Over the next year, the center will shift its focus to enhancing and integrating analytics-focused communities on campus across the translational spectrum from bioinformatics to clinical implementation. This effort will include the continued recruitment of faculty in partnership with departments and centers, an increased emphasis on didactic elements, and the development of an annual symposium with an external keynote speaker.

Center Website: <https://medschool.cuanschutz.edu/ai>

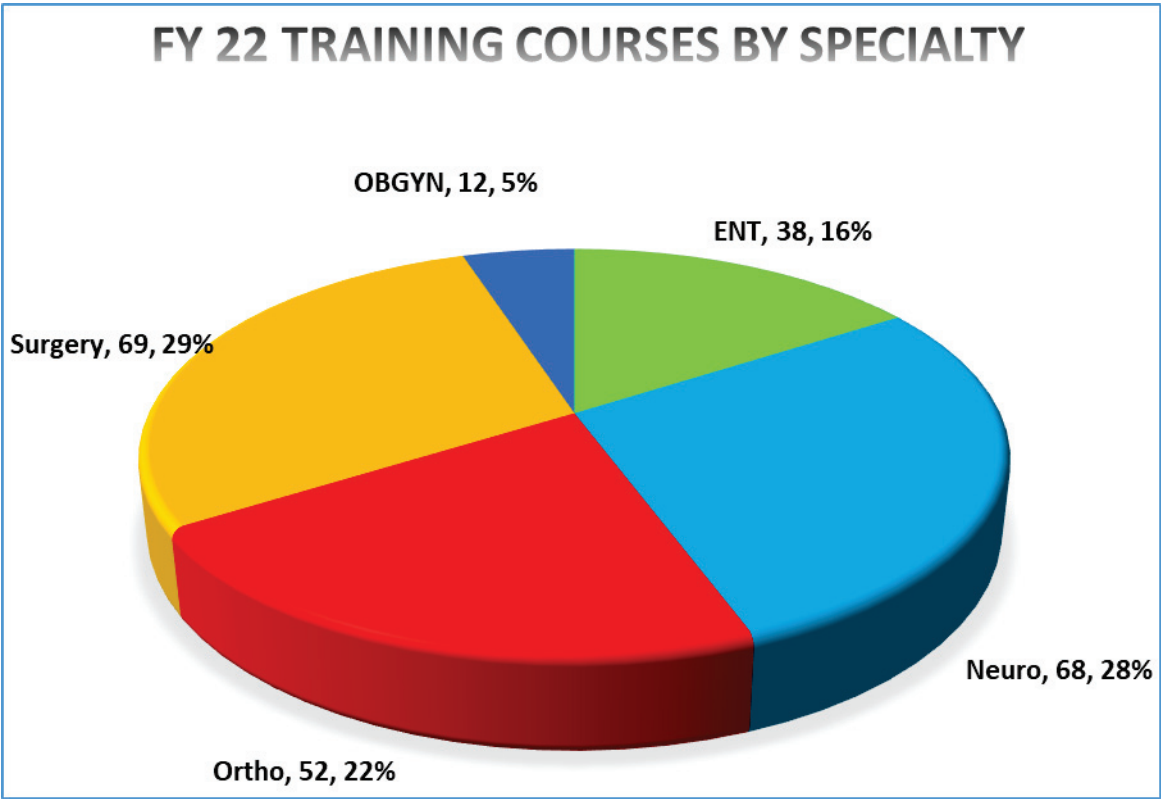
Center for Surgical Innovation

The Center for Surgical Innovation’s (CSI) mission is to provide cutting-edge surgical training courses aimed to train medical affiliates in the latest surgical techniques and technology locally, regionally, nationally, and globally, and to study surgical and procedural educational methods to advance how surgical procedures are learned and taught.

CSI was created in 2007 and is supported and overseen by five surgical departments on the University of Colorado Anschutz Medical Campus. The participating departments are surgery, neurosurgery, orthopedics, obstetrics and gynecology, and otolaryngology.

The CSI leadership team is **Thomas Robinson, MD**, medical director, **Sarah Massena, MBA**, business director, **Alexandra Hay, BS**, lab manager, two lab coordinators, and two lab techs.

CSI moved into their new lab in Bioscience 3, 2115 N. Scranton St., Suite 1035, Aurora. The new state-of-the-art facility has multiple conference rooms and a larger lab with over 8,000 square feet of space.



Colorado Sickle Cell Treatment and Research Center

The Colorado Sickle Cell Treatment and Research Center is in its 50th year as the region's primary source of specialty expertise and facilitation of comprehensive specialty care for children and adults living with hemoglobinopathies. Basic, clinical, and health services research conducted by the center and its collaborators serves to elucidate the pathophysiology of sickle cell disease, and to develop and implement treatments and systems of care that prevent or minimize complications and that prolong and improve the quality of life. The center's work is supported by funding from the National Institutes of Health and other federal agencies, industry, and foundations. Ongoing engagement with University of Colorado basic science labs on the Anschutz Medical Campus and with CU Boulder, and the establishment of the region's only sickle cell mouse colony, has yielded R01 funding and important translational discovery. Participation in multicenter Phase I-II clinical trials advances the development of new interventions.

The center holds a longstanding contract with the Colorado Department of Public Health and Environment to coordinate short-term follow-up of newborn screening for sickle cell disease. The staff continue to assist the Department of Public Health and Environment laboratory as it expands its newborn screening testing services.

Our Director **Kathryn Hassell, MD**, has provided care for adults at UHealth University of Colorado Hospital for 30 years and Associate Director **Rachelle Nuss, MD**, for 20 years for pediatric patients at Children's Hospital Colorado (CHCO), offering disease-modifying and supportive therapies. Curative stem cell (bone marrow) transplantation and gene therapy research protocols are offered to children and young adults at CHCO. The center faculty actively educate and mentor the next generation of hematology and other providers to ensure sustained sickle cell expertise in these healthcare systems as well as in other sites of care across Colorado.

Funding awarded annually to the center since FY2019 from state Medicaid surplus funds helps support our sickle cell providers as they promote health systems changes to improve the quality of care for this underserved population. A transition program, directed by a full-time transition coordinator, targets 12- to 26-year-olds to facilitate self-advocacy and health system navigation skills as youth move from pediatric to adult health care throughout Colorado, regardless of where care is sought. Leveraging this expertise, center staff contribute to the development of institutional transition programs for all patients at CHCO and within Kaiser Permanente Colorado.

The center also organizes a state plan for sickle cell disease and holds an annual statewide "Sickle Cell Summit," supported in part by funding from the Pacific Sickle Cell Regional Collaborative, part of a national Health Resources and Services Administration program, to promote networking and synergy between multiple stakeholders. Center members are actively involved in the development of a statewide surveillance system for sickle cell disease, a project supported by CDC funding. An expanded website encompasses this information and serves as a statewide resource and point of contact. For more information about the center: <https://medschool.cuanschutz.edu/sickle-cell-center>.

Gates Center for Regenerative Medicine/Gates Institute

The Gates Center for Regenerative Medicine was established in 2006 with a gift from the Gates Frontiers Fund in memory of business entrepreneur and philanthropist Charles C. Gates. Under the direction of Dennis Roop, PhD, the Gates Center's mission has been to bring together and support researchers and clinicians in stem cell biology and regenerative medicine to accelerate discoveries from the lab through clinical trials to therapies and cures. The Gates Center has worked across the Anschutz Medical Campus and with many research partners, fostering research and clinical talent, regulatory and intellectual property expertise, commercial partners, and diverse funding. Facilities and benefits for our 124 medical research and clinician members, who are from the Anschutz Medical Campus, CU Boulder, CU Denver, Colorado State University, Colorado School of Mines, National Jewish Health, and private industry, have included: core labs, patent-pending cell production platforms, the best-in-class Good Manufacturing Practice (GMP) production center at the Gates Biomanufacturing Facility that opened in 2015, business development and commercial guidance, and affiliation with undergraduate and graduate education programs.

In May 2022, CU Anschutz Medical Campus announced the establishment of the Gates Institute to be a hub of investigation and discovery with a deep focus on regenerative medicine and cellular and gene therapies that stand to transform medicine. Fueled by a partnership between the Gates Frontiers Fund and CU Anschutz Medical Campus, \$200 million will be invested in the institute over the next five years. The Gates Frontiers Fund's goal is to build on the Gates Center for Regenerative Medicine and Gates Biomanufacturing Facility to more swiftly move scientific discoveries from the lab to the clinic.

CAR-T cell pioneer, Terry Fry, MD, will transition into the role of inaugural executive director of the institute when it is formally

established in early 2023, and Dennis Roop, PhD, will be the institute's associate director, continue his own research, and oversee many of the Gates Center's current programs that will be folded into the institute.

Gates Center accomplishments in 2022 include:

COLLABORATION AND RESEARCH

- The Gates Center continues to subsidize and provide discount access to six core facilities on the Anschutz Medical Campus to provide its members with cutting-edge equipment and technology. These include: The Flow Cytometry Core, the Genomics Core, the Human Immune Monitoring Shared Resource, the Histology (Morphology and Phenotyping) Core, the Organoid Core, and the Stem Cell Biobank and Disease Modeling Core.
- The Stem Cell Biobank and Disease Modeling Core was established in 2017 based on the development of a more efficient approach for reprogramming a patient's diseased skin cells into stem cells by a team of scientists at the Gates Center including Ganna Bilousova, PhD, associate professor of dermatology, Igor Kogut, PhD, assistant professor of dermatology, and Gates Center Director Dennis Roop, PhD. These investigators received a Notice of Allowance in April 2022 for their pending U.S. patent application which covers this technology. The process, which was described in a paper published in *Nature Communications* in February 2018, reports a clinically safe approach that consistently reprograms healthy and disease-associated patient's skin cells into induced pluripotent stem cells (iPSCs) with an unprecedented efficiency. This enables the generation of banks of induced pluripotent stem cells (iPSCs) as a platform to employ them as tools to understand the underlying basis of diseases that affect tissues that cannot be easily biopsied, such as the brain. This core continues to provide services for numerous clients and ongoing projects on the Anschutz Medical Campus and at CU Boulder, as well as for national and international external clients. Additionally, the core works on several projects that have been initiated and underwritten by community benefactors. These include using iPSCs to determine the underlying causes and specific treatments of neurogenesis diseases such as epilepsy, as well as the ongoing research program for the Ehlers-Danlos Syndrome (EDS) Center of Excellence to identify novel mutations that cause Ehlers-Danlos Syndrome.

GOOD MANUFACTURING PRACTICE FACILITY

The Gates Center's affiliated, state-of-the-art Gates Biomanufacturing Facility (GBF) was developed to translate innovative research discoveries into safe and effective cell therapy and protein biologic products for human clinical trials. During FY 2022, its 50-plus employees served on- and off-campus researchers and external national clients to deliver potentially lifesaving new therapies to patients. The model of serving both internal CU Anschutz and external clients has allowed the GBF to serve more patients, expand its technical capabilities, gain increasing national exposure, move toward financial independence, and achieve milestones in collaboration with the CU Anschutz Medical Campus such as the following:

- Manufactured cancer-fighting chimeric antigen receptor T cells (CAR T cells) developed by faculty in the CU School of Medicine. Two molecules have been developed. First, a CAR-T cell that targets CD19 and second, a true first-in-human CAR-T that targets both CD19 and CD22.
- Launched a clinical trial at UHealth University of Colorado Hospital and Children's Hospital Colorado using the targets listed above.
- Enrolled patients who had no other viable therapeutic options.
- Produced Good Laboratory Practice (GLP) material for a Pharmacokinetic-Pharmacodynamic (PK/PD) study for Ceria Therapeutics, Inc., a Colorado-based preclinical biotechnology company founded in 2019 by Ken Liechty, MD, a pediatric surgeon at Children's Hospital Colorado. Ceria is working on a novel solution to target damaging forms of tissue inflammation that can impair recovery and even survival of patients suffering from common conditions, including acute lung infections, ulcerative colitis, and diabetic wounds.
- Synthesized an Alzheimer's disease vaccine compound for an outside biotechnology company, IMM.

The UCD19 CAR-T trial represented the first cellular immunotherapy project in which the developmental science, the regulatory filing and approvals, the manufacturing process, and the infusion of adult and pediatric patients in clinical trials had all been completed at the Anschutz Medical Campus. This made the campus one of the few academic medical campuses in the country where such bench science can move to manufacturing to patient treatment within walking distance.

The CD 19 X 22 trial is a true first-in-human trial with the goal of targeting lymphomas and leukemias which down-regulate CD19 and escape traditional CAR-T therapeutics.

BUSINESS DEVELOPMENT AND COMMERCIALIZATION

- Thanks to private philanthropic contributions, the Gates Center and CU Innovations worked with its Gates Grubstake Fund's Scientific Investment Advisory Committee over the past year to make four awards of \$350,000 toward the translational development of promising regenerative medicine projects into patented, clinic-ready products for patients in need. Awardees included Nicholas Jacobson, MDes, Traci Lyons, PhD; Chaitanya Puranik, BDS, MS, MDENTSci, PhD; and Michael Verneris, MD. Additionally, previous Grubstake Fund awardees Jeffrey Olson, MD, Holger Russ, PhD, and David Wagner, PhD, received Second Tranche Funding to further existing projects. Since 2014, when the Gates Center launched the Gates Grubstake Fund, 25 Grubstake awards totaling \$7.75 million have been directed to scientists to accelerate development of viable products and technologies.
- Another Gates Center commercialization program, called Startup Toolbox, helps fund business assistance resources to pay for regulatory support, market analysis, and business planning that is not typically available through standard academic funding programs. Its success in jumpstarting nearly 20 projects for Gates Center members since its creation in 2018 led to CU Innovations launching a similar, campus-wide program funded by the Colorado Office of Economic Development and International Trade in 2021 for a 2022 launch.
- Between the Gates Grubstake Fund and Startup Toolbox, nine startups have been created, more than 10 SBIR/STTRs have been received with subawards to the University, ten pre-IND/IND/IDEs are in prep or filed, one clinical trial has started, and over \$35 million has been received in follow-on funding.
- Participated in two international meetings designed to promote Gates Center member researchers among potential commercial partners.

EDUCATION AND OUTREACH

- In summer 2022, the Gates Center sponsored the eighth year of the Gates Summer Internship Program (GSIP), which places highly qualified undergraduate students in center members' labs to encourage them to incorporate regenerative medicine into their career plans. The Class of 2022 was selected from a large, competitive applicant pool and consisted of 21 students from across the United States as well as from Portugal, Tanzania, China, Mauritius and Vietnam. 40% of the interns described themselves as having grown up with socioeconomic challenges, and 25% were the first in their families to attend college. Since 2014, 162 student interns from 75 colleges and universities have been beneficiaries of the GSIP program that combines lab work, seminars focused on science and medicine, workshops focused on ethics, communications and professional development, and extracurricular activities. Actuarial data shows most program participants going on to pursue academic or professional paths in science and medicine with at least 18 GSIP alumni working on the Anschutz Medical Campus as students or employees. Significantly, the program has also enabled the Gates Center to place interns in members' labs at no charge, providing a valuable boost to their research portfolios.
- The center continued to support the Graduate Program in Cell Biology, Stem Cells and Development (CSD) to help attract and train candidates in the regenerative medicine field.
- The Gates Center held meetings, tours, events, and its seminar series throughout the year to maintain and broaden the center's reach.

GRANTS AND FUNDRAISING

- As of the end of calendar year 2021, the center and its members had received over \$278 million in reported peer-reviewed funding from the National Institutes of Health, the U.S. Department of Defense, and other foundations.
- Private philanthropy is an increasingly vital driver of innovative research and education initiatives at the Gates Center. In FY 2022, generous gifts were directed toward the Director's Innovation Fund in support of research and other projects, the Gates Summer Internship Program for college undergraduates, the iPSC Discovery Platform Fund to employ induced pluripotent stem cells to study a variety of diseases, and the Startup Toolbox Fund to provide center members with business resources to move discoveries to cures.

SENIOR PROGRAM LEADERSHIP

Dennis R. Roop, PhD, Director

Mark Petrash, PhD, Associate Director

Joseph Brzezinski, PhD, Gates Summer Internship Program Co-Director

Heather Callahan, PhD, JD, EMBA, Gates Center Entrepreneur in Residence; Director of Licensing, CU Innovations

Jill Cowperthwaite, Executive Director; Gates Summer Internship Program Co-Director

Carmen Garcia, MBA, Business Manager for Research & Finance

Matthew Seefeldt, PhD, Executive Director, Gates Biomanufacturing Facility

Michael Tortoro, Philanthropy

<https://medschool.cuanschutz.edu/gates-center-for-regenerative-medicine>

Helen and Arthur E. Johnson Depression Center

The mission of the Helen and Arthur E. Johnson Depression Center (JDC) is to improve the lives of people with depression, bipolar, anxiety, and related disorders through clinical excellence, innovative care models, community engagement, research, and workforce development.

The three primary goals of the JDC are to

- Promote mental health as key to healthy living for all Coloradans.
- Develop, provide, and disseminate effective care for people with depression and bipolar disorder.
- Eliminate barriers to quality care and healthy communities.

www.coloradodepressioncenter.org

As of January 1, 2021, the JDC is part of the Department of Psychiatry and is now located in the Anschutz Health Science Building, on the fifth floor.

Clinical Excellence and Innovative Care Models. The JDC clinicians form a multi-disciplinary team of therapists and psychiatric providers delivering care to patients across the lifespan and family system. The center has deep expertise in providing services to individuals with mood and related disorders, developing and implementing integrated care models both in-person and virtually, and integrating other technology-based solutions with traditional care models. The JDC completed over 10,000 patient visits during the past year, and nearly 70,000 since 2009. The JDC has led telehealth efforts locally and nationally through practice innovations, training and education, and guideline development. This background in telehealth operations facilitated the rapid transition to 100% virtual care beginning March 16, 2020. Since that time, the JDC has seen an increase in demand for services and a decrease in no-show rates as low as 5%.

The JDC, in partnership with the Cohen Veterans Network, opened the Steven A. Cohen Military Family Clinic at the University of Colorado Anschutz Medical Campus (Cohen-AMC) in April 2018. The Department of Psychiatry and the Cohen Veterans Network agreed to end this partnership and cease clinic operations as of June 30, 2022. Over 1,000 veterans, service members, and their families received outstanding care during this partnership and the university will continue to prioritize a model of care that expands access to those who have served our nation. The JDC will continue to provide evidence-based and accessible care to this population.

Innovative Research. The center conducts research for the purpose of improving the identification and treatment of depression, bipolar, anxiety and related disorders, preventing suicide, and developing sustainable integrated care models. Center faculty are committed to developing best practice solutions for care delivery. The clinic is uniquely positioned to evaluate implementation of these solutions. JDC research activities focus on the interactions between basic science, innovated care models, and standard of care practices.

As a charter member of the National Network of Depression Centers (NNDC), the JDC partners with world-renowned academics and clinicians to better understand and treat mood disorders including the Mood Outcomes Program, which is a national patient

registry of mood, anxiety, and suicidality ratings. The JDC continues to evaluate the benefits of integrated care delivery systems and provides nationwide leadership by disseminating integrative care best practices. JDC faculty serve on many NNDC task groups and committees.

Community Engagement. The JDC's community and education programs are designed to extend the reach of the center to communities across the state and nationally through diverse educational offerings to increase understanding of depression, bipolar, anxiety, and related disorders, reduce stigma, prevent suicide, and increase access to quality mental health care. Educational offerings are delivered to communities, in schools, businesses, and to professional groups including first responders, health care professionals, and university faculty, staff, and students.

The JDC community and education programs director has trained, often at no cost, more than 30,000 individuals since September 2016. VitalCog, the JDC's suicide prevention gatekeeper training program, was modified for the construction industry and for athletic staff in 2021. An independent evaluation of VitalCog found that for every \$1 spent on VitalCog training, \$8.70 of social value was returned.

Workforce Development. The JDC has provided supervision for social work and psychology graduate students and psychiatry residents interested in delivering outpatient mental health services, integrated care, and community programs.

LEADERSHIP TEAM:

Neill Epperson, MD, Executive Director

Matt Mishkind, PhD, Deputy Director

Christopher Schneck, MD, Medical Director

Melissa Sinclair, CPC, MA, Director of Finance and Administration

Alex Yannacone, MA, Director of Education and Community Programs

Azure Brame, Clinic Manager

Marcus Palas, MA Philanthropic Advisor

Courtney Hughes, Board of Directors Chair

Kammy Bishop, LPC, Cohen Clinic Director

Hemophilia and Thrombosis Center

The University of Colorado Hemophilia and Thrombosis Center (HTC) is one of 142 centers for the comprehensive treatment of bleeding and clotting disorders recognized by the U.S. Department of Health and Human Services, Maternal Child Health Bureau. Serving more than 2,000 pediatric and adult patients in Colorado, Wyoming, Montana, and surrounding states, the HTC operates a freestanding School of Medicine outpatient clinic specializing in inherited bleeding and clotting disorders, hemorrhagic stroke, ischemic stroke, or fetal brain injury, and women's bleeding disorders.

Patient Care

Led by Marilyn Manco-Johnson, MD, and Michael Wang, MD, the center's hematologists and pharmacists, in partnership with patients, are in the vanguard of improvements to clinical care and novel treatments through participation in clinical trials for new therapies. As a result of these efforts, patients have experienced improved outcomes, more convenient administration, and lower total cost of care.

Through the operation of the HTC Pharmacy providing therapeutic drugs to its patients, the center is financially self-sustaining. The center operates the pharmacy and its multi-disciplinary clinics on the University of Colorado Anschutz Medical Campus in collaboration with Children's Hospital Colorado and UCHHealth University of Colorado Hospital. In addition, the HTC conducts remote clinics in Colorado Springs and Grand Junction, and in Billings and Missoula, Mont.

The COVID-19 pandemic continued to present many challenges to the center's multi-disciplinary comprehensive care model and its mission to conduct research in search of novel treatments for congenital bleeding and clotting disorders. Despite these challenges, the center increased the number of patients seen at its clinics through a combination of telehealth and in-person visits following rigorous COVID-19 protocols.

HTC patient care is delivered by multidisciplinary, physician-led teams, including, hematologists (doctors who specialize in blood), neurologists, neurosurgeons, gynecologists, orthopedists (doctors who specialize in bones, joints, and muscles), physiatrists (doctors who specialize in rehabilitation and a return to function), advanced practice providers, physical therapists, pharmacists, psychologists, genetic counselors, nurses, social workers, mental health professionals, lab medical technologists and pathologists, and other specialists, such as dentists and nutritionists, by referral.

In 2021, this collaborative predisposition resulted in an innovative program to treat women & girls' bleeding disorders. The "Spots and Dots" program conducts clinics at the HTC's Anschutz clinic and in collaboration with Children's Hospital Colorado's South Campus. In another example, the HTC began offering a monthly cardio-thrombosis clinic at its Anschutz campus clinic in collaboration with cardiology.

Using these connections, the center laid the groundwork for commencing an international fellowship in hemophilia and general hematology in collaboration with St. Jude's research hospital. The fellowship program will bring students from Central America to the Anschutz Medical Campus for two months of intensive training and will start during the 22-23 academic year.

Research

With a staff of more than 60 full- and part-time professionals, including both clinical and lab research physicians, the HTC actively pursues both industry-sponsored and investigator-initiated research in bleeding and clotting disorders. Current research is centered on rare genetic causes of bleeding and clotting, the physiology of Von Willebrand Factor (particularly the regulated release of VWF from the endothelium), platelet mitochondrial function, pain management, and joint biomechanics and its relationship with bleeding. Center researchers conduct clinical trials employing new treatment options in collaboration with international pharmaceutical companies. HTC clinical researchers collaborate with bleeding disorder centers around the globe, producing research and results that impact patients worldwide.

The Hemophilia and Thrombosis Center's legacy of research was recognized by the World Federation of Hemophilia at the 2022 World Congress which looped a video of CU HTC researchers discussing their areas of expertise. The video highlights the following efforts:

- Beth Warren, MD, discussing her study into joint biomechanics to understand the asymmetries of joint forces and their relationship with joint bleeds in hemophilia patients.
- Pavel Davizon-Castillo, MD, is studying the mitochondrial function of platelets and the relationship between platelets and inflammation.
- Tyler Buckner, MD, continued research into the study of pain in hemophilia.
- Christopher Ng, MD, continued his research into the relationship of Von Willebrand Factor to the endothelium as it impacts bleeding patients and
- Genevieve Moyer, MD, discussed her research into the diagnosis and treatment of women and girls with bleeding disorders.
- Keith Neeves, PhD, continued his research exploring factor V levels as a modifier of bleeding in Hemophilia A, and whether low factor V levels enhance thrombin generations and thrombus formation in Hemophilia.
- Emily Wheat, PhD, discussed studying the effects of anxiety and depression on patient medical outcomes in the bleeding disorder population.

The CU Hemophilia and Thrombosis Center is looking to lead several areas of research and treatment of congenital bleeding and clotting disorders. The center has plans to be one of the federally recognized hemophilia centers to infuse eligible patients with hemophilia A or B gene therapy drugs when approved by the FDA. The center is also currently developing its joint and motion analysis capability through construction of a research/therapy facility expected to open in early 2023. Similarly, the center is investing in the mental health of its patients through behavioral health therapies by clinical psychologists. These and many other initiatives hold the promise of better care for patients who can, in turn, participate more fully in our community.

Center Director: **Michael Wang, MD**

Program Manager: **Angela Blue, MBA**

Pharmacy Manager: **Desiree Hill, RPh, PharmD**

medschool.cuanschutz.edu/hemophilia-thrombosis

Kempe Center for the Prevention and Treatment of Child Abuse and Neglect

The Kempe Center for the Prevention and Treatment of Child Abuse and Neglect has worked to foster child health and well-being and strengthen families worldwide for 50 years. Founded in 1972 by C. Henry Kempe, MD, the Kempe Center was the first of its kind, providing research, training, education, and innovative program development to prevent and treat all forms of child abuse, neglect, and trauma. The center continues to be one of the leading agencies in the field. Over 80 Kempe faculty and staff work to improve the lives of children, families, and the communities and people who support them. Together, they remain committed and active in recognizing the Kempe vision: a world without abuse and neglect.

The leadership team continues to work to implement the five-year strategic plan released in 2020, making strides in reframing the Kempe Center organizational structure to meet its vision and mission. Led by the Executive Director **Kathryn Wells, MD**, a core executive team was installed to serve as thought leaders offering strategic vision intended to expand Kempe's reach and ensure that its work aligns with mission and vision. The Kempe Center Core leadership team includes **Ron Mitchell, MSW**, Center Deputy Director, **Warren Binford, JD, EdM**, Advocacy Director and W.H. Lea for Justice Endowed Chair for Pediatric Law, Policy, and Ethics, **Michelle Davis, MS, LPC**, Director of Equity, Diversity, Inclusion and Justice, **Antonia Chiesa, MD**, Director of Integrated Healthcare Operations and Services, **Suzanne Kerns, PhD**, Director of Transformative Research, and **Rob Murchison, MEPM**, Business Service Manager.

While navigating the global pandemic, Kempe's faculty and staff have modernized connection with children, families, communities, and those who support children and families through new virtual mechanisms to provide exceptional service. This includes adaptations to the child welfare training system curricula and development of child protection team patient care services through telehealth. The Kempe child protection team plays a critical role in our community, providing evaluation, diagnosis, and treatment to suspected victims of child abuse and neglect. They continue to see patients in person, while developing new telehealth access to meet the community's changing needs.

Kempe faculty contract with multiple states to provide independent evaluation for their child welfare systems, including an ongoing collaboration with the Quality Improvement Center for Workforce Development (QIC-WD) and a project launched in early 2020 with the Washington Department of Children, Youth and Families to implement telework practices.

The Colorado Child Welfare Training System (CWTS) is a \$4.2 million per year project sponsored by the Colorado Department of Human Services, Division of Child Welfare. The project team consists of 30 staff and faculty. Together, they serve all human service caseworkers and supervisors in Colorado child welfare, as well as foster, kin, and adoptive parents and community partners through leadership coaching and learning experiences. In the last two years, the team has created new learning experiences specifically targeted to meet child welfare needs during this difficult time.

Amid uncertainty with children going back to school in 2020, CWTS launched Not Too Cool for School, training educators and child welfare to work collaboratively towards better outcomes for children. A new foster parent learning exchange was established to create a support system designed to connect the foster parent community statewide and provide them with resources to meet their needs. In response to societal inequities, CWTS created a new program called Courageous Hearts | Disrupting Racism, a relationship coaching-informed approach to creating race intelligence. They also released a series called, "Calling All Courageous Hearts." In these sessions, participants read, watched, or listened to a media resource (articles, poems, podcasts, songs, TED Talks, and more) then joined small groups to engage in discussions about race equity in child welfare.

In addition to CWTS, the Kentucky Alternative Response is a \$1 million project over two years, sponsored by the Kentucky Cabinet for Children and Families to assist the state in program design, initial implementation, and process evaluation of a child welfare reform called Differential Response. Because of national notoriety on this reform, the project team at Kempe was awarded a sole source contract and is partnering with the University of Kentucky at Louisville with hope of an additional two years to assist with full implementation, outcome evaluation, and sustainability.

In 2020, the Kempe team also implemented the Child Abuse Response and Evaluation (CARE) Network, a program designed to recruit, train, and provide technical assistance designated health and behavioral health care providers throughout the state. The program also convenes community stakeholders to establish collaborative multidisciplinary practices for child maltreatment cases. The program supports 36 providers in 20 counties through 42 training hours. The CARE Network has served 281 children.

The Colorado Hospitals Substance Exposed Newborns (CHoSEN) collaborative approached the Kempe Center in 2020 to help develop a perinatal navigator program that would take a collaborative approach to empower and support families, beginning in the perinatal period. CHoSEN is an effort to increase consistency in the implementation of best practices in the identification of and response to newborns prenatally exposed to substances throughout the Rocky Mountain region.

During the COVID-19 pandemic, trauma-informed care was crucial to Colorado's children and families. The Trauma-Responsive

Implementation and Practice (TRIP) Program has made strides in training and implementing this care. This program fosters healthy, safe, and responsive environments in children, youth, and family-serving systems across Colorado. TRIP has made notable progress in expanding throughout the state with its Colorado Trauma-Responsive Schools Theory of Change Toolkit.

The Kempe Center also hosted its first international virtual conference in 2020, A Call to Action to Change Child Welfare. Over 1,400 people from 20 countries attended. This diverse community of practice convened to address issues of justice, social inequality, race equity, family leadership, and oppression in the child welfare and allied systems. In addition, participants were able to discuss, learn, debate, and propose solutions about how systems, communities, and individuals can begin the process of fundamentally changing the structure of these systems. A Kempe team of 10, plus faculty and staff, collaborated over five months to create the conference agenda: 270 sessions over four days that spanned 17 hours each day, promoting new thinking, behaviors, and decision-making advocating that children, family, and community need to be the driving force in changing child welfare systems. The conference team continued the conference in 2021 with over 1,500 attendees and looks forward to re-convening and expanding this community for the 2022 conference with a projected 3,000 attendees.

Kempe has partnered with the Colorado Department of Human Services and providers across the state to connect at-risk families to a parent support program called SafeCare Colorado. This evidence-based program offers proactive, in-home, voluntary services that support at-risk families in gaining skills to provide a safe home, address child health needs, and engage in positive interactions with their children ages 0 to 5-years-old. The services are delivered in the family's home by trained professionals on a weekly basis. Families typically engage with SafeCare Colorado for an average of four to six months. Kempe's SafeCare Team contract was also approved in 2021, working as the statewide SafeCare intermediary. They will continue to partner with the Colorado Department of Human Services and providers across the state to connect at-risk families to SafeCare Colorado.

As of July 2021, The Rocky Mountain MST Network (formerly the Center for Effective Interventions) is now located at the Kempe Center. This team collaborates with agencies, communities, tribes, and governmental entities to support the development, implementation, and evaluation of multisystemic therapy, which promotes emotional and behavioral health and helps keep children and youth with their families and in their communities. Their work reduces juvenile justice and child welfare involvement and costs by increasing the availability of effective psychosocial interventions. MST is an intensive, home-based treatment model for families with children ages 12-17 who have serious delinquency and substance use problems and are at high risk for juvenile justice and child welfare involvement.

In June 2022, Laura Schwab Reese, PhD, the Kempe Center's Berger Postdoctoral Fellow from 2015 to 2017, received the 50th Anniversary Kempe Lecture Award at a ceremony in Tallinn, Estonia. The International Society for the Prevention of Child Abuse and Neglect (ISPCAN), which knowledge about child maltreatment throughout the world for 45 years., presented the award.

The Kempe Center continues to host an annual interdisciplinary research institute that was first established in the summer of 2018 and used a virtual platform during the pandemic. The team took the opportunity to use the flexibility of virtual learning to increase participation from across the country and to expand the pool of scholars trained to conduct child maltreatment research, increasing knowledge and the evidence base. Instructors included faculty from Kempe and several other leading research organizations and universities. In August 2022, they offered two one-week, in-person intensive courses that will feature in-depth teaching and dedicated mentoring by national and international experts. The goal is to support 40 students in drafting a complete research proposal suitable for completion as a scholarly project for child abuse fellows, early faculty, or as a master's or doctoral thesis. The Kempe featured lecture series was livestreamed and open to the public.

The Kempe Center and the Haruv Institute will host the inaugural Gary B. Melton Visiting Professors at the University of Colorado Anschutz Medical Campus in September 2022. Professionally and academically trained in psychology, Melton proved to be a visionary polymath whose work took a global approach to child health and well-being grounded both in children's rights, as well as social frameworks of family and community. Gary B. Melton Visiting Professorship was created by the Haruv Institute and the Kempe Center. Melton was a professor and the associate director of community development and social policy at the Kempe Center and a senior consultant at the Haruv Institute at the time of his passing in 2020.

The Kempe Center will continue its progress in advancing the health and well-being of children and families by providing comprehensive expert medical care, ground-breaking research, attention to inequities, timely advocacy, effective clinical work, the education of healthcare providers and social workers through community engagement, and child welfare policy initiatives. The Kempe Center continues to work to prevent child maltreatment, as well as to offer diagnosis, treatment and support to children, families, and communities. In addition to helping those at risk for or affected by child abuse and neglect, the Kempe Center provides opportunities for medical and nursing students, pediatric residents, fellows, and other University of Colorado students to conduct research and acquire the skills necessary to diagnose, treat and prevent child abuse and neglect.

<https://medschool.cuanschutz.edu/pediatrics/sections/child-abuse-and-neglect-kempe-center>

Linda Crnic Institute for Down Syndrome

We are on a mission to improve the lives of people with Down syndrome. We use state-of-the-art, transformational research platforms to decipher the unique biology and disease spectrum of people with Down syndrome. Our goal is to enable precision medicine approaches to improve health outcomes in Down syndrome, including the development of new diagnostic and therapeutic tools.

Founded in 2008, the Crnic Institute is led by **Joaquin Espinosa, Executive Director**, and **Huntington Potter, Director of the Alzheimer's Disease Program**. The intramural faculty include professors Kelly Sullivan, PhD, Michael Yeager, PhD, Matthew Galbraith, PhD, Lina Patel, PsyD, and Angela Rachubinski, PhD, all of whom are supported by an expert administrative team. The Crnic Institute is a collaborative, joint venture between the University of Colorado School of Medicine, CU Boulder, Children's Hospital Colorado, the Global Down Syndrome Foundation, and the Anna and John J. Sie Foundation funded by a synergistic mix of donor gifts and sponsored awards, such as from the National Institutes of Health (NIH).



\$37M
Funding received
From sponsored projects

1
UNIFYING
GOAL

\$28M
Gifts received
From external donors



Each year, the Crnic Institute awards grants to qualified University of Colorado investigators from a wide variety of fields who want to apply their expertise to advance our understanding of Down syndrome. These Grand Challenge Grants are meant to support investigators across the CU system until they can obtain independent funding for their Down syndrome research. Since this program's inception in 2013, the Crnic Institute has granted CU researchers 121 awards totaling over \$7 million. The Crnic Institute also supports training in Down syndrome research through the Blumenthal Fellowship program, which funds pre-doctoral and post-doctoral trainees throughout the CU system.

The Crnic Institute is also home to the most comprehensive cohort study of people with Down syndrome, called the Human Trisome Project (www.trisome.org). Launched in 2016, this project fuels a multi-dimensional biobank serving Crnic Institute investigators and enabling large pan-omics studies of Down syndrome. In 2020, the Crnic Institute team leveraged the Human Trisome Project platform in collaboration with the School of Medicine and the Office of the Vice Chancellor for Research to create a sister project studying COVID-19, called the COVIDome Project (www.covidome.org). To date, the Human Trisome Project has recruited 900+ research participants, administered 30,000+ biospecimens, and supported 30+ research projects, having led to 20+ publications since 2016.

Altogether, the Crnic Institute's intramural and extramural faculty and programs comprise the largest academic home for Down syndrome research in the world. Crnic Institute investigators hold more NIH awards for Down syndrome research than any other organization in the USA. By mid-2022, this group of investigators secured more than \$80 million in NIH funding for the study of Down syndrome. Furthermore, in close collaboration with NIH, our investigators and administrative staff are co-leading the INCLUDE Project Data Coordinating Center – the first and only centralized platform for data sharing and analysis designed to accelerate Down syndrome research.



130+ principal investigators



30+ departments/divisions



8 universities/hospitals



20+ active NIH awards

The Crnic Institute prides itself in being a key member of a network of affiliate organizations working together to serve people with Down syndrome, including the Anna and John J. Sie Center for Down Syndrome at Children's Hospital Colorado and the Global Down Syndrome Foundation.

To learn more, visit us online at www.crnicinstitute.org • www.trisome.org • Facebook and Twitter @CrnicInstitute

Ludeman Family Center for Women's Health Research

Women's health and sex differences research are historically understudied. Until the 1993 NIH reauthorization act, researchers were not required to include women in studies. As a result, most research studies included only men.

The Ludeman Family Center for Women's Health Research (Ludeman Center) was founded on the idea that women's health and sex differences are important aspects of medicine and deserve attention in research. We envision a future in which research includes women and accounts for sex and gender differences, thus shaping better health care for all.

The Ludeman Center was founded in 2004 by **Judy Regensteiner, PhD**, JoAnn Lindenfeld, MD, and Lorna Moore, PhD. Today, the center is directed by Regensteiner and Associate Directors **Wendy Kohrt, PhD**, and **Jane Reusch, MD**. Laura Brown, MD, C. Neill Epperson, MD, and Anne Libby, PhD, are also senior faculty members, and Amy Huebschmann, MD, is lead scientist for community outreach and education.

The Ludeman Center mission has three components.

Research: To perform cutting-edge research in women's health and sex/gender differences across the lifespan, with a focus on cardiovascular disease, diabetes, and the intersection of mental and physical health.

Researchers are foundational to our vision of transforming women's health. The Ludeman Center has developed a strong reputation for success in assisting young researchers build their careers and acquire external funding. Since 2006, the Ludeman Center has awarded over \$2.1 million in seed grants through internal peer review processes to 80 researchers. These same researchers have in turn been awarded over \$127 million in external funding from the NIH, American Heart Association, American Diabetes Association, and other major organizations. For every \$1 in seed grants, Ludeman Center scientists have been awarded \$60 from external sources. Our researchers work on projects across the lifespan and represent 35 departments, divisions, and centers on campus. Our scientists are contributing to their fields by furthering research, extensive mentoring, and in the case of clinicians, providing clinical care. In addition to the extensive funding record, Ludeman Center researchers have produced over 1,684 peer-reviewed publications since 2006 when our first seed grant was awarded. Over 24,000 patients are seen every year by Ludeman Center physician-scientists at adult and children's hospitals and clinics in metro Denver. These scientists bring their evidence-based findings to the clinic to improve health for patients and many have developed new clinics based on their research.

Mentoring: To mentor, fund, train, and retain the next generation of researchers to build careers in women's health and sex/gender differences research.

In addition to a strong understanding of scientific thinking and methods, researchers must also have leadership and management skills. As Ludeman Center scientists, they receive critical funding as well as intensive mentoring, academic and career development trainings, and a community of support. Over the past year, we organized and provided 12 training sessions for our early-career faculty.

Education: To educate the public and health care providers, so that our research findings are translated into improved care.

We also work with a variety of groups on campus and in the community to provide educational outreach. Each year, we hold more than 30 educational events, live and virtual, reaching a total of more than 3,400 participants. Highlighted below are some of our program offerings.

- **Let's Talk:** In partnership with UCHHealth, the Ludeman Center organizes this lecture-based community education series that bridges research to care. By providing evidence-based information to the community, through talks given by faculty members, attendees can make more informed health care decisions for themselves and their families. We host four virtual programs every year on topics ranging from cardiovascular health to exercise and mental health. These events attract an average attendance of more than 130 individuals per event. Over the course of 11 years, Let's Talk has attracted over 7,000 registrants. In addition, every year we host Girls Career Day, an opportunity for high school-aged girls to explore careers in health care and research at the CU Anschutz Medical Campus. The May 2022 event was held on campus featuring CU Anschutz faculty in orthopedics and endocrinology and hands-on experiences in dental medicine, the Center for Surgical Innovation, and a diabetes research lab.
- **Women's Health Research Day:** This annual event typically features a nationally recognized keynote speaker and a poster session for campus researchers. This year, our keynote speaker was Noémie Elhadad, PhD, associate professor of biomedical informatics and vice chair for research and graduate program director at Columbia University. Her talk demonstrated

the power of bioinformatics in PCOS and endometriosis and the promise of this leading technology to transform women's health.

- **Women's Health Symposium:** This annual half-day CME-accredited training is an opportunity for medical professionals to learn the most recent evidence-based guidelines and treatments relevant to women's health and sex differences. This year's topics included: stroke care and sex-based disparities in stroke; cardiometabolic care for type 2 diabetes; childhood obesity; menopause; and the cardiometabolic effects of breast cancer treatment.
- **National Conference on Women's Health and Sex Differences Research:** The Ludeman Center hosts a biennial national conference focusing on cardiometabolic health across the lifespan. The Ludeman Center National Conference features leading scientific experts and offers a program for community members to hear from prominent researchers. The 2022 National Conference was held in October at the Broadmoor Hotel in Colorado Springs.
- **Annual Community Event:** As the Ludeman Center's signature outreach event, the Annual Community Event focuses on educating the community about important health issues, providing evidence-based information and highlighting women's health and sex differences research. The 2021 keynote speaker was Jennifer Mieres, MD, a renowned cardiologist who shared information about eliminating health and gender disparities and cardiovascular disease in women. The virtual event was viewed over 1,200 times.
- **Outreach:** Educating our community and building awareness are critical to ensuring that women's health and sex differences are studied and considered during the development and utilization of medical treatments. We established a monthly e-newsletter and have developed a robust presence on Twitter, Facebook, and LinkedIn. Collectively, they reach thousands of people in our community and around the country.
- **Community & Business Partnerships:** The Ludeman Center is proud to partner with a variety of community organizations and companies to regularly provide education and health care programs.

Additionally, we are proud to partner with groups on campus, in the community, and around the country and to help bring large, institutional site grants to campus.

- On campus, the Ludeman Center participates in educational programs for faculty including Women in Medicine and Science, directed by Regensteiner.
- We are actively engaged with the community, raising awareness of and support for women's health and sex and gender differences research. Our Community Advisory Board has been integral to our success, helping us raise over \$26 million in philanthropic giving since 2004. Additionally, community leaders who serve on our Medicine Cabinet provide invaluable advice, expertise and connection to our community. In 2021 and 2022, the Ludeman Center inspired giving from 195 first-time donors.
- Nationally, the Ludeman Center works closely with leaders in women's health who are part of the Ludeman Center's Scientific Council. In addition to the Ludeman Center director and associate directors, current members include Nanette Wenger, MD (Emory); Yoel Sadovsky, MD, (Magee-Womens Research Institute); Bill Haskell, PhD (Stanford); Jill Goldstein, PhD (Harvard); Noel Bairey Merz, MD (Cedars-Sinai); Anne Peters, MD (USC); and Ginger Graham, MBA.
- Nationally, Regensteiner is on the advisory board of the Office of Research in Women's Health at NIH. She is also the Principal Investigator of the Building Interdisciplinary Research Careers in Women's Health NIH K-12 grant and the Doris Duke Fund to Retain Clinical Scientists. Kohrt is principal investigator of the NIH Specialized Center of Research Excellence in Sex Differences (SCORE) grant; Regensteiner is the director of the Career Enhancement Core for this program. These programs, although they are all national, benefit early career scientists on campus.

Other major accomplishments of 2020-2021 include:

- Judy Regensteiner, PhD, and Nanette Santoro, MD, received notification that the Building Interdisciplinary Research Careers in Women's Health (BIRCWH) NIH K-12 Grant was renewed for the next five years.
- Awarded seven \$25,000 Early-Career Faculty Research Development Awards.
- Formed a partnership with CU Innovations to encourage the translation of research findings of Ludeman Center faculty into inventions.
- Launched the Women's Health Innovation Scholars (WHINS) Program and announced the inaugural scholars. WHINS is an internal grant funded by philanthropic supporters of the Ludeman Center that fosters mentored research career development of early-career faculty who wish to develop independent careers focused on women's health or sex/gender differences research and pursue translating their ideas to patient care. WHINS Scholars will receive salary and project support and will be trained with the Building Interdisciplinary Research Careers in Women's Health (BIRCWH) NIH K-12 Scholars.

The Ludeman Center is a leading voice increasing awareness and change in women's health and sex and gender differences on campus, in the community and nationally. To learn more about our work or join our mailing list, visit www.ludemancenter.org.

Marcus Institute for Brain Health

The Marcus Institute for Brain Health (MIBH) was created in 2017 with a transformational gift from The Marcus Foundation. The institute provides specialty care for military veterans, first responders, and retired elite athletes struggling with mild to moderate traumatic brain injuries (TBI), including concussion, and associated changes in psychological health.

MIBH provides innovative, interdisciplinary care through a three-day diagnostic evaluation involving neurology, physical therapy, speech and language pathology, neuropsychology, and other disciplines. This evaluation is usually followed by a three-week intensive outpatient program where these disciplines work with alternative therapies such as creative arts, acupuncture, yoga, mindfulness, and other therapies to create a personalized, holistic healing experience.

MIBH is led by **James P. Kelly, MD**, executive director, Irma Smith, director of clinical operations, Daniel Wilkerson, director of special projects, and Spencer Milo, director of veteran programs. MIBH has its own staff of clinicians and therapists who are faculty from multiple schools on the Anschutz Medical Campus.

The MIBH team is the TBI hub of the Avalon Network and are honored to be serving America's Veterans by

- Providing state-of-the-art therapies and assisting in the transition to civilian life.
- Investigating new and better ways to identify and treat TBI and its associated psychological health conditions.
- Advocating for better reimbursement for the care Veterans deserve.
- Teaching a new generation of expert TBI healthcare professionals.

Additional information regarding the Marcus Institute for Brain Health can be found online at <https://medschool.cuanschutz.edu/mibh>.

NeuroTechnology Center

The University of Colorado School of Medicine Neurotechnology Center (NTC), directed by Mark Dell'Acqua, PhD, celebrated its third anniversary on July 1, 2022. The NTC missions are: 1) To support core facilities that provide School of Medicine investigators access to key, cutting-edge technologies that are essential for neuroscience research at CU Anschutz, and 2) To work with School of Medicine departments to jointly recruit additional neuroscience-focused faculty who emphasize development and application of novel technologies, with a goal of building strong collaborative, cross-disciplinary research teams. Nine School of Medicine departments have joined the NTC as members, representing basic science (Cell & Developmental Biology, Pharmacology, Physiology & Biophysics) and clinical programs (Anesthesiology, Neurology, Neurosurgery, Ophthalmology, Pediatrics, Psychiatry).

The NTC also engages in educational and outreach activities by hosting and administering research seminars, retreats, and symposia in partnership with the Neuroscience Graduate Program, the Rocky Mountain Neuroscience Group, and the NSF-funded Rocky Wearable Microscopes Summit. In addition, the NTC is a sponsor of the Summer Research Training Program and a supporter of the NINDS-funded BRAiN summer research program that provide research internships for undergraduate students from groups historically underrepresented in science.

NTC website: <https://medschool.cuanschutz.edu/neurotechnologycenter>

NTC Director: **Mark Dell'Acqua, PhD**

NTC Administrator: Paula Robinson

NTC IT Specialist/Web Support: Matthew Witt

NTC accomplishments 2020-21:

Faculty Recruiting:

In Fall 2021, Jessica Nelson, PhD, joined the School of Medicine faculty as an Assistant Professor in the Department of Cell and Developmental Biology after completing a postdoctoral fellowship at the University of Pennsylvania. Nelson, an NTC joint recruitment with Cell and Developmental Biology, is a neuroscientist whose research program employs a cutting-edge combination of electrophysiological recording, fluorescence imaging, and behavioral monitoring to study habitual learning processes in zebrafish.

In Summer 2022, Scott Thompson, PhD, joined the School of Medicine faculty as a Professor in the Department of Psychiatry after many years at the University of Maryland, where he led a highly successful research program and served as Chair of the Department of Physiology. Thompson, an NTC joint recruitment with Psychiatry, will serve as Director of Research in Novel Therapeutics for Use in Brain Health (RENEU Brain Health). This newly established program will seek to develop the next generation of therapeutics for neuropsychiatric diseases like depression, including the use of psychedelics. Dr. Thompson's research employs electrophysiological, advanced fluorescent imaging, and cell biological techniques in brain slices to interrogate excitatory and inhibitory synaptic transmission and how these processes are altered in neurological and neuropsychiatric disorders, including epilepsy and depression.

NTC Cores:

The NTC manages six cores operating as three service-oriented core clusters that provide investigators with powerful transformative tools to incorporate cutting-edge approaches. In 2022 the NTC consolidated a number of the operations for two of these cores, Optogenetics and Neural Engineering (ONE) Core and the Advanced Light Microscopy Core (ALMC), in newly renovated space located on the northern 1st floor interior corridor of building RC1 North.

Core Cluster 1-Advanced Light Microscopy Core (ALMC): Richard Benninger, PhD (Director); Radu Moldovan, PhD (ALMC Manager); Dominik Stich, PhD; Elizabeth Kaye, BS

ALMC 21-22 Highlights:

- Total usage of the core: 4461 hours
- Total number of laboratories that have used the core: 90
- Number of new users of the core: 85
- Number of papers published that acknowledge usage of the core: 11
- New microscope purchased: STEDYCON by Abberior, arriving next fiscal year
- Submitted NIH S10 grant for new STED super-resolution microscope system

Core Cluster 2-Optogenetics and Neural Engineering (ONE) Core, (IDEA) Core, and the Neuroscience Machine Shop: Gidon Felsen, PhD (Director); Andrew Scallon, MS (ONE Core manager); Ryan Williamson, PhD (IDEA Core manager); Ryan Mettetal, PhD (Neuroscience Machine Shop manager)

ONE Core 21-22 Highlights:

- Served 18 research laboratories working on ~40 projects.
- Project highlights:
 - Developed an automated system for objectively quantifying motor deficits in patients.
 - Developed software to obtain timestamped recordings of multiple, hardware-independent videos for human subject and animal research behavior tasks.
 - Engineered methods for synchronization of multiple concurrent behavioral tasks including data pipelines for defining unique timelines across all systems, utilizing commonly used communication systems.
 - Designed and fabricated electronic circuits for generation of novel predefined analog signals for simultaneous optogenetic stimulation and electrophysiological recording.

IDEA Core 21-22 Highlights:

- Served 8 research laboratories.
- co-authored three peer-reviewed publications and one book chapter.
- Project highlights:
 - LocoMouse - Visual assessment and quantification of mouse ataxia
 - RotoRodent - Quantifying optomotor response of mice and rats in the Animal Behavior Core
 - Jump-Reach - Variable reach distance apparatus for head-fixed mice
 - Vari-Reach - Real-time repositioning of target for head-fixed mouse reach
 - Angular stereotax - Novel apparatus for positioning up to eight mouse brain probes

Neuroscience Machine Shop 21-22 Highlights:

- The shop serviced over 110 projects last year from 47 different departments.
- These projects included new fabrication of research equipment like innovative hexagonal maze systems, maintenance of existing equipment, and repair projects for damaged equipment and animal enclosures.
- Project highlights:

- Fabricated an intricate tungsten array for Radiation Oncology.
- Designed and fabricated two large acoustical isolation sound chambers.
- Produced a novel behavioral observation rig with probe commutators and cameras.

Core Cluster 3-Animal Behavior Core (ABC) and In Vivo Neurophysiology Core (IVNC): Michael Mesches, PhD (Director); Nicolas Busquet, PhD (ABC manager); Connie Brindly, BS; Jessica Carlsen, MS

Animal Behavior Core (ABC) 21-22 Highlights:

- Helped research teams design, plan, and perform long-term and short-term behavioral studies.
- Instituted new behavioral testing paradigms (Dynamic Weight Bearing, Gait Analysis, Home Cage Monitoring)
- Added Zebra Fish Behavior subcore in R2 vivarium
- Total number of laboratories that used the ABC: 25 (67% increase)
- School of Medicine departments/divisions served: 10
- 4 published papers and 5 papers submitted to journals

In Vivo Neurophysiology Core (IVNC) 21-22 Highlights:

- Continued to develop and sciatic nerve recording and analysis services.
- Created custom made visual evoked potential stimulus control boxes and Python code for data analysis
- Continued to refine electrode placement verification service in collaboration with the ALMC
- Trained new PIs on mouse stereotaxic surgery and stereotaxic-guided injections
- Added new EEG recording data analysis service
- Total number of laboratories that used the IVNC: 9 (no change)
- School of Medicine departments/divisions served: 7 (17% increase)

Perinatal Research Center

The Perinatal Research Center (PRC) at the University of Colorado Anschutz Medical Campus is one of the leading national and international centers for research in perinatal biology and medicine, including studies of maternal, placental, and fetal physiology.

The PRC was built with funds from National Institutes of Health National Center for Research Resources with matching funds from the University of Colorado. Research at the PRC is funded by NIH grants and the Section of Neonatology in the Department of Pediatrics. The PRC houses twelve faculty members who collectively hold multiple NIH R01 or equivalent awards, NIH K and other career development award, several pilot awards, and the University of Colorado T32 Training Program in Perinatal Biology and Medicine.

Research at the PRC involves reproductive and developmental physiology, biochemistry, and molecular biology. Primary aims of the research are to better understand processes involved in fetal growth and development and the response to adverse perinatal conditions.

Paul Rozance, MD, is the scientific director of the PRC. Rozance is the principal investigator of NIH R01 research project grants from both the National Institute of Diabetes and Digestive and Kidney Diseases and the Eunice Kennedy Shriver National Institute of Child Health and Human Development. Rozance is also the principal investigator and program director of the NIH-NICHD T32 Training Program in Perinatal Medicine and Biology, which has been funding neonatology, maternal fetal medicine, and non-clinician post-doctoral fellows at the university since 1979.

<https://medschool.cuanschutz.edu/pediatrics/research/programs/perinatal-research-center>

Rocky Mountain Taste and Smell Center

The Rocky Mountain Taste and Smell Center includes scientists who work on studies of the chemical senses including taste, smell, and chemical irritation of the oral and respiratory passageways. The goal of the center is to facilitate research by providing communal resources and by bringing together productive investigators in the chemical senses and allied senses of hearing and balance. The center, under the leadership of **Diego Restrepo, PhD**, and **Tom Finger, PhD**, embraces work from 17 laboratories in five departments of the School of Medicine, including the Department of Cell and Developmental Biology, along with investigators from the CU School of Dental Medicine and the University of Denver. While the center provides direct support for infrastructure and multi-user research facilities, the underlying research is supported by more than 25 research and training grants from the National Institutes of Health totaling over \$5 million. Investigation of disorders of the senses of taste and smell is enhanced by cooperation and collaboration with the sinus clinic of UCHest University of Colorado Hospital and the Department of Otolaryngology – Head & Neck Surgery.

University of Colorado Cancer Center

MedSchool.CUAnschutz.edu/Colorado-Cancer-Center

The University of Colorado Cancer Center (CU Cancer Center) is the only National Cancer Institute (NCI)-designated comprehensive cancer center in Colorado. Nearly all researchers who participate in cancer-related basic, translational, clinical, population, and behavioral research in Colorado are CU Cancer Center members. This statewide inclusiveness of cancer researchers and academic institutions provides a scientific breadth and depth that strengthens the center's comprehensive cancer research and clinical care activities. The CU Cancer Center stands as a unique organization and resource in Colorado and the surrounding region in cancer research, prevention, clinical care, and outreach.

Vision: Prevent and conquer cancer. **Together.**

Mission: Uniting our community to overcome cancer through innovation, discovery, prevention, early detection, multidisciplinary care, and education.

The CU Cancer Center's history began with the award of an NCI Cancer Center Support Grant in 1988, resulting in a clinical cancer center designation. In 1997, the center was designated as an NCI Comprehensive Cancer Center indicating that it met stringent research-focused metrics in basic, clinical, translational, and population science research. In 2013, the center was elected as a member of the National Comprehensive Cancer Network (NCCN), an alliance of the nation's leading cancer centers working to establish and deliver the gold standard in cancer clinical guidelines. In February 2015, the CU Cancer Center joined the Oncology Research Information Exchange Network (ORIEN), a research partnership among top U.S. cancer centers that is designed to facilitate discoveries in precision medicine by CU scientists. Every five years, the CU Cancer Center submits a competitive renewal (2P30CA046934-34) to keep its NCI Comprehensive designation and in February 2022 the seventh renewal was funded for the 2022-2027 period.

Strategic Goals for this next era are:

- Ensure a robust infrastructure to foster research across the spectrum from basic discovery to translation to prevention and control.
- Invest in targeted areas of research where the CU Cancer Center can best accelerate its impact.
- Perform highly innovative and accessible clinical trials.
- Provide unparalleled comprehensive patient-centered cancer care.
- Be the premier cancer center and destination of choice, regionally in five years and nationally in ten.
- Advance health equity and reduce disparities across the continuum from prevention to survivorship.
- Train the next generation of cancer researchers, providers, and administrators.
- Cultivate a cohesive, effective, accountable organization that attracts and retains outstanding talent.
- Secure sustainable funding.

Cancer Center Leaders

The senior leaders represent the four research areas of a comprehensive cancer center as well as key priority areas including community outreach and engagement, cancer research education and training, and cancer informatics and data sciences.

Senior Leaders

Director	Richard Schulick, MD, MBA
Deputy Directors	Cathy Bradley, PhD and James DeGregori, PhD

Senior Leaders

Associate Directors:

Basic Research	Heide Ford, PhD
Clinical Research	Christopher Lieu, MD
Population Science Research	Linda Cook, PhD
Translational Research	Hatim Sabaawy, MD PhD*
Shared Resources^	Natalie Serkova, PhD (Interim)
Community Outreach & Engagement	Evelinn Borrayo, PhD
Diversity, Equity, Inclusion & Access^	Under recruitment
Cancer Research Education & Training	Eduardo Davila, PhD
Data Science and Cancer Informatics	Sean Davis, MD, PhD
Administration & Finance	Stephanie Farmer, MHA

*New leader

^New AD role

The center fosters cancer-focused research through the creation of formal scientific research programs. A program comprises the activities of a group of investigators who share common scientific interests and goals and participate in competitively funded research. Programs are highly interactive and lead to the exchange of information, experimental techniques, and ideas that enhance the individual productivity of scientists and often result in collaborations and joint publications. Ultimately, the success of a program is measured by scientific excellence and the emergence of productive collaborations.

Currently the center is comprised of four research programs, all of which are organized around mechanistic themes in cancer research.

Cancer Center Programs and Program Leaders

Basic Sciences	
Molecular & Cellular Oncology (MCO)	Tin Tin Su, PhD, Patricia Ernst, PhD
Translational and Clinical Sciences	
Tumor-Host Interactions (THI)	Jennifer Richer, PhD, Michael Verneris, MD, Jill Slansky, PhD
Developmental Therapeutics (DT)	Lia Gore, MD, Dan Gustafson, PhD, Antonio Jimeno, MD PhD
Population Health	
Cancer Prevention and Control (CPC)	Rajesh Agarwal, PhD, Jamie Studts, PhD, Stacy Fischer, MD

Affiliated Organizations

Academic Institutions

University of Colorado Denver (CU Denver).
University of Colorado Boulder (CU Boulder).
Colorado State University (CSU).

Affiliated Hospitals

UCHealth University of Colorado Hospital (UCH).
Children's Hospital Colorado (CHCO).
Veterans Affairs Medical Center (VAMC).

Facts

Membership

220 Full members.
54 Mentored members.
71% of members are in the CU School of Medicine (SOM).

Research Portfolio

- 629 cancer related publications in FY21.
- \$68.9M (direct costs) annual cancer-focused sponsored research funding, an increase of 7% from the prior year.
- \$55.0M (80%) held by members in the SOM, an increase of 8% from the prior year.

Clinical Trial Portfolio

- 2,244 accruals to all types of human subject protocols in FY21.
- 1,078 Intervention trial accruals.
- 958 Observational trial accruals.
- 208 Ancillary/correlative trial accruals.

Major Accomplishments 2021-2022

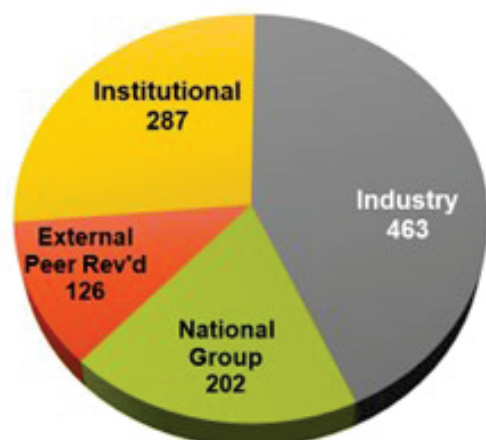
- Successful renewal of the NCI grant for the 7th time funding the period 2022-2027.
- Recruitment of new leaders:
- Hatim Sabaawy, MD, PhD, as Associate Director for Translational Research.
- Marie Woods, MD, as Medical Director for the Cancer Clinical Trials Office.
- Sharon Pine, PhD, as Director for the Thoracic Oncology Research Initiative (TORI).
- Creation of new leader roles:
- Associate Director for Shared Resources – Natalie Serkova, PhD, is the Interim.
- Associate Director for Diversity, Equity, Inclusion, and Access – recruitment underway.
- Funding of an NCI Specialized Program of Research Excellence (SPORE) in Head and Neck Cancer (PIs: Antonio Jimeno, MD, PhD, and Xiao-Jing Wang, MD, PhD | 1P50CA261605-01).
- Over \$11M invested in strategic initiatives and recruitments to support the Center's mission.

Center Members' Cancer-Relevant Research \$\$ by Sponsor Type*

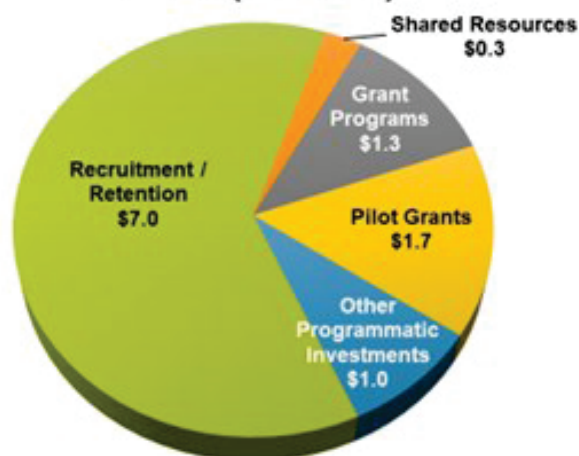
Sponsor	Direct Cost \$\$
Cancer Center Support Grant	2,720,181
NCI	17,264,334
Other NIH	17,986,354
Other Peer-Reviewed	7,060,656
Industry	16,023,545
Other Non-Peer Reviewed	7,837,304
Grand Total	68,892,374

*As reported to the NCI December 2021

FY21 Intervention Trial Accruals by Study Source (N=1078)



Cancer Center Investments FY21 (\$11.3M)



Selected Research Accomplishments:

- **Sachin Wani, MD, (CPC)**, directs a highly influential program of federally-funded research addressing key knowledge gaps regarding the management of Barrett's esophagus (BE). With a robust portfolio of funding from the NIDDK and industry partners, Wani leads several large, randomized trials that will inform optimal approaches to reduce esophageal cancer risk. Following a U34 grant that supported the development of the SURVANT Trial protocol, Wani recently received notice that he will be awarded U01 funding from NIDDK to conduct a two-arm parallel group randomized trial comparing endoscopic eradication therapy to standard surveillance in collaboration with other NCI-designated cancer centers, large hospital systems, and clinical practices. In addition to testing the effectiveness of EET vs. surveillance, the SURVENT Trial incorporates collection and analysis of patient-centered outcomes and biomarkers for correlative analyses. This trial will provide definitive guidance to identify evidence-based practices regarding BE surveillance and provide essential information on which to inform guideline development and implementation.
- **D. Ross Camidge, MD, PhD, (DT)** leads the thoracic oncology disease-based team in the CU Cancer Center's Clinical Trial Office and is known nationally and internationally for developing novel targeted therapies for lung cancer. ALK gene rearrangements drive 4%-7% of advanced non-small cell lung cancer cases. The first generation ALK inhibitor crizotinib was licensed in 2010. However, prolonged disease control with crizotinib was hampered by its limited CNS penetration and the development of on-target ALK mutations as a mechanism of acquired resistance. A series of next-generation ALK inhibitors which variably addressed both issues were then developed and licensed in the post-crizotinib setting. Brigatinib demonstrated the longest median PFS in the post-crizotinib setting prompting its exploration as an initial therapy compared to crizotinib in the Phase III ALTA-1L trial. The first interim analysis in 2018 showed that brigatinib was associated with significantly prolonged PFS (HR 0.49), leading to its FDA first line license on May 22, 2020 (PMID 30280657). The brigatinib trial designs also helped to lead the way in proactively defining how CNS efficacy should be measured in such trials in the future (PMID 32780660). With longer follow up, the second interim analysis maintained the PFS advantage. It also provided data on brigatinib's significantly better maintenance of patients' quality of life (Figure 2), an increasingly important potential differentiating factor compared to other next generation inhibitors with similar efficacy in this first line setting (PMID 33781443). Although alectinib, brigatinib, and lorlatinib have all now completed first-line trials showing superior PFS compared to crizotinib, only ALTA-1L was able to show a significant difference from crizotinib in time to worsening QoL. These results have helped to educate the field in terms of interpreting QoL changes as representative of both effects on the patient's cancer and the trade-off in terms of the side-effects of the medication.
- Bench-to-bedside science started by members of the CU Cancer Center uncovered metabolic vulnerabilities of leukemia stem cells and contributed to a new therapeutic regimen (the BCL-2 inhibitor Venetoclax with azacytidine) that was granted accelerated FDA approval in 2018 and regular approval in 2020. While venetoclax-based therapy represents an important advance and is the first drug regimen known to directly target AML stem cells, the majority of patients will eventually relapse. Thus, understanding how resistance to venetoclax is acquired, and devising modified strategies to overcome venetoclax resistance is a high priority. A collaborative team comprised of **Craig Jordan, PhD, (MCO)**, **Angelo D'Alessandro, PhD, (MCO)**, **Dan Pollyea, MD, (DT)**, **Clay Smith, MD, (DT)**, **Amanda Winters, MD, PhD, (DT)** (Mentored Member), **Jim Costello, PhD, (THI, BBSR)**, and **James DeGregori, PhD, (CU Cancer Center Deputy Director/THI)** described molecular mechanisms that contribute to drug resistance (PMC7655603, PMC8054994, PMC7858222). These include a unique dependency on nicotinamide metabolism (PMC7655603), altered fatty acid metabolism (PMC8054994), and the protective effect of liver microenvironment that operates through increased transcript levels for endothelial lipase LIPG (PMC7858222). These results provide potential drug targets for overcoming venetoclax resistance.
- While chronic inflammation as a cancer driver has been recognized in solid tumors, work performed by members of the CU Cancer Center supports a role for inflammation in bone marrow dysfunction and hematological malignancies. The labs of **Pavel Davizon-Castillo, MD (DT, Mentored Member)**, **Craig Jordan, PhD, (MCO)**, **James DeGregori, PhD, (CU Cancer Center Deputy Director, THI)**, and **Eric Pietras, PhD, (THI)** found that the myeloid transcription factor PU.1 serves to limit hematopoietic stem cell (HSC) proliferation in response to chronic inflammation, by repressing protein synthesis genes (J Exp Med, 2021, PMC8056754). Using a PU.1-deficient mouse model that replicates key molecular features of oncogenic

mutations associated with myeloid malignancy, they showed that inflammation can trigger uncontrolled proliferation of HSC. In complementary and collaborative work, **DeGregori** and **Pietras**, with support from the Cancer Center's Bioinformatics team (**A. Goodspeed** and **E. Danis**) used a mouse model of cell competition in the bone marrow to show that chronic inflammation triggers selective expansion of multipotent progenitors deficient in CEPBA, another transcriptional regulator commonly disabled or mutated in myeloid malignancy (J Exp Med, 2021, PMC8094119). Strikingly in both cases, aberrant proliferation and expansion of PU.1 and CEBPA-deficient primitive hematopoietic progenitors required an inflammatory signal, providing proof-of-concept that inflammation is a crucial trigger for oncogenesis in the bone marrow.

Additional Notable Accomplishments

- Building on a substantial program of basic science and clinical research examining physical activity and nutritional factors related to breast cancer risk and survivorship (PMC6124402; PMC6022404), CPC members **Paul MacLean, PhD**, and **Ryan Marker, PhD**, have collaborated with **Peter Kabos, MD**, (DT) and secured a new NCI-supported R01 examining the impact of restricted eating/fasting on breast cancer risk and survivorship.
- With funding from the CU Cancer Center and support from the Cancer Center's Population Health Shared Resource, **Cathy Bradley, PhD**, (CPC) and **Marcelo Perrillon, PhD**, (CPC) tested hypotheses regarding disparate access to high-cost agents using data from Surveillance, Epidemiology, and End-Results Medicare file (SEER-Medicare), allowing the investigators to examine the relationship patterns in use across race/ethnicity, urban/rural residency, poverty levels by census tract, and by treatment facility in an elderly population. The investigation revealed a decidedly increasing trend in the use of high-cost agents from 2007-2015. Rural residents and individuals not treated at NCI-designated cancer centers, many of which are also rural residents, were less likely to receive newer, high-cost agents (PMC7825480). This study led a successful R01 funding to investigate urban-rural cancer disparities in Colorado (R01CA229551) where most individuals aged 65 years and older reside.
- Medulloblastoma (MB) is a heterogeneous high grade brain tumor of childhood with differing outcomes based on multiple risk factors. Previous studies have identified 4 major transcriptomic subgroups that emphasize the heterogeneity of the tumor. To better characterize cellular heterogeneity in MB **Rajeev Vibhakar, MD, PhD, MPH**, (DT) used single-cell RNA sequencing, immunohistochemistry, and deconvolution of transcriptomic data to profile neoplastic and immune populations in patient samples and animal models across childhood MB subgroups. Their findings provide a clearer understanding of the diverse neoplastic and immune cell subpopulations that constitute the MB microenvironment and have been made available via a public facing portal to broadly disseminate these data within the scientific community.
- **Sana Karam, MD, PhD**, et al. examined pancreatic cancer patient samples treated with neoadjuvant radiation therapy (RT) and found an increase in stromal activation and markers of fibrosis above that seen in biopsy samples. They had previously discovered that the EphB4-ephrinB2 receptor-ligand pathway facilitated fibrosis in pancreatic tumors. Recently in pulmonary fibrosis, the cell surface sheddase ADAM10 was implicated in activating EphB4-ephrinB2 by cleaving ephrinB2. They found ADAM10 to be upregulated in pancreatic tumors following RT in orthotopic mouse pancreatic tumors, resulting in ephrinB2 cleavage and upregulation of fibrosis. They found that by inhibition or knockout of ADAM10, RT induced fibrosis could be blocked, which subsequently resulted in increased sensitivity to RT, decreased tumor epithelial to mesenchymal transition, decreased invasion and migration potential of tumor cells, decreased liver metastatic potential, and increased mouse survival (PMID 33526513). This study provides the preclinical basis for combination of ADAM10 inhibition with RT in patients with locally advanced pancreatic cancer, increasing the primary tumor response to RT and decreasing the metastatic potential of these tumors, to improve overall patient survival. This science is being translated as an investigator-initiated trial led by the CU Cancer Center.
- A collaboration among **Jessica McDermott, MD**, (DT), **Evelinn Borrayo, PhD**, (CPC), and **Antonio Jimeno, MD, PhD**, (DT) led to CU Cancer Center funding to increase participation of Spanish-speaking only patients to HNC trials. Hispanic patients are underrepresented at tertiary cancer centers, resulting in worse outcomes and understanding of ethnic disease differences. This project uses state and facility data of Hispanic HNC patient care allowing targeted outreach to overcome barriers to care, and builds community partnerships to educate, inform, and advocate for sustained research in-

volvement for Hispanic patients. The capstone of this project is the E3 – “Esperanza En Español” – pilot clinic for Spanish-speaking patients, staffed with Spanish-speaking providers (like Jimeno) and with specific enrollment process to decrease language/cultural barriers. The Cancer Center’s regulatory team works closely with McDermott and the center’s community outreach and engagement staff to facilitate participation and retention in trials.

- A collaboration between **Evelinn Borrayo, PhD, (CPC)** and **Sana Karam, MD, PhD, (DT)** led to a PCORI grant on rural disparities and access to diagnostic and therapeutic care in patients with HNC, and in continuing work showing DT members cross across specialties Borrayo received an R01 with Karam is a co-investigator titled “Improving the timeliness and quality of care for rural lung and head and neck cancer patients” (R01 CA254730).
- Genetic and molecular profiling are key to treat newly diagnosed leukemia, and these tests are not always accessible, especially for patients who are uninsured or underinsured (which are also more likely to be URM). A new collaboration between the CU Cancer Center, CHCO, UHealth, and Denver Health, led by **Lia Gore, MD, (DT)** and including **Amanda Winters, MD, PhD, (DT)**, **Kelly Maloney, MD, (DT)**, **Mike Verneris, MD, (THI)**, and **Terry Fry, MD, (THI)**, creates a mechanism to make molecular testing available for such patients with newly diagnosed or relapsed acute leukemia, providing access to highly sophisticated molecular testing developed at Children’s Hospital Colorado. After this team pilots the effort in the Denver metro area, they hope to export this system to farther outlying sites in the catchment area with appropriate modifications.
- MCO member **Julia Cooper, PhD**, and lab found that mis-expression of a meiotic topoisomerase or a meiotic cohesion in mitotically proliferating fission yeast or human cells leads to dis-assembly of centromeres, providing a novel mechanism for chromosome instability in cancers that mis-express meiotic proteins (*Nature* 2021 PMID: 33657810).
- MCO members **David Bentley, PhD**, **Dylan Taatjes, PhD, (CU Boulder)**, and **Nathan Dahl, MD**, provide mechanistic insight into transcription elongation and identify drug targets for glioma. The group showed that the rate of transcription elongation is linked to RNA processing (PMC8052309). Collaborative studies by the Bentley and Taatjes labs identified a new mechanism by which CDK7-TFIIF interaction is regulated to link CDK7 activity to transcription (PMC7608751). Transcription elongation and Super Elongation Complex of proteins was discovered as a targetable vulnerability in diffuse midline glioma by **Nathan Dahl, MD**, (PMID: 32268092). Thus, transcriptional elongation is characterized by multiple opportunities for pharmacologic regulation, suggesting exciting new therapeutic targets in glioma where chromatin regulation is a cancer driving process.
- **Jill Slansky, PhD, (THI)** along with **Kimberly Jordan, PhD**, **John Kappler, MD, (THI)**, and **Pippa Marrack, PhD, (THI)**, published a high-impact paper (*Proc Natl Acad Sci USA*, 2021, PMC8201969) analyzing CD8+ T cell responses to self-antigens on tumors. This collaborative group used funding from CA226879 and support from the Genomics Shared Resource and the Human Immune Monitoring Shared Resource to identify a modified tumor antigen (TA) epitope that, unlike the natural one, was highly effective in a preventive vaccine.
- THI members **Traci Lyons, PhD**, **Jennifer Richer, PhD**, **Virginia Borges, MD**, and **Dexiang Gao, PhD, (CPC)** found that estrogen regulates semaphorin 7a (SEMA7A) promoting therapeutic resistance in breast cancer and increases the likelihood for recurrence (PMC7878309). This study found that the SEMA7A protein promotes tumor cell survival and endocrine therapy resistance. The resistance to endocrine therapy driven by SEMA7A can be reversed with BCL2 and venetoclax. A second publication (PMID: 35301330) found that SEMA7A protein expression is increased in post-partum breast cancers (PPBCs) compared to their nulliparous counterparts in a University of Colorado cohort. Additionally, tumors from PPBC patients with involved lymph nodes and lymphovascular invasion had higher SEMA7A, suggesting a potential role for SEMA7A as a prognostic biomarker. Consistent with this hypothesis, the group identified a level of SEMA7A expression in tumors that can predict for recurrence. They propose SEMA7A as a potential biomarker and therapeutic target for PPBC patients, who currently lack strong predictors of outcome and unique targeted therapy options. established SEMA7A as a useful biomarker to predict risk of recurrence of postpartum associated breast cancer.

New Cancer Center Members

Cancer Center Program	Member	Member Type	Academic Rank	Affiliation
Cancer Prevention & Control	Curriu-McCulloch, Jennifer	Mentored	Assistant Professor	Social Work College of Health & Human Sciences Colorado State University
Cancer Prevention & Control	Ha, Duc	Mentored	Assistant Professor	Medicine Pulmonary Sciences & Critical Care School of Medicine Denver VA Medical Center
Cancer Prevention & Control	Suresh, Krithika	Mentored	Assistant Research Professor	Biostatistics and Informatics School of Public Health University of Colorado Denver
Cancer Prevention & Control	Tate, Channing	Mentored	Assistant Professor	Medicine General Internal Medicine School of Medicine University of Colorado Denver
Developmental Therapeutics	Fabrizio, Vanessa	Mentored	Assistant Professor	Pediatrics Hematology / Oncology / BMT School of Medicine Children's Hospital Colorado
Developmental Therapeutics	Graham, Laura	Mentored	Assistant Professor	Medicine Medical Oncology School of Medicine University of Colorado Denver
Molecular & Cellular Oncology	Forester, Craig	Mentored	Assistant Professor	Pediatrics Hematology / Oncology / BMT School of Medicine University of Colorado Denver
Tumor-Host Interactions	Couts, Kasey	Mentored	Assistant Professor	Medicine Medical Oncology School of Medicine University of Colorado Denver
Tumor-Host Interactions	Leibowitz, Michael	Mentored	Assistant Professor	Pediatrics Hematology / Oncology / BMT School of Medicine University of Colorado Denver
Tumor-Host Interactions	Witkowski, Matthew	Mentored	Assistant Research Professor	Pediatrics Hematology / Oncology / BMT School of Medicine University of Colorado Denver

Webb-Waring Center

Webb-Waring Center (WW) conducts basic and translational investigations of inflammation and immunologic mechanisms that contribute to health and disease. This unifying focus fits well the stated mission of the WW which is “...to conduct and teach innovative biomedical research that improves understanding, treatment and prevention of diseases worldwide.”

Led by **John E. Repine, MD**, the Waring Professor of Medicine, Pediatrics, and Surgery, WW’s integrated research projects are gaining a better understanding of the causes, diagnosis, treatment, and prevention of significant disorders like the Acute Respiratory Distress Syndrome (ARDS), diabetes, multiple sclerosis, atherosclerosis, traumatic brain injury, fatty liver disease, the metabolic syndrome, and macular degeneration. Many of these efforts are also directed to learning about the importance and finding ways to combat the effect of aging on health and disease progression.

WW’s research endeavors are focused on developing translational discoveries that have more immediate application to human health care. This orientation has led to patenting and developing several innovations by Repine that are being supported by the Knoebel and Bonfils-Stanton Foundations. David Wagner, PhD, has secured competitive grants from the NIH SBIR and the Gates Grubstake programs to advance new technologies that deal with treating and preventing diabetes, multiple sclerosis, and other autoimmune disorders.

WW has highly competitive training programs for undergraduate and medical students who are interested and want to gain training and experience in biomedical research. The WW Colorado Undergraduate Summer Program (CUSP), founded and directed by Repine, has become nationally prominent. More than 100 exceptional undergraduate students from universities nationwide apply to the annual CUSP summer program. Following a highly competitive selection process, about 20 interns—half of them meeting diversity designations—are selected from Princeton University, University of Notre Dame, University of California San Diego, Stanford University, Williams College, Baylor University, University of Denver, University of Colorado, University of Oregon, Colorado State University, and other colleges. CUSP is supported by Repine’s five-year undergraduate diversity training grant from the NIH, the North Foundation, endowments established by Brian Fitzgerald, some of the colleges, and generous donors. In addition, about 10 emerging second-year Colorado medical students from diverse backgrounds are supported by the Department of Medicine DREAM Program, led by Repine. They also participate in a WW summer research training program. At the end of the summer, all students present research in a formal poster session.

<https://medschool.cuanschutz.edu/webb-waring-center>





Vice Chancellor for Health Affairs

Colorado Area Health Education Center Program

Colorado Area Health Education Center (COAHEC) is jointly funded by a federal grant from the Health Resources and Services Administration (HRSA) and by the Vice Chancellor for Health Affairs for the University of Colorado, Anschutz Medical Campus. COAHEC is celebrating its 45th year of continuous operation.

Mission: We work towards ensuring health equity in Colorado. We increase the diversity and distribution of the healthcare workforce to address healthcare disparities in this state. We support practice transformation throughout Colorado to ensure high quality healthcare delivery for everyone. We serve as the link between Coloradans, state resources, and the resources of Anschutz Medical Campus to help healthy people thrive in healthy communities.

Vision: We envision every person in Colorado having the opportunity to attain their full and best health potential.

COAHEC received new five-year funding from HRSA in 2022. The current HRSA 5-year cycle (2022-2027) requires COAHEC to address the following triple aim goals:

- **Diversity:** Increase the potential for secondary, college, and health profession students from underrepresented populations, educationally disadvantaged, and rural backgrounds to successfully pursue a health profession career with an emphasis in public health.
- **Distribution:** Increase the potential for health profession students in medicine, dentistry, nursing, pharmacy, public health, and allied health to practice in a rural or urban underserved community by immersing them in rural or underserved community experiences through Community-Based Education Training Programs, Field Placements, and Interprofessional Education and Training; provide access to evidence-based health information, accredited high quality continuing education programs and support for health professionals serving in rural and medically underserved areas in Colorado.
- **Practice Transformation:** Facilitate and support practice transformation of Colorado's healthcare system by promoting a patient-centered approach, addressing social determinants of health through a team-based, data-centered approach with a focus on improving quality and community health outcomes in rural and medically underserved areas.

The AHEC system in Colorado is organized into six separate regional centers overseen by COAHEC Program office on the Anschutz Medical Campus (AMC). Our six regions are: Centennial, Front Range, San Luis Valley, Southeastern Colorado, Southwestern Colorado, and Western Colorado. The six regional AHEC offices work under the grant directives in collaboration with the COAHEC Program Office which provides governance and guidance in meeting all the grant and program deliverables. As well, the COAHEC Program Office partners with the School of Medicine, including the Physical Therapy and Child Health Associate/Physician Assistant programs, and the School of Dental Medicine, College of Nursing, and Skaggs School of Pharmacy and Pharmaceutical Sciences, to meet the program's goals under the auspices of the HRSA grant.

AHEC Accomplishments during 2021-2022

This year we have begun to transition back to in-person work, with relapses to working from home due to COVID exposures and increased case counts. Our programs have followed similarly, with events such as the National Western Stock Show Health Screenings being canceled after a surge in cases and programs like Advisor's Day remaining online. We also have learned from this challenging period that virtual modalities sometimes increase equitable access to our programs for participants from rural areas. COAHEC, therefore, will continue to provide online and introduce hybrid online/in-person options for future programs.

This year was the final year in our five-year funding cycle. On August 4, 2022, HRSA notified us that COAHEC is funded for the next five-year cycle, and we received a perfect score on our application. Of note, the new grant adds two new AHEC Core Topic Areas to the six in the previous cycle. The two new areas are Virtual Learning and Telehealth and Connecting Communities and Supporting Health Professionals. The previous cycle's six core topics remain: Interprofessional Education, Behavioral Health Integration, Social Determinants of Health, Cultural Competency, Practice Transformation, and Current and Emerging Issues. COAHEC will now determine the current and emerging topics most relevant to our state. Additionally, this notice of funding opportunity encouraged AHECs to select and address one of HHS's and HRSA's clinical priorities. COAHEC chose preventing and reducing maternal mortality as our clinical priority topic. COAHEC also created new regional map boundaries to better serve the needs of Coloradans.

Colorado AHEC Program Office Leadership

Colorado Area Health Education Center (COAHEC) Program Office
<https://www.cuanschutz.edu/centers/coahec/about-us>



Josina Romero O'Connell, MD

Director, Colorado Area Health Education Center
Office of the Vice Chancellor of Health Affairs
Assistant Professor, Department of Family Medicine
CU School of Medicine Rural Program Faculty
Practicing Clinician, Denver Health Montbello Clinic



Ken Tadikonda, MBA

Business Services Program Manager



Samantha Hanson

Information Technology Coordinator



Matt Hess, MSS

Academic Services Program Manager



Fran Zabalaga-Haberman, MHA

Administrative and Program Support Specialist



Patti Jo Wagner

Senior Administrative and
Program Specialist

COAHEC Highlights

Provided funding for the six regional AHEC offices across Colorado to run programming. This programming reached participants from across Colorado with over 2,700 contact hours and reached nearly 33,000 Coloradans in medically underserved and rural communities, which is nearly 53% of non-pandemic numbers.

Provided 24,557 nights of housing for health professions students serving clinical rotations away from the Anschutz Medical Campus, a return to pre-pandemic numbers.

Postponed our annual Advisor's Day to August 18, 2022, due to the National Association of Advisors for the Health Professions (NAAHP) hosting their conference in Denver and including CU Anschutz as a tour site.

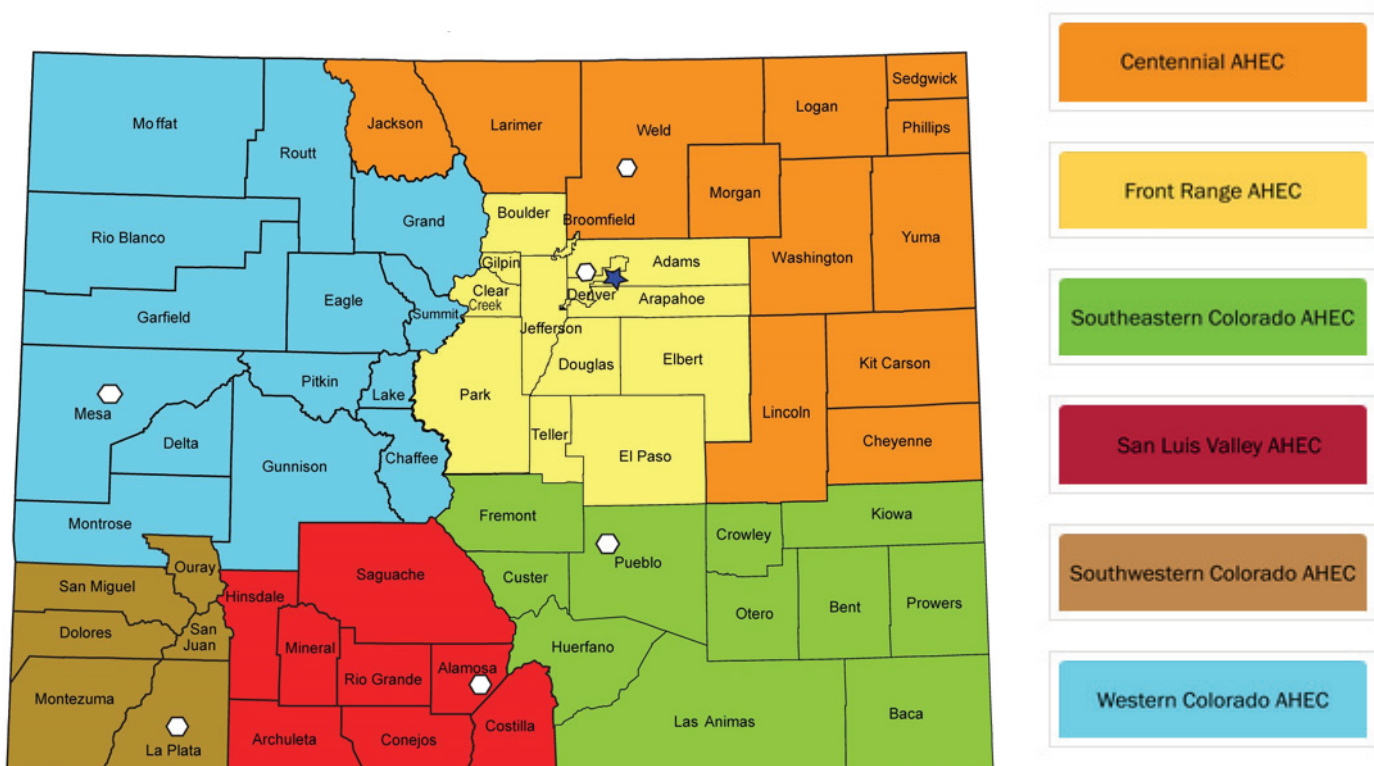
Participated in National AHEC Organization (NAO) committees, including the Program Office Constituency Group, Committee on Outcomes and Evaluation, Pipeline Committee, and AHEC Scholars Committee.

Continued to offer virtual sessions through our 2021 Networking, Education, And Research (NEAR) Conference, "Unmasked in a Masked World" and "Research Arm-What's New in Colorado?" Across all regions COAHEC offered 27 continuing education credits, and 375 health professionals attended one or more of our continuing education sessions.

Enrolled our largest cohort of AHEC Scholars, an interdisciplinary education and training program with a curriculum that trains individuals seeking terminal health care certifications to use those certifications in service to rural and/or underserved populations, reaching 299 students across many disciplines and from each of the six AHEC regions. Specifically, AHEC Scholars came from these disciplines: 3 MD/DO, 3 PharmD, 3 PA, 1 MSW, 88 RN/BSN, 184 CNA/ MA, 12 MPH/BPH and 5 other allied health professions.

Provided training related to the Opioid Abuse Disorder (OUD) epidemic in Colorado by enrolling 530 individuals to participate in our curriculum modules this year. The free modules train individuals working on the front lines of the opioid crisis by offering online, self-paced learning modules. Family members and friends of trainees who are struggling with an OUD are also encouraged to participate in the training. Trainees gain knowledge in treatment, recovery, harm reduction, and how to conduct opioid abuse educational outreach programs in their communities.

Colorado AHEC's Regional Centers



The new Medicina y Urban-Rural Art Lessons en Salud (MURALS) program launched with two murals, one in Alamosa on the SLVAHEC office building and another on the new Library Innovation Center (LINK) building in Greeley, Colorado.

Produced, a patient informational video that informs people on telemedicine and its effective use in their health care in partnership with Denver Health's Montbello Clinic. The video can be viewed here: <https://youtu.be/IOJGjNzIUCA>.

Started the Health Occupations Promoting Equity (HOPE) Program. HOPE is a year-long high school pipeline program culminating in the weeklong HOPE Institute. This program is designed for high school sophomores and juniors from underrepresented in medicine and rural backgrounds and who are interested in pursuing health care careers. The program attracted 54 students who participated in at least one of six sessions hosted by each of Colorado's six regional AHECs. Each of the regional centers presents one session with content especially relevant to their work in their region. Students will gather at each of the six regional centers or other locations identified by these centers to attend the sessions which will be conducted synchronously via Zoom. These sessions will prepare students for a week-long camp called HOPE Institute. Students who complete these sessions will receive preferential acceptance into HOPE Institute. HOPE Institute, held July 10-16, 2022, was one of our first programs to return to the in-person modality. It was also the first in what we hope will be many partnerships with the Helen and Arthur E. Johnson Beth-El College of Nursing and Health Sciences at the University of Colorado Colorado Springs campus.

Piloted the curriculum for the new CADAVERS (COAHEC Anatomy and Discourse on Arts, Values, Ethics, and Respect in Science). This program will provide an opportunity for high school students from all Colorado regions, specially underrepresented in medicine students to explore science in a lesson and hands-on lab experience that explores Anatomy, Arts, Medicine, Values, Ethics, and Respect in Science.

Maintaining collaborative relationships with other organizations and programs whose goals complement the AHEC mission. These include:

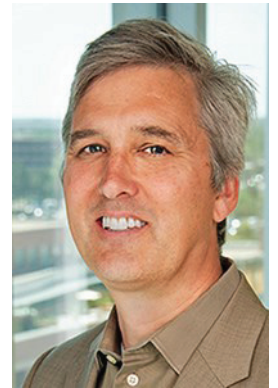
- Colorado Health Extension System
- Colorado Consortium for Prescription Drug Abuse Prevention
- Rocky Mountain Public Health Training Center
- Patient Navigator Training Center
- Anschutz Marketing and Recruiting Collaborative
- University of Colorado's Central Office of Diversity, Equity, Inclusion and Community Engagement at the Anschutz Medical Campus
- National Institute of Medical Assistant Advancement
- Colorado Rural Health Center
- Colorado Community Health Network
- Colorado Department of Public Health and Environment
- Colorado and National Health Service Corps
- Denver Health and Hospital Authority
- Colorado Center for Nursing Excellence
- Office of Community-Based Medical Education, CU School of Medicine
- ECHO Colorado

Center for Bioethics and Humanities

The University of Colorado's Center for Bioethics and Humanities (CBH) offers an array of ethics, humanities, arts, and health law programs that are integral to academic life and work across CU Anschutz and that enrich university- and community-based programs across all four CU campuses and around the state.

- **Education and training:** CBH faculty are involved in teaching learners in all professional schools and allied health programs at CU Anschutz and in undergraduate and graduate programs on the Denver, Boulder, and Colorado Springs campuses.
- **Clinical service:** the clinical ethics consultation programs of the two campus hospitals are integral aspects of care for patients seen on our campus and provide critical support to affiliated hospitals and clinics across the state.
- **Research:** CBH researchers focus on conducting world-class empirical research on topics at the intersection of health policy and bioethics including but not limited to medical aid in dying, disability, AI ethics, stakeholder engagement in research, real-world evidence generation, mass drug administration, college sports medicine, and conflicts of interest in medicine and research.
- **Community outreach:** CBH creates bioethics and health humanities programming that extends well beyond the university to engage health care professionals and citizens locally, regionally, and nationwide, including lectures, seminars, case studies, and discussions.

Matthew Wynia, MD, MPH, FACP, has been director of the center since July 2015. Wynia is a national leader in health care ethics, having served as the head of the Institute for Ethics at the American Medical Association, president of the American Society for Bioethics and Humanities, Chair of the Ethics Section of the American Public Health Association and chair of the Ethics Committee at the Society for General Internal Medicine, among other elected and appointed positions. He is an elected Fellow of the Hastings Center and serves on the organization's Fellows Council. He is also recognized for his work in patient safety and quality after developing the AMA's Center for Patient Safety and he has served on National Academy of Sciences, Engineering and Medicine groups addressing team-based care, transdisciplinary professionalism, catastrophic disaster response, the use of public health methods in countering violent extremism, evidence-based practices in public health emergency response, improving medical supply chain resiliency, and best practices for assessing morbidity and mortality in disasters. In 2021, he was appointed to the NASEM Board on Health Sciences Policy. Wynia's training is in internal medicine, infectious diseases, public health, and health services research. He is a professor in the Department of Medicine at the CU School of Medicine with a secondary appointment in the Department of Health Systems Management and Policy in the Colorado School of Public Health.



The **Center's Arts and Humanities in Healthcare program** supported and launched four major art exhibits in the Fulginiti Pavilion and its Art Gallery in 2021-22: "**Put Me Back Like They Found Me,**" Art by Daisy Patton; **STIGMA and SURVIVAL: Paintings by William Stoehr**; **A Thorn in My Side: Paintings by Sandra Kaplan**; and **Eye to Eye: Portraits of Pride, Strength, Beauty** by Carey Candrian. The program also continued to support the Anschutz Campus Orchestra and Anschutz Campus Choir, though performances were restricted due to COVID-19 precautions. The program published the 15th edition of **The Human Touch**, our annual anthology of poetry, prose, visual arts, photography, music, and videos that showcases the extraordinary talents of students, staff, faculty, alumni, and friends of the Anschutz Medical Campus. This publication is supported by a generous gift from Jeff Hill, MD, a School of Medicine alumnus, and his spouse, Molly Hill. The program also manages multiple lecture series focusing on arts and humanities in health care, several of which are highlighted under our community outreach programs below.

The **Center's Education and Training Team** is led by **Therese Jones, PhD**, who is also the associate director of the CBH. She is an associate professor in the Department of Medicine, Director of the Center's Arts and Humanities in Healthcare Program, editor of the *Journal of Medical Humanities* (retired as of January 2022) and the author of a landmark textbook for those who teach health humanities, *Health Humanities Reader* (Rutgers University Press). She is under contract with Routledge to publish an international volume, *Handbook of Media and Health*, with the announced publication date of August 31, 2022. She teaches required and elective humanities courses for health professions students; for undergraduate students who are enrolled in the Health Humanities Minor, a collaborative curriculum between the CU Anschutz Medical Campus and the CU Denver campus; and for graduate students. She also serves as the lead on the development of the center's 12-credit hour Graduate Certificate in Health Humanities and Ethics (HEHE), which started in 2017 and now has enrolled over 75 students. Other leaders in the center's education and training work include **Daniel Goldberg, JD, PhD**, who is the co-leader of the certificate program and integrates ethics content throughout the new Trek Curriculum for the School of Medicine. He is also the associate director for Mentored Scholarly Activity in the Bioethics, Arts, Humanities & Education domain for the School of Medicine. He maintains an active research agenda in pub-



lic health ethics, law/policy, and the history of medicine, and was the 2015-2016 Helfand Fellow at the New York Academy of Medicine. In 2019, Goldberg received a highly competitive \$150,000 grant from the Well Being Trust to study the effects of laws and regulations on structural stigma.

The **Center's Clinical Team** is led by **Jackie Glover, PhD, HEC-C**, who is a professor in the Department of Pediatrics and director of clinical ethics for the Center. She serves as a lead ethics consultant for both the University of Colorado Hospital (UCH) and Children's Hospital Colorado and helps create shared educational, outreach, and research programs across the two hospitals and throughout their respective hospital networks. She is also director of the Humanities, Ethics and Professionalism Thread, which integrates bioethics and humanities curriculum throughout the four years of medical school, in the legacy curriculum and is assisting in the transfer of content to the new Trek Curriculum. Other leaders of the center's clinical ethics work include **Karen Jones, MS, RN, HEC-C**, who is a clinical nurse ethicist, co-chair of the Children's Hospital Colorado Ethics Committee, and director of the hospital's Ethics Liaisons. **Brian Jackson, MD, MA, HEC-C**, is a critical care physician and co-chair of the Children's Hospital Colorado Ethics Committee. Jackson was also a member of the question bank writing committee for the newly developed ethics consultation certification test of the American Society for Bioethics and Humanities. He and Glover taught the first Clinical Ethics elective as part of the HEHE certificate in the fall 2018, again in 2019, 2021 and 2022. **Curtis Coughlin, MS, HEC-C**, is a genetic counselor and researcher who serves as a lead ethics consultant at Children's Hospital Colorado. **Kristin Furfari, MD**, is a hospitalist physician and a clinical ethics lead consultant at UCH and she and Glover serve as interim co-medical directors of the ethics consultation service. Furfari also is the co-lead for the Health and Society Pillar in the new Trek Curriculum for the School of Medicine. **Megan Prescott, LCSW, HEC-C**, is a social worker with palliative care and also a lead consultant at UCH. Prescott has developed and piloted a new online training program for moral resiliency. **Anne Dondapati-Allen, MDiv, PhD, HEC-C**, is a lead consultant in the ethics consultation service at UCH. She is staff chaplain and does extensive work with staff resiliency. **Jeffrey Horowitz, LCSW**, is a social worker serving the entire hospital and an ethics consult lead. Horowitz developed a process and training program for proxy appointments for the social work department. Other highlights for 2021-22 include that

Karen Jones, RN, MS, HEC-C, and Glover, made major contributions to the Moral Distress and Resiliency site that is part of the Colorado Healthcare Ethics Resources for COVID effort (<https://cohcwccovidsupport.org/>), and the monthly Ethics Grand Round series continued in the virtual realm, producing nine online events attracting an average of over 100 RSVPs each, from across the region. Ethics Grand Rounds are co-sponsored by UHealth and addressed topics such as staffing, brain death, and emergency medicine. The center has the distinction of having eight out of our nine ethics consultants achieve the Healthcare Ethics Consultant Certification (HEC-C) from the American Society for Bioethics and Humanities.

The **CBH Research Team** is led by **Eric Campbell, PhD**, who is a professor of medicine and director of research at CBH. He joined the faculty of CU in April 2018. As director of research, he is responsible for building the research infrastructure of CBH. This includes hiring new faculty and research staff, fostering collaborations to facilitate research, creating a postdoctoral program for empirical researchers in bioethics and the health humanities, launching pilot grant programs, and creating a culture of research excellence in CBH. He maintains an active research program focused on empirical bioethics research at the intersection of health policy and bioethics. **Matthew DeCamp, MD, PhD**, is a practicing internist, health services researcher, and philosopher. He employs both empirical and conceptual methods to identify and solve cutting-edge problems at the interface of health care, policy, and bioethics. Special emphases of his research include engaging patients in health care organizational decision-making, ethical issues in the use of social media, big data, artificial intelligence, and global health with a focus on short-term global health ethics (<http://ethicsandglobalhealth.org>). He is an award-winning teacher and mentor, and has more than a decade of service on Institutional Review Boards. **Christine Baugh, PhD, MPH**, conducts interdisciplinary research at the intersection of health, policy, sport, and ethics. Much of her work has focused on the acute and chronic health implications of repetitive brain injury from sport, and the resultant individual, institutional, policy, and ethical considerations. She is the author of more than 50 peer-reviewed research articles and her work has been featured by leading media outlets including the New York Times, Washington Post, ESPN, and Sports Illustrated. She has won numerous awards for her teaching and research and in 2022 chosen to deliver the Early Stage Investigator Lecture by the Office of Disease Prevention at the National Institutes of Health. This award recognizes early-career scientists who are poised to become future national leaders in prevention research. **Lisa Bero, PhD**, is internationally recognized for her work on evidence synthesis, bias, conflicts of interest, and use of evidence in decisions. She joined our research team as chief scientist in July 2020. She has developed and validated qualitative and quantitative methods for assessing bias in the design, conduct, and dissemination of research on pharmaceuticals, as well as tobacco, food, and chemicals. She has pioneered the utilization of internal industry documents and transparency databases to understand corporate tactics and motives for influencing research evidence. **Megan Morris, PhD, MPH, CCC-SLP**, is an associate professor in the Division of General Internal Medicine in the Department of Medicine. She is a leading expert on the documentation of patients' disability status in the electronic health record and health care disparities experienced by patients with communication disabilities. Morris is the founder and director the Disability Equity Collaborative (DEC) which supports individuals, health care organizations, policy makers, advocates, researchers, and professional organizations working to address health disparities experienced by patients with all types of disabilities.

Highlights for the 2021-22 academic year for the research team include:

- Wrote and submitted 35 research proposals with 15 awarded, yielding a hit rate of 43%.
- Grew total research portfolio at CBH to \$16.8 million.
- Wrote 70 articles based on original empirical research.
- Continued to build an extensive network of research collaborations at CU and around the country.
- Hired first post-doctoral fellow and two additional professional research assistants.

Warren Binford, JD, EdM, joined CBH in July 2020. She is the W.H. Lea for Justice Endowed Chair in Pediatric Law, Ethics & Policy in the Department of Pediatrics and has her primary home in the Kempe Center for the Prevention and Treatment of Child Abuse and Neglect. Binford is an internationally recognized children's rights scholar and advocate who is a frequent writer and speaker on children's issues, including 21st century forms of child abuse, exploitation, and neglect. Her 2021 children's book, *Hear My Voice/Escucha mi Voz*, received starred reviews at Kirkus Review and Publisher's Weekly, and has won over 30 awards including from Nautilus, the New York Public Library, and the Kirkus Review.

The CBH maintains an **Academic Leadership Council**, with one representative from each of the health professional schools and college on the CU Anschutz Medical Campus appointed at 0.2 FTE to help lead CBH programs. These individuals serve a liaison role for their respective programs, ensuring the relevance and reach of CBH activities across all campus programs, and they lead CBH initiatives in their particular areas of interest and expertise. 2021-22 members of the CBH Academic Leadership Council were **Catherine Campisi, MSN, RN, PMHNP-BC** (College of Nursing), **Inge Wefes, PhD** (Graduate School), **Catherine Flaitz, DDS, MS** (School of Dental Medicine), **Lisa Bero, PhD** (Colorado School of Public Health), **Brett McQueen, PhD** (Skaggs School Pharmacy and Pharmaceutical Sciences), and **Morgan Unruh, DO** (School of Medicine). In spring 2022, Unruh was replaced in this role by **Mark Kissler, MD, MS**.

The **Center's Community Outreach and Engagement Team**, led by **Meleah Himber, MEd**, produced a number of programs to serve and engage key local, state, and national communities. Many of these programs were produced in collaboration with our Arts and Humanities in Health Care program.

- In 2022, we launched the Helen Morris American Jewish Experience in Medicine program, funded by University of Colorado School of Medicine alumna Helen Morris, MD '56. The program creates awareness of the history of Jewish people in the health sciences, illuminates contemporary challenges, and encourages mutual understanding in a multicultural society. Spring featured two virtual presentation and discussion events, Legacies of the American Jewish Health Community: Colorado's Leading Role in Treating Tuberculosis, with Jeanne Abrams, PhD, professor, University of Denver Libraries and Center for Judaic Studies and director of the Rocky Mountain Jewish Historical Society & Beck Archives and Medical Racism and the American Jewish Experience with Barron H. Lerner, MD, PhD, from the New York University Grossman School of Medicine. The combined events received over 750 RSVPs.
- Each year from 2016-2019, CBH collaborated with The Aspen Center for Social Values, the American Association for Physician Leadership, and other health organizations to produce the Aspen Ethical Leadership Program. This executive retreat brings together leaders from hospitals, health plans, and other health care organizations for three days of intimate discussions on hot topic ethical and moral dilemmas confronting health care leaders. The 2020 and 2021 programs were cancelled due to COVID. In 2022, the program will continue with a new partner, the Colorado Health Institute. The program will explore themes of equity for individuals and communities, moral injury and workforce wellbeing, and future tech and data ethics.
- The 2021-2022 Arts and Medicine Lecture Series hosted several virtual events. Highlights from this series include scientist and author Steffanie Strathdee, PhD, discussing her memoir *Perfect Predator* about her husband's near death from a superbug in The Story Behind The Story: How Our Memoir Became a Tool for Science Communication, and Examining Bioethical Dimensions of Art, with bioethicist Elisabeth Armstrong, MSc, HEC-C, and abstract painter ROMELLE on unpacking the dynamic connection between art, pain and care. In addition, we also co-hosted an additional several events with the Colorado Resiliency Arts Lab (CORAL) attracted an average of over 100 RSVPs.
- Center faculty addressed media inquiries regarding COVID, stigma of addiction, gender-affirming care, and youth sports.
- The center teams with the Colorado Healthcare Ethics Forum (CHEF) to offer an annual two-day clinical ethics education program for area clinicians and ethics committee members. The 2022 program resumed after two years of COVID cancellations to explore the theme Health Equity: Expanding the Justice Conversation. CHEF also continued to offer virtual webinars to the Colorado ethics community. The center's outreach program manager, Meleah Himber, MEd, serves on the CHEF Board as Secretary.
- In spring of 2022, CBH held the sixth annual Holocaust Genocide and Contemporary Bioethics program exploring the involvement of health professionals in the Holocaust and other genocides. The program takes place annually in April during the Days of Remembrance and is supported by the William S. Silvers endowment in collaboration with many local philanthropic and educational organizations. The 2022 program was in a hybrid format with the theme Legacies of the Holocaust and Health Equity Today, featuring keynote Aletha Maybank, MD, MPH, chief health equity officer and senior vice president for the American Medical Association. The program was produced in partnership with the CU Program in Jewish Studies, with opening remarks by Don Elliman, chancellor of the CU Anschutz Medical Campus. In addition, the center continued its tradition of the annual International Holocaust Remembrance Day lecture and panel discussion on January 27, 2022. The events of the two remembrance programs attracted over 1,200 RSVPs.
- In partnership with the Colorado School of Public Health's Center for Health, Work & Environment (CHWE), in 2021-2022, the center hosted Ethics and the Future of Work, a webinar series discussing issues at the intersection of bioethics and occupational health. Topics included climate change and mental health.

Colorado Center for Personalized Medicine

The Colorado Center for Personalized Medicine (CCPM) is a multi-institutional collaboration that links extensive electronic medical record data to 'omics' information to promote the development of tools and knowledge in biomedical informatics to expand prognostic and diagnostic capacity using molecular diagnostics. The primary objective is to apply personalized medicine research, education, and clinical care across diseases to accelerate the development and application of individualized prevention, diagnosis, and treatment. These efforts serve the center's overarching goal to integrate personalized medicine into routine health care to improve the lives of our patients. CCPM's focus over the past year has been on continuing to advance research and education while delivering meaningful genetic results to more participants.

Improving Care

A key focus of this year has been improving the scale of results that are used to guide the care that our participants receive at UHealth. We've particularly focused on pharmacogenetic results this year. Our Director of Pharmacogenomics & Clinical Integration recently described how this work is being implemented in practice. We have increased the number of participants with pharmacogenetic results available in the electronic health record by more than tenfold, reaching 6,700 participants with results available. More than 18,500 unique results are present in the UHealth electronic health record, covering three distinct genes.

These results are paired with clinical decision support, helping providers make the right decisions at the right time. Clinical decision support is provided by automated alerts, and over 700 drug-gene interaction alerts have occurred in clinical practice. UHealth Today recently profiled one alert and described how it related to the care that a UHealth patient was receiving. Clinical decision support tools are currently live across the UHealth system for 20 medications.

This year CCPM collected 28,000 specimens from new biobank participants, laying the groundwork for more results

that will guide care in the years ahead. Collection processes expanded to include on-premises and at-home saliva collection. Biobank participants can also learn about high-impact genetic variants – those that might produce an actionable finding that could affect their health. More than 25 high-impact variants were returned to participants over the past year.

The impact of our programs on the care provided at UHealth has continued to grow. UHealth was recognized as a 2021 CHIME 'Digital Health Most Wired' health care organization, and CCPM was highlighted as one program driving innovation in care.

Research

One of the core aims of the CCPM biobank is to develop, maintain, and make available biospecimen and genetic data repositories for research use. Currently, we have genome-wide data and associated health record data available for more than 75,000 Biobank participants and DNA for more than 100,000 individuals. In the past year, we have also improved the resources available to help researchers on campus utilize these resources. We have developed the CO biobank portal to allow investigators to explore



statistical associations across the population. We have also participated in multiple IGNITE network efforts [1, 2, 3] and studied the impact of our work on our patients [4, 5, 6]. Further CCPM has contributed to large global consortium efforts including the Global Biobank Meta-Analysis and Covid-19 Host Genetics Initiatives and burgeoning efforts with the Biobank-Rare Variants (BRAVA) consortium where CCPM investigators sit on the steering committee and chair multiple initiatives. As the biobank transitions from a new study to a mature one, we have become a highly sought-out partner for global consortium efforts, including large awards from multiple institutes in the NIH.

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Education

We have developed and launched a certificate program in personalized and genomic medicine. This online program is designed for current and future healthcare professionals, research professionals, and recent graduates who are interested in pursuing further studies in personalized medicine and genomics. We also hosted the Clinical Pharmacogenetics Implementation Consortium-Pharmacogenomics Global Research Network (CPIC-PGRN) Meeting, May 10-12, 2022, with over 300 attendees. Recognition of our work led to the opportunity to host, and we were excited to welcome many attendees to our campus.

Center Website: <https://medschool.cuanschutz.edu/ccpm>

Colorado Clinical and Translational Sciences Institute

The Colorado Clinical and Translational Sciences Institute (CCTSI) is a collaboration between the University of Colorado Anschutz Medical Campus, University of Colorado Denver, University of Colorado Boulder, Colorado State University, six affiliated hospitals and health care organizations, as well as multiple community organizations with a goal of accelerating the translation of research discoveries into improved patient care and public health.

The CCTSI partner health care institutions include UCHesth University of Colorado Hospital, Children's Hospital Colorado, National Jewish Health, Denver Health and Hospitals, Rocky Mountain Regional Veterans Affairs Medical Center, Kaiser Permanente Colorado, and the private sector.

The CCTSI is a National Institutes of Health National Center for Advancing Translational Sciences (NIH/NCATS)-funded research institute at CU Anschutz. It is part of the national consortium of more than 60 Clinical and Translational Science Awards (CTSA) institutional hubs throughout the United States and is funded by one of the largest federal research grants awarded to the state of Colorado.

The CCTSI also receives considerable institutional support from CU Anschutz, CU Boulder, CSU, and its affiliated hospitals. The CCTSI has nearly 7,000 individual members who benefit from its services, funding sources, training programs, and other resources. The CCTSI functions through 15 major programs, each with multiple cores, including: 1) Informatics, 2) Community Engagement and Research, 3) Collaboration and Team Science, 4) Workforce Development, 5) TL1 Training Core, 6) KL2 Institutional Career Development program, 7) Pilot Translational Studies, 8) Regulatory Knowledge and Support, 9) Biostatistics, Epidemiology and Research Design, 10) Participant and Clinical Interactions, 11) Integrating Special Populations, 12) Trial Innovation Network Hub Liaison Team, 13) Innovation Ecosystem, 14) Early Life Exposures Program, and 15) Dissemination and Implementation Science.

The vision of the CCTSI is to accelerate and catalyze the translation of innovative science into improved health and patient care. To reach this vision, the mission of the CCTSI is to

- Catalyze and enhance scientific discovery, innovation, dissemination, and translation across the lifespan.
- Educate and sustain a resilient, innovative, and diverse translational science workforce.
- Promote and ensure an efficient, safe, collaborative, and integrated research environment.
- Engage stakeholders and communities across the entire translational spectrum.

Some of the goals of the CCTSI are to

- Develop, educate, and sustain a diverse translational science workforce to ensure the highest research innovation, quality, and safety.
- Create a translational research environment where team science and collaboration are facilitated, supported, and valued both locally and nationally.
- Engage local and national communities and stakeholders in all phases of the translational research process.
- Create novel methodologies and resources to support and integrate research in special populations, including children, the elderly, the underserved, and those with rare diseases.

A rigorous tracking, assessment, and evaluation program with a formal quality and process improvement component ensures the best use of resources while protecting the safety of research study participants. These programs are centralized at the CU Anschutz Medical Campus.

The CCTSI was originally funded in 2008 and has been refunded by the NIH several times, most recently for the period 2018-2023 to support the full range of T0.5 through T4 translational research in a disease-agnostic manner across the life cycle. In 2022, the CCTSI leadership responded with grant renewal applications for the next seven years.

Through the partnership with CSU, which is recognized for its world-class school of veterinary medicine and other programs, the CCTSI has expanded the spectrum of translational research to include T0.5 research, translating promising pre-clinical discoveries into naturally occurring animal models (companion to domestic animals) of human disease.

The CCTSI has implemented two information systems for the institution's research community: 1) "Colorado Profiles," a search

engine and networking tool for biomedical researchers at CU and affiliates, which receives approximately 28,000 page views per month; and 2) REDCap (Research Electronic Data Capture) which is a secure, HIPAA-compliant web-based application designed for research data collection, storage, and transfer. Over the past year, REDCap has supported more than 6,072 active users with more than 17,000 projects.

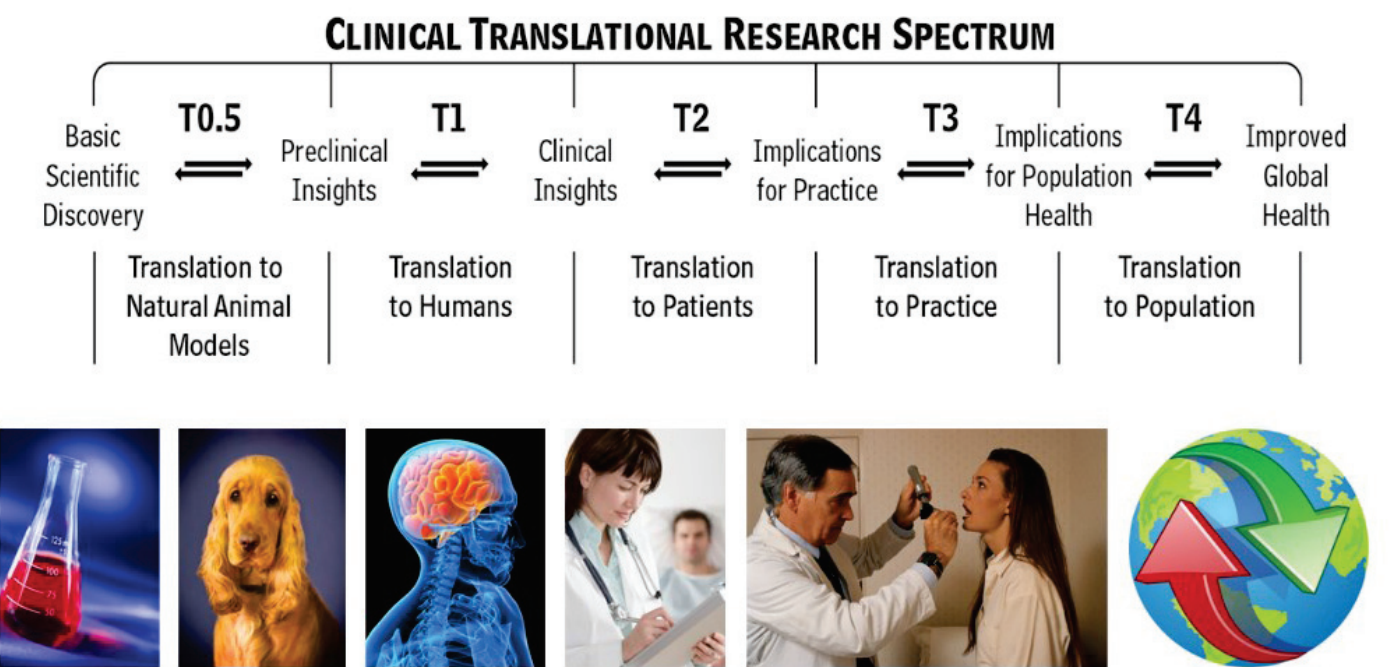
The CCTSI provides resources and services, including five Clinical and Translational Research Centers (CTRCs). Before the COVID-19 pandemic, CTCRs facilitated and supported more than 400 clinical research projects led by over 200 principal investigators. All non-essential research was ceased during Colorado’s initial stay-at-home order in March 2020. The CTCR started to allow investigators to engage in a phased reintroduction to research from summer through fall 2020. During 2021, 291 studies were led by 149 PIs at the University of Colorado Hospital CTCR; 47 PIs led 73 clinical projects at the Children’s Hospital Colorado CTCR; nine PIs led 21 protocols at the National Jewish Health CTCR.

CTRCs (at University of Colorado Hospital, Children’s Hospital Colorado, National Jewish Health, and CU Boulder) offer incomparable clinical research facilities, research nursing support, specimen and biopsy processing, bio nutrition expertise, specialized laboratory assays, vascular ultrasound testing, exercise testing facilities, and other services to facilitate the conduct of patient-oriented research. Outpatient CTCR services at UCH relocated in 2022 to the sixth floor of the Anschutz Health Sciences Building on the CU Anschutz Medical Campus.

The CCTSI supports additional resources for clinical research, including two clinical trials offices; Biostatistics, Epidemiology and Research Design (BERD); research bioethics consultation services and assistance; research studios; informatics and database support; pilot and methods development grant funding opportunities; and an array of educational and career development programs for clinical and translational investigators and their staff at all affiliated institutions.

Education programs include the Clinical Sciences PhD and master’s graduate programs, KL2 research scholar program and TL1 pre-doctoral and post-doctoral training program, Clinical Faculty Scholars Program, CO-Mentor training program, K-to-R transi-

Spectrum of Translational Research



tion program (mock study section), Pre-K assistance program, the Leadership for Innovative Team Science (LITeS) program, Research Studios and the Innovation-Corps (I-Corps) training program, and the Teaming for Early Career Researchers workshop. In 2020, we launched a new workshop series called Communicating Your Science to the Public. The series seeks to build trust in science while empowering researchers with the skills to tell a compelling story about their science and why it is important. So far, nearly 100 CCTSI members have taken the short course that involves professional journalists and university communications professionals as small group facilitators.

A robust pilot grants program and novel methods development funding program are some of the most popular CCTSI programs that have assisted numerous investigators in obtaining follow-on funding.

The CCTSI created the Partnership for Academicians and Communities in Translation (PACT) to transform the way communities and researchers work together to design and conduct research by building bridges and trust between health research, clinical practice, and community health initiatives to improve the health of the people of Colorado and the Rocky Mountain region. The PACT encompasses more than 20 Colorado communities focusing on under resourced communities, 940 physician practices, and 28 hospitals throughout the region. The Early Life Exposures Research Program (ELEP) facilitates research during pregnancy, infancy, and childhood and emphasizes life-cycle research involving fetal and childhood precursors of adult disease.

The Innovation Ecosystem program provides early training in market evaluation (I-Corps@CCTSI) and support for commercialization for promising ideas and products. In 2020, our Innovation Ecosystem started offering a monthly lunchtime forum called Ask the Expert in collaboration with Venture Partners at CU Boulder, CSU Ventures, and the NIH Research Evaluation and Commercialization Hubs (REACH) grant at CU Anschutz. The ongoing series is for researchers and academics who are interested in entrepreneurship, device and technology development, and innovation. Every month, academics and innovators engage in a lively and provocative interview with an expert, followed by a Q&A session.

Our Research Studio Program organizes a customized team of experts to provide feedback and new ideas in a 90-minute focused session to assist and advise investigators on topics chosen by the investigator.

Responding to the ongoing pandemic; focusing on diversity, equity, and inclusion

Once the COVID-19 pandemic hit, the CCTSI adjusted its activities to respond to the greatest needs of researchers and our community. In 2020, we launched a new pilot grant program focused on urgent actionable research needs addressing COVID-19. For two years running, our annual academic conference, the CU-CSU Summit, focused on COVID-19 research, attracting expert speakers from the NIH/NIAID, CU Boulder, CU Anschutz, and Colorado State University. Our pediatric and adult CTRCs have been instrumental in testing treatments for COVID-19 as well as testing multiple vaccines in the adult and child populations.

Examples of innovative projects related to COVID-19, which we are helping to lead, include mAb Colorado and the NIH CO-CEAL. We are also taking the lead in the study of Long COVID through our participation as one of the clinical locations of the multi-site, NIH-funded RECOVER study. Moreover, our nationally renowned bioinformatics team is also part of the study, using the N3C dataset to learn about Long COVID and much more.

In 2020, the CCTSI launched a committee to focus on diversity, equity and inclusion. In late 2020 and early 2021, we held a series of diversity, equity, and inclusion trainings for our staff. And the focus on this topic continues with the 2022 CU-CSU Summit on Research in Health Equity and Social Determinants.

The CCTSI is led by **Ronald J. Sokol, MD**, principal investigator and director of the CCTSI, and a team of dedicated associate directors and administrative staff: Wendy Kohrt, PhD, Janine Higgins, PhD, Tim Lockie, MS, MBA, Chris Baker, MD, Tell Bennett, MD, MS, Cathy Bodine, PhD, Ellen Burnham, MD, Thomas Campbell, MD, Nichole Carlson, PhD, Lisa Cicutto, PhD, Matt DeCamp, MD, PhD, Thomas Flaig, MD, Adit Ginde, MD, Melissa Haendel, PhD, Teri Hernandez, PhD, Goldie Komaie, PhD, Bethany Kwan, PhD, Alison Lakin, RN, LLB, LLM, PhD, Wendy Meyer, MA, Donald Nease, MD, MPH, Jane Reusch, MD, Natalie Serkova, PhD, and Montelle Tamez. Researchers from CU Boulder, Colorado State University, and National Jewish Health also play leadership roles: Chris DeSouza, PhD, Sue VandeWoude, DVM, Matt Hickey, PhD, and Donald Leung, MD, PhD. Check out <https://cctsi.cuanschutz.edu/> for further information and opportunities.

Center for Interprofessional Practice and Education

As the complexity of health care has grown, the demand for new, crosscutting interprofessional competencies from health care professionals has become increasingly recognized. The University of Colorado Anschutz Medical Campus is distinguished nationally for its investment, commitment, and innovation in interprofessional education.

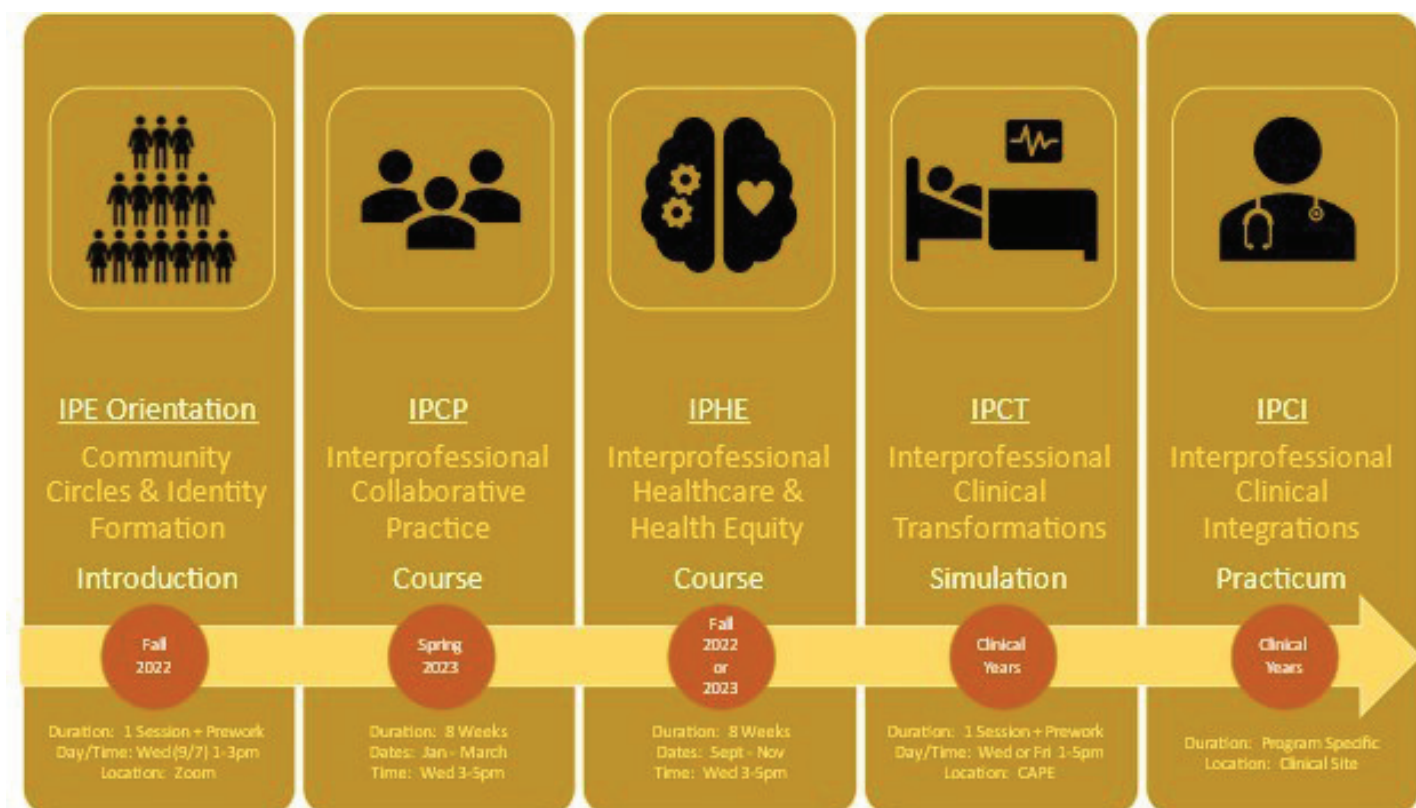
Vision: Transform health professionals and health care through nationally and internationally recognized interprofessional education and practice.

Mission: Prepare health professionals for interprofessional, collaborative practice through innovative education and scholarship.

Overview: The CU Center for Interprofessional Practice and Education (CU CIPE) develops, administers, and evaluates the longitudinal interprofessional education curriculum for all health professions students on the Anschutz Medical Campus. The program brings students from health professions programs on our campus together to learn and practice skills during their pre-clinical and clinical training. Our curriculum consists of several components: early community building and exploratory opportunities, interactive team learning in classroom settings, simulation experiences, and advanced practicum experiences at clinical sites. After participating in our program as part of their health professions training, our graduates will be competent to participate as members of a collaborative interprofessional workforce.

Background: From 1995 to 2013, the Anschutz Medical Campus ran an interprofessional ethics course, bringing together students from all the health professions. This effort was expanded to include competencies in teamwork and collaboration from 2010 to 2013 through Josiah Macy Jr. Foundation and Colorado Health Foundation funding. At the termination of the grant, the program was reorganized and led by founding Interprofessional Education Director, Mark Earnest, MD, PhD, and a council with designees from each degree-granting school or program on campus. Members of the inaugural council in 2014 included: Wendy Madigosky MD, MSPH (School of Medicine), Kari Franson PharmD, PhD (Skaggs School of Pharmacy and Pharmaceutical Sciences), Diane Brunson RDH, MPH (School of Dental Medicine), Amy Nordon-Craft PT, DSc (Physical Therapy Program), Amy Barton PhD, RN, FAAN (College of Nursing), Darcy Solanyk MS, PA-C (Physician Assistant Program), and Jackie Glover PhD (Center for Bioethics and Humanities).

Interprofessional Education Program Components



Leadership

Director Suzanne Brandenburg, MD, School of Medicine

IPE Assistant Directors

Amy Akerman, MS, PA-C, Physician Assistant Program

Tina Brock, EdD, FAPhA, FFIP Skaggs School of Pharmacy and Pharmaceutical Sciences

Krista Estes, DNP, FNP-BC, College of Nursing

Wendy Madigosky, MD, MSPH, School of Medicine

Amy Nordon-Craft, PT, DSc, Physical Therapy Program

Lindsey Yates, DDS, MPH, School of Dental Medicine

IPE Program Representatives from Bioethics and Humanities

Cate Campisi, MSN, RN, PMHNP-BC

Interprofessional Collaborative Practice (IPCP) Course Director

Amy Nordon-Craft, PT, DSc, Physical Therapy Program

Interprofessional Healthcare Ethics and Health Equity (IPHE) Course Director

Cate Campisi, MSN, RN, PMHNP-BC, College of Nursing

Interprofessional Clinical Transformations (IPCT) – IPE Simulation Director

Elshimaa Basha, MPH, CHSE, Center for Advancing Professional Excellence

Interprofessional Assessment, Outcomes, and Evaluation Lead

Elshimaa Basha, MPH, CHSE, Center for Advancing Professional Excellence

Interprofessional Instructional Designer

Michelle Colarelli, MA, School of Medicine

Program Administrator

Reesie Roland

The CU CIPE Education Program consists of curricular components as pictured for the upcoming academic year in the graphic above:

- In the past, Interprofessional Education Orientation included the Interprofessional Open Campus Program which was suspended in 2020 due to the COVID-19 pandemic. Despite this, students based on their interests and in keeping with their individual health professions program rules, volunteered in several interprofessional endeavors to make a difference in our health care settings and our local communities. Students also participated on a voluntary basis in the One Book One Campus Program and co-curricular offerings. The 2021 orientation focused on roles and responsibilities, the role of interprofessional collaboration in addressing health disparities, and issues related to health equity. Moving forward, there will be a greater emphasis on community building and campus partnerships as well.
- Interprofessional Collaborative Practice and Interprofessional Healthcare Ethics & Health Equity are two introductory courses created in 2020-21 and launched in 2021-22 as part of an ongoing CU CIPE curriculum reform initiative. These courses replaced a previous introductory course that integrated ethics, and teamwork and collaboration in a more formal Team Based Learning approach.
- As part of their Interprofessional Clinical Transformations (CT) experience, students spend a half-day in the Center for Advancing Professional Excellence (CAPE) simulation center. Students practice teamwork and collaboration skills, identify, and discuss ethical and patient safety issues, and engage patients and family members to deliver patient-centered care during 4 hours of video-monitored interprofessional team simulations. Scenarios include acute care, outpatient, and home visit settings. Due to the COVID-19 pandemic, an online option was developed and successfully implemented. It also provides increased flexibility for our busy and often geographically dispersed learners.
- The overall goal of Interprofessional Clinical Integrations (IPCI) is to provide relevant immersion experiences in partnership with our health professions programs' existing clinical practicums focused on learning and caring for patients in interprofessional teams. These experiences occur in multiple settings including community-based organizations, hospitals, medical clinics, dental clinics, home visits, transitions in care, palliative care, and others. CU CIPE supports learner assessment, faculty development, and site enhancement during Advanced Clinical Practicums where students interact with patients and inter-

professional colleagues in authentic health care settings later in their training. The aim for this portion of the curriculum is to provide a mechanism by which health profession students may demonstrate their collaborative interprofessional team skills in a clinical environment. CU CIPE is working to achieve campus-wide engagement through standardized student assessment and self-assessment tools aligned with the Interprofessional Education Collaborate (IPEC) competencies. IPEC is informed and endorsed by a Health Professions Collaborative that includes the Accreditation Council for Pharmacy Education (ACPE), Commission on Collegiate Nursing Education (CCNE), Commission on Dental Accreditation (CODA), Commission on Osteopathic College Accreditation (COCA), Council on Education for Public Health (CEPH), and Liaison Committee for Medical Education (LCME).

Faculty Involvement

Dozens of full-time and many volunteer faculty members contribute to building and implementing these innovative programs, demonstrating the deep commitment of Anschutz Medical Campus to prepare a health care workforce ready to collaborate, practice, and lead in an increasingly complex health care environment.

Key Program Accomplishments 2020-2021

The CU Center for Interprofessional Practice and Education reached over 2,000 students in 2021-22 and focused on sustaining engagement and flexibility as the pandemic continued.

One Book One Campus is entering its sixth year. The program is organized CU CIPE and partners with entities on the Anschutz Campus, ranging from the Strauss Library to the Center for Bioethics and Humanities to the LGBTQ+ Hub. One Book One Campus is designed to bring students and campus community members together across professions around shared health care related topics. The 2021-22 book was *Redefining Realness: My Path to Womanhood, Identity, Love and So Much More* by Janet Mock. Associated activities focused on inclusivity, understanding, and acceptance of LGBTQ+ patients and people. The theme from 2020-21 was structural racism and health inequities, and the book was *Black Man in a White Coat* by Damon Tweedy.

CU CIPE Curricular Redesign is progressing, and the two new introductory courses - IPCP and IPHE successfully launched during the 2021-22 academic year.

Adaptation to and Lessons learned from the COVID-19 Pandemic have informed our curricular redesign broadly. CU CIPE implemented new and modified curricular elements. Beginning in the fall 2021 our introductory courses successfully moved toward a HyFlex model. This is a student-centered model of class delivery that integrates in-class instruction, online synchronous sessions, or asynchronous content delivery. This approach provided more flexibility for students and instructors in the unsettled milieu of the COVID pandemic, and it has allowed us to reach distance learners and students with conflicting educational demands. For the fall 2022 we are pivoting back to a majority in-person educational environment and will continue to use innovative pedagogical approaches to engage remote and asynchronous learners.

For additional information on the CU Center for Interprofessional Practice and Education (CU CIPE), see our website: <https://www.cuanschutz.edu/centers/IPE>



CU Multidisciplinary Center on Aging

Mission

- Promote the multidisciplinary work of University of Colorado faculty and researchers focused on education/training, clinical care, research, and outreach/engagement related to aging.
- Serve as a centralized resource for academic, industry, foundation, community and government, stakeholders interested in improving the health and wellbeing of older adults.

Research

- Presently \$6.3 million total funding (incl: F, T, K, U01, U54, R13 and Foundation Grants)
- >\$85 million in research grant funding from faculty supported by the MCoA since 1999
- 50 Faculty & Researchers
- NIH/NIA T32 Physiology of Aging Program
- Established 2001 / Renewed 2018 / Renewal submitted May 2022
- 5 pre- and 5 post-doctoral research fellows (MD and PhD)
- Department of Medicine T32 Team Training Workshops 2021-22

Grants

- R24 Grant: “Workforce Development Engages Diverse Older Adults to Catalyze Innovative Approaches to Enhanced Recruitment and Retention,” Kathryn Nearing, PhD, three-year grant, began winter 2022. MCoA provides community engagement and coordination for the research roadshows across Colorado.
- R01 Grant: “Dementia and Firearms in Older Adults-Safe at Home,” Emmy Betz, MD, two-year grant began fall 2021. MCoA chairs the National Executive Advisory Panel.
- Colorado Department of Criminal Justice Grant: “Vulnerable Elder Services, Protection and Advocacy” Multidisciplinary Clinical Team, Dan Lindberg, MD, two-year grant, renewal submitted March 2022. MCoA leads the community outreach and engagement with community hospitals and clinics across Colorado to educate and engage clinicians to use the consulting services.

Clinical Care

- MCoA houses “Vulnerable Elder Services, Protection and Advocacy Multidisciplinary Clinical Team,” 2019-present.
 - Collaboration including University of Colorado Anschutz Medical Campus, Division of Geriatrics, Kempe Center, UCHHealth University of Colorado Hospital, Rocky Mountain Regional VA Medical Center, Denver Health, Colorado State University, and county agencies to perform work in research, clinical care, education, and legal/policy to help combat elder abuse in Colorado.
 - Awarded \$831,000 Department of Criminal Justice Grant to create first multidisciplinary clinical team in elder abuse in Colorado to establish the first state-wide multidisciplinary clinical team consulting to UCHHealth University of Colorado Hospital and Denver Health for elder abuse cases.

Education

- NIH/NIA supported T32, 2001-present; five pre- and five post-doctoral slots.
- T32 team training program supports physiology in aging trainees.
- Five Geriatric Research Education and Clinical Center advanced research fellows; five to six applicants pending.
- Four clinical fellows; one of the few geriatric programs in the country to fill fellow spots annually.
- Advanced practice providers geriatric training program for nurse practitioners and physician assistants.

Programs

- Co-Founder CoCare (Colorado Coalition for Aging Research and Education)
 - Coalition of Colorado Higher-Education Programs hosting aging programs/centers and interested in aging research, clinical-care, education and outreach/engagement, 2018-Present.
 - MCoA COAST-IT (Connecting Older Adults and Students Through Inter-Professional Telecare) Program, March 2020-Present.
 - To establish regular ongoing tele-relationships between AMC students and older adults to bi-directionally improve communication and understanding AMC students.
 - Hosted 18th Annual Rocky Mountain Geriatrics Conference with AMC/Rocky Mountain VA-GRECC, March 28-29, 2022.
- Outreach/Engagement
- Age-Friendly University – Initiated process to become an age-friendly university by the Age-Friendly University Global Network, December 2021. CU Anschutz Medical Campus is number 1 University in CU System to become AFU Designated, number 2 in State of Colorado, number 87 university in the world, and number 4 academic medical campus in the world.



Student and Resident Mental Health

Julie Wolfe, MD, Medical Director

Stephanie Lehto, PsyD, Clinical Director

Rachel Davis, MD, Vice Chair for Clinical Affairs, Department of Psychiatry

Juan DeJesus, MD, Associate Medical Director

Mission

Student and Resident Mental Health (SRMH) on the Anschutz Medical Campus exists to facilitate evaluation and treatment of mental health issues in students and residents/fellows of the Anschutz Medical Campus. By minimizing barriers to care, the center aims to reach as many students and residents as possible. Faculty members at SRMH specialize in treating the issues students encounter and providing optimal mental health treatment.

SMH was established in 2009 in the Department of Psychiatry and has expanded over the past 13 years to meet the needs of the students on campus. In 2015, a second SMH clinic site was opened. In 2019, SMH started offering services to residents and fellows at both CU Graduate Medical Education and Denver Health and Hospital Authority, thereby becoming Student and Resident Mental Health (SRMH). These expansions have allowed Student and Resident Mental Health to increase provider availability and ease of access by offering walk-in appointments, after-hours appointments, and same-day appointments as well as 24/7 on-call coverage by psychiatry faculty.

SRMH accepts many insurance plans through CU Medicine. When utilizing on-campus care, students with the student-sponsored insurance have access to an unlimited number of visits with zero copay for covered diagnoses. Services offered at SRMH include:

- Diagnostic evaluation
- Medication management
- Psychotherapy
- Psychoeducational testing
- Group therapy

SRMH collaborates with a network of community providers and refers to this network if preferred by the student, if covered by certain insurance plans, and as needed due to provider expertise.

Students and residents/fellows present with various concerns including but not limited to:

- acute stress management, test and performance anxiety, LGBTQIA+ issues, relationship difficulties, time management, ADHD, anxiety, depression, bipolar disorder, psychotic illnesses, substance use disorders, eating disorders, obsessive-compulsive disorder (OCD), post-traumatic stress disorder, personality disorders, grief, and domestic violence.

SRMH offers several ongoing and brief groups including a cognitive behavioral therapy group for students with OCD and anxiety, a skills-based ADHD group, a dialectical behavior therapy group, an “anxious together” support group, a support group for children of immigrants/international students, and a “children of narcissistic parents” support group.

SRMH faculty collaborate with other faculty and departments on campus to provide education, outreach, and other events aimed at reducing stigma and providing education about mental health issues.

In March 2020, SRMH began providing telehealth visits to patients due to the COVID-19 pandemic and continues to operate using a hybrid model that offers both in-person and telehealth appointments.

Student and Resident Mental Health, Anschutz Health Sciences Building

Services: Behavioral/mental health care, on-site phlebotomy

Hours: Mental health providers are available Monday - Wednesday 8 a.m.-8 p.m. and Thursday through Friday 8 a.m.-5 p.m.

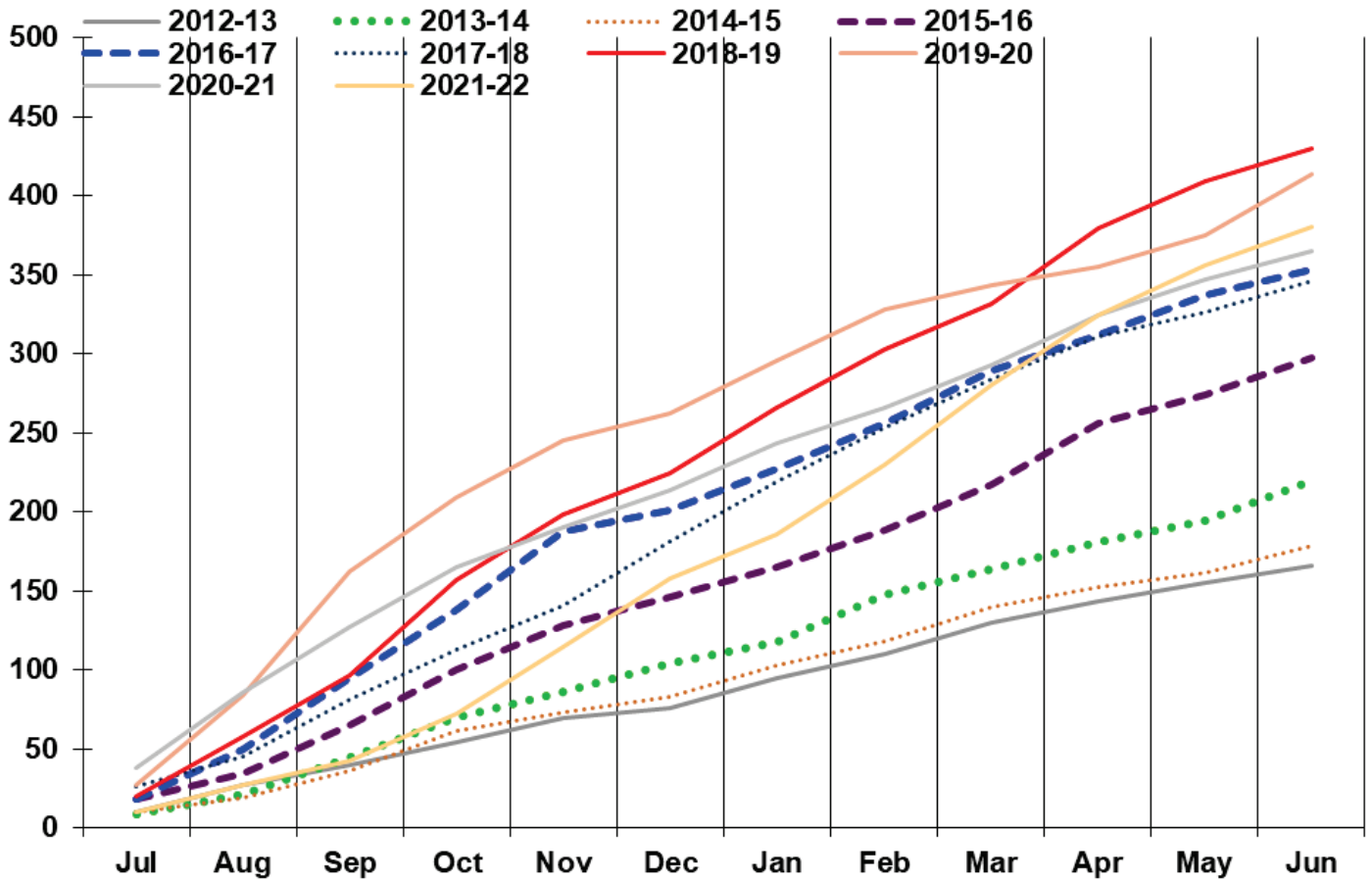
Walk-in appointments available Monday – Friday 8 a.m.-4 p.m.

Appts.: Schedule appointments at 303-724-4716 or smhservice@ucdenver.edu

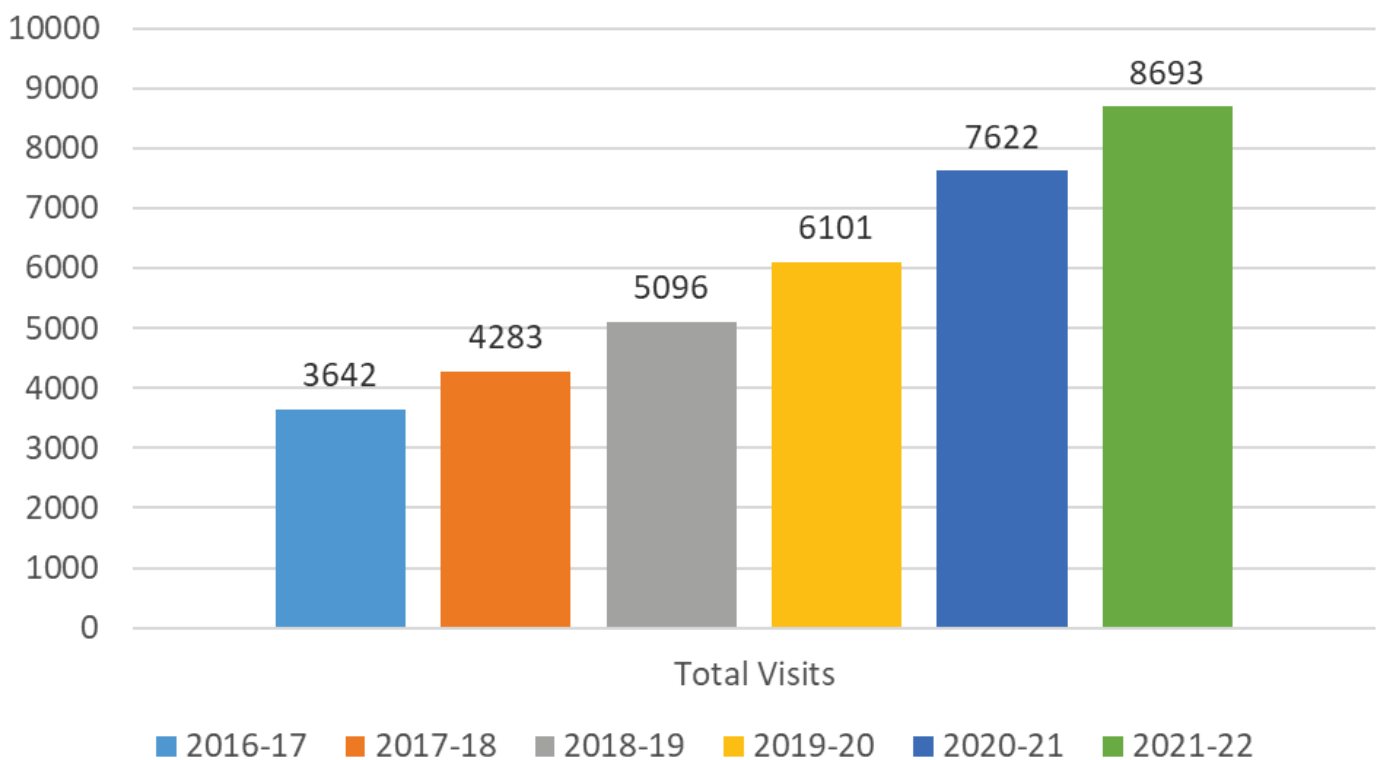
Location: Anschutz Health Sciences Building, 1890 N. Revere Court, 5th floor, suite 5040

Website: <https://medschool.cuanschutz.edu/psychiatry/programs/student-resident-mental-health>

Anschutz Medical Campus Student and Resident Mental Health New Evaluations



Anschutz Medical Campus Student and Resident Mental Health—Total Visits



Current Providers

Julie Wolfe, MD, Medical Director
Stephanie Lehto, PsyD, Clinical Director
Rachel Davis, MD, Vice Chair of Clinical Affairs, Department of Psychiatry
Juan DeJesus, MD, Associate Medical Director
Matthew Pesko, MD
David Brown, MD
Debbie Carter, MD
Christian Hopfer, MD (Addictions)
Mallory Crouch, LCSW (Addictions)
Noa Heiman, PhD
Laura Hockman, PsyD
Robert Rosenthal, PsyD
Amanda Doria, LPC, Mental Health Triage Counselor, Wellness and Outreach Coordinator
Christina Garza, MA, LPC
Daniel Sukenik, LMFT
Rachel Winkler, LPC
Linda Martin, LPC, LAC
Wanda Jackson, Medical Assistant, Health Care Tech III
Carol Saxinger, Medical Assistant

24/7 crisis coverage is provided by the Department of Psychiatry faculty, fellows, and resident call system. If emergent treatment is needed, students can be seen in the UCHHealth Emergency Department via the Student and Resident Mental Health track.

Recent Projects and Accomplishments:

- Campus-wide COVID response which included providing students free 20-minute consultations related to COVID anxiety leading to acute support and referrals to care and support groups for students affected by the COVID-19 pandemic.
- Continued outreach project with the medical school.
- Medical student mental health research: measuring mental health rating scales at matriculation and at the end of each academic year.
- Launched the LGBTQIA+ sub-specialty clinic which offers affirming and comprehensive mental health services for students/residents within the LGBTQIA+ community.
- Provided mentorship and collaborated with Advocates for Mental Health to develop programming, outreach, and events related to mental health advocacy on campus including an anti-stigma panel, educational session around helping with navigating the mental health system and finding a therapist, as well as a biweekly program providing support around coping in the time of COVID-19.
- Collaborated with the Denver Health Longitudinal Integrated Curriculum to offer prescheduled (optional) appointments for each student who will be granted a required mental health day.
- Continued to serve as a rotation site for the University of Colorado general psychiatry residency program.
- Offered Monday-Friday walk-in availability to all students and residents.
- Provided specialty services in addictions and OCD.
- Supported several residency programs on the Anschutz Campus by providing opt-out appointments for incoming interns to establish mental health care, monthly support groups, and leading resident retreat activities.
- Added a care coordinator/case manager to assist with referral processes and to support students in accessing resources related to mental health care.

PhD Programs



Office of Research Education

The School of Medicine's Office of Research Education is the administrative home of 13 Biomedical PhD programs (1 umbrella-admitting and 12 PhD-granting programs). The Office of Research Education also collaborates with the MD and the dual-degree MD/PhD program.

Students in the Office of Research Education PhD programs receive the education and support to conduct innovative biomedical research. The PhD programs provide training in a wide variety of essential skills, including oral and written communication, leadership, and personal and professional integrity. The diverse, inclusive, and safe environment, fostered by the School of Medicine and Anschutz Medical Campus, supports the holistic training provided by our programs that prepares students for a wide range of career opportunities.

<https://medschool.cuanschutz.edu/ore>

Office of Research Education PhD Programs

Biomedical Sciences Umbrella (BMSC)

The Biomedical Sciences Program was formed at the University of Colorado Anschutz Medical Campus in 1997. The Biomedical Sciences Program serves as an umbrella program, providing incoming students with the ability to rotate with faculty across numerous disciplines and graduate programs. This provides significant flexibility for students to choose from different research areas in which to pursue their graduate degrees. Aaron Johnson, PhD, directs the Biomedical Sciences program and works with an established executive committee of the directors of all Office of Research Education PhD-granting programs to advise on faculty membership, student mentorship, and admissions. Students who matriculate in the Biomedical Sciences Program will perform coursework and laboratory rotations in their first year. For rotations, students can choose to rotate in the labs of any of the more than 200 faculty in the program. Upon successful completion of the first year of graduate school, the students will then join their laboratory of choice, as well as one of 11 different graduate programs at the University of Colorado Anschutz Medical Campus. It is our goal in the Biomedical Sciences program to expose incoming graduate students to a variety of biomedical science-related disciplines, train students to evaluate scientific literature, think critically, develop testable hypotheses, and guide them in identifying a biomedical discipline in which to perform thesis research.

<https://www.cuanschutz.edu/graduate-programs/biomedical-sciences-program/home>

Cancer Biology (CANB)

The Cancer Biology Program is an interdepartmental program that was created in 2006. The program is under the direction of Rebecca Schweppe, PhD, and combines training in the basic biomedical sciences with opportunities to apply clinical and translational research to studies on human cancer. The Cancer Biology Program is committed to educating PhD students in the fundamentals of modern biomedical research, and differs from traditional programs by providing opportunities to learn about clinical and translational aspects of cancer biology. We believe that understanding cancer from multiple perspectives will better prepare students to compete in a biomedical research environment increasingly focused on translational applications of basic research. The goal of the Cancer Biology Program is to attract outstanding students with the highest potential and to stimulate in them the independent and creative scientific thinking necessary to develop future leaders in the multifaceted field of cancer research. The program's highly accomplished training faculty includes over 40 basic and clinical scientists drawn from biomedical and clinical sciences. Areas of emphasis include lung, breast, head and neck, thyroid, prostate, bladder, and blood cancer. Our curriculum is rigorous, yet flexible, and provides opportunities for advanced study in cellular and molecular oncology, as well as the translational medical sciences. The University of Colorado Anschutz Medical Campus is home to an NCI-designated Comprehensive Cancer Center, an acknowledgment of its role as a leader in both clinical cancer treatment and basic cancer research. Our research community brings together scientists with diverse research approaches to focus on the problem of cancer. Graduate students are a vital part of this community and as a program we strive to build a vibrant and supportive learning environment. The program facilitates multiple events to build this community including journal clubs, a seminar series, poster sessions and an annual retreat in the Rocky Mountains.

<https://www.cuanschutz.edu/graduate-programs/cancer-biology>

Cell Biology, Stem Cells and Development (CSDV)

The graduate program in Cell Biology, Stem Cells and Development was created in 2007 as an interdepartmental and interdisciplinary training program, engaging students and faculty from more than 10 basic science and clinical departments and numerous members of the Gates Center for Regenerative Medicine. The Cell Biology, Stem Cells and Development program provides graduate training for doctoral students in hypothesis-driven experimental approaches and cutting-edge technology to allow students to pursue important questions at the juncture between the fields of cell, developmental, and stem cell biology. Cell Biology, Stem Cells and Development students and faculty have common interests in understanding how cells function and signal in development, and how cellular-level functions contribute to human disease and regenerative therapies. This common curiosity promotes extensive collaboration and interaction among labs and a vibrant intellectual environment. In addition, the Cell Biology, Stem Cells and Development program provides structured training in mentoring, teaching, and science communication to equip students for leadership positions in academia, industry, and other careers. The program currently comprises an interactive group of 38 students and 60 training faculty, which is sufficiently small to provide a close-knit, supportive yet rigorous, training environment, while large enough to provide a scientifically varied set of labs and mentors with which to interact. In the past year, Cell Biology, Stem Cells and Development students published 20 scientific publications, were awarded two NIH F31 fellowships, received 2 NSF GRFP fellowships, and mentored eight undergraduate students in the developing scholars research training pipeline program. In July 2021, the Cell Biology, Stem Cells and Development program was awarded a new T32 training grant from the National Institute of General Medical Sciences to strengthen training opportunities in the genetics of development, disease, and regeneration.

<https://www.cuanschutz.edu/graduate-programs/cell-biology-stem-cells-and-development>

Computational Bioscience (CPBS)

The Computational Bioscience Program trains students to develop novel computational methods for advancing biology and medicine. We seek students who aspire to achieve excellence in research, education, and service, and who will apply the skills they learn toward improving human health and deepening our understanding of the living world. The Computational Bioscience program provides graduates with the foundation for a lifetime of continual learning. The Computational Bioscience program creates professionals prepared to conduct interdisciplinary research in the fields of translational bioinformatics, clinical research informatics, and computational molecular biology. Graduates have the expertise to join faculty programs in bioinformatics, medicine, or computer science, or to assume high-level research positions in government or industry. Our curriculum integrates training with computation and biomedical sciences with student research and teaching activities that grow increasingly independent through the course of the program. Our students begin supervised research immediately, collaborating with top scientists, working with the latest high-throughput instruments on critical biomedical problems. Research training spans computational aspects of basic translational and clinical sciences in a variety of disciplines and disease areas.

<https://www.cuanschutz.edu/graduate-programs/computational-bioscience/home>

Human Medical Genetics and Genomics (HMGG)

The Human Medical Genetics and Genomics Graduate Program provides training to graduate students interested in a field of research that has seen an explosion of data, knowledge, and innovative technologies. DNA sequencing of genomes of humans and other species, discovery of genes and variations that underlie development and disease, and rapid application of these discoveries to medical practice is revolutionizing medicine by precise diagnostic tests, targeted treatments, and even disease prevention. It is anticipated that “personalized” or “precision” medicine will thereby dramatically improve human health, longevity, and quality of life. Founded in 1997, the Human Medical Genetics and Genomics PhD program teaches our students modern genetics and genomics theory and methodology, critical reading and assessment of the literature, formulation and testing of research hypotheses, advanced experimental techniques, bioinformatic and statistical analysis of genomic and other “omics” data and interpretation of results to answer key scientific questions. Our faculty includes over 50 laboratory scientists and clinicians, providing an exceptionally interactive and collaborative environment that enables quick translation of the latest genetic and genomic discoveries from the bench to the bedside. Our goal is to provide a nurturing yet rigorous training environment in which our students can thrive intellectually and be scientifically productive under the guidance of a supportive and highly collaborative faculty. As a result, our students have presented their research at national and international scientific conferences, published their research in highly respected scientific journals, and have received awards and grants from both institutional and external funding agencies. Our PhD students have also been highly successful in their subsequent careers, in academia, industry, teaching, as well as non-traditional settings like forensics and regulatory affairs.

<https://www.cuanschutz.edu/graduate-programs/human-medical-genetics-and-genomics>

Immunology (IMMU)

Immunological research in Colorado has a rich history punctuated by numerous seminal discoveries related to allergy, immune recognition, immune signaling, immune tolerance, and inflammation. A primary mission of internationally recognized Immunology program is to educate and train the next generation of immunologists for careers heading competitive and productive research programs. Numerous graduates hold leadership roles in academic or industry research settings. The immunological expertise we provide to our graduates also has fostered success in areas of public health, science policy, and education. We offer rigorous didactic courses in immunology, inflammation biology, and related fields. Our faculty evaluate, instruct, and mentor students in the program through these courses and through experiential studies that foster experimental competence, intellectual development, inquisitiveness, and communication skills. Further, a collaborative and supportive educational and research environment supports the ability of our students to achieve scientific excellence and demonstrate their productivity as authors and speakers. The immune system plays a central role in current national and global health issues. By exposing our graduate students to basic and translational science approaches, our graduate training program enriches the experience in a practical and meaningful manner. Our graduates are prepared to make seminal advances in basic understanding of the immune system and its functions and to manipulate the immune system for improving human health in clinical contexts. The graduate program in Immunology is supported by NIH T32 training grants and includes faculty mentors from more than a dozen departments and divisions at the University of Colorado Anschutz Medical Campus, National Jewish Health, or the Barbara Davis Center for Childhood Diabetes. Laurel L. Lenz, PhD, is the program director, with R. Lee Reinhardt, PhD, serving as associate director.

<https://www.cuanschutz.edu/graduate-programs/immunology>

Integrated Physiology (IPHY)

The Integrated Physiology Program is a highly unique and diverse graduate program on the Anschutz Medical Campus that consists of exceptional basic and clinician scientist training faculty from at least 19 basic and clinical departments and divisions in the School of Medicine, the Skaggs School of Pharmacy and Pharmaceutical Sciences, and the School of Dental Medicine. The program is structured to leverage the long, outstanding, and rich research expertise on the Anschutz Medical Campus in areas such as reproductive sciences, obesity and nutrition, cardiovascular and pulmonary diseases, metabolism and endocrinology, and perinatal biology. Many of these disciplines are supported by centers on the campus that are directed by integrated physiology training faculty. Thus, the Integrated Physiology Program offers a training opportunity for students who have an interest in all aspects of physiology, from system/organ physiology to cell/molecular physiology, and provides an opportunity for students to interact with NIH R01-funded basic science and clinician faculty. The study of physiology is at the core of modern biomedical research, which relies on integrating fundamental concepts of whole animal and organ physiology with sophisticated molecular and cellular approaches to investigate important questions related to human health and disease. Our program objective is to train graduate students to understand mechanisms underlying the function of various systems in the body that contribute to both normal and pathological physiology, to become proficient and successful investigators who learn how to target basic research to clinically relevant problems, and to develop translational research projects. Our students have presented their research at national and international scientific conferences, published in highly respected scientific journals, and have received awards and grants from institutional and external funding agencies. Integrated Physiology students are overrepresented in the competitive NIH CCTSI TL1 program, with many leading to successful NIH pre-doctoral awards. Our PhD students have also been highly successful in their careers, with >95% of our graduates remaining in academia or industry. The Integrated Physiology Program director is Mary Weiser-Evans, PhD.

<https://www.cuanschutz.edu/graduate-programs/integrated-physiology>

Medical Scientist Training (MSTP)

The Medical Scientist Training Program is a multidisciplinary, inter-institutional MD/PhD dual-degree training program educating students in clinical medicine and biomedical research. Its mission is to provide students with the breadth and depth of training necessary to excel as a physician-scientist. Post-baccalaureate students are recruited from a national pool of ~600 applicants, and those selected have proven exceptional talents in research science, a curiosity to solve mechanisms of disease, a drive for discovery, a well-thought-out motivation to pursue a career in medicine, and exceptional leadership. The program was formed in 1983, and in 1992 it received MSTP status by successfully competing for NIH T32 funding, which currently provides about \$1 million per year to support 16 trainees. The program has strong leaders and mentors, with Director Cara Wilson, MD, who is a physician-scientist with a consistent record of NIH research funding as well as extensive experience in mentoring and career development of trainees. Patricia Ernst, PhD, serves as pre-clinical associate director and Joe Hurt, MD, PhD, is clinical associate director. The program has been competitively reviewed and funded by NIH for each of the past five cycles. The program has been a campus and national leader in recruiting students from diverse backgrounds, and has received diversity awards from CU and commendations from the National Institute of General Medical Sciences. There are about 200 faculty mentors for students to choose

from in 17 PhD Programs at the University of Colorado Anschutz Medical Campus, National Jewish Health, and the University of Colorado Boulder. There are currently 86 students in the program spanning all years of training. Since 1983, 264 students have matriculated, with 148 having graduated with both degrees in 8.2 years. Graduates of the MSTP obtain residencies at the nation's elite programs, with ~75% of those completing all training now in academic medicine, government (NIH or CDC), or industry, including starting up their own biotech companies. Importantly, we have an increasing number of MSTP graduates (16) who are now faculty at the University of Colorado Anschutz Medical Campus. The Colorado MSTP and its leaders have been key in establishing the National Association of MD/PhD Directors and Administrators, the MD/PhD Section of the AAMC GREAT Group, and the Annual National MD/PhD Student Conference.

<https://medschool.cuanschutz.edu/mstp>

Microbiology (MICB)

The Graduate Program in Microbiology at the University of Colorado Anschutz Medical Campus is a PhD granting education and training program designed to prepare students for outstanding careers in science. Through rigorous didactic courses and mentored experimental studies, the program trains students in diverse areas of microbiology including molecular pathogenesis of viral, bacterial, and parasitic diseases and the role of the microbiome in human health and disease. Our program strives to provide students with the scientific expertise to become leaders in competitive independent research programs, science education, science policy, and industry. Although based within the Department of Immunology and Microbiology, the program faculty includes members of the Departments of Medicine, Neurology, Pediatrics, and Biochemistry and Molecular Genetics. Breck, Duerkop, PhD serves as the Program Director and is supported by committees comprised of faculty and student representatives to facilitate advising, admissions and recruitment, evaluations and promotion, and student enrichment and governance. The research interests of the faculty that participate in the Graduate Program in Microbiology are diverse and include molecular mechanisms of infectious disease pathogenesis, effects of the microbiome on human health and disease, innate and adaptive immune responses to infection, pathogen immune invasion strategies, products and metabolites associated with infectious disease outcomes, regulation of gene expression of both host and pathogen, and development of novel vaccines and therapeutics to prevent or mitigate infectious diseases. With recent appreciation for emerging infections, human risk factors for infectious diseases, and the complexity of the microbiome, the topics of microbiology and pathogenesis of infectious disease are important fields in biomedical research. Finally, our program has a competitive National Institutes of Allergy and Infectious Diseases Molecular Pathogenesis of Infectious Disease (MPID) T32 training grant, currently in its 20th year of funding. The MPID annually supports four outstanding graduate students working on projects relevant to the molecular pathogenesis of infectious diseases.

<https://www.cuanschutz.edu/graduate-programs/microbiology/home>

Molecular Biology (MOLB)

The Molecular Biology Program at the University of Colorado Anschutz Medical Campus provides rigorous training in a supportive environment. The molecular biology faculty are members of 11 departments who are applying the techniques of molecular biology to answer questions in diverse areas at the forefront of modern biology and medicine. The program offers an opportunity to study in a student-centered environment. Molecular biology, the science of how living organisms function at the molecular and cellular level, has spearheaded the recent revolution in understanding human disease and led to the birth of the biotechnology industry. The goal of the Molecular Biology Program is to equip students for careers at the cutting-edge of biological research. The faculty is committed to providing students with the training they need to carry out the highest quality research using state-of-the-art techniques. The teaching philosophy here is to instill the theoretical knowledge and practical experience that enables our students to identify important questions in science, to design experiments that address those questions and to critically evaluate results. Special emphasis is placed on learning to communicate research results to others effectively by participating as featured speakers in the program's seminar series. Training students to become scientists prepares them for careers in many areas. Previous graduates are working in academic, government, and industrial biotechnology research, teaching, and public policy positions. Molecular Biology Program faculty include members of the Departments of Biochemistry and Molecular Genetics, Cell and Developmental Biology, Medicine, Immunology and Microbiology, Pathology, Pharmacology, Pharmacy, Pediatrics, Craniofacial Biology, Rheumatology, and Obstetrics and Gynecology, and include internationally recognized experts in bioinformatics, cancer, cell biology, development, gene expression, genomics, microbiology, molecular structure, and virology. Their diverse interests provide students with an enormous choice of areas in which to pursue their thesis research. The Molecular Biology Program has been recognized as a Center of Excellence at the CU Anschutz Medical Campus, and was honored to receive a \$2 million private endowment, the Victor and Earleen Bolie Scholarship Fund, to support student education, research, and training. Along with this funding opportunity, the program continues to be funded by a highly competitive NIH

pre-doctoral T32 training grant, currently in year 1 after previous completion of a 20-year NIH pre-doctoral T32. Our students have recently been awarded Howard Hughes Medical Institute pre-doctoral fellowships, along with National Science Foundation Graduate Research Fellowships. The program and the university, continue efforts to increase the number of students from backgrounds underrepresented in science, with the goal of training them to become important contributors to the biomedical research field and their communities.

<https://www.cuanschutz.edu/graduate-programs/molecular-biology/home>

Neuroscience (NRSC)

The Neuroscience Program was formed in the late 1980s as a PhD graduate training program. The CU Board of Regents awarded it PhD granting status in 1992. The current program directors are Abigail Person, PhD, and Nathan Schoppa, PhD. The Neuroscience Program provides multidisciplinary training covering the breadth of neurobiology, from neuronal gene regulation to the development, structure, and function of the nervous system. Students receive training in cellular and molecular neurobiology, neural development, neuropharmacology, and biochemistry, as well as hands-on training in state-of-the-art laboratory techniques. An additional focus is on training in modern quantitative methods to analyze datasets. This aspect begins with a computer programming bootcamp and continues with programming exercises that are integrated throughout the coursework. The Neuroscience Program's goal is to provide a broad and solid foundation of understanding in neuroscience, and to train critical thinkers who identify important problems, generate experimentally testable hypotheses, and who draw significant conclusions from the results of their ongoing research in a specific area of neuroscience. Students completing the requirements for the Neuroscience PhD will be independent investigators prepared to make important contributions to research and to the education of future generations of neuroscientists.

<https://www.cuanschutz.edu/graduate-programs/neuroscience/home>

Pharmacology (PHCL)

The Pharmacology PhD training program has a long and well-established history of training biomedical science PhD students in the School of Medicine. The NIH-funded pharmacology pre-doctoral training grant (T32) is one of the longest-standing grants of its type. Students enter the training program directly or via the Biomedical Sciences program or the Medical Scientist Training Program (MSTP). The pharmacology training program is interdisciplinary and interdepartmental, with faculty members from Pharmacology, Medicine, Psychiatry, Physiology, Pediatrics, and Biochemistry and Molecular Genetics. Faculty are renowned in neuroscience, cancer biology, cardiovascular biology, signal transduction, structural biology, and bioinformatics. A key defining feature of the Pharmacology Program training faculty is their highly collaborative and interdisciplinary approach. Laboratories frequently use multiple parallel approaches, including molecular biology, structural biology, genomics, and informatics and cutting-edge methodologies employing high powered imaging techniques including optogenetics. Another defining feature of the program is the focus on personalized medicine and translating fundamental benchtop discoveries to clinical practice.

<https://www.cuanschutz.edu/graduate-programs/pharmacology>

Rehabilitation Science (RHSC)

Rehabilitation Science is the translational field of study that integrates knowledge from the basic and clinical sciences to improve our understanding of human movement, physical function, and disability across the lifespan. Students receive individual mentorship from nationally recognized rehabilitation scientists in state-of-the-art research facilities, with a customized curriculum to meet the interests of each student. Breadth of knowledge is acquired through foundational coursework in research design, biostatistics, and rehabilitation science, whereas depth of knowledge is gained through elective coursework in one of five areas of specialization: applied cellular physiology, exercise and cardiopulmonary physiology, motor control, biomechanics, and lifespan studies. This approach prepares students to become independent research scientists who integrate knowledge from multiple perspectives ranging from the molecular to the systems level to solve complex problems of physical disablement that will advance clinical practice in the field of physical rehabilitation.

<https://www.cuanschutz.edu/graduate-programs/rehabilitation-science>

Structural Biology and Biochemistry (STBB)

The Structural Biology and Biochemistry Program is an interdisciplinary program focused on the study of mechanisms underlying biomolecular interactions and function. It aims to provide students with specialized skills and a solid foundation in biophysical, biochemical, and structural sciences through course work, grant writing, public speaking, and research training. Our training faculty are scientifically diverse, studying the mechanism of function of biomolecules using several approaches, including structural, biophysical, biochemical, and omics. To support the research needs, the program uses well-developed core facilities, including nuclear magnetic resonance spectroscopy, X-ray crystallography, mass spectrometry/proteomics, mass spectrometry/metabolomics, biophysics, and cryo-electron microscopy. The focus and interdisciplinary nature of the program influences other instructional and research programs at the School of Medicine. The program's educational components support research in many laboratories that require knowledge of highly technical and specialized structural biology research tools, and this enhances the effectiveness and quality of research and productivity on campus.

<https://www.cuanschutz.edu/graduate-programs/structural-biology-and-biochemistry>



2021-2022 Deceased Faculty

Thomas Braun, MD
Associate Professor
Medicine

David Lewerenz, OD
Assistant Professor
Ophthalmology

Roberta “Robin” Beach, MD, MPH
Professor Emerita
Pediatrics

William Marine, MD
Professor Emeritus
Preventive Medicine

Clark Bublitz, PhD
Associate Professor
Biochemistry and Molecular Genetics

John Moorhead, PhD
Professor
Immunology

JJ Cohen, MD, PhD
Professor
Immunology and Microbiology

Morton Mower, MD
Distinguished Clinical Professor
Medicine

Randall Cohrs, PhD
Research Professor
Neurology

Nancy Nelson, MD
Professor Emerita
Pediatrics

Robert Emde, MD
Professor Emeritus
Psychiatry

Hugo Rosen, MD
Professor
Medicine

Lori Karol, MD
Visiting Professor
Orthopedics

Jerome Schaack, PhD
Associate Professor
Immunology and Microbiology

Glenn Kindt, MD
Professor Emeritus
Neurosurgery

Robert Slover II, MD
Professor
Pediatrics

Michael Weissberg, MD
Professor Emeritus
Psychiatry

Our condolences to the families and friends of our former colleagues.



School of Medicine

UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS