2025 Clinician Scholar Symposium

March 7th, 2025
8:00AM – 1:00PM

Academic Rotunda & Classrooms A1, A2, A4, A5, A8

Click on a heading below to navigate directly to the relevant section in the booklet. Click on the bottom right corner of any page to navigate back to the cover page. Selecting any student name will bring you to their full abstract.

Schedule of Events

Keynote Address

2025 Clinician Scholars

2025 Capstone Mentors

Acknowledgements

Presentation Schedule

Capstone Presentations A-Z

Capstone Presentation - Full Abstracts A-Z

All Other Capstones – Full Abstracts A-Z

Evaluation Links

Presented by the
Clinician Scholar Symposium Chairs:
Stefan Brocke, MD, PhD & Jeffrey Pella, PhD, MSc

Schedule of Events

March 7th, 2025

Breakfast & Opening Remarks:

8:00 – 8:10 AM   **Bruce T. Liang, MD, FACC**
Dean, UConn School of Medicine

Keynote Address:

8:10 – 9:00 AM   **Margaret K. Callahan, MD, PhD**
Chief, Division of Hematology/Oncology
UConn Health
"Connecting the Dots …
Investigating Immunotherapy at work in
Patients- Immunotype & Beyond"

Capstone Presentations: *(see presentation schedule)*

Session A: 9:00 – 10:00AM   **Classrooms A1, A2, A4, A5, A8, Academic Rotunda**
Session B: 10:10 – 11:10AM   **Classrooms A1, A2, A4, A5, A8, Academic Rotunda**
Session C: 11:20AM – 12:00PM   **Classrooms A1, A2, A4, A5, A8, Academic Rotunda**

Lunch:

12:00PM   **Lunch and Beverages will be provided**

Keynote Address

"Connecting the Dots ... Investigating Immunotherapy at work in Patients- Immunotype & Beyond"

Margaret K. Callahan, MD, PhD
Chief, Division of Hematology/Oncology
UConn Health

2025 Clinician Scholar Symposium (CSS) – Capstone Presentation Schedule

Select any name to navigate to the full abstract.

Key	Student / *Mentor*	Clinical	Basic Science/Laboratory	Educational	Information & Technology	Public Health

Session A (9:00 – 10:00AM)	Classroom A1 — Lisa Barry	Classroom A2 — Kristyn Zajac	Classroom A4 — Roshanak Sharafieh/ James Watras	Classroom A5 — Asis Das/ Dharam Choudhary	Classroom A8 — Helen Swede/ Kristin Guertin	Rotunda — Stefan Brocke/ Jeff Pella / Melissa Held
9:00AM	Stephanie Akosa / *Brooke Davey*	Aditi Anam / *Sharon Lavigne*	Griffin King / *Meghan Herbst*	Jonah Haber / *Wendy Mok*	Elizabeth Allegretti / *Dana Scott*	Morgan Kozar / *Adam Perrin*
9:20AM	Pascale Carrel / *Danielle Luciano*	James Grant / *Claudio Benadiva*	Mita Kale / *Jessica Silverman*	Lucia Duenas-Bianchi & Jennifer Fusco / *Daniel Rosenberg*	Qayyoom Kasliwala / *Raymond McKay*	Jillian Haberli / *Neha Prakash*
9:40AM	Teigue Young / *Agnes Kim*	Alden Landry / *Carolyn Greene*	Lauren Barber-Bryant / *Helen Swede*	Steven Arnone / *Kevin Finke*	Ethan Shuster / *Damion J. Grasso*	Sarah Hartmann / *Joshua Cornman-Homonoff*

Session B (10:10 – 11:10AM)	Classroom A1 — Lisa Barry	Classroom A2 — Kristyn Zajac	Classroom A4 — Roshanak Sharafieh/ James Watras	Classroom A5 — Asis Das/ Dharam Choudhary	Classroom A8 — Helen Swede/ Kristin Guertin	Rotunda — Stefan Brocke/ Jeff Pella / Melissa Held
10:10AM	Catherine Qiu / *Marti Rothe*	Khaoula Ben Haj Frej & Sulaikha Buuh / *Shannon DeGroff*	Sandhya Sanapala / *Christopher Steele*	Marissa Wang / *Pooja Luthra*	Roseleen Almenord / *Angela Bermudez-Millan*	Beth Lippman / *Kevin Dieckhaus*
10:30AM	Sarthak Bothra / *Haleh Saadat*	Divya Chandra / *Michael Copenhaver*	Callista Love / *Adam Perrin*	Katherine Phillips / *Thomas Agresta*	Harrison Dieuveuil / *Lisa Barry*	Maxime Braun / *Michael T. Baldwin*
10:50AM	Kathryn Fama / *Jennifer Leslie Knod*	Christopher Fernandez / *Agnes Kim*	Patrick Bogui / *Helen Swede*	Margaret Boudreau / *Joseph Lorenzo*	Caitlin Foster / *Dana Scott*	Maria Iannotti / *Adam Perrin*

Session C (11:20AM – 12:00PM)	Classroom A1 — Lisa Barry	Classroom A2 — Kristyn Zajac	Classroom A4 — Roshanak Sharafieh/ James Watras	Classroom A5 — Asis Das/ Dharam Choudhary	Classroom A8 — Helen Swede/ Kristin Guertin	Rotunda — Stefan Brocke/ Jeff Pella / Melissa Held
11:20AM	Samhita Gurrala / *Shayna Cunningham*	Frukan Ileaasu / *Kevin Finkel*	Zoe Garvey / *Nilanjana Maulik*	Nujuma Moussa / *Helen Swede*	Vedika Karandikar / *Lisa Barry*	Cailyn Regan / *Lisa Mehlmann*
11:40AM	Jonah Whiteside / *Edward Gifford*	Alexandria Gonzalez / *Lisa Barry*	*No Presentation*	*No Presentation*	Jasmine Miller / *Pamela Taxel*	Malcolm Hamilton-Hall Iii / *Jennifer Leslie Knod*

2025
Clinician Scholars

Stephanie Akosa

Elizabeth Allegretti

Kyanna Alleyne

Roseleen Almenord

Aditi Anam

Sarah Anderson

Thea Anderson

Steven Arnone

Riley Baker

Lauren Barber-Bryant

Khaoula Ben Haj Frej

Patrick Bogui

Amita Bose

Sarthak Bothra

Margaret Boudreau

Maxime Braun

Sulaikha Buuh

David Cannata

Pascale Carrel

Divya Chandra

Colin Cleary

Michael Collins

Erin Cova

Desiree Dear

Daniella Dennis

Sarishka Desai

Harrison Dieuveuil

Taylor Doolan

Lucia Duenas-Bianchi

Christopher Edwards

Kathryn Fama

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Caitlin Foster

Jennifer Fusco

Zoe Garvey

Mark Gleeson

Nicole Gomez

Alexandria Gonzalez

James Grant

Abhishek Gupta

Samhita Gurrala

Jonah Haber

Jillian Haberli

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Catriona Hong

Maria Iannotti

Frukan Ileaasu

Amanda Kahn

Mita Kale

Vedika Karandikar

Qayyoom Kasliwala

Griffin King

Nicole Kirven

Morgan Kozar

Alden Landry

Michael Li

Beth Lippman

Emily Lopez-Santa

Callista Love

Aviral Mahajan

Ronak Mahatme

Carly Malesky

Alexander Ment

Jasmine Miller

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Lenny Murphy

Nivedha Natchiappan

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Catherine Qiu

Cailyn Regan

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Sandhya Sanapala

Ethan Shuster

Elizabeth Silver

Julia Silverman

Kiran Singh-Smith

Elizabeth Suschana

Hiromi Terai

Jaelle Thorne

Abigail Tulchinsky

Marissa Wang

Jonah Whiteside

Jordyn Williams

Felicia Woron

Summer Xu

Teigue Young

Alexander Zafiris

Lily Zhong

Ajshe Zulfi

Congratulations!

2025
Capstone Mentors, Collaborators, Contributors

Eric Adler
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Sohei Ashkani
Michael Baldwin
Michael T. Baldwin
David Banach
Lisa Barry
Claudio Benadiva
Angela Bermudez-Millan
Carmen Black
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Markus Bookland
Stefan Brocke
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Carolyn Greene
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With sincere appreciation to the supportive mentors, collaborators, and contributors to their success on this journey.

Thank you!

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In acknowledgment and gratitude of the efforts of our medical student researchers, their faculty mentors, the members of the Medical Student Research Committees and all those involved in making this Symposium possible.

Scholarship & Discovery Program Directors and CSS Organizers

Dr. Stefan Brocke | Program Director, Scholarship & Discovery Course
Dr. Jeffrey Pella | Program Director, Scholarship & Discovery Course
Seana Schulz | Administrative Program Coordinator, Scholarship & Discovery Course

Scholarship & Discovery Capstone Team and Directors

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Dr. Stefan Brocke | Capstone Review Team
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Dr. Helen Swede | Capstone Co-Director, Scholarship & Discovery Course
Dr. Kristyn Zajac | Capstone Co-Director, Scholarship & Discovery Course

Scholarship & Discovery Workshop and Bootcamp Leaders, and Special Advisors

Dr. Kevin Dieckhaus
Dr. Julian Ford
Dr. Wengi Gan
Dr. James Grady
Dr. Barbara Kream
Dr. Eric Levine
Dr. Bruce Mayer
Dr. Carol Pilbeam
Dr. Scott Wetstone

With Special Appreciation To

Dr. Bruce Liang | Dean, School of Medicine
Dr. Melissa Held | Senior Associate Dean for Medical Student Education
Dr. Christine Thatcher | Associate Dean for Medical Education and Assessment
Dr. Laurie Caines | Assistant Dean for Clinical Medical Education
Dr. Marilyn Katz | Assistant Dean for Student Affairs
Dr. Thomas Manger | Assistant Dean for Pre-clerkship Medical Education

Summer Research Director

Dr. Kristin Guertin

Acknowledgements

A very special thanks to all the mentors and to the faculty and staff acting as session moderators for the Clinician Scholar Symposium presentations:

Capstone Proposal Reviewers and CSS Session Chairs

Dr. Sheila Alessi | reviewer
Dr. Michael Baldwin | reviewer
Dr. Lisa Barry | reviewer and chair
Dr. Stefan Brocke | reviewer and chair
Dr. Dharamainder Choudhary | reviewer and chair
Dr. Robert Clark | reviewer
Dr. Asis Das | reviewer and chair
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Dr. John Harrison | reviewer
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Dr. Khalilah Hunter-Anderson | reviewer
Dr. Zana Kalajzic | reviewer

Dr. Zita Lazzarini | reviewer
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Dr. Christine Thatcher | reviewer
Dr. Kepeng Wang | reviewer
Dr. James Watras | reviewer and chair
Dr. Kristyn Zajac | reviewer and chair

CSS Administrators

Ursula Knapik
Seana Schulz
Suzanne Tate
Alison Valone

Capstone Presentations A-Z

Clinician Scholar Symposium Presentations
Session A: 9:00 – 10:00 AM
Session B: 10:10 – 11:10 AM
Session C: 11:20 AM – 12:00 PM

Select any title to navigate to the full abstract.

Session A | Classroom A1 | 9:00 AM
The Impact of Obesity on Cardiac Remodeling and Dysfunction in Adolescents
Stephanie Akosa, *Brooke Davey*

Session A | Classroom A8 | 9:00 AM
Racial and Ethnic Disparities in Supplemental Ultrasound Imaging Among Women with Dense Breasts
Elizabeth Allegretti, *Dana Scott*

Session B | Classroom A8 | 10:10 AM
Childhood obesity and its association with household size and food insecurity for Hartford WIC recipients
Roseleen Almenord, *Angela Bermudez-Millan*

Session A | Classroom A2 | 9:00 AM
The COVID-19 Pandemic and its Relationship with the Utilization of MotherToBaby Services Regarding Psychiatric Medication and Substance Use
Aditi Anam, *Sharon Lavigne*

Session A | Classroom A5 | 9:40 AM
Compressed Air Injection Technique Compared to Commercial Manometers for the Prevention of High Injection Pressures
Steven Arnone, *Kevin Finke*

Session A | Classroom A4 | 9:40 AM
Diet And Food Insecurity Correlates Of Depression By Race
Lauren Barber-Bryant, *Helen Swede*

Session B | Classroom A2 | 10:10 AM
Breastfeeding Continuity Rates Among High Risk Mothers and Infants
Khaoula Ben Haj Frej, Sulaikha Buuh, *Shannon DeGroff*

Session B | Classroom A4 | 10:50 AM
Pre-Diabetes and Diabetes Increase Risk of All-Cause Mortality in Fatty Liver Disease
Patrick Bogui, *Helen Swede*

Session B | Classroom A1 | 10:30 AM
Regional Anesthesia impacts on Opioid Use in Hip Fracture Surgery
Sarthak Bothra, *Haleh Saadat*

Session B | Classroom A5 | 10:50 AM
Effect Of Osteoblast AcvrIIA Expression On Bone Homeostasis In A Mouse Model of Post-Menopausal Osteoporosis
Margaret Boudreau, *Joseph Lorenzo*

Session B | Academic Rotunda | 10:30 AM
Artificial Intelligence Screening of Computed Tomography Images for Identification of Findings Requiring STAT Read by a Radiologist
Maxime Braun, Michael Baldwin

Session A | Classroom A1 | 9:20 AM
Factors Contributing to Delayed Diagnosis of Endometriosis
Pascale Carrel, *Danielle Luciano*

Session B | Classroom A2 | 10:30 AM
The Impact of an Integrated Bio-Behavioral Primary HIV Prevention Intervention on PrEP Adherence among High Risk People Who Use Drugs
Divya Chandra, *Michael Copenhaver*

Session B | Classroom A8 | 10:30 AM
Hartford Reentry Center Healthcare Assessment Survey Study
Harrison Dieuveuil, *Lisa Barry*

Session A | Classroom A5 | 9:20 AM
Effect of RvE1 on Inflammation Resolution and Intestinal Tissue Repair in Chronic Ulcerative Colitis: A DSS-Induced Murine Model Study
Lucia Duenas-Bianchi, Jennifer Fusco, *Daniel Rosenberg*

Session B | Classroom A1 | 10:50 AM
Esophageal Atresia Surveillance Practices and Pathology: A Systematic Review and Meta-Analysis
Kathryn Fama, *Jennifer Leslie Knod*

Session B | Classroom A2 | 10:50 AM
A Qualitative Pilot Study Investigating The Accuracy Of ASCVD Risk Calculator In Patients
Christopher Fernandez, *Agnes Kim*

Session B | Classroom A8 | 10:50 AM
Epidemiology of breast cancer in transgender patients
Caitlin Foster, *Dana Scott*

Session C | Classroom A4 | 11:20 AM
Gene Therapy with Heat Shock Protein A12B Reduces Ventricular Remodeling of Diabetic Myocardium Exposed to Myocardial Ischemia
Zoe Garvey, *Nilanjana Maulik*

Session C | Classroom A2 | 11:40 AM
Serum Albumin Levels & Cognitive Function In Older Adults: A Cross-Sectional Analysis
Alexandria Gonzalez, *Lisa Barry*

Session A | Classroom A2 | 9:20 AM
The Effect of Shorter Ovarian Stimulation Duration on IVF Cycle Outcomes
James Grant, *Claudio Benadiva*

Session C | Classroom A1 | 11:20 AM
Impact of Preterm Birth on Postpartum Depression in CT
Samhita Gurrala, *Shayna Cunningham*

Session A | Classroom A5 | 9:00 AM
Investigating Polymicrobial Interactions and Antibiotic Persistence in Bronchiectasis Airways
Jonah Haber, *Wendy Mok*

Session A | Academic Rotunda | 9:20 AM
Opinions and Clinical Practices Related to Diagnosing and Managing Functional Neurologic Disorders in the Emergency Setting
Jillian Haberli, *Neha Prakash*

Session C | Academic Rotunda | 11:40 AM
Practice Patterns in Esophageal Atresia Surveillance: A Multi-center, Retrospective Review from a Regional Consortium
Malcolm Hamilton-Hall III, *Jennifer Leslie Knod*

Session A | Academic Rotunda | 9:40 AM
Outcomes of Percutaneous Image-Guided Liver Biopsy in a Pediatric Population
Sarah Hartmann, *Joshua Cornman-Homonoff*

Session B | Academic Rotunda | 10:50 AM
Characterizing Medical Student Attitudes toward Primary Care: The First Step to Address the Primary Care Crisis in the U.S.
Maria Iannotti, *Adam Perrin*

Session C | Classroom A2 | 11:20 AM

Bilateral Mid-Abdominal Transversus Abdominis Plane And Bilateral Rectus Sheath Blocks Comparing the Use of Liposomal Bupivacaine Vs. Bupivacaine HCl in Laparoscopic Colectomy Procedures

Frukan Ileaasu, *Kevin Finkel*

Session A | Classroom A4 | 9:20 AM

Perceptions of Education on Eating Disorders and Palliative Care in Medical and Dental Students

Mita Kale, *Jessica Silverman*

Session C | Classroom A8 | 11:20 AM

The Association Between Social Determinants of Health and 1-Year Mortality Following Coronary Artery Bypass Graft (CABG) Surgery

Vedika Karandikar, *Lisa Barry*

Session A | Classroom A8 | 9:20 AM

Assessment of Racial and Ethnic Disparities in the Treatment and Outcomes of Witnessed Out-of-Hospital Cardiac Arrest (OHCA) in Connecticut

Qayyoom Kasliwala, *Raymond McKay*

Session A | Classroom A4 | 9:00 AM

Saline Dilation Method

Griffin King, *Meghan Herbst*

Session A | Academic Rotunda | 9:00 AM

Survey to Address Mental Health Needs Among Medical and Dental Students

Morgan Kozar, *Adam Perrin*

Session A | Classroom A2 | 9:40 AM

Autonomic Reactivity in Children of Trauma-Exposed Families

Alden Landry, *Carolyn Greene*

Session B | Academic Rotunda | 10:10 AM

The Fate of Antibiotics Prescribed In A Travel Medicine Clinic: Implications For Antibiotic Resistance And Stewardship.

Beth Lippman, *Kevin Dieckhaus*

Session B | Classroom A4 | 10:30 AM

Evaluation of the University of Connecticut School of Medicine Peer Support Program

Callista Love, *Adam Perrin*

Session C | Classroom A8 | 11:40 AM

Mortality Disparities for Young Women (< 50 years) Diagnosed with Triple- Negative Breast Cancer

Jasmine Miller, *Pamela Taxel*

Session C | Classroom A5 | 11:20 AM
Pro-Inflammatory Diet and Non-alcoholic Fatty Liver Disease in Children and Adolescents
Nujuma Moussa, *Helen Swede*

Session B | Classroom A5 | 10:30 AM
eReferral and eConsult Evaluation: Connecticut Healthcare Provider Interest and Perceived Value
Katherine Phillips, *Thomas Agresta*

Session B | Classroom A1 | 10:10 AM
Patient-Provider Concordance and Perceptions of Patient-Centeredness in the Dermatology Clinic
Catherine Qiu, *Marti Rothe*

Session C | Academic Rotunda | 11:20 AM
Luteinizing hormone (LH) and prostaglandin E2 (PGE2) stimulate ovulation in an epiregulin (EREG)-dependent manner.
Cailyn Regan, *Lisa Mehlmann*

Session B | Classroom A4 | 10:10 AM
The Association Between Pressure Ulcer Formation And Various Social Determinants Of Health In Patients Admitted To UConn John Dempsey Hospital, 2023-24
Sandhya Sanapala, *Christopher Steele*

Session A | Classroom A8 | 9:40 AM
Personal and Professional Experience of Mental Health Workers During the COVID-19 Pandemic: Associations with Anxiety, Depression, and Secondary Traumatic Stress in its Aftermath
Ethan Shuster, *Damion J. Grasso*

Session B | Classroom A5 | 10:10 AM
Needs Assessment of Patients at the UConn Health Gender Identity Clinic
Marissa Wang, *Pooja Luthra*

Session C | Classroom A1 | 11:40 AM
Use of Subsidized Transportation to Improve Access to Wound Care in a Limb Preservation Program
Jonah Whiteside, *Edward Gifford*

Session A | Classroom A1 | 9:40 AM
Prevalence of Statin Use and Dyslipidemia Screening for Secondary Cardiovascular Prevention in Patients with Cancer
Teigue Young, *Agnes Kim*

Capstone Presentations

Full Abstracts A-Z

Click on any name to be directed to its corresponding abstract.

Stephanie Akosa

Elizabeth Allegretti

Roseleen Almenord

Aditi Anam

Steven Arnone

Lauren Barber-Bryant

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Sarthak Bothra

Margaret Boudreau

Maxime Braun

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Morgan Kozar

Alden Landry

Beth Lippman

Callista Love

Jasmine Miller

Nujuma Moussa

Katherine Phillips

Catherine Qiu

Cailyn Regan

Sandhya Sanapala

Ethan Shuster

Marissa Wang

Jonah Whiteside

Teigue Young

All Other Capstones
(disseminated through external presentation and/or publication)

Full Abstracts A-Z

Click on any name to be directed to its corresponding abstract.

Kyanna Alleyne

Sarah Anderson

Thea Anderson

Riley Baker

Amita Bose

David Cannata

Colin Cleary

Michael Collins

Erin Cova

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Sarishka Desai

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Elizabeth Suschana

Hiromi Terai

Jaelle Thorne

Abigail Tulchinsky

Jordyn Williams

Felicia Woron

Summer Xu

Alexander Zafiris

Lily Zhong

Ajshe Zulfi

Title: The Impact of Obesity on Cardiac Remodeling and Dysfunction in Adolescents

Authors: Stephanie Akosa[1], Brooke T. Davey[1,2]

[1]University of Connecticut School of Medicine, UConn Health, Farmington, CT
[2]Connecticut Children's, Hartford, CT

Background/Objectives: Since the 1980s, the overall rate of childhood obesity has tripled.[1] This rapid rise in the rate of obesity in adolescents has resulted in more children at risk for abnormalities myocardial deformation. Adults with obesity have an increased pro-inflammatory profile, leading to cardiovascular dysfunction[2]. However, research is lacking in adolescent populations[3]. This study's primary objective is to characterize the structural and functional changes in the myocardium of adolescents with obesity. The study also compares the myocardium of male and female adolescents with obesity.

Methods: This is a retrospective chart review of pre-operative transthoracic echocardiograms from pediatric patients who meet BMI criteria for bariatric surgery. All patients were treated at the CT Children's Pediatric Obesity Center for Treatment, Research, and Education under 21 years of age. Demographic data were collected and validated Z score calculators were used to evaluate various parameters including left ventricular (LV) dimensions and Doppler measurements, in comparison to published normative pediatric values.

Results: This study includes 42 patients (15 males, 27 females) with obesity and an average age of 15.69 years. Preoperatively, patients had a mean BMI of 48.05kg/m^2 (34.9 - 61.63). The average LV mass (LVM) was 188.38g (z-score = -2.09). The average end diastolic dimension (EDD) was 5.09cm (z-score = -1.48). Patients with female sex had an average LVM of 177.43g (z-score = -2.09) in comparison to patients with male sex 208.1g (z-score = -2.09). Three patients had echocardiograms performed post-bariatric surgery. BMI decreased by an average of 14.50% in this group. The average LVM decreased from 260g (z-score = -0.84) to 222.9g (z-score = -0.99).

Conclusion: This study suggests pediatric patients with obesity may exhibit cardiac structural changes compared to population norms. The average LVM z-score is below the normal range (-2 to 2), which may reflect deconditioning despite evidence of hypertension in a significant portion of the study population. No significant sex-specific biological difference in LVM z-score was appreciated. LV mass in a subset of patients with bariatric surgery decreased with weight loss. Further studies with larger samples are needed to confirm these findings.

1. Skinner AC, Ravanbakht SN, Skelton JA, et al. Prevalence of Obesity and Severe Obesity in US Children, 1999-2016. Erratum in: Pediatrics. 2018.
2. Jennifer Labrecque 1, Sofia Laforest 1, Andréanne Michaud 2, et al. Impact of Bariatric Surgery on White Adipose Tissue Inflammation Can J Diabetes 2017 Aug.
3. Zhou Q, Yan P, Shi H, et al. Might female patients benefit more from bariatric surgery with respect to inflammation. *Front Surg*. 2022.

Title of Project: Racial and Ethnic Disparities in Supplemental Ultrasound Imaging Among Women with Dense Breasts

Authors: Elizabeth Allegretti[1] and Dana M Scott[2]
[1]*University of Connecticut School of Medicine, UConn Health, Farmington, CT*
[2]*University of Connecticut Department of Obstetrics and Gynecology, UConn Health, Farmington CT*

Background/Objectives: Dense breast tissue is an independent risk factor for breast cancer and reduces mammogram sensitivity. Supplemental imaging, such as breast ultrasound, is recommended, however studies have found that minority women are less likely to be offered this[1,2]. The FDA requires notification of breast density and Connecticut mandates insurance coverage for such screening[3]. The impact of race, ethnicity, and other sociodemographic factors on the ordering and completion of supplemental imaging remains unclear. This study aimed to determine whether the previously documented racial/ethnic differences in supplemental imaging persist in the setting of universal coverage for such screening.

Methods: This retrospective cohort study included women aged 40-75 with dense breast tissue on screening mammography at UConn Health from 2021-2022. Data was collected through 2022 to include account for pandemic-related delays throughout 2021. A total of 2686 women met the inclusion criteria, and these women were further stratified by race/ethnicity. Independent variables included the race and ethnic designations for patients and dependent variables included whether supplemental imaging was ordered as well as whether it was completed. Additional demographics and other potential confounding variables were also considered.

Results: Data analysis is ongoing. Preliminary results show that 56.7% of women had supplemental screening ordered, however women identified as "other" race and "Hispanic" ethnicity had lower ordering rates (49.8%, $p<0.05$). This can be compared to women identifying as "white" and "non-Hispanic" who had higher rates of screening ordered (59.3%, $p<0.05$). Among those who had supplemental imaging order, non-white Hispanic women were less likely to have it completed (92.8% vs 95.9%, $p<0.05$). This difference was not found for white Hispanic women. No significant differences were found for Black or African American non-Hispanic women when compared to the total. Sociodemographic factors, including insurance status, provider type, and family history also showed significant differences based on racial and ethnic groupings. Logistic regressions will be completed to assess the impact of confounding variables.

Conclusions: Despite Connecticut's policies promoting supplemental screening for dense breasts, racial and ethnic disparities in ordering and completion persist. Future research should investigate the underlying causes of these disparities and explore sociodemographic factors that contribute to unequal access.

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Gender Differences in Medical Student Interest in Sports

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Background/Objective: Orthopedic surgery remains the specialty with the least number of women residents and attendings at 16% and 6% respectively. Within the subspecialty of sports, females have continued to make up only 11% of fellows since 2016 despite efforts to increase diversity in the field[1]. Previous studies have investigated residents' interest in subspecialties and factors that have influenced them, however, many individuals start residency with a subspecialty already in mind[2,3]. Given that this is often the subspecialty they eventually match into, discerning what influences medical students' interest will provide a better understanding of subspecialty choice. The purpose of this study is to determine if there is a difference in factor influence between males and females before they start residency. Furthermore, identifying any differences in influencing factors between male and female medical students could aid efforts to increase diversity.

Methods: An anonymous online survey was created and distributed to all medical students interested in orthopedic surgery at allopathic and osteopathic medical schools in the United States via their school administrators. Survey questions had only yes or no answer choices, and it was distributed one time. Descriptive statistics were calculated, and a Chi-square test was used for categorical variables.

Results: 175 medical students from 23 schools completed the survey, with 60% of responses from females. There was similar interest and disinterest in sports between female and male responders; 37%,n=38/103 of females and 36%,n=24/66 of males were interested in sports, while 17% (n=18/103; n=11/66 respectively) of both were disinterested. Subject matter was the most common factor contributing to interest selected by females and males interested in sports (79%,n=30/38; 45%,n=5/11; respectively, p=0.30). Additionally, subject matter was the most common factor contributing to disinterest by those not interested in sports (78%,n=14/18; 67%,n=16/24; respectively, p=0.53). P values were calculated for each factor influencing interest or disinterest in the survey, each found to be > 0.05.

Conclusions: There was no significant difference between factors influencing the interest of males and females positively or negatively. With similar factors selected by all medical students, additional research is necessary to understand persistent low female representation.

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Childhood obesity and its association with household size and food insecurity for Hartford WIC recipients

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Background: Childhood obesity is a major issue in the United States, with prevalence increasing from 13.9% in 1999 to 19.7% in 2020[3,4]. Because it is linked with many comorbidities, preventative measures have been implemented and mostly target poor eating habits and physical inactivity[2]. However, additional factors, like socioeconomics, genetics, and household size, are overlooked or under-researched, possibly explaining why childhood obesity persists[1]. This study will investigate the claim that body mass indexes (BMI) increase as household size increases, amongst children participating in the Hartford Women, Infants, and Children (WIC) program.

Methods: The researcher used secondary data from the cross-sectional study, Barriers to WIC Farmers Market Vouchers Redemption: A Community-Based Pilot Study to Strengthen WIC Benefits Use and to Develop a Childhood Obesity Intervention Study (Co-PIs: Bermúdez-Millán and Khouy). BMI data was extracted from the WIC program client database. Socio-economic and demographic data were collected from web-based/in-person surveys. Household size, food security status, and BMI were dichotomized: household size (≤the sample median of 4 and >4), BMI (overweight or obese), and food security (food secure and insecure). Of a sample of 101, 66 surveys were suitable for analysis. Descriptive statistics and bivariate cross-tabulation analyses were used to describe the sample and examine associations.

Results: Parental demographics of participants were majority female, with a mean age of 32 ± 7, 49.5% employed, 63% food insecure, 50.5% with high school or less education, and with a household size of 4.3 ± 1.3 (median=4). Thirty-eight percent of the children were overweight and 62% were obese (class 1-3). Of the 40 participants with a household size ≤4, 14 were overweight and 26 were obese. Of the 26 with a household size of >4, 6 were overweight and 20 were obese. There were no significant differences between household size and BMI status (Chi-square value= 1.061, p value= 0.303). Findings after stratification for food security status were also statistically insignificant for the food secure (Chi-square= 2.101, p value= 0.147) and the food insecure (Chi-square value= 0.029, p value= 0.864) subsets.

Conclusions: Future suggestions may include extending the survey to a larger population so a larger sample can be obtained.

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The COVID-19 Pandemic and its Relationship with the Utilization of MotherToBaby Services Regarding Psychiatric Medication and Substance Use.

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Background/Objectives: MotherToBaby (MTB)[1] is a nationwide service that provides evidence-based information regarding exposures in pregnancy and breastfeeding, including antidepressants, substance use, and infectious diseases. The COVID-19 pandemic made this service more crucial given the pandemic driven decrease in healthcare access and increased anxiety, depression, and substance use[2]. In this project, we aimed to understand the quantity of MTB contacts related to psychiatric medications/conditions and substance use as they related to the timeframes before, after, and during the COVID-19 pandemic.

Methods: We used The Organization of Teratology Information Specialists (OTIS) database[1] and chose four states (CT, NY, LA, and TX) for analysis based on their differing availabilities of OB/GYNs and psychiatrists[3,4]. Data was split into three timeframes Pre-COVID (01/2019-02/2020), During COVID (03/2020-01/2023), and Post-COVID (02/2023-01/2024)..The proportion (total mental health contacts/sample size) or (total substance use contacts/sample size) of mental health and substance use contacts were determined for each state and timeframe. Across all three timeframes, the states had sample sizes of 5053, 9457, 397, and 4787 contacts respectively. A Z Score Calculator for 2 Population Proportions[5] was used to determine significant differences in proportions between timeframes and states.

Results: There was a significantly higher proportion of mental health contacts during the post-COVID timeframe (12.0%) compared to the pre-COVID (16.50%, p < .00001) and during COVID (15.20%, p < .00001)timeframes across all four states together. In the pre-COVID period, CT (21.50%, n=1345) had a significantly larger proportion of mental health contacts compared to TX (7.30%, n=599, p < .00001) and NY (15.70%, n=1556, p < .00001). For the during COVID period, CT (22.0%, n=1396) had a significantly larger proportion of mental health contacts compared to NY (16.0%,n=6940, p < .00001), TX (10.80%,n=3466, p < .00001), and LA (15.80%, n=279, p = .02034). During COVID CT (2.80%, n=1396) also had a significantly lower proportion of substance use contacts compared to NY (5.60%,n=6940, p < .00001 , LA (8.60%,n=279, p < .00001) , and TX (8.90%, n=3466, p < .00001). In the post-COVID timeframe, CT (1.60%, n=2312) had a significantly lower proportion of substance use contacts compared to NY (4.10%, n=961, p < .00001) and TX (7.30%, n=722, p < .00001).

Conclusions: The higher proportion of mental health contacts after the pandemic began suggests an increased need for mental health support. Further analysis of data including other states with added focus on demographics such as age, race/ethnicity, education, employment, parity, and household income as factors that can impact patient needs.

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Title of Project: Analysis of Radiological Imaging Findings in Patients Presenting with Headaches: Comparison Between Patients from Department of Corrections Facilities and General Public Cohorts

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Background/Objective: The purpose of this study is to determine whether the incidence of intracranial pathologies identified on brain imaging significantly differs between incarcerated and non-incarcerated patients presenting with headaches. It is generally believed that incarcerated individuals experience more severe illnesses, and a higher prevalence of traumatic injuries compared to the general population (1,2). There have been previous studies assessing brain damage in incarcerated individuals compared to non-incarcerated individuals however there are a lack of studies comparing the prevalence of overall clinical brain pathology between the two cohorts (3). Arranging for incarcerated patients to have quality medical imaging exams demands significant strategic planning and resources. The knowledge of anticipated positive rate of imaging findings is critical when balancing between providing adequate medical care for the DOC patients and preventing unnecessary radiological imaging.

Methods: This retrospective study reviewed the medical records of 100 incarcerated and 100 non-incarcerated patients who presented to our institution between 2018 and 2023, with a chief complaint of headache and underwent CT or MRI brain imaging.

Results: There were 11 patients with significant radiological findings in the non-incarcerated group and 24 patients in the incarcerated group which was statistically significant ($p = 0.016$). This changed the clinical management of 6 patients in the non-incarcerated group and 8 patients in the incarcerated group which was statistically insignificant ($p = 0.579$).

Conclusions: This study shows that there are significantly more abnormal radiological findings in incarcerated individuals compared to non-incarcerated individuals. This could be due to a higher prevalence of pathology in incarcerated individuals and/or the fact that imaging in incarcerated individuals is delayed until their symptoms are more severe compared to non-incarcerated individuals. This warrants a more cautious approach when assessing headaches in incarcerated individuals and further investigation with a larger sample study.

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Cerebral Blood Flow Changes and Neuroticism in Late-life Depression

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Introduction: Previous research identified distinct neural patterns in late-life depression (LLD) patients with high versus low neuroticism, showing reduced frontal pole volume in high-neuroticism patients and increased non-white matter hypo-intensities in low-neuroticism patients. We hypothesized that low-neuroticism LLD (LLD_LN) may relate to microvascular damage, while high-neuroticism LLD (LLD_HN) involves more complex frontal lobe pathology. To test this hypothesis, we measured cerebral blood flow using arterial spin labeling across these groups.

Methods: Clinical and imaging data from 55 subjects with LLD and 8 never-depressed healthy control (HC) subjects were used in this analysis. The primary measures of the study were neuroticism and depression symptoms, which were assessed using the NEO Personality Inventory (NEO-PI) and the Montgomery - Asberg Depression Rating Scale (MADRS), respectively. Using a baseline neuroticism median score of 109.5, we divided LLD subjects into LLD_LN (n = 26) and LLD_HN (n = 26) subgroups. FSL BASIL software was used to conduct ASL data preprocessing and individual data analysis (p> 0.05). Significant clusters were extracted as ROIs for post hoc t-test to compare regional perfusion between two of the three group differences.

Results: ANOVA analysis revealed a significant group effect in the left putamen and thalamus. ROI analyses revealed that the group effect was significant in the left putamen (p = 0.0038) and in the left thalamus (p = 0.033). Post hoc pairwise comparisons showed that the mean CBF for both the LLD_HN and the LLD_LN group was significantly lower in the left putamen (p = 0.0048 and 0.0009 respectively) and left thalamus (LN, p = 0.0093; HN, p = 0.0524). Although the mean CBF value of both regions for the LLD_LN was lower than that for the LLD_HN, the difference in CBF between the two LLD groups at either left putamen or thalamus was not statistically significant (putamen, p = 0.3442; thalamus, p = 0.3040). We further conducted regression analysis in the LLD group combining the LLD_HD and LLD_LD to examine the correlation between neuroticism score and CBF in the left putamen, thalamus, and frontal pole. Only the left putamen showed a significant correlation between neuroticism and CBF (r = 0.28, p = 0.04).

Conclusion: We found significantly lower CBF in the left putamen and thalamus in both LLD groups, regardless of high or low neuroticism. Our results also indicate that LLD subjects who were lower in neuroticism had lower CBF in the left putamen, which is consistent with our hypothesis that high neuroticism LLD may have different neuropathology from LLD with low neuroticism. However, we did not find significantly lower CBF in the frontal pole as we hypothesized.

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Compressed Air Injection Technique Compared to Commercial Manometers for the Prevention of High Injection Pressures

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Background/Objectives: Peripheral nerve blocks have become increasingly prevalent in recent years, especially with the widespread availability of ultrasound guidance. Injection pressure monitoring systems have been introduced to enhance safety by preventing intrafascicular injection, which is associated with nerve injury and can be clinically differentiated from extrafascicular injection by higher injection pressures[1,3]. This study evaluates the compressed air injection technique (CAIT) as a cost-effective alternative to commercial manometers (Pajunk "NerveGuard" and Braun "B Smart").

Methods: CAIT utilizes Boyle's Law to infer injection pressure based on air compression within a syringe barrel. This pressure was tested against the thresholds of the commercial devices, which have been previously validated as accurate pressure monitors[2]. Syringes of varying volumes and needle-tip placements in air and chicken tissue were used to simulate conditions. Results were recorded and processed using chi-square analysis.

Results: CAIT showed excellent alignment with the Pajunk NerveGuard, performing exactly as expected in every trial with the 20 mL syringe in air and similarly, though not identically, with the 60 mL syringe in air ($p = 0.0578$). Conversely, CAIT predictions were much less reliable when tested against the Braun B Smart manometer. When results from the 20 mL and 60 mL syringes in air were combined, no relationship between CAIT predictions and Braun B Smart manometers was appreciated ($p = 0.4168$).

Conclusions: Conclusions regarding CAIT's statistical and clinical significance are therefore unclear, though engineering differences between the two manometers may be to blame for the vast difference in results. Future studies are therefore needed to define CAIT's clinical application. Challenges such as prolonged aspiration times and limited syringe visibility during ultrasound guidance may also limit CAIT's feasibility.

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Title: The Influence of Social Determinants of Health on Post-Operative Complications and Healthcare Consumption Following Achilles Tendon Ruptures

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Background: Achilles Tendon Ruptures (ATR) are a relatively frequent injury with the highest rates seen in young, athletic males. Treatment for an ATR often relies on multiple influencing factors. Both surgical and non-operative interventions have shown distinct benefits in treating an ATR, each providing unique advantages or disadvantages. Though previous research has previously explored various factors which influence ATR surgical outcome, literature has yet to explore one essential factor: Social Determinants of Health (SDOH). These are living, working, and social conditions which can be categorized into five specific domains: education, housing, social support, economic stability, and access to healthcare.

Method: Normal distribution of variables was assessed using the Shapiro-Wilk test and displayed as frequencies and percentages, and continuous non-parametric variables as the median and interquartile range (IQR). Multivariable regression analysis was performed with complications as the dependent variable and age, sex, BMI, race, VTE prophylaxis, TTS, smoking, alcohol use, marital status, insurance, employment status, level of education, SVI (with each category), and ADI national percentile as covariates. The odds ratio (OR), B coefficient, and 95% confidence interval (CI) were calculated for complications.

Result: 577 patients met the inclusion criteria for this study. Among these patients, the median age was 38.0 years (IQR 30.0 – 48.5), and the majority was male, 478 (82.8%). The median measurements calculated were as follows: BMI 26.6 (IQR 24.4 – 29.4), follow-up duration 173 days (IQR 98.0 - 229.0), and TTS 9.0 days (6.0-13.0). The laterality of injury was evenly split with 318 left legs (55.0%) treated. Most of the patients were privately insured 510 (88.5%), white 425 (73.7%), used alcohol 452 (78.4%), and had never smoked 444 (76.9%). National ADI percentile is predictive for developing a post-operative VTE (OR = 0.89 [95% CI 0.81 - 0.96]; p = 0.068) and re-rupture rates are highly associated with a post-operative wound infection (OR 6.4191 [95% CI 1.0042 – 13.560949]; P = 0.034).

Conclusion: The findings here can be used to further individualize healthcare, specifically for patients in recovery following ATR repair. By taking into account the individuals SDOH, a plan for further preventative care can be developed, with the aim of reducing future complication rates.

Title of Project: Diet And Food Insecurity Correlates Of Depression By Race

Author: Lauren Barber, Helen Swede, University of Connecticut School of Medicine

Background: A limited number of studies have shown a link between a pro-inflammatory diet and food insecurity with clinical depression but none have stratified race.[1,2,5] Nor have studies looked at the potential modification of this relationship by physical activity.[3,4]

Methods: We conducted a cross-sectional analysis of adults (n=4836) using the population-based CDC National Health and Nutrition Examination Survey (2005-06). Variables assessed: self-report clinical tool (PHQ-9); Dietary Inflammatory Index (DII) score based on 24-hour recall with increased scores indicating a pro-inflammatory diet; minutes per week in moderate/vigorous physical activity (mvPA); and, USDA five-category Food Security index. The standard cut-point (10) of the PHQ score was used to define clinical depression. Linear and Logistic Regressions were conducted and stratified by race and sex.

Results: In descriptive analyses, clinical depression was associated with: increased food insecurity score ($p<.001$); proinflammatory diet (11.3% in DII-Q4 vs 6.8% in DII-Q1, $p<0.001$); and, mvPA (11.5% in Q1 vs. 6.8% in Q4, $p<.001$). Prevalence of depression showed variable results (BMI<18.5 = 6.4%, BMI >30 = 9.8%). In unadjusted linear regression, food insecurity was positively associated with self-reported clinical depression in that for every point increase in the food insecurity index, the clinical depression score would increase by approximately one point (unstandardized B=1.12, $p<.001$), which largely remained (B=1.14, $p<.001$) when controlling for DII score, minutes engaged in moderate/vigorous physical activity per week, BMI, and age. When stratifying by race and sex, the link between food security and depression was strongest in NHW males (B=1.54, $p <.001$). PHQ score was positively associated with DII (unstandardized B=.26, $p<.001$), inversely associated with mvPV (unstandardized B=-.003, $p<.001$); and, positively linked to BMI (unstandardized B=.05, $p<.001$). Multivariate analyses are being conducted.

Conclusion: Food insecurity was linked to self-reported clinical depression with evidence of variation by race and sex. Limitations could be the underreporting of depression due to stigma related to race as well as not having data on use of psychotropic medications.

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Title of Project: Breastfeeding Continuity Rates Among High Risk Mothers and Infants

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Background/Objectives: Breastfed infants have lower morbidity and mortality from infections and long term development of obesity, hypertension, hypercholesterolemia, and type 2 diabetes.[1] Furthermore, mothers who breastfeed had lower risks of type 2 diabetes, breast cancer and ovarian cancer.[2,3] For these reasons, the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) have recommended breastfeeding for the first 6 months of infant life; yet, only 44% of infants are exclusively breastfed during this period.[1] While breastfeeding initiation and decision making is often impacted by maternal factors, such as socioeconomic disparities and low health literacy, the reasons for discontinuation are not as clearly elucidated. We investigated high risk pregnancies, examining both high risk mothers and high risk infants, to determine how risk influences breastfeeding continuation in the first 6 months postpartum.

Methods: Eligible patients who were pregnant and delivered at UCONN John Dempsey Hospital were identified via EPIC as meeting inclusion/exclusion criteria. These patients received a letter in the mail with a novel Qualtrics survey querying when and why they stopped breastfeeding. A retrospective chart review was performed for all mothers who participated in the survey, recording information about their high risk (N=31) or low risk (N=29) pregnancy. Continuous, normally distributed data was summarized as mean and summary distribution as deemed fit. Categorical data was summarized using Fisher exact or Chi square.

Results: Preliminary results show a statistical difference in gestational age between high risk and low risk infants ($p<0.05$). However there is no difference in continuation rates between high risk and low risk groups ($p=0.45$). Both high-risk and low-risk mothers/infants breastfed for the duration they preferred ($p= 0.27$).

Conclusions: Unexpectedly, pregnancy risk was not associated with breastfeeding duration. Limitations included survey response rates resulting in low sample size, as well as selection and response bias within the survey itself. Future research may involve more detailed assessment of the role of healthcare provider recommendations to provide further insight into how risk factors influence breastfeeding continuation.

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ABSTRACT

Title of Project: Pre-Diabetes and Diabetes Increase Risk of All-Cause Mortality in Fatty Liver Disease

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Background: Fatty liver disease is rising in the U.S., leading to significant health complications especially when with comorbid diabetes.[1] In 2024, an expanded clinical definition of suspected fatty liver disease, known as the Fatty Liver Index (FLI), was recommended in screening for diagnostic imaging.[2] While a few studies examined mortality risk based on the FLI score and comorbid diabetes[3,4], none have quantified the impact of prediabetes.

Methods: Our sample consisted of 6,994 participants (25y-74y) in the 2001-2006 National Health and Nutrition Examination Survey with vital status through 2019 from the National Death Index. Independent Variables; 1) FLI Score using established clinical groups: Normal (<30; n=2412), Indeterminate (30-59; n=1922), and Elevated (>60; n=2649), cut-point for suspected fatty liver disease for diagnostic imaging; and, 2) HbA1c Level using standard cut-points: Normal (<5.7%; n=5181), Prediabetic (5.7%- 6.4%; n=1776), and Diabetic (>6.5; n=637). Components of FLI: GGT liver enzyme, triglycerides, waist circumference, and body mass index. Dependent Variable: All-cause mortality, calculated by age and sex-adjusted Relative Risk (RR) using Logistic Regression. Pearson Chi-Square tests were used for descriptive analyses.

Results: In descriptive analyses of those with Elevated FLI, proportionally more Diabetics died during follow-up compared to both Prediabetics and those with Normal HbA1c (41.4%, 158/382; 27.9%, 169/606;14.0%, 233/1661, respectively; P<0.001). For Indeterminate FLI, a similar trend was observed across HbA1c groups (P<0.001). Adjusted RR for death among participants with Elevated FLI was substantially higher in Diabetics compared to those with Normal HbA1c (RR=2.43, 95% CI 1.85-3.20). For Prediabetics, an elevated risk of death compared to those with Normal HbA1c also was observed (RR=1.29, 95% CI 1.00-1.67). Exploratory findings on the possible ameliorating impact of moderate/vigorous physical activity will be presented as well as comparisons of risk using the FLI with the pre-2024 screening guideline.

Conclusions: In suspected fatty liver disease based on the FLI, both prediabetes and diabetes appear linked to higher risks of death. A limitation of this dataset was lack of information on history of heart disease or cancer at baseline. Future research is recommended to explore risk of death from heart disease and cancer, and possible modifying factors.

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Title of Project: Anti-Kelch-Like Protein 11 Antibody Encephalitis: A Case Report

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Background/Objectives: Kelch-like protein 11 (KLHL-11) antibody encephalitis is a rare autoimmune syndrome occurring most often in young and middle-aged men[1]. Symptoms include ataxia, diplopia, dysarthria, vertigo, and hearing changes[2]. KLHL-11 encephalitis is often associated with seminomatous testicular germ cell tumors (TGCTs)[2], but clinical manifestations and oncologic associations can vary[4]. We present a case of KLHL-11 encephalitis to expand knowledge regarding clinical presentation and prognosis in this rare autoimmune syndrome.

Methods: We describe a 45-year-old male with a 9-year history of cerebellar symptoms (ataxia, dysmetria, nystagmus, and dysarthria) who developed subacute neuropsychiatric symptoms including hallucinations, severe paranoia, emotional lability, and memory impairment.

Results: Initial metabolic and infectious work up were unrevealing. MRI showed left temporal lobe non-enhancing T2 hyperintensity with vasogenic edema. Clinical and subclinical focal seizures originated from this region. CSF analysis was unremarkable besides elevated protein. Both CSF and serum ultimately tested positive for KLHL-11-IgG. Malignancy screening identified a testicular nodule. Histology showed absent spermatogenesis and scar tissue, suggesting a regressed testicular germ cell tumor (TGCT). No evidence of metastasis was found on full-body PET scan. The patient was treated with intravenous immunoglobin, plasma exchange, anti-seizure medications, and ultimately 6 months of cyclophosphamide. He has achieved clinical stability thus far with improvement of neuropsychiatric/cognitive symptoms and stabilization of cerebellar symptoms.

Conclusions: There are limited reports consistent with our patient's chronic cerebellar symptoms, subacute neuropsychiatric impairment, and lack of active malignancy. This case expands the presentations for which KLHL-11 encephalitis should be considered and highlights how symptoms may be variably responsive to treatment. A key limitation of this project is that as a case report, our findings may not be generalizable to broader patient populations. Further research should include case series and other systematic reviews to create guidelines regarding recognition and management of this rare syndrome.

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Title of Project: Regional Anesthesia impacts on Opioid Use in Hip Fracture Surgery

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Background/Objectives: Adequate sedation to complement general anesthesia techniques in hip fracture surgery can be challenging[1]. Regional blocks, specifically Fascia Iliaca Compartmental Blocks (FICB) have been recognized for their ability to enhance pain management during and post-operation, promoting opioid-sparing anesthesia and decreasing time spent in the operating room[1,2]. Studies comparing use of general and regional anesthesia (RA) for hip fracture surgery have yielded mixed results so far [2,3]. This study aims to investigate potential impact of different anesthesia types (regional or general) on patients who have undergone a preoperative FICB. We hypothesize that use of FICB will decrease length of stay in the post-anesthesia care unit (PACU) and will decrease opioid consumption.

Methods: A prospective, randomized clinical trial was conducted at the Connecticut Orthopedic Institute (COI) at SVMC. Patient were randomly allocated to 2 groups based on anesthesia type: standard-of-care spinal or general anesthesia. Primary outcomes included time to discharge from PACU, and intraoperative opioid consumption.

Results: Among 74 randomized patients there were small decreases in opioid consumption in patients who received regional FICB (2.6 hydrocodone equivalents (HE's) with RA vs 3.0 HE's with general anesthesia). Additionally, there was minimal change in PACU length of stay (64.4 minutes with RA vs 66.2 minutes with general anesthesia).

Conclusions: Regional anesthesia use resulted in a slight reduction in intraoperative opioid use, as well as a marginal decrease in discharge time from the PACU. These differences are likely clinically insignificant, however indicate that both regional and general anesthesia produce comparable outcomes in terms of opioid use and post-procedure anesthesia recovery.

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Title: Effect Of Osteoblast AcvrIIA Expression On Bone Homeostasis In A Mouse Model of Post-Menopausal Osteoporosis

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Background/Objectives: Osteoporosis is a disease of bone metabolism affecting a significant proportion of postmenopausal women. It develops with loss of estrogen, which leads to increased bone resorption by osteoclasts and decreased bone formation by osteoblasts.[1] Myostatin, a member of the TGF-beta family, is a myocyte-produced growth factor. It regulates muscle growth and contributes to bone homeostasis through: 1) enhancing muscle mass and bone loading and 2) direct signaling via the receptor, activin receptor IIA (AcvrIIA) on osteoblasts.[2] A previous study demonstrated that myometrial myostatin production fluctuates with estrogen levels.[3] Our study was undertaken to investigate if the effect of an estrogen-deficient state on bone homeostasis varies in mice with osteoblasts deficient in AcvrIIA.

Methods: Mice were bred with a conditional AcvrIIA deletion in the osteoblast lineage (cKO) by crossing mice homozygous for floxed sites in the *Acvr2a* gene with osteocalcin-Cre mice. The osteoblast-specific osteocalcin-Cre directed Cre-recombinase activity to produce an osteoblast-specific KO. cKO and wildtype (WT) female littermates underwent ovariectomy (OVX) or sham-operation (Sham) at sexual maturity (8-10 weeks). Each group had an *n* of eight to ten animals at the study's endpoint, meeting one-way ANOVA design criteria for sufficient power in an animal study.[4] Mice were sacrificed 5 weeks post-operatively. Collected femurs were analyzed with micro-CT and histomorphometry. Micro-CT dimensions studied included: Bone volume/Total volume [BV/TV], Trabecular thickness [Tb.Th], Trabecular number [Tb.N], Trabecular spacing [Tb.Sp], Cortical thickness [Ct.Th], Cortical cross-sectional area [Ct.Ar]. Histomorphometry analysis with Osteomeasure technology was performed on TRAP-stained femur sections to measure: Osteoclast Number, Osteoclast number/bone perimeter (BP), Osteoclast surface/BP. Student's T test compared WT and KO measurements.

Results: Our micro-CT results demonstrated no statistically significant differences for α=0.05 between study group means for WT compared to KO mice. Means obtained from WT sham, WT Ovx, KO Sham, and KO Ovx femurs, respectively, are as follows; BV/TV [5.52, 3.92, 4.49, 3.29], Tb.Th [42.1, 40.8, 41.4, 39.9]μm, Tb.N [3.21, 2.78, 3.02, 2.60]/mm, Tb.Sp[316.0, 369.1, 336.5, 393.5]μm, Ct.Th[0.173, 0.166, 0.170, 0.167]mm, Ct.Ar [0.704, 0.678, 0.677, 0.671]mm^2. Histomorphometry analysis was completed to visualize and further qualify the lack of difference in effect of osteoblast-specific AcvrIIA deficiency on osteoclast activity.

Conclusions: We conclude that inhibiting myostatin signaling in osteoblasts does not influence bone loss that occurs with ovariectomy in mice. Our study does not support the hypothesis that blocking myostatin-osteoblast interactions has therapeutic potential for maintaining bone density in estrogen deficient states.

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Title: Artificial Intelligence Screening of Computed Tomography Images for Identification of Findings Requiring STAT Read by a Radiologist

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Background/Objectives: At UConn Health Radiology, an AI-based screening software module created by AIDOC is used to screen CT scans performed at the institution to identify studies requiring a STAT interpretation by a radiologist. These AI modules function as a triaging tool to increase workflow efficiency and to ensure prompt radiologic evaluation to expedite patient care. Prior research has shown that similar AI-driven screening is accurate and effective[1,2], however, these findings can be highly variable with among specific imaging modalities and pathologies[3,4]. The objective of this study is to determine the accuracy of the AIDOC screening tool of detecting large vessel occlusion on CT imaging.

Methods: This retrospective study evaluated 1015 computed tomography angiogram studies (CTA Head or CTA Neck) that utilized the Large Vessel Occlusion AI Module. Large vessel occlusion findings generated by the AI module were compared with the final read from the radiologist, which served as the ground truth. Diagnostic accuracy for the algorithm's utility as a screening tool and its overall performance at detecting large vessel occlusion was determined through calculation of positive and negative predictive values, sensitivity, and specificity.

Results: The AI correctly screened 94.48% of scans that utilized the Large Vessel Occlusion AI Module algorithm. The sensitivity was 67.69% (95% CI: 55.61% - 77.80%), specificity of 96.32% (95% CI: 94.92% - 97.34%), NPV of 97.76% (95% CI: 96.59% - 98.53%), and PPV of 55.70% (95% CI: 44.73% - 66.13%). False positive etiologies included stenosis (n=22), congenital hypoplasia (n=1), streak artifact (n=1). False negative etiologies included occlusions of the vertebral artery (n=8), internal carotid artery (n=6), external carotid artery (n=2), subclavian artery (n=2), anterior cerebral artery (n=2).

Conclusion: At a lower volume, non-trauma, academic hospital, the clinical utility of this algorithm and its impact on patient care can be questioned. The algorithm performs with a high specificity and negative predictive value, giving it credibility to rule-out disease. However, due to its lower sensitivity, it does not perform optimally as a screening tool.

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Title: Association of Biliary Distention with a Diagnosis of Acute Cholecystitis

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Background: Ultrasonography is the first-line imaging modality for diagnosing cholecystitis[1]. Point-of-care-ultrasound (PoCUS) is comparable to ultrasound performed by radiology[2,3]. Gallbladder distention has been described in radiology literature[4,5] but its value on PoCUS is unclear. We sought to determine the test characteristics of distention on PoCUS for cholecystitis (acute or chronic), and whether distention was associated with obstructing stone-in-neck (SIN), acute cholecystitis on pathology report, and longer cholecystectomy operative times.

Methods: This was a dual-site retrospective cohort study of Emergency Department (ED) patients that underwent biliary PoCUS and were admitted from 11/1/2020 to 10/31/2022. Exclusions were pregnancy, liver failure, ascites, hepatobiliary cancer, prior cholecystectomy, or known cholecystitis. Distention defined as width ≥4 cm or length ≥10 cm. Images reviewed by three independent reviewers who obtained measurements. Test characteristics, Cohen's kappa (κ), and associations between distention and our variables were calculated by Chi Square analysis, where intervention was the reference standard for cholecystitis. A one-tail two sample t-test was calculated for mean operative times.

Results: Of 280 admitted patients who underwent ED biliary PoCUS, 53 were excluded. Of the 227 analyzed patients, 113 (49.8%) had cholecystitis by our reference standard, and 68 (30.0%) had distention on PoCUS. Agreement between investigators was substantial for width (κ 0.630) and length (κ 0.676). Distention was 85.09% (95% CI 77.20-91.07%) specific and 45.1% (95% CI 35.8-54.8%) sensitive for cholecystitis. There was an association between distention and SIN; odds ratio (OR) 2.76 (95% CI 1.54-4.97). Distention of both length and width was associated with acute over chronic cholecystitis; OR 4.32 (95% CI 1.42-13.14). Among patients with acute cholecystitis, mean operative times were 114 min in patients with distention and 89 min in patients without distention (p = 0.03).

Conclusion: Gallbladder distention on PoCUS was specific for cholecystitis (acute or chronic), and associated with SIN, acute cholecystitis, and longer operative times. Measurement of gallbladder dimensions in the assessment of cholecystitis may be advantageous.

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Title of Project: Factors Contributing to Delayed Diagnosis of Endometriosis

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Background/Objectives: Endometriosis is defined by the presence of endometrial tissue outside the uterine cavity and causes pelvic pain, dysmenorrhea, dyspareunia, and infertility.[1] It is a common disorder, affecting 6-10% of women of reproductive age.[2] Despite the often debilitating symptoms, diagnosis of endometriosis is often delayed by 7-10 years. Delayed diagnosis leads to patient suffering and delayed treatment, as well as potential worsening of disease burden, contributing to infertility and chronic pelvic pain. The purpose of this study is to identify the factors, both patient-related and healthcare-related, that contribute to delayed diagnosis of endometriosis. By identifying these factors, we can lay the groundwork for initiatives to mitigate their effects and ultimately reduce the time to diagnosis.

Methods: This is a prospective, descriptive study conducted through a survey of patients at the UConn Minimally Invasive Gynecology (MIGS) clinic. The primary outcome is evaluating delay to diagnosis of endometriosis, with "delayed diagnosis" defined as diagnosis that occurs greater than two years following symptom onset. A validated questionnaire was used to evaluate the healthcare-associated and patient-associated factors that may have influenced this delay. Descriptive statistics were completed in Excel. To determine if any factors lead to longer delays, we treated "delayed diagnosis" as a dichotomous outcome (delayed >2 years, not delayed <2 years) and used multivariable regression to compare factors.

Results: 100 surveys were completed and included for analysis. Statistically significant delays in diagnosis were seen in patients who sought care from a naturopath or nurse practitioner before a doctor, those whose diagnosis of endometriosis was not until surgical intervention, and those whose choice of physician was influenced by family recommendation or insurance coverage. There was a statistically significant number of women who identified insurance coverage as affecting their ability to receive care for endometriosis.

Conclusions: These findings indicate that factors such as insurance status and provider sought for treatment are correlated with delayed diagnosis of endometriosis. Unfortunately, this further illustrates the known issue of healthcare disparities. This information should inform future interventions to mitigate these delays, such as targeted provider education outside the OBGYN community and increased accessibility of specialized care regardless of patient insurance.

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Abstract

Title of Project: The Impact of an Integrated Bio-Behavioral Primary HIV Prevention Intervention on PrEP Adherence among High Risk People Who Use Drugs

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Background: The burden of HIV incidence among people who use drugs (PWUD) remains significant, despite recent advances in both biomedical and behavioral interventions.[1] Despite strong evidence indicating the utility of PrEP in reducing HIV transmission, nationwide scale-up has been limited.[2] The purpose of this study was to determine the effectiveness of integrating PrEP with an HIV-prevention behavioral intervention on adherence.

Methods: In this randomized controlled trial, 237 PWUD were allocated to 1) an HIV-prevention behavioral intervention, bio-behavioral Community-friendly Health Recovery Program (CHRP-BB)[3] or 2) a standard of care time and attention matched behavioral intervention. We utilized Generalized Estimation Equation (GEE) modeling to assess longitudinal PrEP adherence as measured by dried blood spot (DBS).

Results: Overall, most participants (69.9%) had taken at least one dose of PrEP at post-intervention. Adherence at therapeutic levels (700 fmol/punch ~ 4 doses/week), however, was quite low (22.2%). The CHRP-BB intervention was not associated with PrEP adherence at any DBS level threshold that was assessed, although those in the CHRP-BB group showed significantly higher PrEP adherence at the 3-month follow-up (OR= 0.39; 95% CI: 0.15, 0.99). Also unexpectedly, having an alcohol use disorder was associated with higher PrEP adherence at the DBS $\geq$ 350 fmol/punch level (OR= 1.07; 95% CI: 1.01, 1.14).

Conclusions: PrEP adherence among PWUD at risk for HIV was quite low despite implementation of an adapted evidence-based integrated bio-behavioral approach (CHRP-BB), which did not significantly enhance PrEP adherence over time based on our DBS assessment. Newer PrEP formulations, including long-acting injectable (LAI) PrEP, may be a more practical alternative, and should be investigated to determine acceptability and efficacy as part of primary HIV prevention targeting high risk PWUD.

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Title of Project: Rectus Sheath Block Improves Patient Recovery Following Open Aortic Surgery

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Background/Objectives: Postoperative pain management remains a barrier to recovery following aortic surgery. Although epidural catheters help in adjunctive pain management, less is known about the use of rectus sheath blocks. We compared patient recovery following open abdominal aortic surgery (OAS) with and without adjunctive rectus block.

Methods: Adult patients undergoing open abdominal aortic aneurysm repair and aortobifemoral or aortoiliac bypass for occlusive disease were identified and stratified by use of general anesthesia alone (GA) vs adjunctive use of a rectus sheath block (GA+RB). A small number of patients with GA and concomitant epidural analgesia, along with patients that had retroperitoneal repairs, were excluded. Outcomes included time to extubation, intraoperative and postoperative morphine milligram equivalents (MME) utilization, length of stay, discharge MME, and postoperative complications. Categorial data was compared with Person Chi-Square tests or Fisher's exact tests. Continuous data was tested with independent t-tests or Mann-Whitney U tests.

Results: From 1/2017 to 4/2022, 106 patients underwent open aortic surgery, 55 patients with GA alone and 39 with GA+RB. Patients were comparable in both groups in terms of age, BMI, smoking history, hypertension, diabetes, CAD, COPD, ASA class and prior opioid use. Patients with GA+RB were more likely to have scheduled elective procedures (80% GA cohort vs 94.9% RB, p=0.040. Patients with GA+RB had shorter time to extubation than GA (84.6% < 12 hours vs. 44.4%, p<0.001), greater rate of procedural ketamine usage (GA+RB: 61.5% vs. GA: 40.0%, p=0.049), lower MME at 1st post-operative day (median MME GA+RB: 25.0 vs. GA: 67.5, p=0.002), lower discharge MME (median MME GA+RB: 142.5 vs. GA: 225.0, p=0.036) and overall shorter length of stay (median stay GA+RB: 5 vs. GA: 6 days, p=0.006). Postoperative complications were similar between groups. Similar findings were found in the comparison between elective-only GA and GA+RB patients and after exclusion of patients who only had a single-shot of regional anesthesia.

Conclusions: Patients that receive adjunctive rectus sheath blocks for pain control following OAS utilize fewer opioid medications during hospital stay and at discharge. Rectus sheath blocks represent an alternative option to other periprocedural analgesia following open aortic surgery.

Title of Project: Golf Swing-Related Injuries Presenting to United States Emergency Departments - A 20-Year Analysis

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Background/Objectives: Participation in golf has been increasing significantly in the United States.[1] The golf swing is a full-body movement that involves five distinct stages to strike the ball.[2] Improper technique or overuse of this complex movement may increase the risk of injuries.[3] However, there is a paucity of national-scale analysis of golf-related injuries. The goal of our study is to determine common golf injuries presenting to the emergency department, the most common body parts at risk of injury, and sex differences.

Methods: The National Electronic Injury Surveillance System (NEISS) database was queried from 1/1/2003 to 12/31/2022 for golf-related injuries. Injury narratives were screened to identify injuries directly due to golf swing. Mechanisms of injury included swing-related, striking the ground, hit by own ball, and hit by own club. Injuries meeting the inclusion criteria were analyzed. We expect 8,394 cases over 20 years to meet screening criteria and roughly 60% (5,036) to meet final inclusion. Analyses include national estimates (NE) of prevalence, differences in injury diagnosis, and injury location by sex and age using the chi-square test. Statistical significance will be set at $P<0.05$.

Results: From 2003-2022, 4,684 swing-related injuries (NE=230,406) met the inclusion criteria. Overall, there were 189,330 male golfers (82.2%). The age groups that presented with the most swing-related injuries were ages 54-71, with 105,500 injuries (37.8%), 72 or older, with 75,611 injuries (23.8%), and 36-53, with 49,235 injuries (21.4%). The most common types of injury were strain or sprain 129,905 (56.4%), other 70,505 (30.6%), and fracture 8,636 (3.8%). The most common areas of injury were the lower trunk 70,911 (30.8%), knee 31,799 (13.8%), and shoulder 25,640 (11.1%). Fractures made up 6.5% of injuries in females compared to 3.3% in males ($P<0.001$).

Conclusions: While improving the mechanics of a player's swing is imperative for both injury prevention and improved play, preventative measures may be a more feasible avenue than elevating a player's skill and game. While no definitive preventive program has gained a foothold in the sport, strength training, flexibility, pregame warmups, and improved mechanics have all been suggested as protective mechanisms against acute injury.

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Title of Project: Characterization of the Social Determinants of Health Faced By Hospitalized Patients

Authors: Erin Cova,[1] Nivedha Natchiappan,[1] Ling Chi,[1] Henry Siccardi,[1] Christopher Steele[1]
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Background/Objectives: In 2024, the Centers for Medicare and Medicaid Services' Inpatient Prospective Payment System Rule will require hospitals to add metrics to the Hospital Inpatient Quality Reporting Program on two of the following social risk factors: food insecurity, housing stability, transportation needs, utility difficulties, and interpersonal safety.[1] Unfortunately, there is limited evidence available to guide the collection and use of this data.[2,3] This study aimed to characterize the most common social risk factors experienced by hospitalized patients and identify which patients are at higher risk of having them.

Methods: This study analyzed screenings performed at UConn Health and at three primary care clinics in Connecticut from September 13, 2021 to May 6, 2022. All questions used in this study were selected from the PRAPARE screening tool.[4] Screeners collected a convenience sample by attempting to approach and consent all patients aged 18 and older. Multivariable logistic regression was used to estimate the adjusted odds ratio and analyze the relationship between hospitalization status and having a social risk factor. We used chi-square analysis to determine if there were any significant differences in the prevalence of social risk factors experienced by hospitalized patients compared to clinic patients.

Results: Screeners approached 2280 patients and 2041 consented to screenings. Among patients screened, the odds of having a social risk factor was 101% (aOR 2.01(1.48–2.73)) higher for hospitalized patients compared to clinic patients. Black patients and Hispanic patients had increased odds of having a social risk factor (aOR 1.43(1.01–2.03) and (aOR 3.78(2.78–5.15) respectively) while White patients had decreased odds (aOR 0.37(0.27–0.50)). There was no association for age or gender. Hospitalized patients had a higher prevalence of unemployment, homelessness, housing insecurity, food insecurity, difficulty paying for utilities, lack of any phone, and lack of access to transportation than clinic patients ($p < 0.05$).

Conclusions: This study shows that hospitalized patients are twice as likely to experience social risk factors as their clinic counterparts and describes the social risk factors most prevalent among hospitalized patients. Limitations of this study include that the analysis performed does not assess causality and that the study was performed at a single institution which limits generalizability. We hope these findings can guide hospitals as they develop screenings and help address the scarcity of literature surrounding social risk factors seen in the inpatient setting.

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Title of Project: Electrocautery Technique During Tonsillectomies as a Measure of Competency Among Otolaryngology Residents: A Proof of Concept

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Background/Objectives: Objective quantitative tools are needed to assess resident proficiency in surgical skills. Tonsillectomies are a common procedure and therefore an important part of otolaryngology resident education. The goal of this project is to determine if tracking the audio output of an electrocautery unit may be used as a new metric for tracking residents' proficiency in performing tonsillectomy procedures

Methods: The following information from tonsillectomy cases was collected: resident year of training (PGY-), sex of resident, age of patient, indication for procedure, tonsil size, number of beeps, total duration of procedure, and length of time to remove the tonsil

Results: 59 tonsillectomies were observed, with 20 completed by PGY1 and PGY2, 13 cases by PGY3, 26 by PGY4 and PGY5. The longest duration of tonsillectomy was 611 ± 321 sec by PGY1/2 and the shortest 391 ± 185 sec by PGY3. Duration for PGY4/5 increased. PGY1/2 residents had the highest average number of beeps at 70 ± 24. PGY3 had the lowest average number of beeps at 55.2 ± 24.4. When comparing the number of beeps and duration across groups, controlling for tonsil size and indication, there were statistically significant differences found in the duration of tonsillectomy ($p < 0.05$), but not the number of beeps.

Conclusions: There was a trend toward decreased number of beeps, representing more efficient performance, with advancement in training through PGY3, but not beyond. Decreasing duration of tonsillectomy suggested greater efficiency over the course of residency. Our results suggest that the efficient use of electrocautery may potentially serve as a marker of proficiency in tonsillectomies among otolaryngology residents.

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Financial Health of Private Equity-Backed Groups: Perspectives From Eye Care

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Background: In private equity (PE) buyouts of medical practices, it is common for the PE firm to raise significant levels of debt in order to finance the purchase. This debt is subsequently shouldered by the acquired practice(s). There remains a scarcity of literature quantifying the effect of PE acquisition on the subsequent financial performance of eye care practices. We aim to identify and characterize debt valuations of ophthalmology and optometry private equity-backed group (OPEG) practices, which serve as an indicator of practice financial performance.

Methods: A cross-sectional study from March 2017 to March 2022 was conducted using business development company (BDC) quarterly/annual filings to the Securities and Exchange Commission (SEC). The 2021 BDC Report was used to identify all BDCs actively filing annual reports (Form 10-Ks) and quarterly reports (Form 10-Qs) in the United States in 2021. The public filings of BDCs lending to OPEGs were searched from the inception of the OPEG's debt instrument in a BDC's portfolio and the amortized cost and fair value of each debt instrument were tabulated. A panel linear regression was used to evaluate temporal changes in OPEG valuations.

Results: A total of 2,997 practice locations affiliated with 14 unique OPEGs and 17 BDCs were identified over the study period. Debt valuations of OPEGs decreased by 0.46% per quarter over the study period (95% CI: -0.88 to -0.03, P = 0.036). In the COVID-19 pre-vaccine period (March 2020 to December 2020), there was an excess (additional) 4.93% decrease in debt valuations (95% CI: -8.63 to -1.24, P = 0.010) when compared to pre-pandemic debt valuations (March 2017 to December 2019). Effects of COVID-19 on valuations stabilized during the pandemic post-vaccine period (February 2021 to March 2022), with no change in excess debt valuation compared to pre-pandemic baseline (0.60, 95% CI: -4.59 to 5.78, P = 0.822). There was an increase in practices that reported average discounted debt valuations from 20 practices (1.6%) associated with one OPEG to 1,213 practices (40.5%) associated with nine OPEGs (including 100% of newly acquired practices), despite the stabilization of COVID-19-related excess (additional) debt.

Conclusions: Debt valuations of eye care practices have declined significantly post-PE investment from March 2017 to March 2022, suggesting that the financial health of these groups is volatile and vulnerable to economic contractions such as the COVID-19 pandemic. Eye care practice owners must consider long-term financial risks and impacts of subsequent patient care when selling their practice to a private equity group. Future research should assess the impact of secondary transactions of OPEGs on the financial health of practices, practitioner lifestyle, and patient outcomes.

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Title: Hartford Reentry Center Healthcare Assessment Survey Study
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Background: The Greater Hartford Reentry Welcome Center (RWC), helps individuals after incarceration but does not provide direct access to medical care resources. Because formerly incarcerated individuals have higher rates of health-related concerns compared with the never-incarcerated,[1,2] linking them to appropriate healthcare services is crucial. In partnership with the RWC, we sought to determine RWC clients' opinions regarding health care access during incarceration and explore barriers to accessing basic services, such as primary care.

Methods: Study participants were RWC clients between January 1st, 2022 and December 1st, 2024, were at least 18 years old, and spoke English. Using a mixed-methods approach, we conducted face-to-face interviews with 109 clients, and conducted in-depth qualitative interviews with 25 of these individuals. Participants received $25 gift cards. We assessed current health conditions, access to healthcare services, utilization of healthcare during incarceration, and used the Multidimensional Scale of Perceived Social Support[3]. Qualitative questions focused on reasons for difficulty accessing healthcare. Descriptive statistics (e.g., frequencies, percentages) summarized the data.

Results: Average age of the entire sample was 41.5 (SD=10.81; range 24 to 66) and was primarily male (95.2%). Of the 25 participants who completed qualitative interviews, 82% were male and median age was 43 years (range 27 to 62). When asked about healthcare within the prisons, the most common responses centered around long wait times, feelings of dismissal, and poor management of chronic conditions. Social support varied greatly amongst all participants. Reasons for not seeking care from a primary care provider since returning to the community included not knowing where to go and more significant priorities.

Conclusions: Our preliminary findings indicate that despite largely reporting having access to primary care services and knowing the necessary steps to take to seek care, RWC clients' competing priorities (e.g., housing; food) usually take precedence. As data analyses continues, we anticipate finding social support has a large impact and many may benefit by being referred to a PCP. Our results can inform the development of healthcare-related services for Center clients.

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Project title: Comparison of Verbal Orders to Electronic Medication Documentation during Codes in a Pediatric ED

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Background/Objective: Patients in the emergency department are at increased risk for adverse events, such as medication errors, due to the fast-paced, stressful environment[1]. Pediatric patients are at particular risk due to weight-based dosing[2]. Video review provides the opportunity to examine adverse events and the factors that contributed to them to improve patient safety and health outcomes[3]. While this has been studied in the emergency department, there has not been a focus on the pediatric population[4]. This study will investigate the agreement between real-time orders verbalized in high acuity patient encounters and electronically documented orders within patient EMRs for actions that were executed during these encounters.

Methods: This retrospective chart and video review will look at high acuity video recordings and EMRs for pediatric patients in the CT Children's ED. Videos are recorded via ceiling cameras in CT Children's ED resuscitation rooms 1 and 2. The target population includes pediatric patients (less than 18 y/o) at CT Children's ED that were triaged as level 1 or 2. Patients are excluded if older than 18 years, do not have appropriate video/EMR documentation, or video is of poor audio/visual quality.

Results: Twenty-two patient encounters were reviewed. Medication doses were verbally specified in 72.2% (13/18) of cases, with units verbally specified in 55.6% (10/18) cases. There was disagreement between verbal and EMR orders for medications in 59.1% (13/22) of cases and for medication dosing in 86.4% (19/22) cases. Drug class did not significantly impact these discrepancies (p-value 0.531). 60% (6/10) of cases had disagreement in fluid orders. 31.8% (7/22) of cases showed disagreement in IV placement orders.

Conclusions: Video review highlighted inconsistent verbalization of medication doses and units of doses. Disagreement between EMR and video medication orders were predominantly due to these inconsistencies. Orders for fluids were usually verbalized but less frequently ordered electronically. IV placement was usually completed with either a verbal order, an electronic order, or neither. Limitations include sample size, accuracy of EMR documentation, and video quality.

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Title of Project: Effect of RvE1 on Inflammation Resolution and Intestinal Tissue Repair in Chronic Ulcerative Colitis: A DSS-Induced Murine Model Study

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Background/Objectives: Ulcerative colitis (UC) is a chronic, immune-mediated inflammatory disease affecting the large intestine and rectum.[1] Current treatments with anti-inflammatory agents, immunosuppressants, and surgical resection are associated with significant side effects.[2] TP-317, a stable salt that dissociates into Resolvin E1, an endogenous lipid involved in inflammation resolution and epithelial repair, has shown potential in improving disease activity and inflammation in acute UC models.[3,4] This study aims to evaluate the role of TP-317 in chronic UC using a DSS-induced colitis murine model and compare its effects to current standard treatments, addressing the potential of TP-317 in chronic UC management.

Methods: Ninety eight-week-old C57BL/6 WT mice were randomly assigned to 9 treatment groups. Mice underwent two cycles of DSS exposure (1% for 5 days, followed by 2% for 5 days) to induce moderate-to-severe ulcerative colitis, with a recovery period in between. Treatment began on day 12 with daily oral gavage (200 µL) of either vehicle or TP-317 (0.4, 4, or 12 mg/kg), 5-ASA (300 mg/kg), S1P (0.3 mg/kg), or combination treatments. Mice were sacrificed on days 23 (peak) or 30 (remission). Disease activity was monitored daily using a disease activity index (DAI), including weight, rectal bleeding, and stool consistency. At sacrifice colons were collected for histopathological analysis. Statistical analysis done with GraphPad Prism with Repeated Measures One-Way ANOVA and Ordinary One-Way ANOVA for group comparisons, accepting $p < 0.05$ as significant.

Results: By day 30, mice treated with 5-ASA (200 mg/kg), Fingolimod (0.3 mg/kg), and TP-317 (4.0 mg/kg + 5-ASA) had significantly improved AUC ($p<0.002$). Lower doses of TP-317 (0.4 and 4.0 mg/kg) showed decreased DAI scores but worse AUC compared to disease control. Combination therapies showed significant improvement ($p<0.05$), but 5-ASA alone was more effective than TP-317 combinations. Histological results showed that all treatment groups exhibited significantly improved inflammation, with lower inflammation scores compared to the disease control. There were no significant differences in inflammation scores between the treatment groups, indicating similar levels of improvement across all treatments.

Conclusions: TP-317 showed improvement in inflammation and disease severity in DSS-induced mice, but its effects were not significantly superior to 5-ASA, steroids, or combination treatments. Limitations include the inability to analyze stool and blood biomarkers and the sample size considerations due to the two sacrifice time points, suggesting that future research should focus on biomarker analysis and larger sample sizes.

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Patient Preferences for Masking in the Ophthalmology Clinic During the COVID-19 Pandemic

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Background/Objectives: Ophthalmology exams pose a significant risk for COVID-19 transmission between patients and providers. More than 30% of ophthalmologists felt that full PPE including mask, gown, gloves, and eye protection should be required for outpatient care.[1] The American Academy of Ophthalmology in a 2020 statement recommended the use of surgical masks and slit-lamp shields during eye examinations.[2] However, Ong et al. found that properly worn face masks provided the best protection against aerosol and droplet transmission.[3] CDC guidelines published on September 23, 2022 no longer mandated masking in health care facilities during periods of low transmission, but no studies to date have assessed patient perspectives of masking in ophthalmology clinics. In this study, we aimed to determine whether patients prefer wearing masks and if they would feel uncomfortable if their ophthalmologist and/or other patients were not wearing masks.

Methods: This study included 150 patients surveyed between November and December 2022 at an academic, hospital based-ophthalmology practice and a private ophthalmology practice in central Connecticut. The following patient information was collected by the survey in addition to clinic masking preferences: age and sex, COVID-19 vaccination status, history of prior COVID-19 infection, and medical conditions increasing susceptibility to severe COVID-19 infection. We assessed for differences in masking preferences associated with the above patient information and compared results between practices using contingency chi-square testing.

Results: The mean age of participants was 63 ± 16 years. 71% of patients preferred wearing masks, 79% of patients preferred their ophthalmologist and staff wearing masks, and 80% of patients preferred other patients wearing masks. If given the option to not wear masks in the office, 70% of patients indicated that they would continue wearing masks. There were statistically significant differences in masking preferences for patients with medical conditions increasing their susceptibility to severe COVID-19 infection, who comprised 22% of respondents overall. 88% of these patients would continue wearing masks if masks were optional (p=0.0112) and 58% of these patients would be uncomfortable if their ophthalmologist (p=0.0499) or other patients (p=0.0319) were not wearing masks. Based on age, sex, COVID-19 vaccine status, prior COVID-19 infection, or private versus hospital-based ophthalmology practice, we did not identify statistically significant differences in masking preferences.

Conclusions: There was a strong preference for wearing masks from patients at both ophthalmology clinics. Patient perspectives should be considered when developing masking recommendations for ophthalmology practices.

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Title of Project: Esophageal Atresia Surveillance Practices and Pathology: A Systematic Review and Meta-Analysis

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Background/Objectives: Long-term management of esophageal atresia (EA) involves multidisciplinary follow-up of complex care that extends into adulthood, requiring surveillance for esophageal pathology, notably Barrett's Esophagus (BE) and esophageal malignancy.[1] Though there are national and international recommendations for EA surveillance outlined by ESPGHAN/NASPGHAN, they are inconsistently followed as revealed by survey data.[2] This study aimed to identify surveillance practices that are currently utilized to monitor long-term outcomes of EA, and the prevalence of esophageal pathology.

Methods: A systematic review was conducted according to PRISMA guidelines and was pre-registered on PROSPERO. MEDLINE via Pubmed, Embase, and the Cochrane Library (CENTRAL)) were searched for articles focused on patients of any age who had undergone EA repair with or without TEF. We restricted to articles which assessed long term outcomes, specifically BE and esophageal malignancy, or those that reported esophageal surveillance practices.

Results: Out of an initial 4,089 articles, 135 met initial criteria for full text screening (confirmed by two reviewers), and 32 studies have been included. Most studies performed surveillance based on symptoms or as a one time practice. There were 15 cases of esophageal malignancy reported (11 squamous cell carcinoma, 4 adenocarcinoma), with a mean age at diagnosis 41.2 (SD 7.03), median age of 44 (range 22-47). There were 2394 EA patients and 171 reported cases of BE. Prevalence of BE in this population was 8.1% (95% C.I. 7.67% to 8.53%) with a mean age at detection of 14.7 years (range 2.93 to 46).

Conclusions: In patients with esophageal atresia, we found a high prevalence of Barrett's Esophagus present in early adolescence. Esophageal malignancies remain rare but demonstrate an earlier age at onset than in the general population.[3] The frequency of surveillance was also variable and did not follow current national guidelines which is surveillance endoscopy with biopsy 3 times during childhood.[4] These data support the significance of surveillance and the need to standardize practices as well as more widely disseminate education regarding surveillance recommendations in the esophageal atresia population in order to detect precancerous and malignant pathologies.

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A Qualitative Pilot Study Investigating The Accuracy Of ASCVD Risk Calculator In Patients
With Hodgkin's Lymphoma Treated With Mediastinal Radiation

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Background/Objectives: Coronary artery disease (CAD) affects 7.2% of Americans and has high morbidity and mortality. The atherosclerotic cardiovascular disease (ASCVD) calculator estimates 10-year risk of a CAD related events. While this tool is a great resource, it does not account for all variables that are known to increase the risk of CAD, such as, mediastinal radiation, a standard treatment for patients with Hodgkin's Lymphoma (HL).[1, 2] It is currently unknown how much the ASCVD calculator underestimate the risk of CAD in patients with a history of mediastinal radiation.[3] The goal of our project was to determine if patients with HL had evidence of coronary calcification (thus, CAD) on computed tomography (CT) imaging and if future studies investigating the accuracy of the ASCVD risk calculator for patients with a history of mediastinal radiation are feasible at UConn Health.

Methods: A qualitative pilot study was conducted using data from the UConn Health EPIC electronic medical record. Subjects over the age of 40 were identified using international classification of disease (ICD) codes for HL and current procedural terminology codes (CPT) for mediastinal radiation and chest radiography. Patients who received mediastinal radiation therapy 10 years prior to available chest CT and lipid panels were considered eligible for the proposed future study. CT images collected 10 years after mediastinal radiation were reviewed for evidence of coronary calcification.

Results: Of the 237 subjects with ICD codes for HL and CPT codes for mediastinal radiation, only 3 met eligibility criteria for future studies. There was evidence of coronary calcification in the majority of eligible patients.

Conclusions: The limited number of eligible patients identified at Uconn Health suggests that the inclusion/exclusion criteria for the study are overly stringent. To increase the sample size and power of future studies, patient's with any history of mediastinal radiation, regardless of malignancy type, could be included. Additionally, other healthcare system could be sampled which would increase the size and the representativeness of the sample. Finally, the evidence of coronary calcification on CT images suggests that coronary calcium scores are a promising surrogate measure of CAD risk in patients with a history of mediastinal radiation.

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Title of Project: Epidemiology of breast cancer in transgender patients

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Background/Objectives: No professional organization with guidelines for breast cancer screening include recommendations for transgender patients. There is also a lack of data on characteristics of breast cancer in this population. The goal of this study is to further classify breast cancer epidemiology in transgender patient populations using data from the North American Association of Central Cancer Registries (NAACCR) to help inform future breast cancer screening guidelines and preventive care practices in this minority population.

Methods: A retrospective cohort study of transgender men (natal female) (66), transgender women (natal male) (29), and cisgender female (n=1,038,432) individuals diagnosed with primary breast cancer was conducted. Extracted variables included sex, age group, summary stage, estrogen receptor (ER), progesterone receptor (PR), and HER2 receptor status. Chi-squared tests were performed to calculate statistically significant differences between each transgender cohort compared to the cisgender cohort.

Results: The cohort of transgender men included 66 individuals and transgender women included 29 individuals. The cisgender female cohort included 1,038,432 individuals. Age of diagnosis was <40 years old in 28.7% of transgender men, 6.9% of transgender women, and 4.6% of cisgender females. There was a significant difference in age of diagnosis in transgender men compared to cisgender females (p<0.001). Tumor summary stage was localized for 70.7% of transgender men, 58.3% of transgender women, and 75.2% of cisgender females. There were no significant differences between transgender men (p=0.673) or transgender women (p=0.093) compared to the cisgender cohort. Receptor status was ER/PR positive; HER2 negative for 79.3% of transgender men, 90.5% for transgender women, and 75.3% of cisgender females. 6.34%, 4.76%, and 7.7% of individuals were ER/PR positive; HER2 positive in respective groups. There were no significant differences in receptor status between transgender men (p=0.892) or transgender women (p=0.420) compared to the cisgender cohort.

Conclusions: Transgender men were significantly more likely to have age at diagnosis <40 years compared to cisgender females. These findings underscore the need for inclusive breast cancer screening guidelines and further research to address gaps in preventive care for transgender individuals.

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Gene Therapy with Heat Shock Protein A12B Reduces Ventricular Remodeling of Diabetic Myocardium Exposed to Myocardial Ischemia

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Background/Objectives: Diabetes is a chronic disease that drastically reduces myocardial angiogenesis and increases risk of mortality after myocardial infarction[1]. Heat Shock Protein A12B (HSPA12B) serves an important role in fostering myocardial angiogenesis[2], this role is reduced by the diabetic state resulting in decreased cardioprotective effects[3]. The molecular mechanisms foundational to this impairment are poorly understood. Despite HSPA12B emerging as a possible therapeutic aim, its interaction with proteins downstream and its ability to improve angiogenic function in diabetic hearts necessitates further study. This experiment explored the impact of overexpression of HSPA12B on cardiac function, new blood vessel formation, and interaction with proteins downstream.

Methods: Randomized controlled study investigating the impact of diabetes status (streptozotocin-induced diabetic vs non-diabetic control), surgical intervention (MI vs Sham) and treatment type (Ad.HSPA12B vs Ad.LacZ) in six rat groups: Control (Non-diabetic) Sham, Control MI+Ad.LacZ, Control MI+Ad.HSPA12B, Diabetic Sham, Diabetic MI+Ad.LacZ, and Diabetic MI+Ad.HSPA12B. Ad.LacZ/Ad.HSPA12B was injected intramyocardially at four locations around the infarct border zone after irreversible ligation of the left anterior descending artery. Sample sizes varied from 3-14 per group dependent on measurement including protein expression, vascular density, fibrosis, and cardiac function. Data collection occurred through western blot, immunohistochemistry, cellular assays, protein remodeling, and echocardiography. Statistical analysis was conducted using one-way ANOVA with post-hoc analysis.

Results: Treatment with Ad.HSPA12B in diabetic rats with MI resulted in significant improvement in cardiac function compared to Ad.LacZ controls. Demonstrating increased expression of HSPA12B (1.43-fold, n=3, $p<0.05$), increased neovascularization (capillary density: 2277 ± 133.2 vs 1560 ± 127.50 counts/mm², n= 7-8, $p<0.05$), decreased fibrosis (10.43 ± 2.52% vs 19.16 ± 3.28%, n=9, $p<0.05$), and improved cardiac function (EF: 40.89 ± 6.59% vs 32.37 ± 2.32%, n=6-10, $p<0.05$). Subgroup analysis demonstrated diabetic sham had reduced HSPA12B (0.76-fold, n=3) and increased AKAP12 (2.09-fold, n=3) in comparison to non-diabetic sham. Treatment with Ad.HSPA12B demonstrated a greater effect in non-diabetic versus diabetic MI groups ($p<0.05$ across all measurements).

Conclusions: HSPA12B overexpression increases neovascularization and cardiac function following MI in diabetic rats. Results suggest that gene therapy using HSPA12B could play a part in decreasing cardiac-related morbidity and mortality in those with diabetes.

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Title: Low Body Mass Index Patients Undergoing an Anterior Lumbar Fusion May Have an Increased Risk of Perioperative Complications.

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Background: Previous research shows underweight patients may face greater postsurgical complication risks. This study investigated the association between body mass index (BMI) and postoperative complications after single-level anterior lumbar fusion (ALF).

Methods: Single-level elective ALF procedures (2010–2020) were identified in the PearlDiver Database. Patients were divided into six groups based on World Health Organization BMI classifications. Postsurgical complications (e.g., deep vein thrombosis, pulmonary embolism, infection, hardware malfunction, would dehiscence, and blood transfusion) among BMI categories were compared using a Chi-square ($\chi2$) test.

Results: Underweight patients (BMI <20) had significantly higher risks of deep vein thromboses, hardware malfunction, and blood transfusion compared to other BMI classifications (P < 0.001). Similar risks of surgical site infection and wound dehiscence were observed between underweight patients and those with obesity class III.

Conclusion: Underweight patients may face greater postoperative risks following single-level ALF procedures. Evaluating patients with BMI ≤20 preoperatively may help optimize outcomes and reduce complications.

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Title of Project: Temporary Uterine Artery Embolization and its Impact on Fertility and Pregnancy Outcomes

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Background / Objectives:

Uterine fibroids affect 20-40% of reproductive-age women. Many will experience symptoms that reduce quality of life, such as menorrhagia and abdominal pain.[1] Current surgical interventions include hysterectomy, myomectomy, and uterine artery embolization (UAE). Due to a lack of evidence, most societies do not recommend UAE as a first-line therapy for patients who desire future pregnancies.[2,3] Procedural modifications in UAE, specifically the use of temporary embolic agents, may improve patient fertility and pregnancy outcomes. This study will assess such outcomes in temporary UAE procedures. The resulting data may broaden treatment options for patients who seek to preserve fertility.

Methods:

This was a single-center retrospective case series performed under UConn Health IRB approval (#23X-055-2). Eligible participants included premenopausal women between 18-50 years old who underwent a UAE with a temporary embolic agent (i.e. gelfoam). Participants with a malignancy or UAE with a permanent embolic agent (i.e. metal coils, beads) were excluded.

Results:

Six subjects met criteria and had temporary UAE. Two patients went on to have a pregnancy and one patient required a hysterectomy for AIS. The average time from procedure to pregnancy was 2.8 years, and no artificial reproductive technology was required. Pregnancies resulted in term deliveries with uncomplicated antepartum courses and no growth restriction or placental abnormalities. All six UAE's were clinically successful.

Conclusions:

The data collected suggests that temporary UAE may be efficient while also preserving patient fertility. In our cohort of temporary UAE patients, two out of six sustained a healthy, uncomplicated full-term pregnancy. Limitations of the study include a small sample size, and lack of randomization or adjustment for confounding variables. Additonal studies are required to determine a statistically and clinically significant effect of temporary UAE.

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Serum Albumin Levels & Cognitive Function In Older Adults: A Cross-Sectional Analysis

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Background/Objectives: Alzheimer's Disease (AD) affects over six million Americans age ≥65 years, with numbers projected to rise. Blood-based biomarkers associated with cognitive impairment may offer opportunities to identify individuals at risk of AD. Several studies indicate that low values of serum albumin, a liver-synthesized protein and nutritional status marker, are associated with cognitive impairment in older adults[2]. However, these studies were largely conducted in specific subpopulations outside the U.S., which may limit generalizability[1,3-5]. We sought to determine if serum albumin was associated with cognitive impairment in older adults seeking geriatrics care in the U.S.

Methods: We conducted a retrospective analysis of de-identified electronic medical records of adults age ≥65 years seen at the UConn Center for Healthy Aging and Geriatrics between April 28, 2018, and April 28, 2024. Low serum albumin was defined as <3.8 g/dL and cognition was assessed using the Montreal Cognitive Assessment or the Mini Mental State Exam. A chi-square test analyzed the bivariate association between serum albumin level and cognition (impaired vs. not impaired). Logistic regression was used to evaluate this association while controlling for age, sex, and race/ethnicity.

Results: There were 102 patients seen during the study timeframe who had values for serum albumin and cognition within 18 months of one another. The sample had an average age of 82 (SD= 7; range 66 to 96) years, was 80% female, and 80% white. Bivariate analysis indicated that serum albumin level (g/dL) was associated with cognition (χ^2(1, N = 102) = 5.21, p = 0.02, critical value = 3.84). After controlling for potential confounders, individuals with low albumin levels had significantly higher odds of cognitive impairment (OR = 12.93, 95% CI: 2.16-262.62, p = 0.023).

Conclusions: Among individuals seeking geriatrics care, those with low serum albumin levels were more likely to experience cognitive impairment. Serum albumin is a blood-based biomarker that may be useful in identifying older persons with cognitive impairment. Future studies are needed to evaluate this association in a larger and more racially diverse sample and to determine if serum albumin is useful as a target for developing interventions to slow or prevent AD.

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Title of Project: The Effect of Shorter Ovarian Stimulation Duration on IVF Cycle Outcomes

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Background & Objectives: Improving outcomes in assisted reproduction is a growing focus, yet still, the chance of a live birth after three IVF cycles remains low at 42.3%[1]. Controlled ovarian stimulation with gonadotropins precedes trigger administration for oocyte maturation before retrieval, but no evidence-based consensus exists guiding trigger timing. A small study (N=94) suggested trigger day did not impact IVF outcomes[2]. Some providers trigger patients when their three largest follicles reach 17-18 mm, typically after 8-12 days of stimulation, with an average of patients triggered at 10 days[3]. Later trigger dates inherently involve more injections, further invasive testing, prolonged patient and partner anxiety, and increased risk for medical complication. This study aims to demonstrate earlier trigger day is non-inferior to prolonged ovarian simulation, with a primary outcome of the proportion of mature oocytes obtained, and secondary outcomes of fertilization rates, number of blastocysts, and blastulation rates. These results would be clinically relevant in aiming to reduce patient burden, costs, and morbidity.

Methods: Data was retrospectively extracted from the electronic medical record (EMR) during the two year period from 2021-2022. Patients aged ≤ 47 years of age that underwent at least one cycle of IVF with ovulation trigger were included in the study. 2262 unique IVF cycles were identified for analysis. Of those, patients were grouped as Day 7 trigger (experimental group) or Days 8-12 trigger (control group). Trigger day (independent variable) and IVF cycle outcomes including blastocyst count, blastocyst rate, oocyte yield, and fertilization rate (dependent variables) were then compared between the two groups using t-test statistical analyses.

Results: The blastocyst count for trigger Day 7 (N=151) was 5.497 (± 0.657, 95% CI) and for trigger Days 8-12 (N=1422) was 5.817 (± 0.239, 95% CI). The blastocyst rate for trigger Day 7 (N=150) was 42.70% (± 4.87%, 95% CI) and for trigger Days 8-12 (N=1422) was 40.41% (± 1.01%, 95% CI). The oocyte yield for trigger Day 7 (N=211) was 12.71 (± 1.22, 95% CI) and for trigger Days 8-12 (N=1957) was 13.44 (± 0.41, 95% CI). The fertilization rate for trigger Day 7 (N=180) was 50.37% (± 3.04%, 95% CI) and for trigger Days 8-12 (N=1610) was 55.08% (±1.02%, 95% CI).

Conclusions: As hypothesized, there is not a statistical difference between blastocyst count, blastocyst rate, and oocyte yield between the experimental (Day 7) or control (Days 8-12) groups ($p > 0.05$). There is a statistically significant difference in the rate of fertilization ($p = 0.004$) between these groups. Understanding the clinical impact of this difference on pregnancy outcomes, expanding of the timeframe beyond two years, investigating other secondary IVF outcomes, and analyzing subgroups by covariates are ongoing next directions of this work.

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Title: Navigating Diabetes in Pregnancy: A Critical Evaluation of Approaches to Decrease Risks and Enhance Outcomes for Both Mother and Child

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Background: With the increasing prevalence of diabetes and its growing impact on maternal and fetal health, the management of diabetes during pregnancy has become increasingly critical. Methods: This review describes the pathophysiology of insulin resistance during pregnancy, adverse outcomes correlated with diabetic pregnancies, and current management strategies. We investigate two leading approaches to managing pregnant patients with diabetes - lifestyle intervention and drug treatment. Lifestyle intervention, including dietary counseling, exercise regimens, patient education, and self- blood glucose monitoring, has demonstrated promising results in the management and prevention of gestational diabetes mellitus (GDM). Early intervention and treatment of at-risk patients have been critical for positive outcomes. Drug treatment, focusing on the utilization of insulin, insulin analogs, and antihyperglycemic agents has shown efficacy in achieving glycemic control and im- proving maternal and neonatal outcomes.
Results: These findings indicate that a combination of early life- style intervention and targeted drug treatment, when indicated, yields the most benefit in managing diabetes in pregnancy.
Conclusions: To augment treatment, continuous glucose monitoring and telemedicine have become valuable tools in managing diabetes during pregnancy. Future research should aim to develop more effective antihyperglycemic agents, improve telehealth accessibility, and enhance preconception care for women at risk of developing GDM. By addressing these areas, we can significantly reduce the adverse outcomes associated with diabetes in pregnancy and improve overall maternal and fetal health.

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Title of Project: Impact of Preterm Birth on Postpartum Depression in CT

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Background/Objectives: Preterm birth is a stressful event that can negatively impact maternal mental health, and prior studies suggest an association between preterm birth and an increased risk of postpartum depression (PPD)[1]. Several risk factors, including pre-existing depression, adverse social determinants, and poor maternal health status and self-efficacy, are associated with increased risk of preterm birth as well as PPD[2,3]. This project aims to assess if there is an association between preterm birth and PPD in Connecticut while accounting for potential confounding variables to better understand how to decrease PPD rates in our community.

Methods: This study is a secondary analysis of data from the Connecticut Pregnancy Risk Assessment Monitoring System (PRAMS) survey from 2016-2022. The primary independent variable is gestational age at birth, categorized as "full term" (≥37 weeks), "moderately preterm" (32- 37 wks), "very preterm" (28-32 weeks) and "extremely preterm" (<28 weeks). The dependent variable is a positive PPD screening, defined as 3 or more points on the PHQ-2[4]. Covariates include maternal age, history of depression, anxiety, depression during pregnancy, anxiety during pregnancy, maternal years of education, and race categorized into White, Black, American Indian/Alaska native, Asian/Native Hawaiian Pacific Islander (NHPI), or multiple races.

Results: The analytic sample included 8,948 participants, of whom 10.5% (n = 938) screened positive for PPD. Preterm birth occurred in 8.6% (n = 770) of participants. The highest PPD rate was in the extremely preterm group (23.2%, n = 67), followed by moderately preterm (11.7%, n = 631) and very preterm (7.1%, n = 72). In a multivariable logistic regression accounting for all previously mentioned covariates, being "extremely preterm" nearly doubled the odds of developing PPD (OR = 2.21, CI 95% [1.16, 4.20], p = 0.016), but no significant association was found for other preterm groups. Depression during pregnancy tripled PPD odds (OR = 3.11, 95% CI [2.42, 4.01], p < 0.001), and anxiety during pregnancy increased odds by 63% (OR = 1.63, CI 95% [1.25, 2.12], p < 0.001). Depression prior to pregnancy elevated the odds by about 54% (OR = 1.54, CI 95% [1.18, 2.02], p = 0.002). Higher maternal age slightly reduced risk (OR = 0.98, CI 95% [0.97, 0.99], p = 0.004), and mothers with the most years of education had about 41% lower odds compared to the group with the least years of education (OR = 0.59, CI 95% [0.40, 0.87], p = 0.008). Finally, Asian/NHPI mothers were at more than twice the risk (OR = 2.57, CI 95% [1.99, 3.31], p < 0.001). There were no significant findings in other racial groups.

Conclusions: After adjusting for maternal age, presence of depression/anxiety prior to and during pregnancy, race, and maternal years of education, preterm birth in CT is indeed associated with an increased risk of PPD, although significance is only observed in extremely preterm births (<28 weeks). Depression before and during pregnancy, as well as prenatal anxiety, are strong risk factors, underscoring the need for mental health care throughout pregnancy. Higher education appears protective, suggesting socioeconomic disparities in PPD risk. Among racial groups, the CT Asian/NHPI population showed a significantly higher PPD rate—an association not found in existing literature— warranting further investigation into potential contributing factors in this community.

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Title: Investigating Polymicrobial Interactions and Antibiotic Persistence in Bronchiectasis Airways

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Background: Increasing rates of antibiotic treatment failure can be attributed to genetic modifications that confers antibiotic resistance[1]. However, persisters without these mutations may survive in the presence of doses of antibiotics that kill the rest of the genetically identical population. Persister survival stems from reversible changes in gene expression and metabolism and may contribute to chronic infections[2]. Bronchiectasis is an obstructive pulmonary disease that results from repeated infections and/or chronic inflammation. Infections in bronchiectasis are often polymicrobial and the microbial interactions may impact persistence[3]. The purpose of this study is to better understand persisters' role in bronchiectasis.

Methods: 21 sputum samples were collected from patients with bronchiectasis at the Center for Bronchiectasis Care of Dr. Mark Metersky. Samples were banked in Sputasol and glycerol separately and grown on selective media and colonies frozen at -80 °C. 8 samples in Sputasol and glycerol were sent for shotgun and 16s rRNA metagenomic sequencing to identify abundant species. 3 samples were sent for whole genome sequencing. Minimum inhibitory concentration (MIC) assays utilizing E-tests were performed on select isolates of *Pseudomonas aeruginosa* and compared to lab strains PA14 and PAO1. Tobramycin survival assays were also performed with select samples.

Results: Abundant species in glycerol samples included *P. aeruginosa*, *Staphylococcus aureus*, *S. epidermidis*, *S. lugdunensis*, *Streptococcus oralis*, and *S. sanguinis*. Mean survival fraction of one *P. aeruginosa* isolate when exposed to 100 ug/mL of tobramycin at 24 hours was 0.76 compared to 0.00025 for PAO1 (p = 0.001) and 0.014 for PA14 (p = 0.0142) even though the MICs of all three *P. aeruginosa* strains were below the tobramycin resistance threshold.

Conclusions: Abundant species in samples varied based on patients' antibiotic exposure. A select isolate of *P. aeruginosa* demonstrated a greater survival fraction when exposed to tobramycin compared to PAO1 and PA14 despite MIC assays indicating sensitivity. Genomic analysis showed mutations in mexZ, which has been shown to result in overproduction of MexXY efflux pumps[4]. *P. aeruginosa* isolates from different patients have different mutations in mexZ, which could lead to differences in tolerance/persistence to different classes of antibiotics.

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Title of Project: Opinions and Clinical Practices Related to Diagnosing and Managing Functional Neurologic Disorders in the Emergency Setting

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Background/Objectives: Functional Neurologic Disorders (FND) are often misdiagnosed due to their distinctive features compared to organic movement disorders [1, 2, 3]. Inconsistent diagnostic criteria have led to unnecessary tests, treatments, and psychological distress for patients [2, 4, 5]. Since emergency medicine (EM) physicians frequently encounter FND cases first, this study surveys their knowledge and clinical practices using a tool inspired by Espay et al. The findings aim to inform training and continuing education for EM physicians, improving FND diagnosis and care.

Methods: This survey-based study, modeled after Espay et al., targets emergency medicine attendings at UConn-affiliated hospitals, including UConn Health Center, Hartford Hospital, and St. Francis Hospital. The REDCap-based survey will include demographic questions and assess physicians' opinions, experiences, and perspectives on managing FND patients. Participants will receive the survey link via email, with implied consent upon completion. All data will be securely stored in REDCap.

Results: The survey had a 33.33% response rate (33/99). Respondents were 51.52% male, 42.42% female, and 6.06% preferred not to disclose their sex, with a mean age of 45.54 years (SD 10.02). Equal proportions (42.42%) reported receiving or not receiving FND training. While 63.64% viewed FND as a legitimate diagnosis, only 60.61% recognized its symptoms as involuntary. Most relied on brain imaging and neurophysiological testing (54.55%) and felt comfortable disclosing a diagnosis confirmed by another specialist (75.76%). For management, 84.85% discharged patients with referrals, primarily to neurology (93.93%) and psychiatry (69.69%). Psychotherapy (87.88%) and patient education (75.76%) were seen as the most effective treatments.

Conclusions: Emergency medicine physicians demonstrate varying levels of comfort and approaches in diagnosing and managing FND. While most acknowledge FND as a legitimate diagnosis, gaps in education and reliance on specialists suggest opportunities for enhanced training in FND-specific management in the emergency setting.

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Title: Practice Patterns in Esophageal Atresia Surveillance: A Multi-center, Retrospective Review from a Regional Consortium

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Purpose: Population-based epidemiology and surveillance of children with esophageal atresia (EA) is largely based on expert opinion and varies widely. We aim to study patterns of endoscopic esophageal surveillance in EA patients to support evidence-based strategies.

Methods: Patient records were retrospectively reviewed from 15 academic institutions. Patient demographics and upper endoscopy variables were collected and analyzed using descriptive statistics (IRB 22-121).

Results: EA patients (n=526) were most often diagnosed with Gross Type C (76%) disease, followed by Type A (10%). There was a slight male predominance in cases (56%). Most surgical repair occurred via primary anastomosis (75%) or 2-stage/delayed repair (11%). Half of patients (50%) had a surgically-placed feeding tube and 10% underwent fundoplication.

Acid reflux/GERD was clinically diagnosed in half (52%) of patients. Most were discharged from index hospitalization on anti-acid medication (79%), with reduced use over time (71.7%, 62%, 54.5%, 54.8%, and 53.3% at 1, 2, 3, 5, and 10 years of age, respectively). Only 11% (n=57) of patients underwent pH-impedance testing with nearly half (54%) detecting increased acid exposure.

Of all patients, 80% (n=418) underwent upper endoscopy (n=2017). Indications included symptoms (60%), stricture management/dilation (41%) and uncommonly surveillance in asymptomatic patients (10%). Of the 20% who did not undergo endoscopy, 97% were ≥1 year old.

Endoscopy details are reported (Table1). Most surveillance endoscopies occurred beyond age one, and over a quarter of them did not obtain biopsies. Surveillance endoscopies were significantly more likely to have multiple esophageal biopsy sites/locations compared to non-surveillance. We found no malignancies and a low prevalence (~1%) of Barrett's, with surveillance detecting 40% of cases.

Conclusions: This multi-institutional review of esophageal surveillance in children with EA is the largest of its kind. While a majority of children had at least one lifetime upper endoscopy, a minority were for surveillance. The technique of surveillance endoscopy was inconsistent and did not always include biopsy, which is pivotal for evaluation. Thus, our results show a discrepancy between esophageal surveillance practice and current guidelines. Further work is needed to develop evidence-based standardization of care for the management of children with EA and encourage implementation of esophageal surveillance.

Table 1: Characteristics of upper endoscopies & pathology in EA children.

Title: Outcomes of Percutaneous Image-Guided Liver Biopsy in a Pediatric Population

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Background/Objective: Percutaneous image-guided liver biopsy (PILB) is a minimally invasive diagnostic method increasingly used in pediatric hepatology for conditions like nonalcoholic steatohepatitis and advanced fibrosis[1,2]. Although considered safe, children may experience higher complication rates[3,4]. Most procedures are now outpatient, with inconsistent post-procedural monitoring[5]. This study evaluates PILB outcomes in a large pediatric cohort, analyzing clinical, demographic, and technical factors affecting safety and sample adequacy.

Methods: A retrospective analysis was conducted on 490 pediatric PILBs performed at Yale New Haven Hospital (2014–2023). Data included demographics, clinical information, and technical details (needle gauge, number of passes). Risk factors for complications were assessed with R software, sample adequacy was analyzed using unpaired t-tests and Mann-Whitney U tests.

Results: The most common needle size was 18g (66%), with a median of 2 passes (range: 1–9). Complications occurred in 6.3% of cases (4.3% mild, 2% moderate, 0% severe). Adequate specimens were obtained in 93% of cases. Increased pass number (p=0.0003) and BMI (p=0.046) were associated with higher complication rates. Larger needle gauge improved sample adequacy (p=0.01), additional passes did not (p=0.69).

Conclusion: PILB is a safe, effective diagnostic tool for pediatric patients, with low complication rates and high diagnostic yield. Reducing pass number and considering patient BMI can lower complication risks, while larger needle gauges improve sample adequacy.

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Evaluation of Foreign Language Related Anxiety within the Hispanic Population in the Outpatient Neurosurgical Setting

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Background/Objectives: In the United States, almost half of the foreign-language population identify as limited English Proficient[1] (LEP). LEP patients face challenges navigating the English language-dominant healthcare system[2]. Foreign Language Anxiety (FLA), described as the apprehension associated with learning and using a new language[3-5], can hinder communication and negatively affect LEP patients' care. While extensive research on FLA exists in the educational realm, its implications in healthcare remain underexplored. Understanding FLA in LEP populations is essential, especially since communication difficulties have been reported, but the influence of FLA is not widely assessed. This study investigates the relationship between English comfort and FLA among Hispanic patients in an outpatient neurosurgical setting.

Methods: This is a cross-sectional survey study, where Hispanic outpatient neurosurgical patients aged 18 and older at a single institution completed a survey assessing their English comfort and their levels of FLA. Other recorded variables were age, sex, and level of education. Unconditional t-test analysis was performed to determine the relationship between English comfort and average FLA. Then, multiple regression analysis was performed to evaluate the relationship of all variables with FLA.

Results: Ninety-eight surveys were collected. On unconditional t-test, a significant effect ($p < 0.001$) was found between English language comfort and FLA. Subjects classified as not comfortable with their English proficiency had higher scores of FLA (Mean (SD) = 3.23 (1.21)) compared to subjects classified as comfortable with their English proficiency (Mean (SD) = 2.07 (0.99)). On multiple regression analysis, a significant association was found between English language comfort and FLA (est[CI] = -1.16 [-1.63 to -0.68], p-value < 0.001) and sex (est[CI] = -0.48 [-0.95 to 0.00], p-value = 0.048), but not for age (p = 0.76).

Conclusions: Findings indicate a significant association between English comfort and FLA, supported by educational literature. However, this study focused only on Hispanic patients. Educational literature suggests that any individual learning another language experiences FLA similarly, but this assumption cannot be made due to cultural elements that may come into play in the patient-physician interaction. Future research should explore FLA across diverse language populations to understand the cultural nuances affecting patient-physician interactions.

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The Branching Point: Understanding the impact of pre-medical experiences as reinforcing or deterring factors in continuing to pursue a career in medicine.

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Background/Objectives:
Premedical students navigate a complex journey filled with personal, academic, and professional challenges. Despite extensive research on medical school training, little is known about the premedical phase, which shapes students' decisions and outlook on their careers[1,2]. This study explores factors influencing premedical students' pursuit of medicine, barriers faced, and mental health, with the goal of identifying patterns to guide premedical advising and support systems.

Methods:
We conducted qualitative interviews with seven premedical students across different stages of their journey: pre-premedical (before committing to the path), early premedical (pre-MCAT and applications), and late-stage premedical (MCAT preparation and applications). Participants responded to standardized questions and completed the Brief Resilience Scale to assess stress and resilience. Data was analyzed for key themes in motivations, barriers, and overall experiences within the premedical track.

Results:
Participants represented diverse gender, ethnicity, socioeconomic and academic backgrounds. Humanitarian interests (mean score 7.9/10), scientific interests (6.7/10), and personal experiences (6.3/10) were the primary motivators reported for pursuing medicine. Shadowing and clinical exposure were consistently reinforcing, while challenges included the MCAT, course prerequisites, and time constraints. Students rated their confidence in continuing the premedical path at 8.7/10, with stress levels averaging 8.1/10. Financial barriers, limited access to experiences, and long-term career implications emerged as significant concerns.

Conclusions:
Key factors such as clinical exposure and personal experiences reinforce premedical students' aspirations, while barriers like stress, burnout, and systemic inequities challenge progress. Addressing burnout early in the premedical process is critical. Future research should focus on how premedical experiences shape long-term success in medical training and the potential for interventions to mitigate burnout.

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Title of Project: Characterizing Medical Student Attitudes toward Primary Care: The First Step to Address the Primary Care Crisis in the U.S.

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Background/Objectives: Primary care serves a foundational role in the healthcare system, and improves health outcomes and health equity.[i] Around 1/3 of the U.S. population does not have a usual source of care.[ii] Yet, there are fewer and fewer providers to meet this need, with the number of primary care physicians consistently declining since 2014 and the American Association of Medical Colleges predicting a primary care physician shortage of up to 55,200 by 2032.[iii,iv] While fewer trainees are pursing primary care fields, students' voices and perceptions have not been adequately heard.[v,vi] This study aims to address the question: What are UConn medical students' attitudes and perceptions of primary care as a specialty option? The overarching goal is to help fill the gap in understanding medical student attitudes around primary care. Understanding students' motivations is the first step to educational and policy reform to create a sustainable primary care system.

Methods: The study employed an anonymous cross-sectional survey of UConn School of Medicine students.

Results: 84 UConn School of Medicine students from across all class years responded. The most important factors in future specialty choice were interest in medical topics, scope of practice, and salary and flexibility of future employment opportunities, with the least important factor being financial costs related to training. The least important factors in primary care were perceived to be financial compensation, flexibility of employment opportunities, and role in the medical system. The top two reasons students were hesitant to pursue primary care were salary and education-related debt. The top two reasons students were excited to pursue primary care were longitudinal relationships with patients and scope of practice.

Conclusions: Medical students' perceptions of a specialty can significantly impact specialty choice. Two of the three categories that were identified as most important in future specialty choice were perceived as least important to primary care careers. Such discrepancies could be good targets for policy interventions to support primary care.

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Bilateral Mid-Abdominal Transversus Abdominis Plane And Bilateral Rectus Sheath Blocks Comparing the Use of Liposomal Bupivacaine Vs. Bupivacaine HCl in Laparoscopic Colectomy Procedures

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Background/Objectives: Effective management of post-operative pain following colorectal procedures is crucial to minimizing complications and enhancement of recovery[1,2]. Liposomal bupivacaine (LB), with its purported ability to prolong analgesia compared to bupivacaine, has shown mixed results in existing literature[3].This study aims to compare the efficacy of LB and the regular bupivacaine in combined transversus abdominis plane (TAP) and rectus sheath (RS) blocks for patients undergoing laparoscopic colectomy.

Methods: A triple-blinded, single-center Randomized Controlled Trial enrolled 40 patients undergoing laparoscopic colectomy, randomized 1:1 to receive TAP and RS blocks with either LB + bupivacaine or bupivacaine + dexamethasone/epinephrine. The primary outcome was peak pain scores at 48–72 hours post-surgery. Secondary outcomes included Post-operative Nausea and Vomiting (PONV) incidence, hospital stay, and patient satisfaction. Data were collected via REDCap and analyzed using t-tests or Wilcoxon rank-sum tests.

Results: A total of 40 patients were randomized equally into two groups: (1) LB/bupivacaine and (2) bupivacaine with adjuncts. There was no significant difference in postoperative pain scores at 48–72 hours between the two groups (median 3.5 [interquartile Range (IQR): 2.8–4.3] vs. 3.4 [IQR: 2.7–4.2], p = 0.78). Secondary outcomes, including incidence of postoperative nausea and vomiting (10% vs. 8%, p = 0.72), hospital length of stay (3.1 ± 1.2 vs. 3.2 ± 1.1 days, p = 0.81), and patient satisfaction (8.2 ± 1.1 vs. 8.3 ± 1.0, p = 0.76), were also similar between groups.

Conclusions: LB/bupivacaine did not demonstrate superior analgesic efficacy compared to bupivacaine with adjuncts for TAP and rectus sheath blocks in laparoscopic colectomy patients. Pain scores, postoperative nausea and vomiting, hospital length of stay, and patient satisfaction were comparable between groups. These findings suggest that LB/bupivacaine does not provide additional analgesic benefit over standard bupivacaine with adjuncts for TAP and rectus sheath blocks in laparoscopic colectomy patients.

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Gun Talk: Identifying the Facilitators and Barriers to Pediatrician and Primary Care Physician-Initiated Conversations Regarding Securing Firearms

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Background: Firearm death and injury is an epidemic in the US, with firearms being the leading cause of death in children[1]. One study showed that only 25% of physicians have firearm safety conversations with patients[2]. Secure firearm storage and Extreme Risk Protection Orders (ERPOs) are important tools for firearm injury prevention. Secure storage has been shown to reduce firearm injury and death, particularly in children[3]. ERPOs allow specified parties to file for temporary removal of firearms from individuals at risk of harm, and have been shown to reduce suicides[4]. The expanding role of physicians in these conversations makes understanding what physicians see as barriers to, and facilitators for, including secure storage in anticipatory guidance crucial.

Methods: Researchers interviewed 13 primary care physicians (PCPs) and 12 pediatricians in New Jersey regarding their practices for secure firearm storage conversations. Questions included typical topics for anticipatory guidance, knowledge of secure firearm storage and ERPO laws, and potential barriers and facilitators to such counseling. Qualitative interview data was coded thematically and analyzed.

Results: For interviewed PCPs, 0 routinely gave safe storage guidance, with 4 giving it sometimes and 8 not at all. For pediatricians 5 provided guidance routinely, 6 sometimes, and 1 not at all. 8 pediatricians and 7 PCPs were not familiar with ERPO laws. Physician identified barriers to firearm safety conversations included time (16), patient receptivity (13), politicization (4), and lack of training (2). Facilitators included CME (11), incorporation into EMR systems (15), official guidelines (6), and Medicare reimbursement (6).

Conclusion: Findings suggest that secure firearm storage is sometimes discussed as part of anticipatory guidance for New Jersey pediatricians, but is not routine for PCPs, and that ERPO familiarity among New Jersey PCPs and pediatricians is low. Physicians identified several routes to increase safe storage conversations, including CME on this topic, incorporating firearm questions into EMRs, having guidelines from official organizations, or having secure storage conversations reimbursed by Medicare. This study's applicability is limited by its small sample size and New Jersey scope. Future research should focus on implementing facilitators identified in this data with a larger sample size and nationwide scope.

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Title of Project: Perceptions of Education on Eating Disorders and Palliative Care in Medical and Dental Students
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Background/Objectives: Eating disorders (EDs) have one of the highest mortality rates among mental illnesses[1] and palliative care utilization is more common[2]. While studies show gaps in provider knowledge[3], little data exists for medical schools. Given the emerging nature of EDs and palliative care, what are the gaps medical and dental students perceive in their current understanding and how might their responses change after a class session about these topics?
Methods: In class at UConn SOM, first and second years had small group discussions with facilitation by five medical students and took a de-identified survey before and after. Independent variable was class exposure, and dependent variables were five point Likert scale scores of confidence, empowerment, and satisfaction with these topics. There were 309 responses pre-class and 270 post-class. The Mann-Whitney U Test was used for the independent ordinal data, and Cliff's Delta was used for effect size.
Results: Median for the five analyzed questions all increased by at least 1. P values were all <0.0001 with alpha level of 0.05. Cliff's delta values estimating effect size ranged from 0.48 to 0.58.
Conclusions: Results demonstrated that students perceive a moderate gap in their education. P values suggest a statistically significant increase in satisfaction and confidence with knowledge. Cohen's d values were all > 0.8, correlating with a large effect size, suggesting an association between the class and greater confidence and satisfaction. This does not prove causality as there was no controlling for confounders. Limitations include the study population of only first and second year students at UConn, impacting generalizability. Peer facilitation could cause bias as students could have more positive regard for peer-led sessions. Further investigation including other student years and medical schools would illuminate more perspectives and potential effects of the class.

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Title of Project: The Association Between Social Determinants of Health and 1-Year Mortality Following Coronary Artery Bypass Graft (CABG) Surgery

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Background/Objectives: Coronary artery bypass graft surgery (CABG) treats patients with significant coronary artery disease and can extend life expectancy. While some research has evaluated independent effects of social determinants of health (e.g., education, employment, housing, income) on mortality following CABG, previous research has not evaluated the association between a measure of cumulative deprivation and post-CABG mortality.[1,2,3]

Methods: We evaluated the association between the Index of Multiple Deprivation and 1-Year mortality in 4,640 English participants in the UK Biobank recruited between 2006-2010 who underwent CABG. This weight-based index incorporates scores on crime, education, employment, health, housing, income and living environment.[4] We stratified participants into those with the highest 20% deprivation index score (n=928) versus those less deprived (n=3,712). Bivariate analyses were conducted using chi-square and ANOVA tests. Kaplan Meier survival curves and Cox proportional hazards models were used to evaluate the association between deprivation and 1-year post-CABG mortality, with models successively adjusted for age, sex and frailty. We also explored effect modification by age.

Results: Participants' mean age was 64.25 (SD 8.03; range 33 to 83) years. They were primarily male (86.6%) with an average frailty index of 0.17 (SD 0.09). A total of 77 (1.7%) died within one year. Compared with the less deprived, those with the highest 20% deprivation index were significantly younger and frailer (p<0.001). Cox proportional hazard analyses revealed no statistically significant difference in 1-year post-CABG mortality in those with the highest 20% deprivation index compared to those less deprived (unadjusted HR: 0.59; 95% CI=0.31-1.16; adjusted HR: 0.67; 95% CI 0.34-1.30). Older age and female sex, but not frailty, were associated with higher mortality risk. The relationship between deprivation and mortality did not differ by age.

Conclusions: Unlike prior research, we found that social determinants of health, operationalized as a deprivation index, were not associated with risk of 1-year post-CABG mortality. While individuals in the UK biobank may be healthier since it is a volunteer-based cohort, our findings suggest that mortality outcomes are similar regardless of level of deprivation. Future research should investigate any association between deprivation index and other outcome measures post CABG surgery like rehospitalization.

Word count: 350

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Title of Project: Assessment of Racial and Ethnic Disparities in the Treatment and Outcomes of Witnessed Out-of-Hospital Cardiac Arrest (OHCA) in Connecticut

Authors: Qayyoom Kasliwala[1], Trevor Sutton, MD[2], Asad Rizvi, MD[3], Rabab Al-Araji, MPH[4], Thomas Nero, MD[5], Megan Scalzo, BS[3], Gregory Panza, PhD[3], Jeff Mather, MS[3], Rocco Orlando, MD[3], Sabet Hashim, MD[3], Raymond McKay MD[3]

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Background/Objectives: In the United States, OHCA remains a leading cause of mortality, with an annual incidence of 350,000 patients/year and a survival rate of less than 10%.[1] Bystander cardiopulmonary resuscitation (CPR) positively impacts outcomes following OHCA.[2] A recent national study demonstrated that people who are Black and Hispanic were less likely than White patients to receive bystander CPR following witnessed OHCA in the United States.[3]

Methods: We performed a retrospective analysis of witnessed OHCA in the Connecticut Cardiac Arrest Registry to Enhance Survival (CARES) from 1/1/2013 – 12/31/2021. OHCA treatment and outcomes were compared for minorities (Black or Hispanic patients) versus White patients. Primary outcomes included bystander CPR use, bystander automated external defibrillator (AED) use with attempted defibrillation, overall survival, and survival with favorable cerebral function.

Results: 2,809 patients with witnessed OHCA were analyzed (924 Minority; 1885 White). Minorities had lower rates of bystander CPR (31.4% vs 39.1%, $p = 0.002$), and bystander AED placement with attempted defibrillation (10.5% vs 14.4%, $p = 0.004$), with lower rates of survival to hospital discharge (10.3% vs 14.8%, $p = 0.001$), and survival with favorable cerebral function (65.3% vs 80.2%, $p = 0.003$). Minorities were also less likely to receive bystander CPR in communities with median annual household income >$80,000 (OR, 0.56; 95% CI, 0.33-0.95, $p = 0.030$).

Conclusions: Black and Hispanic patients in Connecticut with OHCA have lower rates of bystander CPR, attempted AED defibrillation, overall survival, and survival with favorable neurological outcomes compared to white patients. These findings align with prior research highlighting the critical role of CPR and AED use in survival and neurological outcomes in OHCA.[2] These data suggest that addressing racial and ethnic disparities in witnessed OHCA in Connecticut in the future may require targeted education on AED use and equitable and culturally sensitive CPR delivery in all communities.

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Title of Project: Saline Dilation Method
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Background/Objectives: Peripheral intravenous access (PIV) is commonly performed in the Emergency Department (ED), with up to 70% of patients requiring IV access.[2,3] Difficult intravenous access (DIVA) is defined as two or more failed attempts and can occur in 6%-87.7% of patients, leading to delays in care, longer ED stays, and higher costs.[4,5] Patients with DIVA experience increased discomfort and complications. Techniques to improve PIV access include using tourniquets, heat, compression, and devices to promote vasodilation.[2] The dorsal metacarpal veins, while easier to locate, are associated with higher risks of occlusion, dislodgement, and extravasation, especially when using certain contrast agents or vesicants.[6] This study investigates a novel saline dilation method where saline is infused through a small distal PIV with a tourniquet applied to the upper arm. This aims to dilate the proximal vein and improve first-attempt success for larger-bore IV placement.

Methods: This prospective cohort study involved enrolling patients who had a distal IV in the lower half of the forearm, wrist, or hand at the John Dempsey Hospital Emergency Department. A DIVA screen was performed prior to taking measurements; one study group consisted of 32 DIVA negative (control) participants. The other study group consisted of 32 DIVA positive (difficult IV access) participants. The study team then used ultrasound to measure vein diameter at two locations 2 cm distal and 2 cm proximal to the antecubital fossa. Repeat measurements were then recorded after a tourniquet was placed, and after 10, 20, 30, 40, 50, and 60 cc of normal saline were infused while the tourniquet remained in place. Data was collected in Excel and included demographic and clinical information, including DIVA screening results, IV attempts, and vein measurements via ultrasound.

Results: A total of 32 consenting patients were analyzed (none were excluded). Median age was 70 years (50.5, 80.5) and 56% were female; 81% were DIVA patients. Ten distal IVs were in the hand, 9 in the wrist, and 13 in the forearm. The mean difference in diameter before and after the tourniquet was placed for distal and proximal sites was 0.7 and 0.6mm, respectively ($p<0.0001$ for both). The mean difference in distal diameter from tourniquet placement to saline administration was 0.1, 0.2, 0.4, 0.5, 0.5, and 0.6mm for 10, 20, 30, 40, 50, and 60mL administered ($p<0.05$ for all except 10mL). The mean difference in proximal diameter from tourniquet placement to saline administration was 0.2, 0.3, 0.5, 0.6, 0.6, and 0.7mm for 10, 20, 30, 40, 50, and 60mL administered ($p<0.05$ for all). Both DIVA and non-DIVA patients had a change in diameter, but it was smaller in magnitude for DIVA patients (p value). Zero adverse effects occurred.

Conclusions: The saline dilation method is effective and safe for increasing antecubital vein diameter by approximately 0.5 mm. Applying this novel technique may improve success of proximal IV placement.

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Title: Is There An Association Between Optical Coherence Tomography Changes And Increased Intracranial Pressure In Pediatric Patients With Idiopathic Intracranial Hypertension?

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Objective
The clinical presentation of idiopathic intracranial hypertension in children is infrequent and differs from adults. Here we look to describe the relationship between clinical symptomatology, changes in optical coherence tomography and measured intracranial pressure in children.

Methods
We retrospectively identified all patients with a diagnosis of papilledema between the years of 2017 and 2023. We reviewed all patient charts to identify symptoms, opening pressures, and OCT values as well as demographic information.

Results
We identified 63 patients with the diagnosis of IIH, 33 of which had OCT values available. Between the 33 patients there was a correlation value between OCT and opening pressure of 0.523, with CI = (0.219, 0.734). All 63 patients with the diagnosis of IIH had a symptom score calculated; correlation between ICP and symptom score was r=0.364, with CI = (0.121, 0.565). Headache was present in 44 of 66 patients (67%), making it the most common symptom present at diagnosis, followed by visual changes (35%), and nausea (30%).

Conclusions
The clinical presentation of IIH in children has significant variability. We identify a positive correlation between OCT values and opening pressures, therefore providing another piece of evidence to aid in the diagnosis of IIH in children. Symptom score seems less likely to positively predict increased ICP, or the diagnosis of IIH, greater showing the variability in presentation in children.

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Title of Project: Survey to Address Mental Health Needs Among Medical and Dental Students

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Background/Objectives: Medical and dental school students often experience high rates of anxiety and depression due to the demanding nature of their education[1]. While many institutions are addressing these concerns through mental health resources and curriculum changes, the evolving landscape of student mental health requires continual adaptation. This study aims to identify the mental health services most sought after by first- and second-year medical and dental students at the University of Connecticut.

Methods: This cross-sectional study surveyed 365 first- and second-year medical and dental students at the University of Connecticut. Data were collected anonymously via Qualtrics, with the survey housed behind the UConn Health firewall. The survey consisted of three sections: UConn-specific curriculum changes, Beck's Anxiety Inventory (BAI), and Beck's Depression Inventory (BDI). Responses were analyzed based on academic year to explore differences in mental health concerns and preferred interventions.

Results: Of 365 students, 129 completed surveys (55 from M1 students, 44 from M2 students, 19 from D1 students, and 11 from D2 students). The most commonly suggested curriculum changes included transitioning to a hybrid model with lectures and team-based learning (TBL) sessions and implementing wellness days every academic block. A significant positive correlation was found between BAI and BDI scores ($p < 0.00001$, effect size = 0.477), indicating a strong association between anxiety and depression levels across all classes. No significant differences in BAI and BDI scores were observed between the cohorts.

Conclusions: Our findings suggest that incorporating hybrid lecture-TBL models and increasing wellness days could substantially improve student mental health. However, the limited response rate may restrict the generalizability of these conclusions, and further research with a larger sample size is needed to confirm these findings.

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Title of Project: Autonomic Reactivity in Children of Trauma-Exposed Families

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Background and Objectives: Intrafamilial spread of post-traumatic stress and psychopathology is a well-known occurrence,[1,2] but the underlying mechanism is not well-understood. Emotion dysregulation is likely a key part of this mechanism, as it is a largely important characteristic of post-traumatic stress reactions,[3] and parent emotion dysregulation is associated with child emotion dysregulation.[4] Autonomic reactivity may have a large role in emotion dysregulation.[5] Thus, it is possible that parent emotion dysregulation, indicated behaviorally by heightened emotional display, could influence autonomic reactivity in their child, leading the child to experience emotion dysregulation themself. This project evaluates the relationship between parent emotional displays and child autonomic reactivity as well as parent autonomic reactivity.

Methods: This project was part of a larger observational cohort study. Participants included 30 dyads, each consisting of one parent with interpersonal trauma history and their child aged 9-12 years. Dyads completed an impossible puzzle task designed to elicit emotional reaction. Video recordings were used to score parental displays of warmth/support, hostility, and anxiety. Respiratory sinus arrhythmia (RSA), a marker of parasympathetic activity, was obtained at rest and during the puzzle task. Independent variables included ratings of parent displayed emotion. Dependent variables included child and parent RSA reactivity (calculated as puzzle task RSA minus resting RSA, such that positive values reflect RSA augmentation and negative values reflect RSA withdrawal). Parent emotional coding scores were compared to child and parent RSA reactivity scores using bivariate correlation and linear regression analyses.

Results: Analyses revealed a significant correlation between parent anxiety and child RSA reactivity scores ($r(24) = -.431$, $p = .036$) as well as a significant regression ($F = 5.015$, $p = .036$). No significant correlations or regressions were found between parent warmth/support or hostility and child RSA reactivity. No significant regressions were found between parent warmth/support, hostility or anxiety and parent RSA reactivity.

Conclusions: A significant negative correlation between parent anxiety and child RSA reactivity score suggests withdrawal of child parasympathetic activity during heightened displays of parental anxiety. This is consistent with prior research suggesting a relationship between emotion dysregulation and autonomic reactivity. Key limitations include small sample size and low power. Future research can investigate parental emotion dysregulation and child autonomic reactivity on a larger scale.

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Title of Project: Schwann Dance: Nerve Regeneration in Corneal Axonopathy

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Background/Objectives: Visual corrective surgical procedures (e.g. LASIK) and corneal transplants that cause severance of stromal axons often result in aberrant axonal regeneration with impaired corneal sensation.[1,2] Corneal Schwann cells (cSCs) were examined for their trophic support of axonal regeneration post injury.[3,4] We investigated a novel small molecule drug micellar formulation RM4404 that targets cSCs to examine axonal regeneration and sensation recovery in a model of stromal axonopathy.

Methods: A stromal micropocket was surgically created in mouse corneas to model stromal axonopathy using the transgenic *Plp1-egfp* line, which genetically marks cSCs. Endogenous GFP fluorescence and immunostaining for beta III-tubulin was used to ascertain the cSC and axonal networks, respectively. Mice were entered into two study arms (A and B). In arm A, injured mice were treated topically with micellar RM4404 or vehicle (Kolliphor HS-15) twice daily from 7 to 14 days post-injury (dpi). In arm B, treatment parameters were kept the same, but mice were subjected to corneal mechanosensory testing with Cochet-Bonnet esthesiometer prior to injury, and at 7, 14, and 30 dpi. Axonal and cSC network images were acquired by epifluorescence microscopy. Tiled images were then quantified using FIJI software with neuroanatomy plugin and statistical analysis (t-test and ANOVA) was performed.

Results: The cSC network shows a u-shaped curve post injury with maximal degeneration occurring at 7 dpi ($P<0.0001$) followed by a rapid recovery by 14 dpi ($P<0.0001$) and stabilizing by 30 dpi. However, the axonal network lags behind the cSC network, remaining significant even at 30 dpi ($P<0.0001$). At 7 dpi there is also significantly decreased corneal sensation ($P<0.0001$) which remains attenuated at both 14 and 30 dpi in vehicle-treated corneas ($P<0.0001$; $P=0.002$). In contrast, RM4404-treated corneas showed significant recovery of sensation at both 14 and 30 dpi (vehicle vs RM4404; $P=0.0007$; $P=0.0002$), achieving levels similar to uninjured mice.

Conclusions: By defining the kinetics of cSCs and axonal degeneration/regeneration, we have determined the active regenerative phase of cSC growth. We have capitalized on this novel finding to pharmacologically stimulate the restoration of corneal sensory function using the novel drug RM4404 that targets cSCs. This study is the first of its kind to specifically target cSCs and demonstrate a therapeutic benefit in a model of stromal axonopathy.

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Title: The Fate of Antibiotics Prescribed In A Travel Medicine Clinic: Implications For Antibiotic Resistance And Stewardship.

Authors: Beth Lippman, Abigail Immanuel, Kevin Dieckhaus

Background/Objectives: Antibiotics are often prescribed in Travel Medicine clinics in advance of international experiences to take as needed for Traveler's Diarrhea. Unused prescriptions may be disposed of improperly, potentially contributing to antibiotic resistance and negative environmental impacts. The primary objective of this study is to identify the ultimate uses and disposal methods of these antibiotics.

Methods: An online survey was distributed by email to 1,466 patients who utilized travel medicine services at UConn Health from January 2018 – December 2019, and who were prescribed antibiotics for Traveler's Diarrhea prior to traveling. The survey consisted of 16 questions regarding patient demographics, travel destination, degree of self-reported concern for global antibiotic resistance (answered on a Likert Scale), and questions regarding their antibiotics, such as type prescribed, reason for the prescription, how much was taken, and what was done with leftover antibiotics.

Results: Of the 177 patients whose responses were suitable for analysis, 78.0% (n=138/177) completed their international travel with at least some unused antibiotics, with 42.4% (n=75/177) reporting that they still had possession of their medications, 10.7% (n=19/177) reporting disposal of their antibiotics in an environmentally appropriate way, and 19.8% (n=35/177) reporting disposal of their antibiotics using a method concerning for ecologic contamination.

Conclusions: The nature of travel medicine antibiotic prescribing practices presents a unique challenge for antibiotic stewardship. Unused antibiotics create the potential for diversion towards other indications or introduction to the ecosystem through improper disposal methods, thus fostering antibiotic resistance. There is an opportunity for Travel Medicine services to reduce the introduction of antibiotics into the ecosystem through pharmacy take-back programs and enhanced patient education.

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AnimaSalud: Promoting Health Literacy about Metabolic Syndrome through Culturally Tailored Animated Videos for the Latino Community

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Background/Objectives: Many Hispanic patients in the U.S. have limited English proficiency, leading to poorer health outcomes for conditions such as diabetes, obesity, hypertension, liver disease, and mental health disorders[1,2]. Metabolic syndrome, which shows higher prevalence in Hispanic populations, also carries increased complications, disease burden, and mortality rates[3]. This population also encounters barriers, including lower socioeconomic status and limited access to culturally competent healthcare resources[4,5]. This project aims to bridge this gap by providing a three-part series of culturally competent animated videos in Spanish about metabolic syndrome to raise awareness, improve health literacy, and enhance access to care.

Methods: The scripts and framework for the videos were developed using three learning theories: Ecological Systems Theory, Social Learning Theory, and Adult Experiential Learning. Created using the VYOND platform, the videos were uploaded to a dedicated website (http://animasaludrecursos.x10.mx/wp/) that hosts the videos and related resources. The videos, titled "Salud y Bienestar: Empowering Latino Families Against Metabolic Syndrome," "Camino hacia la Salud: Managing Metabolic Syndrome in Latino Communities," and "Viviendo con Fortaleza: Navigating Metabolic Syndrome Complications in Latino Families," focus on prevention, early diagnosis, and managing complications of metabolic syndrome.

Results: Each video follows different Latino families at various stages of their metabolic syndrome journey, sharing common elements related to the learning theories. From an Ecological Systems perspective, the videos illustrate how family (microsystem) and community (mesosystem) support individuals, emphasizing that health outcomes are influenced by multiple systems. Cultural values like family ties and community solidarity are embedded throughout the narratives. In line with Social Learning Theory, characters model health-promoting behaviors, such as exercising and improving diets, providing relatable role models. Supportive networks depicted through family interactions, reinforce these behaviors. Lastly, the videos highlight how protagonists take control of their health by applying knowledge gained from lived experiences, aligning with Adult Experiential Learning principles.

Conclusions: Behavioral change theories can effectively inform the creation of medical education videos for communities with limited access to culturally tailored resources. Further studies are needed to evaluate the videos' efficacy in improving knowledge and whether the characters' experiences provide relatable examples that reinforce health messages for adult learners.

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Title of Project: Evaluation of the University of Connecticut School of Medicine Peer Support Program

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Background/Objectives: Studies have shown increased prevalence of depression and anxiety among medical students compared to the general population.[1,2,3] Few medical students seek help, but there is preference in using peers for support.[3,4] Peer support programs were established to meet this need and have been shown to improve mental health.[2,5] There is variation in peer supporter training and implementation methods with an overall lack of published literature. The primary aim of this study is to assess the efficacy of the UConn School of Medicine peer support training program for the first time since its foundation in 2018. Additionally, this study aims to investigate reasons for peer support use and barriers to peer support utilization to inform further directions of the program.

Methods: Pre- and post-training surveys of peer supporters were analyzed via Wilcoxon Signed Rank test. A survey regarding reasons for peer support use was sent out to listed peer supporters. A survey regarding reasons for peer support use and barriers to utilization was sent out to all medical students. Reasons and barriers were taken from the existing body of literature[7] and were presented in a "check all that apply" fashion.

Results: On 151 training surveys, all questions had a statistically significant improvement ($p<0.001$, $r>0.5$) after training. 6 of 17 peer supporters reported facilitating a session, 100% regarding academic concerns. Of the 50 students surveyed, 19 (61.3%) would seek peer support for academic concerns and 17 (54.8%) for test anxiety. Common barriers include lack of time (70%) and lack of confidentiality (70%).

Conclusions: The UConn School of Medicine peer support training program is effective at preparing supporters for practice. Historically, sessions have been focused on academic concerns, which is consistent with what would prompt students to seek peer support. Barriers to peer support utilization at UConn are consistent with what has been noted in the literature.

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Are Race-Specific Considerations Needed in Using Peak Exercise Oxygen Consumption for Heart Transplant Selection?

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Background: Peak exercise oxygen consumption (VO_2max) is a key metric for heart transplant (HTx) candidacy, but research has suggested that racial differences in VO_2max exist[1-3]. We studied the implications of these differences in the context of HTx receival and post-HTx survival.

Methods: The United Network for Organ Sharing (UNOS) registry was queried for adults listed for HTx from 2002-2022 with data available on VO_2max. Patients on ventilators, ECMO, total artificial heart, RVAD, or missing data were excluded. Patients were grouped by their VO_2max (ml/kg/min) at registration: <10, ≥10 and <14, and ≥16. Race was categorized as White, Black, Hispanic, or other. Baseline characteristics were compared across VO2max groups using ANOVA and Tukey's post-hoc test was used to compare VO_2max by race. Kaplan-Meier analysis and multivariable Cox regression analysis was used to compare waitlist outcomes and post-HTx mortality by race in each VO2max group.

Results: Of 134,670 patients listed for heart transplant, 21,651 met the inclusion criteria. Among them, 14,762 (68.2%) received a transplant. Black patients were overrepresented in the VO_2max <10 ml/kg/min group (25.0%) compared to White (17.1%) and Hispanic (14.2%) patients ($p<0.001$). Adjusted Cox regression revealed that Black patients were less likely to receive a transplant in the VO_2max <10 ml/kg/min (HR 0.82, $p<0.001$), 10–14 ml/kg/min (HR 0.86, $p<0.001$), and ≥14 ml/kg/min groups (HR 0.90, $p=0.02$) compared to White patients. Post-transplant survival analysis showed significantly lower 5-year survival for Black patients in the VO_2max <10 ml/kg/min (72.6%) and ≥14 ml/kg/min (73.1%) groups compared to White patients (76.4% and 82.3%, respectively). Adjusted Cox models demonstrated a 20% higher post-transplant mortality in Black compared to White patients with VO_2max <10 ml/kg/min (HR 1.20, $p=0.014$) and a 37% higher risk in the ≥14 ml/kg/min group (HR 1.37, $p<0.001$).

Conclusion: Black patients are more likely to be listed for HTx with severe impairments in VO_2max, but they are less likely to receive a HTx and demonstrate inferior post-HTx outcomes compared to White patients with a similar VO2max. Current VO_2max guidelines may overlook racial differences in VO_2max and can be a misleading benchmark for clinical decisions, contributing to racial disparities in HTx. These findings emphasize the need for further research on the utility of VO_2max as a prognostic factor for HTx in racially diverse populations.

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Title of Project: Sex-Based Differences In Postoperative Outcomes For Patients Undergoing Primary Arthroscopic Rotator Cuff Repair: A Propensity Matched Analysis

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Background/Objectives: To evaluate sex-based differences in emergency department (ED) visits, post-operative complications, and 2-year secondary surgery rates following primary arthroscopic repair of non-traumatic complete rotator cuff tears (RCT) using a large national database.

Methods: The TriNetX Diamond Network was queried using a combination of International Classification of Disease-10 (ICD-10) and Current Procedural Terminology (CPT) codes between January 2010 and April 2018. Patients were included in the query if they underwent arthroscopic shoulder surgery with complete RCT repair with a corresponding diagnosis of complete RCT. Patients with prior RCT and/or prior arthroscopic shoulder surgery were excluded. Male and female cohorts were propensity-matched for age and three comorbidities within 1 year of RCT repair.[1] Rates of emergency department (ED) visits at 5 and 14 days postoperatively, complications at 1-month postoperatively, and repeat shoulder arthroscopy and arthroplasty at 1-year and 2-years postoperatively were analyzed. Statistical significance was set as P < .05.

Results: After querying the database, 108,852 patients were identified of which 59,905 were male (55.0%). Ultimately, 48,208 female patients were propensity-matched in a 1:1 ratio to male patients. Females had significantly higher rates of ED visits compared to males within 14 days postoperatively (2.69% vs 2.49%; P = 0.045). Males had significantly higher rates of postoperative infection compared to females at 1-month postoperatively (0.14% vs 0.07%, P = .001). Within 2 years postoperatively, females had higher rates of conversion to shoulder arthroplasty (1.03% vs 0.62%, P < .0001) but similar rates of overall secondary shoulder surgeries (7.49% vs 7.71%, P = 0.198).

Conclusions: Female patients had higher rates of ED visits after undergoing arthroscopic rotator cuff surgery at 5 and 14 days postoperatively compared to a propensity matched cohort of males. Male patients had two times higher rate of infection within 1 month postoperatively compared to females.[2] However, overall complication rates were low for both cohorts. Female patients had nearly a two times higher rate of conversion to shoulder arthroplasty 2 years after the index procedure, but similar rates of overall secondary shoulder surgeries at 1-year and 2-years postoperatively.[3]

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Title of Project: Disparities in Post-Covid Olfactory Dysfunction and Access to Treatment

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Background/Objectives: Persistent olfactory dysfunction following COVID-19 (PCOD) affects 5-10% of adults worldwide, with a higher prevalence among adult females in the Midwest United States (US).[1,2] This study aimed to explore the relationship between sociodemographic factors, represented by the Area Deprivation Index (ADI), and intervention for PCOD. Previous research suggested that higher education levels were linked to greater PCOD incidence.[3]

Methods: Our study was a retrospective chart review conducted from March 2020 to March 2024. A total of 105 patients with olfactory dysfunction lasting one month or longer after a COVID-19 infection were identified using the ICD code R43.0. A Chi-square test was used to assess the relationship between the ADI and the referral to an otolaryngology specialist, as well as the presence of gustatory dysfunction. Additionally, Spearman's rank correlation test was used to assess the relationship between the ADI and the time to intervention.

Results: The study included 105 patients with an average age of 47.9 years. The cohort was predominantly female (81%), with 74.3% identifying as white and 76.2% as non-Hispanic. 62 Patients were referred to an otolaryngologist, averaging 325 days after symptom onset, with an average wait of 49 days for the appointment. No significant correlation was found between ADI and the time to referral (p=0.2741) or the time from referral to appointment with an otolaryngologist (p=0.7437). Notably, patients with a lower ADI were statistically more likely to report concomitant gustatory dysfunction (p=.01326).

Conclusions: The demographic results of this study align with previous findings in different regions of the US, confirming the consistency of PCOD patterns. Moreover, the study supports that there is equitable access to the examined smell and taste center, irrespective of sociodemographic factors as indicated by the ADI. A higher prevalence of gustatory dysfunction was observed in patients with a lower ADI, which reflects a higher socioeconomic status. This may suggest that patients of higher socioeconomic status, potentially more informed about their health and empowered to make healthcare decisions, are more likely to bring up such complaints to their healthcare providers.

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Jasmine L. Miller
Scholarship and Discovery
Dr. Helen Swede and Dr. Pamela Taxel
10 December 2024

Capstone Deliverables – Abstract

Title of Project: **Mortality Disparities for Young Women (< 50 years) Diagnosed with Triple-Negative Breast Cancer**

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Background/Objectives: Breast cancer is a leading cause of death for women in the United States with consistently worse survival outcomes among Black patients, compared to other racial/ethnic groups. Triple-Negative Breast Cancer (TNBC) is a highly aggressive sub-type of which Black patients have three-fold the incidence. Studies have identified differences in mortality between Black and White women with TNBC, but have not specified disparities for pre-menopausal women specifically. We aim to examine if racial disparities in mortality persist in this age group, and more specifically, to evaluate if black women with TNBC are more likely to die compared to White women with this sub-type.

Methods: This is a retrospective cohort study (n=1679) using de-identified data from a sample of breast cancer patients from the Connecticut Tumor Registry (2000-07), a site of National Cancer institute's Surveillance, Epidemiology, and End Results Program (NCI – SEER). Follow-up data are available through 2015. Clinicopathological and demographic data are included in the validated data collection process (TNM stage, hormone statis of tumors, race). Co-morbidity data was collected on a subset of patients (n=400) from their medical records and will be assessed using the Charlson Co-Morbidity Index (CCI), which assigns patients a weighted score based on 17 different health conditions to evaluate one-year mortality risk.

Results: For those under age 55, the proportion of black patients with TNBC+ tumors was greater compared to white patients (74.2% vs 25.8%, chi-square=35.6, p=<.001). The same trend was observed among patients 55 and older but the difference between the two groups was less pronounced (61.4% vs 38.6%, chi-square=34.5, %, p=<.001). For the full sample, patients with TNBC+ tumors were likely to have regional and distant disease at diagnosis than those with TNBC- disease (45.2% vs 37.0%, chi-square=7.8, p<.02). Data regarding mortality outcome, comorbidities and other prognostic factors are being analyzed.

Conclusions: There is a higher proportion of TNBC cancer in black patients compared to whites which is more pronounced in presumed pre-menopausal patients. Understanding disparities between these groups will help minimize risk factors and develop more targeted treatments for patients in this age group. Further conclusions anticipated based on further analysis.

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Pro-Inflammatory Diet and Non-alcoholic Fatty Liver Disease in Children and Adolescents

Nujuma Moussa, Helen Swede, PhD

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Background. One out of ten children are affected by Non-Alcoholic Fatty Liver Disease (NAFLD)[1]. Due to the growing prevalence of obesity and its consequences, the American Academy of Pediatrics recommends that obese 9- to 11-year-old children with risk factors should be screened for NAFLD with serum alanine aminotransferase (ALT)[2]. It has been hypothesized that an inflammatory state, sedentary lifestyle, and increased body fat are risk factors for NAFLD[3]. Hence, we investigated the association of NAFLD with the dietary inflammatory index (DII) and whether physical activity moderates this relationship.

Methods: We examined children 6-17 years old (n=16,980) using National Health and Nutrition Examination Survey data (NHANES) from 2001-2006. The DII is based on a list of 45 foods, 25 which were captured from a 24-hour food diary collected by NHANES. Physical activity was collected via an accelerometer worn 4-7 days and was expressed as minutes spent per week in moderate to vigorous physical activity. Body fat percentages were determined by NHANES staff using calipers. These variables were analyzed as both continuous measures and in quartiles. Unadjusted and multivariate logistic regression analyses were conducted.

Results: In an unadjusted logistic regression, we observed that those in the highest DII quartile (most pro-inflammatory diet) had a higher likelihood of having elevated ALT enzymes compared to the lowest quartile (OR=1.25, 95% CI 1.05-1.48). When adjusting for moderate/vigorous exercise minutes per week and body fat %, the association was not apparent (OR=1.09, 95% CI 0.58-2.1). For the symposium, we are exploring other factors affecting the relationship between DII and NAFLD.

Conclusions: The analysis highlights the complex interplay between dietary inflammation, body composition, and physical activity with NAFLD in the pediatric population. These findings imply that rigorous physical activity might counteract the risk associated with a pro-inflammatory diet.

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Prevalence and implications of perinephric fluid on renal point-of-care ultrasound in the emergency department

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Perinephric fluid (PNF) is likely caused by increased intrarenal pressure from an acutely obstructed ureter leading to calyx rupture. We sought to determine the prevalence of PNF on emergency physician (EP)-performed renal ultrasound (US) in the Emergency Department (ED), and whether PNF was associated with larger ureteral stones or complications of obstruction.

This study is a retrospective cohort study of all adult patients presenting to the ED from January 1, 2022 to November 30, 2022, who received an US during their ED visit. Patients with inadequate or no images saved were excluded. Two blinded emergency physicians reviewed US for presence or absence of PNF, hydronephrosis, and ureterovesicular junction (UVJ) stones. Discrepancies were adjudicated independently by an US fellowship trained EP. PNF was defined as any anechoic stripe within the perirenal space bordered by the renal parenchyma and Gerota's and Zuckerkandl's fasciae. Two separate investigators independently performed a chart review. Variables collected included the presence, size, and location of ureteral stones on computed tomography (CT), creatinine (Cr) level, and complications of obstruction (return ED visits or admission related to initial visit, urologic intervention, or antibiotics). A Chi Square analysis was used to determine the significance between PNF and our variables.

US was performed on 409 patients, and 16 met exclusion criteria. Of the 393 analyzed, 25 (6.4%) had PNF; 21 had concomitant hydronephrosis, 23 had final diagnoses consistent with ureterolithiasis, one had sepsis, and one had renal failure without ureterolithiasis. PNF was associated with Cr > 1 ($p < 0.01$).

CT was obtained on 164 patients, and 61 identified a ureteral stone. Among patients without CT imaging, 10 patients had UVJ stones identified on US, and an additional 4 had ureteral stone at urology follow-up, for a total of 75 confirmed ureteral stones. PNF was associated with the presence of ureteral stone ($p < 0.01$) but was not associated with distal vs proximal location ($p = 0.93$). Among the 61 patients with CT-confirmed stone size, the median size was 5 mm (3,6) and PNF was associated with stones $\geq$ 5 mm ($p < 0.01$). Of the 75 patients with confirmed stone, 23 had complications. PNF was associated with complication ($p = 0.02$).

We found the overall prevalence of perinephric fluid on emergency physician-performed renal PoCUS to be 6.2%. In patients with hydronephrosis the prevalence was 19.1%, making it a common finding among ED patients and suggesting the emergency physician should specifically evaluate for its presence in suspected ureterolithiasis. The presence of perinephric fluid was associated with larger stone size and need for urologic intervention. This finding may assist emergency physicians with clinical decisions regarding the management of patients with suspected ureterolithiasis.

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Title of Project: Social Determinants Of Health In The Hispanic Community As Screened By A Pre-Professional Health Program

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Background: Social determinants of health (SDoH) are known to have a significant influence on an individual's health, especially among Latino populations.[1,2] Identifying needs and providing resources has been shown improve one's SDoH[3] and decrease ethnicity-based disparities.[4] Despite being well studied, the current healthcare system does not have the capacity to adequately screen and address SDoH.[5] University of Connecticut Health Leaders (UCHL) aims to address this deficiency by training pre-professional students to screen and address social determinants in clinical settings. Additionally, to date, research has not demonstrated the effects pre-professional health students can have on screening and addressing SDoH in the Hispanic community.

Methods: Every semester UCHL places 60-80 student volunteers between four outpatient clinics and one inpatient unit across Connecticut. Volunteers screened patients and connected those who screened positive to community partners to address their needs. Descriptive statistics were collected for all patients screened through UCHL with respect to age, sex, race, and ethnicity. A comparative analysis between Hispanic and non-Hispanic populations was conducted.

Results: From September 2020 to April 2022, 80.4% of the 626 Hispanic patients screened had at least one SDOH need, compared to 60% of the 2,108 non-Hispanic patients screened. Compared to non-Hispanics, Hispanic patients were more likely to be food insecure (7.8% vs 4.4%), need financial assistance for utilities (10.5% vs 5.1%), need help affording medications (7.8% vs 5.4%), need transportation assistance (15.7% vs 9.5%), at risk of losing housing (5.4% vs. 3.6%), currently homeless (8.3% vs. 5.7%), unemployed (16.8% vs. 7.5%), not completed high school (20.8% vs. 5.2%), have English as not their primary language (31.2% vs. 1%), and be a smoker (14.2% vs. 10.3%). All values being statistically significant (p=/<0.05).

Conclusion: This data demonstrates that UCHL volunteers can identify SDoH needs and fill gaps in clinical care. These volunteers identified disparities in SDoH between the non-Hispanic and Hispanic communities in Connecticut. Current ethnic-based health disparities will likely remain until these social needs are addressed and resolved.

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Title of Project: Investigating the Laryngeal Microbiome in Pathologic and Non-Pathologic States

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Background/Objectives: The microbiome of the larynx has been investigated in a small number of diseases[5], but further investigation is required to fully characterize its profile. The project aimed to further define the laryngeal microbiome in a wider range of disease states with widely accepted method of swabbing.

Methods: Subjects were recruited from the UConn Health Department of Otolaryngology. Pathologic samples included laryngeal SCC, vocal cord polyps, recurrent respiratory papillomatosis (RRP), Reinke's edema, amyloidosis of the larynx, and subglottic stenosis. Non-pathologic samples included vocal cord paralysis, presbylarynx, and vallecular cyst. Swab samples underwent 16S rRNA PCR sequencing.

Results: 9 non-pathologic and 12 pathologic larynx samples were collected. High prevalence of *Streptococcus* in non-pathologic samples, and increased abundance of *Neisseria* in pathologic samples were observed. No difference in richness or diversity was found between groups, however, fluctuations in specific taxa were observed. Pathologic samples contained greater abundance of *Corynebacterium, Centipeda, Eubacterium nodatum*, and *Neisseria*. Smokers demonstrated significantly higher abundance of *Porphyromonas*. Samples with reflux demonstrated higher abundance of *Lactobacillus* and *Limosilactobacillus*.

Conclusions: In this limited study, pathologic and non-pathologic laryngeal microbiomes did not differ in terms of richness or diversity. An increase *Porphyromonas* was observed in the laryngeal microbiome of smokers for the first time. While previous work did not find reflux to impact the laryngeal microbiome, here we present specific taxa that vary significantly significantly varied with reflux.

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Title of Project: Point-of-Care Ultrasound Associated with Shorter Length of Stay than Computed Tomography for Renal Colic

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Background/Objectives: Despite similar diagnostic effectiveness for renal colic, Computed Tomography (CT) is more resource intensive than Point-of-Care Ultrasound (PoCUS).[1-3] We sought to compare Emergency Department (ED) length of stay (LOS) among patients with renal colic according to imaging modality utilized. We secondarily compared rates of infection, return ED visits, missed significant pathology, and urologic intervention.

Methods: This was a 12-month (1/1/22–12/31/22) multi-site retrospective cohort study of all patients diagnosed with renal colic who presented to the ED on days when at least one patient had a billable renal PoCUS examination performed. Patients with a history of genitourinary malignancy, pregnancy, renal transplant, hemodialysis, single kidney, prior visit for renal colic in the previous 30 days, or an incomplete workup were excluded. Median ED LOS was compared using a Wilcoxon rank sum test, and the 95% confidence limits for the difference between medians was calculated. Secondary outcomes were compared using a Fisher's Exact test.

Results: Of 415 patients screened, 325 were included for analysis: 150 had CT alone, 80 had PoCUS alone, 54 had PoCUS plus CT, and 41 had neither. Median LOS for PoCUS alone was 75.0 (95% CI 39.3–110.7) minutes shorter than CT alone (231.5 vs. 307.0 min, $p < 0.0001$). Similar rates of infection, return visits, and missed pathology occurred across all groups ($p > 0.10$). Urologic interventions were higher in the PoCUS plus CT (25.9%) group compared to CT alone (7.3%), PoCUS alone (2.5%), and neither (7.3%), $p < 0.0001$.

Conclusions: Among patients with renal colic, PoCUS was associated with shorter ED LOS compared to CT, without differences in infection rates, return visits, or missed pathology. Patients with PoCUS plus CT had a higher rate of urologic interventions, suggesting PoCUS may have a role in identifying patients who would most benefit from CT.

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Omonike Oyelola
The Efficacy of Low Dose Naltrexone in Chronic Pediatric Pain: A Retrospective Analysis

Background

Chronic pediatric pain and its management is a pressing issue that is infrequently addressed comprehensively. Inappropriate treatment of pediatric pain may lead to continued pain into adulthood in addition to the development of mood disorders. Although multiple medications have been attempted to treat chronic pediatric pain, pain control is often poorly addressed. Naltrexone is an opioid receptor antagonist that has been trialed in pediatric populations for pain management. It works to treat opioid misuse at high doses but has analgesic and anti-inflammatory properties at low doses. As a result, it is a potential treatment for the regulation of chronic pain, including in pediatrics.

Methods

Pediatric patients, 11-22 years old, from Connecticut Children's Medical Center's Pain and Palliative Care Clinic who were prescribed low dose naltrexone (LDN) between January 1, 2018 through September 1, 2021 were assessed through a retrospective chart review. Length of time taking the medication, pain burden (Pain Catastrophizing Scale and Pain Burden Interview) and functional status (Functional Disability Inventory) pre and post naltrexone administration, and adverse effects were recorded. Other data collected included medical record number, age, race and ethnicity, diagnosis, pain duration, and medications. Provider documentation of treatment duration, benefits, side effects, reason for stopping naltrexone, and improved pain and function were assessed. Data was analyzed through paired t-test analysis.

Results

A total of 59 patients met inclusion criteria for the study. Of these patients, 26 expressed LDN as having positive utility. The benefit most frequently reported was a reduction in pain. Pain Catastrophizing Scale averaged 28.7 and Functional Disability Inventory averaged 28.8 prior to naltrexone. Pain Burden Interview scores were averaged 16.4 prior to naltrexone and decreased to 15.1 (n=19) and 13.5 (n=6) for a subset of research participants (p< 0.1). There were 11 adverse effects believed to be associated with LDN use. The most prevalent were fatigue, vivid dreams, headache, poor sleep, and stomach disturbance. Each adverse effect had a total of two patients reporting the symptom. In addition, one patient reported a symptom of disassociation with a description of feeling "numb and disconnected".

Conclusions

Low dose naltrexone shows promise as a pharmaceutical treatment in alleviating chronic pediatric pain. Administration of LDN supported a decrease in pain scores and an increase in functional ability with mild side effects. More research on LDN in pediatrics is recommended to continue to further explore this treatment modality.

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Impact of the COVID-19 Pandemic n Racial and Ethnic Disparities n Prehospital Treatment and Outcomes of out of Hospital Cardia Arrest in the State of Connecticut

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Background: Prior reports have documented racial and ethnic disparities in the pre-hospital treatment and outcomes of witnessed out-of-hospital cardiac arrest (OHCA) in the United States (1)(2). The impact of COVID-19 on these disparities is unknown.

Methods: We analyzed outcomes in 3,543 witnessed OHCA patients from the Connecticut Cardiac Arrest Registry to Enhance Survival (CARES), comparing Minority (Black and Hispanic) and White patients during the 2013-19 (pre-pandemic) and 2020-22 (pandemic) time periods. Primary outcomes included overall survival and survival with good neurologic function.

Results: Minorities were younger for both time periods and more likely female pre-pandemic. An increase in OHCA at home was observed in both cohorts during the pandemic (Minority: p=0.020; White: p<0.001). Pre-pandemic disparities with less bystander CPR and fewer shockable rhythms in Minorities persisted during the pandemic. Consistent with prior studies (3), new disparities were observed during the pandemic with Minorities receiving less attempted defibrillation. Pre-pandemic disparities in survival and neurological outcomes between the two cohorts were not detected during the pandemic.

Conclusion: Despite increased treatment disparities between Minorities and Whites during the COVID-19 pandemic, cohort differences in survival and neurological recovery were not observed during the pandemic. These findings are consistent with prior reports describing worse OHCA outcomes in home compared to public locations.

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Demographic Factors and Cost Implications in Postoperative Length of Stay Following Total Knee Arthroplasty: A Retrospective Analysis of New York Hospital Systems

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Background/Objectives: Total knee arthroplasty (TKA) is one of the most widely-performed surgeries in the United States, with a high degree of patient satisfaction and a steadily declining postoperative length of stay (LoS). Despite this, discrepancies in LoS are still observed throughout literature.[1] The aim of this study was twofold: first, to compare LoS following TKA between urban and rural hospitals to better understand the impact of hospital location; and second, to examine trends in LoS over a three-year period. Demographic factors, namely race/ethnicity, age, sex, and insurance type were also evaluated to gain a better understanding of the nuances of LoS. Additionally, costs between urban and rural groups were compared to uncover the estimated financial implications of prolonged postoperative LoS.

Methods: This retrospective descriptive analysis utilized the New York Statewide Planning and Research Cooperative System (SPARCS), which compiled anonymized information from all patients who underwent TKA in New York hospitals in 2017-2019. The primary independent variable was hospital county, designated as urban or rural based on population criteria defined prior to data analysis. Secondary independent variables were race/ethnicity, age, sex, insurance type, and total costs. Analysis of demographic characteristics was conducted using Microsoft Excel descriptive statistics. All outcome measures were compared using the two-sample independent t-test. Results were reported as means ± SEM at the 95% confidence level and an alpha of 0.05.

Results: Results demonstrated that increased LoS following TKA was associated with urban hospital setting, women, minorities, elderly, and Medicare/Medicaid insurance type. Patients in urban hospital settings experienced a significantly greater cost burden compared to their rural counterparts, amounting to an excess of over $6,000 per procedure, on average.

Conclusions: LoS was significantly greater in urban counties, contradictory to what has been reported at the national level.[2,3] Additionally, discrepancies in LoS were shown to disproportionately impact women, minority race/ethnicity groups, and those without private health insurance. These results add to the current literature on LoS disparities in TKA by providing data from an understudied and heavily impacted region. Taken together in the context of existing evidence, this study identified patient-level demographic factors that should be considered when targeting interventions to overcome prolonged LoS.

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Title: eReferral and eConsult Evaluation: Connecticut Healthcare Provider Interest and Perceived Value

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Background/Objectives: Electronic health records (EHRs) improve patient care by securely storing information, but many EHR systems lack interoperability, hindering data sharing between providers[5]. Various healthcare systems have integrated eReferral and eConsult tools within their EHRs, yet little is known about how Connecticut healthcare providers currently engage in referrals/consults and their interest in eReferrals/eConsults. This study assesses provider engagement in referrals and consultations and identifies their interest in and perceived value of eReferrals and eConsults.

Methods: A literature review, key informant interviews, and a cross-sectional survey were conducted with prescribing healthcare professionals in Connecticut. The survey aimed to collect data on provider demographics, current referral practices, and perceptions of eReferral/eConsult value, using Likert scales and open-ended questions. Thematic analysis was performed on the open-ended responses.

Results: We received 722 total responses that narrowed to 509 after removing incomplete submissions and those from providers irrelevant to the study's scope. Over 70% of respondents were somewhat or extremely likely to use eReferrals, and approximately 66% expressed similar interest in eConsults. Thematic analysis revealed concerns about cost/reimbursement (20 responses), time (13), existing systems (14), and liability/confidentiality (10).

Conclusions: Healthcare providers in Connecticut view eReferrals and eConsults positively and recognize their value, aligning with findings from prior research in other states[8]. Study limitations include potential bias due to survey methodology, which may favor providers with time and interest in completing the survey. Future research should focus on the technical specifics of successful eReferral and eConsult systems[12].

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Title of Project: Cognitive Determinants of Decisional Capacity in Neurodegenerative Disorders

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Background/Objectives: Cognitive contributions to decisional capacity are complex and not well understood.[1,2] Capacity to consent for research has been linked to executive function, but executive function assessment tools are imperfect.[3,4] In this study, we examine the relationship between decisional capacity and a newly developed executive function composite score and determine whether cognitive performance can predict impaired decisional capacity.[5]

Methods: This is a cross sectional study of participants at the National Institutes of Health with frontotemporal dementia-amyotrophic lateral sclerosis spectrum disorders enrolled between 2017 and 2022. A structured interview tool was used to ascertain research decisional capacity. Study participant Uniform Data Set (v3.0) executive function (UDS3-EF) composite score[5], Clinical Dementia Rating Scale©, and Neuropsychiatric Inventory was determined.

Results: A decrease in UDS3-EF composite score significantly increased the odds of impaired decisional capacity (OR = 2.92, 95% CI [1.66–5.13], p = 0.0002). Executive function was most impaired in frontotemporal dementia (2.86, SD = 1.26) and least impaired in amyotrophic lateral sclerosis (0.52, SD = 1.25) participants. The UDS3-EF composite score was also strongly correlated to the Clinical Dementia Rating Scale©.

Conclusions: Decisional capacity is intrinsically related to executive function in neurodegenerative disorders, and executive dysfunction may predict a lack of decisional capacity alerting investigators of the need for additional scrutiny during the informed consent process.

List of References: 3-5 key papers using the following format: numbered list corresponding to superscript # in text, cite first three authors (last name, initials, et al.), title, journal abbreviation, year; no tabs, no spaces between lines, Arial size 9

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Abstract

Title: Outcomes after Isolated Medial Patellofemoral Ligament Reconstruction Differ Based on Number of Dislocations Prior to Surgery

Background: The optimal management after first-time patellar instability both with and without concomitant osteochondral injury remains unclear, with limited comparative evidence supporting operative and non-operative management strategies.

Purpose: To compare the baseline characteristics and post operative outcomes of medial patellofemoral ligament reconstruction (MPFL-R) in patients with first-time patellar instability versus recurrent patellar instability, and to determine the impact of osteochondral injury on those outcomes.

Methods: Patients were identified who underwent patellar stabilization surgery between December 2016 to September 2022 as part of a prospective, multicenter cohort study (JUPITER: Justifying Patellar Instability Treatment by Results). Patients were included if they underwent a medial patellofemoral ligament reconstruction (MPFL-R) without surgical bony realignment for patellar instability. Those with less than 2 years of clinical follow-up, revision surgery, or concomitant bony procedures at the time of MPFL-R were excluded.

Results: 739 patients met inclusion criteria. 59.5% were female with a mean age of 15.6 ± 3.3 years. The mean number of instability events prior to intervention was 4.24 ± 9.4. The median number of pre-operative instability events was 2. Operative treatment after first-time patellar instability occurred in 242 (32.8%) patients, and of these 95 (39.1%) were found on imaging or intra-operatively to have a sufficiently significant osteochondral lesion that required surgical intervention. In the recurrent instability cohort, 382 (51.6%) patients experienced 2-5 dislocations prior to surgical intervention and 116 (15.7%) patients experienced >5 dislocations

prior to intervention. The mean CDI was 1.21 ± 0.26 with 93 (32.2%) exhibiting patella alta, defined as a Caton-Deschamps Index (CDI) > 1.3 and the mean TT-TG was 13.3 ± 4.3mm. There were no significant differences in any radiographic parameters as a function of dislocation events. The >5 dislocation group had a significantly higher rate of post-operative recurrent instability (defined as subluxation or dislocation) rate than the first-time and 2-5 dislocation groups (>5: 18.1%, 2-5: 9.2%, 1 dislocation 10.7%; P = 0.027). There were no differences in rate of return to sport as a function of dislocations prior to intervention. Additionally, no patient reported outcome differences were observed between groups at the 1 year, 2 year, or 5 year mark (All P > .05). Among the first-time patellar instability cohort, those with treatment of a osteochondral lesion were less likely to have patella alta (CDI > 1.3) (11.1% vs. 43.3%, P = 0.001), more frequently had an effusion on physical exam at time of initial visit (47.6% vs. 29.9%, P = 0.01 and less frequently had a J-sign (20.8% vs. 49.6%, P < 0.001) than those without a chondral or osteochondral intervention. However, there were no differences with rates of post-operative recurrent instability (7.4% vs. 12.8%, P = 0.207) or return to sport (92.0% vs. 91.9%, P = >0.999) between those with or without a chondral or osteochondral intervention, respectively.

Conclusion: MPFL reconstruction remains a durable surgical treatment option for patients presenting with either first-time or recurrent patellar instability with low rates of recurrent instability. Increased number of dislocations prior to intervention increases the risk of post-operative recurrent instability. There were no differences in radiographic parameters as a function of pre-operative dislocations. Patients with greater than 1 pre-operative dislocation demonstrated more ligamentous laxity. Individuals with osteochondral injury at time of surgery less frequently had patella alta, more frequently had an effusion at time of surgery, and had fewer

quadrants of lateral patellar translation. First-time dislocators had lower baseline PROs than recurrent dislocators, and first-time dislocators with osteochondral fracture had worse baseline PROs than first-time dislocators that did not, but there were no significant clinical differences in post-operative outcomes observed over time between the three cohorts.

Title of Project: Patient-Provider Concordance and Perceptions of Patient-Centeredness in the Dermatology Clinic

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Background/Objectives: Establishing a strong doctor-patient relationship is pivotal to enhancing healthcare outcomes, particularly through patient-centered care. Dermatology encounters, where trust and long-term relationships are essential, are often affected by demographic disparities that can influence patient perceptions. This study aims to evaluate patient-provider concordance regarding perceptions of patient-centeredness in dermatology clinics, with a focus on demographic influences.

Methods: A survey study using an adapted Patient Perception of Patient-Centeredness-Revised (PPPC-R) questionnaire was conducted at UConn Health dermatology clinics. Surveys were completed by patients and their corresponding providers post-appointment. The primary independent variable was participant role (patient or provider), with Likert scale composite scores for healthcare process, context, and relationship as dependent variables. Subgroup analyses examined demographic variables, including age, race, and gender. Statistical analyses included Wilcoxon rank-sum tests for overall differences, t-tests for subgroup comparisons, and Chi-square tests for demographic associations. A total of 100 matched surveys were analyzed.

Results: Patients reported significantly higher scores than providers on patient-centeredness (Patients 3.99 ± 0.49, Providers 3.76 ± 0.64, $P < 0.001$). Subgroup analysis revealed slightly lower scores among minority patients compared to White patients (Mean: 3.92 vs. 4.03, $P = 0.053$). Gender concordance between patients and providers was not significantly associated with score differences ($P = 0.13$).

Conclusions: Patients and providers differ in their perceptions of patient-centeredness during dermatology visits, with demographic factors such as race playing a role. These findings highlight the need for targeted interventions to bridge perception gaps, particularly for minority populations, to enhance patient-centered care. Future studies should explore additional factors influencing these discrepancies.

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Title of Project: Luteinizing hormone (LH) and prostaglandin E2 (PGE2) stimulate ovulation in an epiregulin (EREG)-dependent manner.

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Background/Objectives: Infertility is a broad and prevalent health issue worldwide[1]. Defects in ovulation is a major contributor[2]. The mid-cycle LH surge leads to an increase in the expression of pro-ovulatory genes such as *Ptgs2*, which synthesizes prostaglandin E2 (PGE2) and *Ereg*, which synthesizes epiregulin (EREG)[3,4]; however, the mechanisms by which LH acts on the follicle to cause rupture is unclear. EREG and PGE2 are thought to be essential intermediates in LH signaling. This study used an ex vivo model to investigate mechanisms of follicle rupture.

Methods: Preovulatory follicles were mechanically isolated from prepubertal mouse ovaries and cultured on Millicell inserts in medium containing follicle stimulating hormone (FSH) to promote follicle development. Follicles were treated with LH, EREG, or PGE2 with or without EGF receptor inhibitor (AG1478) during incubation and were either observed for follicle rupture or collected 2- or 4-hours post-treatment to evaluate gene expression. RNA was isolated from follicles, followed by reverse transcription to make cDNA. Primers for *Ereg, Adamts-1, Ptgs2, Has2, Versican, Tsg6,* and *Tbp* (control) were used to detect RNA levels via qPCR amplification. Morphological changes were observed using a stereoscope. Statistical significance was evaluated using ANOVA or Chi-square analyses with $\rho \leq 0.05$ being statistically significant.

Results: LH and PGE2 caused follicle rupture, which was partially inhibited by AG1478. EREG stimulated cumulus expansion but not follicle rupture. RT-qPCR studies to compare gene expression levels in response to these treatments have found increased expression of some LH-inducible genes that are not recapitulated by EREG. In addition, PGE2 strongly upregulates itself and *Ereg*, suggesting a positive feedback loop.

Conclusions: Treating follicles with LH consistently leads to ovulation and upregulation of pro-ovulatory genes. EREG stimulates expression of some pro-ovulatory genes but does not cause follicle rupture. The EGF receptor is essential for cumulus expansion and is more dramatically upregulated by PGE2 than LH. Additionally, though PGE2 is an end product of the pathway, its effects are likely dependent on EREG activity. This is the first study to show that EREG is necessary, though not sufficient, for ovulation.

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Stride Cross-over and Pelvic Rotation Contribute to Ulnar Collateral Ligament Injury Risk and Pitching Performance in Collegiate Level Baseball Players

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Background: The incidence of elbow injury and the need for surgical intervention in baseball pitchers has been increasing[1]. This multifactorial problem has stimulated the implementation of pitch count limits, advising against early pitching specialization, and increased the focus on proper pitching biomechanics[2,3]. We investigated the effect of stride position and pelvic kinematics on the elbow varus moment (EVM) and ball velocity (BV).

Methods: Pitchers (N=99) were recruited from college baseball teams. Motion data were collected using a 12 camera Vicon 512 motion system. Stride cross-over was measured using stride distance between stride foot and the plant leg. Other predictor variables included pelvic angular velocity (°/sec), pelvic rotation at ball release (°), and pelvic range of motion (°). Statistical analyses were performed using a mixed effects random intercept regression model.

Results: Mean age was (20.7 ± 1.3 years), height of (1.8 ± 0.7 m), and weight of (88.6 ± 13.5kg). For every 100°/sec increase in pelvis angular velocity, EVM increased by 5.6Nm (p=0.00) and BV increased by 0.43mph (p=0.00). For every 10° increase in pelvis rotation at ball release and 10° increase in total pelvic range of motion, the EVM increased by 0.4Nm and 0.2Nm respectively (p=0.036, p=0.02) and BV increased by 1.8mph and 1.1mph respectively (p=0.03, p=0.01). Pitchers that achieved greater pelvis range of motion experienced a 0.26% increase in EVM accompanied by a 1.6% increase in BV. Pitchers that demonstrated greater pelvis rotation at ball release experienced a 0.53% increase in EVM and 2.55% increase in BV.

Conclusion: Landing in a cross-over stride position produced the largest EVM and low BV compared to pitchers that landed in an open stride position. These results can aid pitching coaches and trainers in understanding the implications of incorrect lower extremity pitching mechanics on elbow injury risk reduction and performance in baseball pitchers.

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Title of Project: The Association Between Pressure Ulcer Formation And Various Social Determinants Of Health In Patients Admitted To UConn John Dempsey Hospital, 2023-24

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Background: Pressure ulcers disproportionately affect vulnerable populations, with studies highlighting advanced age, Black race, and male sex as key predictors of worsened ulcers.[1,2] Social determinants of health (SDOH) such as education, economic stability, healthcare access, and transportation may contribute to prolonged pressure ulcer durations and increase hospital length of stay (LOS). Research also shows that individuals with darker skin tones are at higher risk of developing advanced-stage pressure injuries compared to those with lighter skin tones. Despite these findings, limited evidence exists to guide interventions that address these disparities.[3] This study examines the relationship between SDOH and LOS among pressure ulcer patients at UConn Health. By identifying key drivers of disparity, this research aims to inform targeted care and support future guidelines for improving outcomes.

Methods:
A retrospective analysis was conducted on 352 patients admitted to UConn John Dempsey Hospital with an ICD-10 diagnosis of pressure ulcers. The study, IRB-exempt, employed multivariable linear regression to assess the association between SDOH and hospital length of stay.

Results:
Patients had a mean age of 71 ± 15.7 years, with 248 males and 104 females; 32 identified as Hispanic, 41 as Black, and 32 as "Other." The mean hospital stay was 10.7 days. Seventy-five patients lived in medically underserved areas. Predictors, including age, race, sex, ethnicity, and zip code, did not significantly explain variance in length of stay ($R^2 = 0.001$, $p > 0.05$). While education, economic stability, healthcare access, and transportation were hypothesized to influence LOS, no significant relationship was found in this cohort.

Conclusions:
No significant association was found between SDOH and hospital length of stay. The limited sample of Black and Hispanic patients may have impacted findings. Future studies should explore additional SDOH and account for confounders such as comorbid conditions to better understand their role in LOS. Developing equity-focused initiatives can improve outcomes for vulnerable populations at UConn Health.

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Personal and Professional Experience of Mental Health Workers During the COVID-19 Pandemic: Associations with Anxiety, Depression, and Secondary Traumatic Stress in its Aftermath

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Background/Objective: The COVID-19 pandemic placed immense psychological demands on mental health workers (MHWs), driven by both personal and professional stressors[1]. This study aimed to investigate key predictors of symptoms of depression, anxiety, and secondary traumatic stress (STS) among this workforce.

Methods: This cross-sectional study utilized data collected through an online survey targeting MHWs between September 2022 and June 2024. Independent variables were assessed using validated instruments, including the Epidemic-Pandemic Impacts Inventory (Brief & Mental Health Professional version), the Global Psychotrauma Screen, the Perceived Social Support Survey, and the Moral Injury Scale for Youths. Mental health outcomes—depression, anxiety, and secondary traumatic stress (STS)—were measured using the Patient Health Questionnaire-8 (PHQ-8), Generalized Anxiety Disorder-7 (GAD-7), and Secondary Traumatic Stress Scale (STSS), respectively. After applying case-wise deletion, the final sample sizes for the regression analyses were N = 545 (36.2%) for PHQ-8, N = 546 (36.6%) for GAD-7, and N = 402 (26.7%) for STSS. Stratified hierarchical logistic regression models, adjusted for age, gender, and country income, were employed to examine associations between independent variables and mental health outcomes.

Results: Age and perceived social support were consistently associated with lower odds of psychological distress, including symptoms measured by the PHQ-8, GAD-7, and STSS, while moral injury was significantly associated with higher odds across these outcomes. Increased conflict with a spouse and exposure to clients with infected co-workers were associated with increased symptoms of depression and STS. Additionally, exposure to clients experiencing new or worsening intimate partner violence was linked to higher anxiety and STS symptoms.

Conclusion: These findings align with prior research, emphasizing key factors contributing to psychological distress in MHWs and underscoring the critical need for long-term supportive interventions.[2-3].

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Genetic Testing Practices and Pathological Assessments in End Stage Heart Failure Patients Undergoing Heart Transplantation and Left Ventricular Assist Device

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Background/Objectives: Genetic cardiomyopathies (CM) are increasingly recognized as causes of end-stage heart failure (ESHF)[1]. Identification of a genetic etiology in ESHF has important prognostic and family implications[2]. However, genetic testing practices are understudied in ESHF patients.

Methods: This single-center, retrospective study included consecutive ESHF patients who underwent heart transplantation (HT) or left ventricular assist device (LVAD) from 2018 to 2023. Data, including genetic testing and pathology reports, were collected from the electronic medical record. Analyses of demographic and clinical characteristics were stratified by genetic testing completion and presence of clinically actionable variant. Logistic regression was performed to evaluate for associations between histology findings and genetic variants.

Results: A total of 529 adult patients (mean age 57 years) were included in the study and were predominantly male (79%, 422/529) and non-white (61%, 322/529). Genetic testing was performed in 54% (196/360) of patients with either non-ischemic or mixed CM. A clinically actionable result was identified in 36% (70/196) of patients, of which, only 43% (30/70) had a genetic counselor referral. The most common genetic variants were TTN (32%, 24/75), MYBPC3 (13%, 10/75), and TTR (11%, 8/75). Clinically actionable variants were identified in patients with known heart failure precipitators, such as alcohol use. In multivariable analysis, presence of interstitial fibrosis, specifically diffuse, on pathology was significantly associated with a clinically actionable variant (aOR 2.29, 95% CI [1.08-4.86], p = 0.03).

Conclusions: ESHF patients with non-ischemic or mixed CM undergoing advanced therapies had a low uptake of genetic services, including testing and counselors, despite a high burden of genetic disease. Pathology findings, such as interstitial fibrosis, may provide insight into genetic etiology. The underutilization of services suggests a need for implementation strategies to improve uptake.

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Title: Revealing Racial & Geographic Disparities in Transplantation of Substance-Affected Donor Hearts

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Background/Objectives: Current evidence supports the use of donor hearts from patients with a history of alcohol and cocaine use to increase donor organ pool (1). The International Society for Heart and Lung Transplantation's guidelines recommend that hearts of donors with a history of alcohol use may be used if cardiac function is preserved on echocardiography, and donors with a history of cocaine use can be considered if there is no significant left ventricular hypertrophy (6). Many studies have explored the effects of cocaine and alcohol use in heart transplant donors and neither cocaine use, nor alcohol use seems to impact recipient survival (2,3,4,5). While some studies have explored regional variation of using substance-affected hearts (SAHs), many questions are left unanswered about racial differences and recipient mortality beyond just survival. This study evaluates regional variation in receipt of SAHs and associated mortality to identify the effects of donor cocaine use, alcohol use, and both in conjunction on recipient mortality, to explore variations in regional use of SAHs and recipient mortality in the US, and to determine the variation in use of SAHs by race and potential impacts on mortality.

Methods: Adult heart recipients 2010-2023 from the United Network for Organ Sharing were analyzed (N=30,209). Donors were grouped by heavy alcohol use, cocaine use, both, or neither. States were divided into four geographic regions: Northeast, South, West, Midwest. Survival analysis assessed the effect of SUD on post-transplant survival adjusting for patient and donor characteristics. Kaplan-Meier survival and mortality curves illustrated regional and SUD differences.

Results: Of the 30,209 adult heart recipients, 22% were Black, 64% where White, 9% were Hispanic, and 5% were Asian, Native American/Alaska Native, Native Hawaiian, or multiracial. 73% were male, 27% were female. 13% of donors were heavy alcohol users, 11% cocaine users, 5% both cocaine and alcohol users, and 71% were neither. 19% of hearts were transplanted in the Northeast, 39% in the South, 22% in the Midwest, and 19% in the West. The Northeast had higher rates of alcohol/cocaine (27%, ANOVA $p<0.005$) and cocaine-only donors (26%, ANOVA $p<0.005$). Black recipients received fewer than expected alcohol-affected hearts but had relatively more cocaine-using donors. Recipient mortality was higher in the South and lower in the West, in comparison to the Northeast (Kaplan Meier mortality curve, $p<0.005$). SUD had a small impact on recipient mortality in unadjusted analysis but none after adjustment for donor and recipient age, race, sex, transplantation year, insurance status, and region of residence.

Conclusions: Elevated rate of alcohol/cocaine-using donors does not appear to explain regional differences in mortality among heart transplant recipients. Racial differences in the use of SUDs do not appear to explain mortality differences among heart transplant recipients, but Black recipients are more likely to receive hearts from SUDs.

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Reaction to At-Home Air Purifiers Installed to Reduce Traffic-Related Air Pollution in Near-Highway Residences

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Background: Traffic-related air pollution is associated with adverse health effects[1]. Reducing exposure with air purifiers (APs) in homes near major highways is one approach to mitigating this risk[2]. However, few studies have investigated participants' attitudes towards APs, and those that do exist have had varied results[3,4]. This study fills the gap in the literature by reporting participants' reactions to using portable home air purifiers to reduce traffic-related air pollution.

Methods: This is a mixed methods study within a larger randomized crossover trial of AP use in residences near a major highway in Somerville, MA. Data sources include questionnaires at 30-day and 90-day home visits (n=150), electricity consumption recorded by HOBO monitors (n=45), and structured interviews (n=26). Generalized linear models with generalized estimating equations were used to compare participant-reported outcomes. *P* values <0.05 were deemed statistically significant. HOBO data were used to calculate the percentage of time the APs ran over the past 30 days. Thematic analysis was performed on interview responses.

Results: Questionnaires showed that nearly all 150 participants reported running the air purifiers nearly 24 hours every day in both their living room and bedroom, with 80% of participants using the medium setting. Electricity use from the subset of 45 HOBO monitors supported the participants' responses to the questionnaires. Tolerance to AP noise increased significantly between the 30-day and 90-day home visits, with approximately two-thirds of participants reporting that they were not bothered at all by the noise in the living room (*p* < 0.001) and bedroom (*p* = 0.001). The subset of 26 qualitative interviews yielded consistent responses to those from the questionnaires. Size of unit, airflow, and energy consumption were additional concerns that emerged during the interviews.

Conclusions: All results suggest that participants had overall positive reactions towards the presence of in-home APs and may be receptive to using them on a regular basis, which is generally consistent with existing literature[3,4]. Limitations include some subjective outcomes, such as tolerance to noise, as well as generalizability limited to near-highway populations in the Northeastern United States. Further research is warranted with larger sample sizes, different populations, and different AP models.

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Title of Project: A Comparison of Clinical, Neonatal, and Maternal Factors Between Early- and Late-Onset Group B Streptococcal Disease

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Background/Objectives: Universal GBS screening in pregnant people and maternal antibiotic prophylaxis have reduced the incidence of EOGBS.[1, 2] Despite a lower incidence, there is still a high risk of morbidity and mortality without treatment and limited knowledge about LOGBS.[2,3] Using data from neonatal sepsis surveillance and hospital admissions, we describe the mortality rate and factors associated with EOGBS and LOGBS in Connecticut.

Methods: This retrospective cohort study combined statewide surveillance data for infant GBS through Active Bacterial Core surveillance and statewide hospital admission data. Cases were defined as EOGBS (< 7 days of age) or LOGBS (7 – 89 days of age). Chi-square tests and Mann-Whitney test were used for statistical analysis.

Results: Of the 322 identified cases, 106 (32.9%) were EOGBS and 216 (67.1%) were LOGBS. LOGBS had a higher rate of meningitis (n = 65, 30.1%) compared to EOGBS (n = 11, 10.4%), (p < 0.001) and had a higher percentage of diagnosis via CSF (n = 51, 23.6%) compared to EOGBS (n = 5, 4.7%, p < 0.001). LOGBS were more likely to receive maternal antibiotics for GBS prophylaxis (n = 129, 61.1%) compared to EOGBS (n = 49, 46.2%, p = 0.012) and more doses of antibiotics (3.39 doses) compared to EOGBS (1.59 doses, p = 0.010).

Conclusions: Our study demonstrated differences in factors associated with EOGBS and LOGBS. Strategies for EOGBS prevention include maternal antibiotic prophylaxis and maternal screening. The transmission and pathogenesis of LOGBS is likely different than EOGBS, creating a need for different preventative strategies. Potential mechanism to prevent LOGBS include maternal vaccination.

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Paramedic-Performed Ultrasound for Cardiac Function Assessment: Feasibility, Image Adequacy, and Accuracy

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Background/Objectives: Cardiac point-of-care ultrasound (cPoCUS) can detect occlusive myocardial infarction in the absence of a diagnostic electrocardiogram (ECG).[1-3] The feasibility of cPoCUS to assess left ventricle (LV) function in the prehospital setting is unknown. We sought to determine the feasibility, image adequacy, and interpretation accuracy of paramedics performing cPoCUS for assessment of LV function.

Methods: This was a prospective descriptive study of ultrasound-naïve paramedics who opted to perform cPoCUS during transport of adult patients receiving an ECG from 4/22/23 to 12/22/23. Patient refusal, conditions precluding cPoCUS, or transport time ≤5 minutes were exclusion criteria. Paramedics attended a two-hour cPoCUS didactic with an objective structured clinical examination (OSCE) and written test prior to participation. Handheld ultrasound devices were used to save time-stamped images with 1) patient initials, 2) videos of parasternal cPoCUS views, and 3) interpretations indicating a) overall LV function and b) presence of a wall motion abnormality (WMA). Two ultrasound fellowship-trained emergency physicians independently reviewed images for adequacy and accuracy, and a Cohen's kappa (κ) was calculated. Proportions were used to determine feasibility, image adequacy, and interpretation accuracy.

Results: All paramedics (n=14) passed the OSCE, 10 passed the written test, and six opted to participate, obtaining ECGs on 269 patients: 68 met exclusion criteria, and 178 (88.6%) received cPoCUS. For LV function, 109 (61.2%) patients had adequate views (almost perfect agreement, κ=0.92, 95%CI 0.85-0.98); 102 had interpretations of which 83 (81.4%) were accurate (substantial agreement, κ=0.69, 95%CI 0.49-0.89). For WMA, 69 (38.8%) patients had adequate views (moderate agreement, κ=0.53, 95%CI 0.42-0.65); 65 had interpretations of which 54 (83.1%) were accurate (fair agreement, κ=0.26, 95%CI -0.07-0.58).

Conclusion: cPoCUS is feasible in the prehospital setting for assessment of LV function. With brief training, paramedics acquired adequate cPoCUS images for LV function assessment and interpretations were largely accurate.

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Title of Project: Field Testing a Pediatric SMART Asthma Treatment Plan

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Background/Objectives: Provision of written asthma treatment plans (ATPs) is a key component of asthma management. The 2020 focused update recommends single maintenance and reliever therapy (SMART) for individuals aged 4 years and older with moderate to persistent asthma[1]. Despite this, there is an evidence-to-practice gap[2] and a need for SMART ATPs that are both understandable and actionable.[3] The aim of this study was to field-test and refine a SMART ATP that is clear and practical for use in everyday asthma care.

Methods: Caregivers of children with asthma were approached in waiting rooms of primary care clinics in Hartford, CT. Participants were presented the ATP and probed to assess their understanding. Demographic data were collected. Through iterative rounds of field-testing and final focus group, key themes were identified, categorized, and contextualized.

Results: Between November 2022 and August 2023, 101 participants were approached, with 18 enrolled (13 English-speaking and 5 Spanish-speaking). The mean age was 37, and most participants were biological mothers (89%) of Latino/Puerto Rican ethnicity (78%). Two rounds of field testing identified key issues, including confusion about SMART therapy timing and dosage, and unclear distinctions between the daily and sick treatment plans. A final focus group in April 2024 confirmed the updates to the treatment plan.

Conclusions: A final SMART ATP was developed based on analyses of two field-testing iterations and a focus group with families of children with asthma.

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Needs Assessment of Patients at the UConn Health Gender Identity Clinic

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Background: Since its establishment in 2020, the UConn Endocrinology Gender Identity clinic has sought to provide comprehensive gender affirming care to transgender and gender-diverse patients. Given that it is a relatively new clinic, research was conducted to determine patient needs as well as their satisfaction with the clinic and its overall effectiveness. The results of this study will allow the clinic to identify areas for improvement and new services for the patients.

Methods: An anonymous paper survey was administered to patients utilizing this clinic. This survey was developed in consultation with previously crafted surveys [1,2]. The survey involved question formats such as yes/no, check all that apply, and Likert scale ratings and included some of the following topics: demographics, interest in procedures, interest in other resources, ease of access with the clinic, barriers to care, and satisfaction with their providers and with the clinic. Descriptive data analysis was then conducted.

Results: There were 82 completed surveys. Patient age range was 19-72 with modes at 24 and 27 years old. When asked about interest in learning about HIV PrEP (pre-exposure prophylaxis) 21% stated yes, 42% stated no, and 36% were unsure. Highest interest rates in gender affirming procedures include: hair removal 33%(23), facial feminization 30%(21), chest reconstruction 29%(20), and genital reconstruction 29%(20). Highest interest rates in gender affirming topics/resources include: how to find a surgeon 46%(28), how to prep for surgery 44%(27), how to legally change your name 43%(26), and hair and makeup education 36%(22). In terms of barriers to care, many patients (47%) stated large or huge barriers with paying for procedures or other services. Most patients (86%) rated their provider in this clinic as very or extremely caring. A vast majority of patients (99%) stated they would probably or definitely recommend this clinic to others.

Conclusions: Overall, the UConn Health Endocrinology Gender Identity Clinic appears to be satisfactory to patients, as the majority feel their providers are caring and they would recommend this clinic to others. There is interest in various gender affirming procedures and other topics/resources, and this information can be used by clinicians to help guide areas of discussion during visits and the clinic may even consider holding information sessions on the topics of interest. A potential area for improvement is HIV PrEP education and counseling.

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Use of Subsidized Transportation to Improve Access to Wound Care in a Limb Preservation Program

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Background/Objective:
Timely access to wound care is essential for improving healing outcomes and reducing the risk of major amputations in patients with chronic limb-threatening ischemia and lower-extremity wounds. To address barriers to transportation, our limb preservation program implemented free or subsidized transportation services (TS) to facilitate consistent follow-up wound care. This retrospective study aimed to identify if patients who received TS missed fewer wound care appointments along with wound outcomes including healing rates and amputation-free survival compared to patients with similar demographics before TS became available.

Methods:
From January 2020 to February 2023, patients referred to the limb preservation program were enrolled under the guidance of a nurse navigator upon hospital discharge. Patients requiring assistance with transportation were offered free or subsidized services to attend wound care appointments at facilities within our tertiary care network. Propensity score matching utilizing 16 demographic parameters was used to identify a comparable cohort of patients enrolled before January 2020, who would have qualified for TS if available. Primary outcomes include index wound healing rates and major-amputation free wound healing. Secondary outcomes include percentage of missed wound care appointments, re-hospitalization rates, and new ulcer development during treatment.

Results:
A total of 26 patients were enrolled in TS and were propensity-score matched to 19 patients who did not receive TS. The mean time for healing in the TS group was 144 days (SD 144) compared to 8 days in the non-TS group (SD 22) which was statistically significant ($p=0.008$). Patients who received TS had lower rates of new ulcer development (11 vs. 8, $p=0.026$), similar re-hospitalization rates (30.8% vs. 22.2%, $p=0.222$), and comparable major-amputation-free wound healing rates (57.7% vs. 57.9%, $p=1.0$). Patients who received TS still missed as many appointments as those without TS (>30%: 47.4% vs 46.1%, $p>0.05$)

Conclusion:
Patients who received TS demonstrated a higher mean time for healing and similar major-amputation-free wound healing. They had lower rates of new wound development, similar rates of missed wound care appointments, and similar rehospitalization rates. These findings underscore the critical role of transportation services in improving continuity of care to ensure equitable access to wound care for at-risk patients.

Weapons Screening Programs Reducing Absolute Rates of Hospital Workplace Violence: A Scoping Review

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Abstract:

Objectives: To identify and analyze evidence informing the ability of hospital weapons screening programs (HWSPs) to reduce hospital workplace violence (HWPV).
Methods: We elaborated five research questions to fulfill study objectives. We searched six online databases in July 2023 and March 2024 for full-length papers and abstracts of original research regarding HWSPs at public hospital entrances. Study quality and design were assessed using the Mixed Methods Appraisal Tool and the 2010 Melnyk and Fineout-Overholt hierarchy of evidence, respectively.
Results: 27 studies were included. All were nonexperimental designs—26 (96.3%) quantitative descriptive and one qualitative—ranking within the second lowest tier of experimental robustness. The average quality score was 84.4%. Two studies (7.4%) measured rates of HWPV before and after MDs: neither reported a decrease in HWPV. Otherwise, studies utilized proxy measurements to conclude HWSP efficacy without directly assessing HWPV rates.
Conclusions: No studies support MDs' ability to reduce HWPV. Studies supporting MD efficacy are nonexperimental and use proxy measures of success. Increases in HWPV are predominantly unarmed and driven by clinical insufficiencies, rendering HWSPs' usage incompatible with public health principles.

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Title: Evaluating Risk Factors for the Development of Hypocalcemia After Denosumab Treatment

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Background/Objectives: Denosumab is effective at increasing bone mineral density and preventing fracture in patients with or at risk for osteoporosis or malignant skeletal lesions. However, hypocalcemia is a concerning side effect. Reports of severe and fatal episodes led the FDA to issue a black box warning in 2024 for the medication in patients with chronic kidney disease (CKD).[1-4] We aim to identify any demographic factors that may also place patients at increased risk.

Methods: Our study is a retrospective chart review. Independent variables include the following demographic factors: sex, race, and ethnicity, and the following measures of kidney function: abnormal eGFR, presence of CKD diagnosis code, and injection dosage: Prolia (60 mg) vs Xgeva (120 mg). Dependent variables include the presence of standard (defined as serum calcium <8.4 m/dL) and severe (serum calcium <7.0 mg/dL) hypocalcemia. We analyzed a sample of 1,947 instances of a serum calcium level drawn within 6 months of denosumab administration at the UConn Health Outpatient Pavilion since 2018. Data was collected using the SlicerDicer tool in Epic. Statistical significance was determined via chi-squared test.

Results: Within our sample, there were 337 instances of patients who had a serum calcium level consistent with standard hypocalcemia, and 58 with severe hypocalcemia. Abnormal eGFR, presence of CKD diagnosis code, male sex, Black race, and Xgeva were significantly associated with both standard and severe hypocalcemia, with white race, female sex, and Prolia being protective factors; Hispanic ethnicity was significantly associated with standard hypocalcemia only (p<0.05). Within the subgroup of patients with normal eGFR, male sex remained a significant risk factor for both standard (RR 2.58 [1.90-3.52], p<0.0001) and severe (RR 4.31 [1.74-10.69], p=0.0016) hypocalcemia, and Black race remained a significant risk factor for standard hypocalcemia (RR 2.00 [1.10-3.54], p=0.02).

Conclusions: We identify potential demographic risk factors for hypocalcemia after administration of denosumab in addition to providing further evidence for compromised renal function as a risk factor. We suggest that Black race, and male sex may be risk factors independent of eGFR. Further research should seek to verify these findings in a greater study population and seek to identify additional risk factors that may have influenced our findings.

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Title: Retrospective Review of the degree Orbital Dystocia and Facial Scoliosis Following Endoscopic Unicoronal Craniosynostosis Repair.

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Background/objectives: Unicoronal craniosynostosis (UCS) causes ipsilateral elevation and retraction of the orbit and contralateral deviation of the nasal bridge.[1] These facial anomalies are, arguably, the most cosmetically significant consequences of UCS, and may relate to an increased rate of strabismus in UCS patients. Early surgical intervention to reverse craniofacial deformities can reduce rates of strabismus surgery in UCS patients and, subjectively, improve orbital dystocia, but the expected timing and rate of improvement has not been quantified. This study seeks to document changes in facial scoliosis and orbital dystocia among UCS patients post endoscopic surgical correction using the transcanthal line angle metric (TCLA).[2]

Methods: The charts of UCS patients who had undergone endoscopic suturectomy procedures between September 2019 and June 2023 were reviewed. Records without paired orthogonal photos and craniometrics were excluded. Data were collected regarding demographics and photographic TCLA.[3]

Results: Nine patients met criteria for inclusion. Mean age, corrected for prematurity, at the time of surgery was 77.3 days (SD±27.4 days). Over a maximum follow up period of two years (mean 602.8 days, SD±451.3 days), the TCLA variance from normal (90 degrees) decreased by 43.2% within the first year [0.148 rads (CI95%±0.024 rads) vs 0.084 rads (CI95%±0.016 rads), $p<0.001$]. Mean TCLA measurements further improved by an additional 7.6% from 1 to 2 years post-surgery, though this change was not statistically significant. All patients were treated in a cranial orthosis for 6–12 months.

Conclusions: These data suggest that the facial scoliosis and orbital dystocia in patients with UCS can be expected to improve ~50% within the first year following minimally invasive surgery. A failure of TCLA measurements to improve within the first 3 months post-surgery could be an indicator of treatment failure. Longer follow-up studies may clarify how UCS-associated facial anomalies change with midface maturation and relate to rates of strabismus surgery.

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Title of Project: Prevalence of Statin Use and Dyslipidemia Screening for Secondary Cardiovascular Prevention in Patients with Cancer

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Background/ Objectives: Recent improvements in cancer therapies have led to prolonged survival in patients with breast and lung cancer, who may experience increased cardiovascular (CV) event rate[1]. Overall, statins are a well-studied, safe medication that can provide substantial benefits to this population [2]. They may be especially beneficial in patients on chemo therapy with known cardiac side effects[3]. However, whether patients with a current or past history of cancer are prescribed statins in accordance with current ACC/AHA guidelines for secondary prevention is unknown. The goal of the present study was to evaluate if statins are underutilized in patients with breast and lung cancer.

Methods: Observational cohort study of 59 adult patients with breast cancer & 71 patients with lung cancer aged 40-75 who underwent cancer treatment at UConn Health from 2015-2020. Patients with terminal cancer with reduced life expectancy <1-year, major liver impairment, allergy to statin, and HIV were excluded. This was a descriptive study; no specific data analyses were utilized.

Results: The burden of CV comorbidities was high in patients with breast and lung cancer: hypertension 63% (n=82/130), dyslipidemia 45% (n=58/130), type 2 diabetes 17% (n=22/130), and coronary artery disease 16%. Among the 48 patients with cancer who have established atherosclerotic cardiovascular disease (ASCVD) and/or diabetes, 58% (n=28/48) had lipid panel assessed at any time after their cancer diagnosis. Furthermore, only 46% (n=22/48) of these patients had evidence of statin use.

Conclusions: There may be an underutilization of statins and underscreening of dyslipidemia in patients with cancer and coexistent ASCVD and/or diabetes. Future research should examine other cohorts of patients at a high risk for CV events to improve the generalizability of the findings.

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Title of Project: Dynamics of Corneal Citrullination in Nitrogen Mustard Ocular Injury

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Background/Objectives: Nitrogen mustard (NM), an analog of the chemical warfare agent sulfur mustard, is an alkylating agent that has detrimental effects on the eye; however, the molecular response following exposure is not well understood.[1] NM injury is known to modify the genome guardian p53 and induce citrullination, a post translational modification.[2,3] This project investigates whether the perturbation of p53 by NM leads to activation of peptidyl arginine deiminases (PADs), the enzymes responsible for corneal hypercitrullination.

Methods: C57Bl6 line mouse corneas (male and female aged 2-5 months, N=8/group) were topically injured with 1% NM for 5 min under isoflurane anesthesia. Mice were euthanatized at specific timepoints, and enucleated eyes subjected to cryosectioning. Tissue sections were stained with antibodies to quantify global citrullination (F95), citrullinated histone H3 (cit-H3), PAD4 and p53 by immunohistochemistry (IHC). Immunoprecipitation (IP) of corneal proteins and western blotting (WB) were employed to examine p53-PAD interactions and cit-H3. In other experiments, injured eyes were enucleated, and the globe placed in DMEM culture medium at 37°C in a CO_2 incubator with PAD inhibitor Cl-amidine. Statistical analysis was performed with Student's t-test (α=0.05).

Results: NM injury significantly increases p53 expression by 1h in the injured corneal epithelium (P<0.0001), which appears in the stroma by 1d by IHC analysis (P=0.0003). NM increases nuclear cit-H3 at 30 min which was sustained through 1d, as shown by IHC and WB (P=0.0286). IP-WBs revealed p53 binds PAD4 and pulls down also citrullinated proteins from injured corneas. There was no difference in PAD4 levels between the injured and uninjured groups by IP-WBs. Ex vivo inhibition of PAD4 even 1h post injury caused a reduction of global citrullination but not of increased cit-H3 levels when measured at 1d.

Conclusions: Acute citrullination of nuclear histones by PAD4, as well as global citrullination targets affected at later times, may be regulated by PAD4-substrate preferences. These findings along with our previous studies suggest PAD4 governs corneal citrullination in a time and cell type-specific manner where altered functions of distinct targets may drive epithelial cell degeneration in vesicant injury.[3] Future studies are needed to lay the groundwork for therapeutic development.

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Title of Project: Frailty, Social Deprivation, and Mortality Among Medicare Fee-For-Service Beneficiaries

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Background/Objectives: Frailty is a common clinical syndrome that puts older adults at elevated risk for adverse health outcomes.[1] The health risks may be worse when older adults with frailty are concurrently exposed to social deprivation.[2,3] To date, little is known about the geographical distribution of frailty and social deprivation and their health risks in the United States (US).
Methods: We estimated claims-based frailty index (CFI) (range: 0-1) and area-level social deprivation index (SDI) (range: 0-100) in a 5% random sample of 1,207,323 Medicare fee-for-service beneficiaries 65 years and older. We examined the prevalence of frailty (defined as CFI ≥0.25) and the mean SDI and estimated their correlation by state and county. The association of frailty and social deprivation with one-year mortality was estimated using logistic regression, adjusting for age, sex, and dual-eligibility.
Results: The study population had the following characteristics: mean age of 76 years, 56% female, 10.3% with frailty, and 24.0% with high social deprivation (SDI≥67). The correlation between frailty and social deprivation was weak (ρ=0.39 by state and 0.28 by county). The risk of death for the total study population was 4.5%. The adjusted risk of death for robust, prefrail, and frail individuals was 1.8%, 4.4%, and 13.3%, respectively. The adjusted risk of death for low, medium, and high SDI regardless of frailty was 4.4%, 4.7%, and 4.6%, respectively. In robust beneficiaries, the adjusted risk of death for low, medium, and high social deprivation was 1.6%, 1.9% (OR: 1.21 [95% CI: 1.15, 1.27]), and 2.0% (1.31 [1.24, 1.38]), respectively, whereas in beneficiaries with frailty, the corresponding risk by social deprivation was 13.4 %, 13.7% (1.03 [0.99, 1.07]), and 12.9% (0.96 [0.92, 1.00]).
Conclusions: This study identifies regions of the US that may be most vulnerable from frailty and social deprivation, which expands on existing literature. One limitation is that frailty was measured from claims data, which can lead to measurement errors. These findings emphasize the significance of frailty and social deprivation on mortality and the need for community-based preventative health programs such as frailty screening to improve health outcomes for Medicare beneficiaries living with frailty.

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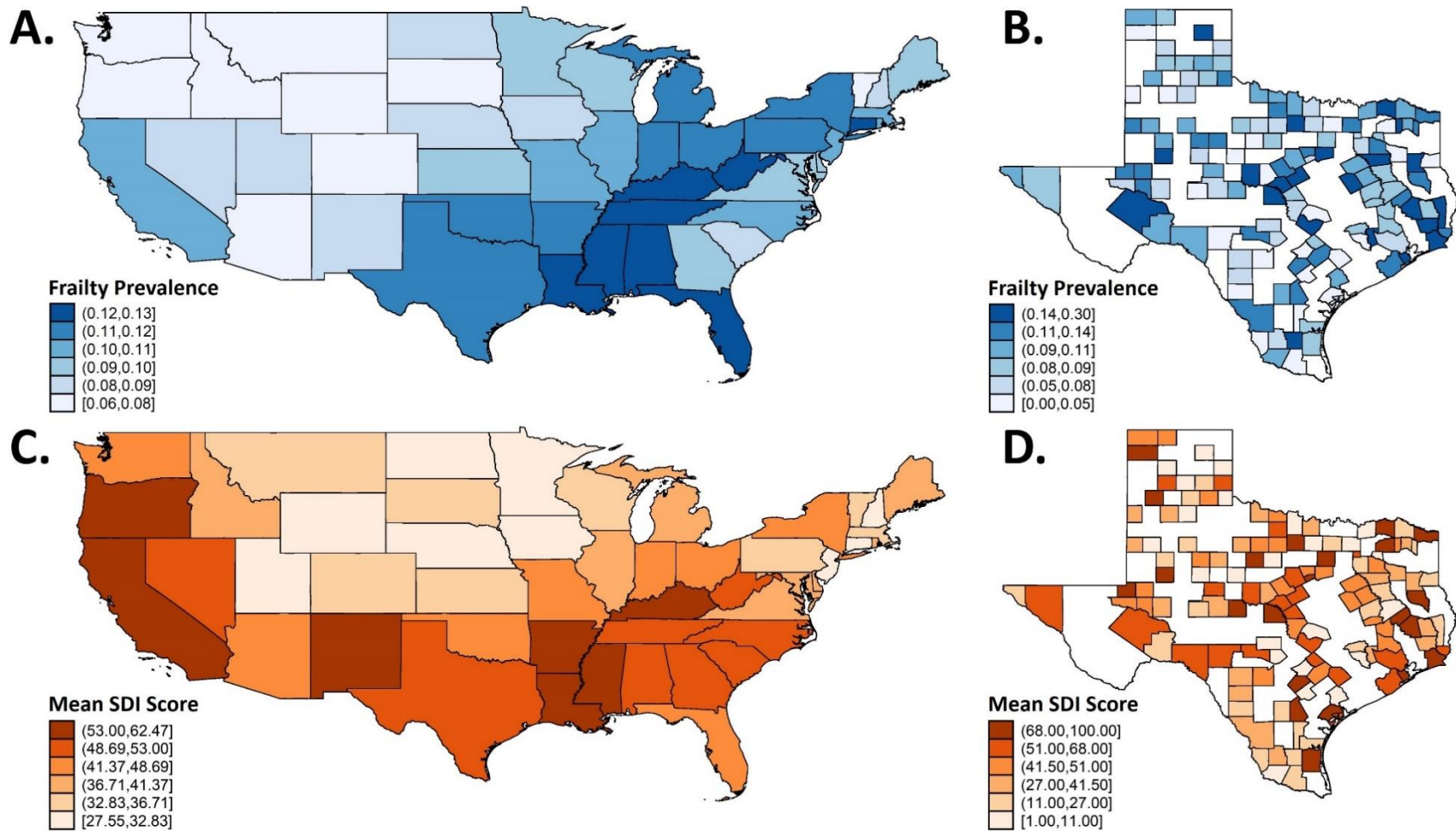
Figure 1. Frailty Prevalence and Social Deprivation Index (SDI) Mapping of Medicare Beneficiaries (≥65) by State and County Level. (A) Frailty prevalence by state level. (B) Frailty prevalence by county level, with Texas counties used as an example. (C) Mean SDI score by state level. (D) Mean SDI score by county level, with Texas counties used as an example. There was modest correlation between areas of high social deprivation and frailty prevalence (ρ=0.39 by state and 0.28 by county). Hawaii, Alaska, and US territories not shown in map but included in analysis.

The Use of Central Nervous System Stimulants to Treat Long COVID Fatigue in Pediatric Patients

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Background/Objectives:
The CDC defines Post-Acute Sequelae of COVID, or long COVID, as the presence of COVID-related symptoms for 4 or more weeks from initial infection. These symptoms are seen in up to 10% of affected children. Common clinical presentations in children include mood disorders, fatigue, and non-specific pain and aches. There are no evidence-based treatment recommendations for COVID-associated fatigue and literature suggests that it may persist and worsen. While previously established methods may treat certain long COVID manifestations, none target fatigue.

Methylphenidate is commonly prescribed for children with ADHD to improve concentration. It has also been effective in the treatment of fatigue in adults with post-traumatic brain injuries and chronic fatigue syndrome, as well as those receiving hospice care.

Methods:
This study was a single-center retrospective chart review of long COVID patients ages 7-18 referred to the Connecticut Children's Pain Clinic from Sept 2021 through Nov 2023. Two groups were identified using the Slicer-Dicer tool in EPIC: children treated with neurostimulants as part of their regimen and those only receiving conventional therapies. Fatigue was assessed by the newly defined COVID Fatigue Inventory and a validated Single-Item Fatigue Measure per chart review. Data was analyzed using descriptive and quantitative statistics. A t-test was conducted to compare the mean fatigue scores between the two groups during each visit.

Results:
18 charts were reviewed. 4 patients were treated with MP, and two discontinued the medication due to side effects such as hyperglycemia and panic attacks. There was an overall downtrend of COVID Fatigue Inventory scores for both groups. When comparing the two groups, no statistical significance was found, but the data trended toward significance with subsequent follow-up visits. Other prevalent symptoms seen were sleep disturbances, headache, and myalgia.

Conclusions:
Both groups saw a downward trend of fatigue symptoms. The low sample size provides low statistical power and limited ability to detect an effect if it exists. Confounding variables include, concomitant treatments and the academic calendar year. Other limitations include charting variations and non-randomized, non-standardized visits. Future studies are recommended to explore the potential benefits of MP.

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