

# Creighton UNIVERSITY

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Health Sciences - Multicultural  
and Community Affairs

## Annual Report: 2022-2023

“MACA is the Mecca for Diversity and a Place where Excellence is Expected and Achieved” <sup>SM</sup>





**We are proud of you!**

**Dr. LaDijah Wood-Shivers**, Post Bac Class of 2018-2019 and **Dr. Tyresha Pitts**, Post Bac Class of 2017-2018

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### *Mission Statement of HS-MACA*

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**The mission of Health Sciences Multicultural and Community Affairs is to promote Creighton University as a recognized leader in the training and development of a multicultural health care workforce that serves to reduce health disparities in underserved and diverse communities through research, culturally proficient education, community interaction and engagements with Ignatian values.**

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### *Vision Statement of HS-MACA*

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**Health Sciences Multicultural and Community Affairs will be recognized and respected as an innovative department that pioneers and synthesizes community, education, research, and the development of future healthcare professionals who are culturally aware and work toward the elimination of health disparities.**

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***“MACA is the Mecca for Diversity and a Place where Excellence is Expected and Achieved”<sup>SM</sup>***

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## Message from the Associate Vice Provost

Just coming out of the Covid-19 pandemic, the year started with a lot of enthusiasm and hope! The academic year started in July 2022 as the university transitioned back to in person learning, with thirteen (13) new post baccalaureate pre-medical and pre-dental students. The Pre-matriculation program ended successfully for the 2021/2022 pre-dent and pre-med students in July 2022.

Together with our partners and our Center for Promoting Health and Health Equity (CPHHE), we applied for and received Two Million Nine Hundred and Ninety-Nine thousand dollars over three years in funding from the Health Resources and Services Administration (a division of Health and Human Services) for the Community Health Workers-Training and Apprenticeship (CHW-TAPP) Program. This program is to train 240 lay community individuals as CHWs and to place forty-five of them in Apprenticeship sites.

In this report, HS-MACA, together with CPHHE, is proud to share our achievements in 2022-2023. We welcome and look forward to collaborating further with other departments at Creighton University and the community.

***“The more you praise and celebrate your life, the more there is in life to celebrate.” – Oprah Winfrey***



**DR. SADE KOSOKO-LASAKI, Associate Vice Provost  
Health Sciences Multicultural and Community Affairs  
(HS-MACA)**



**THE 2022-2023 POST BACCALAUREATE PROGRAM COHORT**



## HS-MACA Highlights for 2022-2023

**\$250,000**

CPHHE was awarded the Community Initiative Capacity Building Pathways from United Healthcare through the “Protecting the Underserved from COVID-19 Disparities and Vaccine Education” (ProUD) program.

**\$2.99 Million**

The Community Health Workers Training, Apprenticeship and Placement Program (CHW-TAPP) to train 240 CHWs and placed 45 of them in Apprenticeship and Placement in Nebraska in three years starting September 2022 up to August 2025.

**HRSA Grant**

**\$225,000**

Awarded funding from LB692 Nebraska Tobacco Settlement to sustain the Center for Promoting Health and Health Equity (CPHHE).

**\$118,000+**

Post-Baccalaureate Program Scholarship Endowment Fund raised and counting. Thank you to our alumni and friends.

**\$1.8 Million NIH Endowment**

Community Oriented Primary Care (COPC) Program and currently celebrating its 18<sup>th</sup> year with more than 40 Public Health Researches, \$338,000 to 110 Scholarship recipients, 74 former CU medical students in 14 specialties to 28 states in the USD with 81% into Primary Care specialties.

# 172 Students

Since the year 2000, **172 students** have successfully completed the Post-bac Pre-Medical Program. Eighty-eight percent (88%) of Pre-medical students have matriculated into medical schools.

# 104 Students

Since the year 2000, **104 students** have successfully completed the Post-bac Pre-Dental Program. Ninety-five percent (95%) of Pre-dental students have matriculated into dental schools.

# 549 HCOP Students Recruited

Since the year 2018, 514 students have successfully completed the Health Careers Ambassador Program utilizing the **\$2.1 Million funds from HRSA** with **94% completion rate!**

# 842 Students

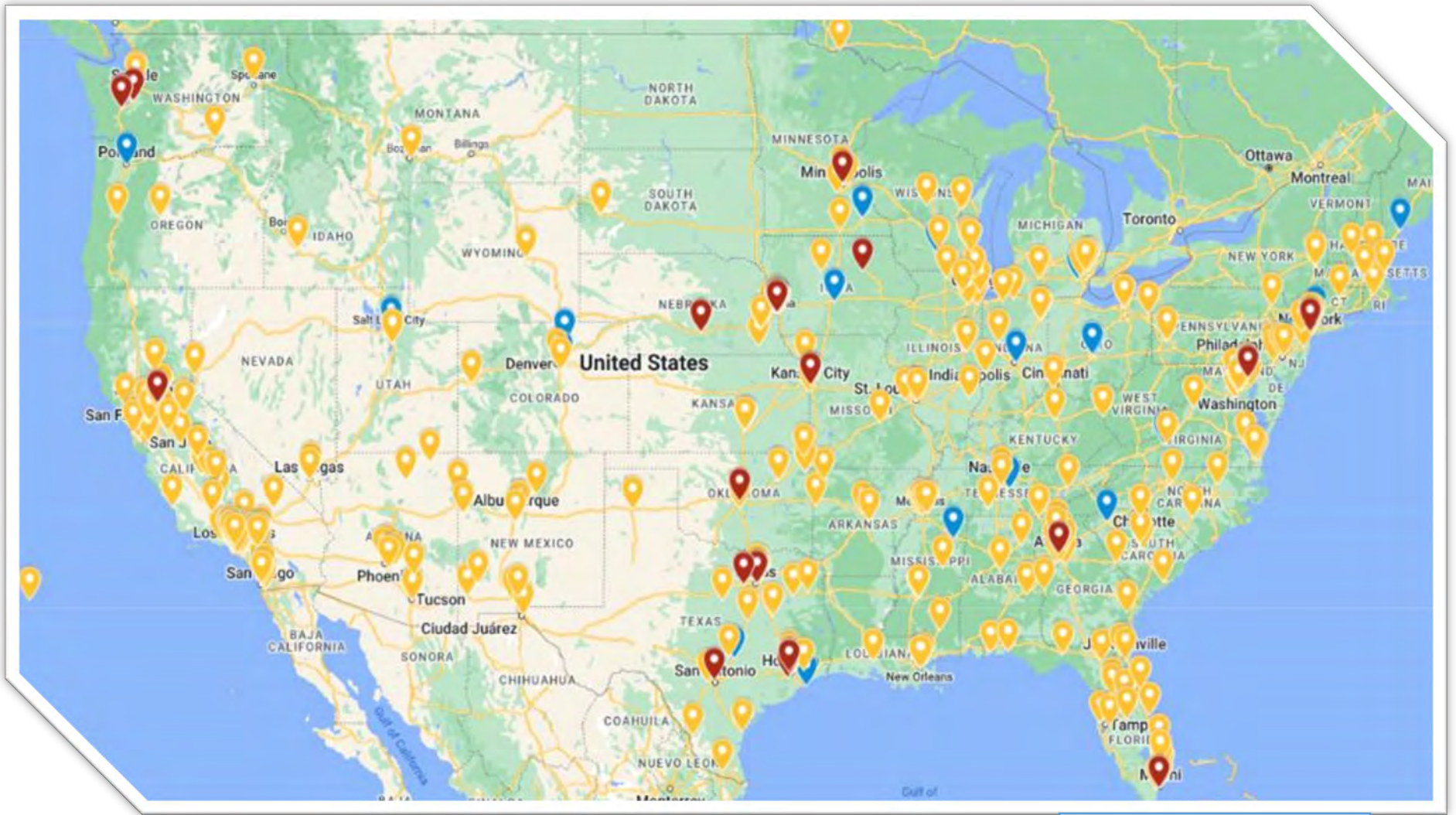
In 2022/23, **137 health sciences students** learned Cultural and Ethnic Approaches to Health with Case Studies through *Common Ground* in collaboration with the **Center for Interprofessional Research (CIPER)** and **842** since IPE Passport Activity started in 2014.

# 1031 Students

This year alone, **238 students** in the Middle and High School students exposed to the health sciences through the **Focus on Health Professions Pipeline Program** and **1031 students** since 2017.

Overall, since 2008, **102 diverse COPC students** (65 female, 37 male) were awarded a total of **\$338,600.00** (\$217,300 – 64.18% – female, and \$118,300.00 – 34.94% male) **Scholarship Fund**.





## The Impact of HS-MACA in the US

Legend:  
**Gold** – Post Bac Alumni  
**Red** – COPC Scholarship Recipients  
**Blue** – HCOP in practice

# Post Baccalaureate & Pre-Matriculation Program

The Post Baccalaureate Class of 2022-2023 started off with in person learning in the classroom. It was an adjustment for students after the Covid-19 pandemic when all classes were virtual. The students were persistent, committed, eager to succeed and did not let the global pandemic stop them from achieving their academic goals. HS-MACA staff worked even harder for a smooth transition. Students performed better in their academics as they were now able to meet with their peers in person for tutoring, mentoring and other in-person activities on campus.

## Recruitment

Recruitment of students for 2022/23 was mainly online through the HS-MACA website and application link. A total of fifty-seven applications were received for the pre-medical program. Thirteen individuals were selected for interview and six students were accepted into the program. For the Pre-dental program, ninety (90) applications were received, fourteen students interviewed, and eight individuals were accepted into the program. At the onset of the course, two students withdrew for various reasons. Overall, there were twelve students matriculated and completed the programs.

## Cumulative GPAs

The criteria for success in the post bac program is for students to earn at least a 3.5 GPA (on a scale of 4.0) overall. Across the diagnostic pre-session, two academic year sessions, and pre-matriculation session, pre-medical post bac students had an average GPA of 3.53/4.0. The Pre-dental participants had an average GPA of 3.58/4.0. Both pre-medical and pre-dental students had a combined GPAs of 3.56/4.0.

Post-baccalaureate Program Statistics  
Years 2000-2023

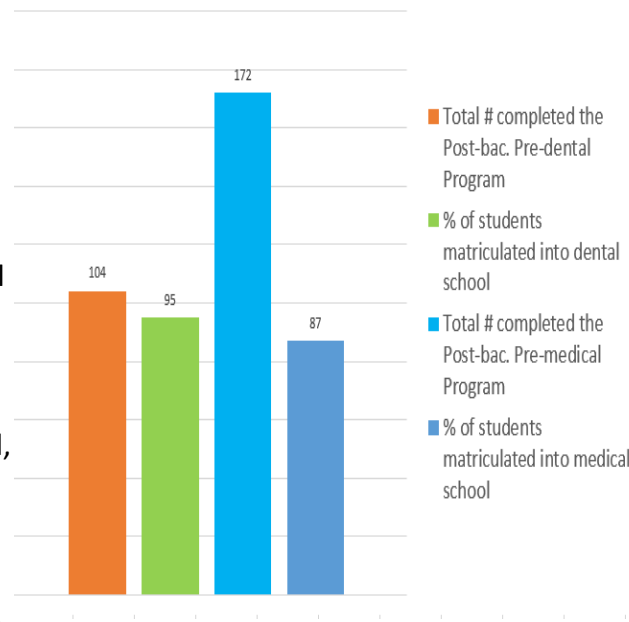


Table 1. 2022-2023 Pre-Medical GPA

	Incoming GPA	Summer	Fall	Spring
Student A	3.6	4	3.95	3.96
Student B	3.1	3.84	3.59	3.85
Student C	3.6	4	4	4
Student D	2.8	3.78	3.4	3.42
Student E	3	3.57	3.21	3.33
Student F	2.7	3.87	3.74	3.46

### MCAT Scores

The post-bac program description in brochures and the website, stipulate that, in addition to coursework and professional conduct, a successful pre-medical student will achieve a minimum score of a total of 500 on the MCAT with sub-tests scores of 125 in each of biological sciences, physical sciences, social sciences, and verbal sciences. The pre-medical post-bac class did well on the MCAT examination(s). The five (5) students increased their MCAT scores with the highest improvement being ten (10) points (see table below).

	Student A		Student B		Student C		Student D		Student E		Student F	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Chem. & Physical Foundations	121	125	126	126	125	128	124	126	120	122	125	126
Critical Analysis & Reasoning	122	123	123	126	127	127	123	123	122	121	128	124
Biological & Biochemical Foundations	123	125	126	126	125	130	125	124	120	119	125	125
Psychological, Social & Biological Foundations	125	128	125	128	127	128	122	126	120	123	125	126
<b>Total</b>	491	501	500	506	504	513	494	499	482	485	503	501
<b>Improvement</b>	10		6		9		5		3		-2	

Table 2. 2022-2023 Pre-Dental GPA

	Incoming GPA	Summer	Fall	Spring
Student A	3.1		3.66	3.81
Student B	3.3	3.61	3.51	3.79
Student C	3	3.41	3.32	3.4
Student D	2.96	3.72	3.69	3.79
Student E	3	3.72	3.61	3.66
Student F	3.2		3.27	3.5

### DAT Scores

Program criteria for success guidelines stipulate a successful pre-dental student will score 17 or higher on the DAT in perceptual ability, science average, and the academic average components. Overall, participants did show a statistically significant improvement on the DAT over the course of the program year, in all sections. Table below provides details for each student with preprogram scores and post program scores for the 2022-2023 pre-dental post-bac class.

	Student A			Student B			Student C			
	PRE PB	Post PB	Improvement	PRE PB	Post PB	Improvement	PRE PB	Post (1)	Post PB	Improvement
Perceptual Ability	19	21	2	16	20	4	18	19	20	2
Quantitative Reasoning	18	20	2	16	13	-3	11	15	18	7
Reading Comprehension	21	19	-1	16	17	1	14	18	16	2
Biology	18	16	-2	19	20	1	12	14	15	3
General Chemistry	17	18	1	15	17	2	11	13	14	3
Organic Chemistry	16	17	1	18	19	1	12	15	12	0
Total Science Average	17	17	0	18	19	1	12	14	14	2
Academic Average	18	18	0	17	17	0	12	15	15	3

	Student D			Student E				Student F			
	PRE PB	Post PB	Improvement	PRE PB	Post (1)	Post PB	Improvement	PRE PB	Post (1)	Post PB	Improvement
Perceptual Ability	16	20	4	14	19	18	4	14	18	18	4
Quantitative Reasoning	14	18	4	13	16	18	5	14	16	17	3
Reading Comprehension	16	21	5	16	19	18	2	15	20	20	5
Biology	16	20	4	16	17	18	2	15	16	16	1
General Chemistry	14	18	4	14	16	20	6	16	12	14	-2
Organic Chemistry	11	18	7	16	15	18	2	10	15	13	3
Total Science Average	14	19	5	15	16	18	3	14	14	15	1
Academic Average	14	19	5	15	17	18	3	14	16	16	2

\*Post (1) = First Attempt

### Post Baccalaureate Scholarships

The **Post Baccalaureate Alumni Scholarship** is awarded to an incoming pre-dental and pre-medical student based on financial need, academic achievement, community service and educational goals. In June 2023, this scholarship was awarded to **Steven Quintero, Pre-Dental and Abdusemed Muktar, Pre-Medical**.

The **Drs. Gbolahan and Sade Lasaki Family Scholarship Award** was established in 2008. This award is \$700 per student for two students in the current Post Baccalaureate Programs who are most improved in the MCAT and DAT. For 2022-2023, the students who received the awards are **Sarah Snyder and Emilio Crespin**.

The **John T. Elder Post-Baccalaureate Award**, after Dr. John T. Elder who died in November 1996, one of his former students, Thomas Collins, MD, FRCS, a surgeon in Boston, donated funds to start an endowment in Dr. Elder's name. Proceeds from the endowment have been awarded to a current medical post baccalaureate alumni student. **We have no recipient for this award in 2022-2023.**





**Post Bac- pre-dental program cohort.** From left to right: Bernell Yancy, Emilio Crespín, Tatiana Flores, TeAnna Culberson and Mark Yakubov



**Post Bac- pre-medical program cohort.** From left to right: Ashleigh Miller, Dyanne Emile, Abdusemmed Muktar, Amanda Arenas, Anthony Tran, and Sarah Snyder





Post Bac Class 2020. From left to right: Dr. Alexander Sasaki, Dr. Anny Nguyen, and Dr. Olufunmilayo Badejo



Dr. Olufunmilayo Badejo with parents and Dr. Gbadamosi-Akendele



Dr. Alexander Sasaki and Dr. Anny Nguyen

# The Center for Promoting Health and Health Equity (CPHHE)

The goal of the Center for Promoting Health and Health Equity (CPHHE, “Center”) is to advance health equity especially of communities with disadvantage in Omaha and the region. CPHHE will continue reducing health disparities and improving the health particularly of minority populations through community-university collaborative research, education, and implementation. The latter involves translation of evidence-based interventions to the targeted communities. CDC-funded CPHHE-REACH (Racial and Ethnic Approaches to Community Health) is a premium example. CPHHE employs a triple-core approach of 1) Intervention, 2) Training and Development, and 3) Research.

## **SPECIFIC AIMS**

- To enhance and sustain the core administrative infrastructure of the Center for maintaining program effectiveness.
- To expand and sustain career development opportunities for faculty and students that will help support their interests in improving minority health, including new pilot-research funding.
- To strengthen the Center’s intervention core through present and new programs to promote community health and reduce health disparities, considering community priorities and needs.
- To develop and promote research that addresses health equity by targeting elimination of health disparities.
- To grow and sustain community-academic collaboration for successful community interventions and investigations that aim to improve community health.

## **Intervention Core:**

- 1. ProUD Program**
- 2. Community Health Advocates Training Program**
- 3. Facebook-social media**
- 4. Lyrics, Life and Lessons**
- 5. R.E.A.C.H**
- 6. Dr. Jeff Smith Lecture Series**

## KEY HIGHLIGHTS BY CORE

### INTERVENTION CORE

- Protecting the Underserved from COVID-19 Disparities and Vaccine Education (ProUD) – CPHHE was awarded the Community Initiative Capacity Building Pathways from United Healthcare in the amount of \$250,000. The objectives for this award are:
  - To promote health equity by addressing COVID-19 and influenza vaccination hesitancy among the minority populations in Omaha, Nebraska
  - To train 8 Community Health Advocates in vaccine education on influenza, COVID-19, Infant related diseases, elderly related diseases, and Monkey Pox.
  - To guide Community Health Advocates (CHA's) to provide education on vaccines at various community events and outings.
  - The funding ends August 31, 2023. To date, the 8 CHA's have had 479 community and 3780 individuals educated and impacted by their intervention.
- CPHHE employed social media to disseminate information regarding access to healthy food, physical activity, obesity, and tobacco. The CPHHE Facebook page, started March 2015, has reached more than 13,235 (with some multiple and duplicate) individuals, promoting understanding of health disparities and health equity. CPHHE's page currently has 107 followers.
- CPHHE's Lyrics, Life & Lessons (LLL) program continues within the Omaha community. This innovative method of public health and social justice education uses hip-hop music lyrics to educate youth. Public health topics include violence, crime, healthy neighborhoods, and alcohol and drug prevention. Mr. Ejike conducted 2 workshops and presentations on the LLL program. A total of 43 individuals attended these workshops/trainings.
- The Racial and Ethnic Approaches to Community Health Grant from the Center for Disease Control (CPHHE-REACH) was funded from 2014 – 2018 to increase access to physical activity in the African American, North Omaha community through environmental changes and community partnerships and linkages. Since then, **CPHHE continues promoting and hosting the CPHHE-REACH Physical Activity Day (PAD) annually in the North Omaha community.** The PAD was last held September 10, 2022, featuring five (5) physical activity trainers, about twelve (12) vendors. Overall attendance was one hundred ten (110) participants. The event is an outdoor community event and was held during the rain this year.

ProUD grant update has 8 communities with 479 individuals educated and impacted by their intervention.

- Late Dr. Jeffrey M. Smith was a tenured faculty member at Creighton University in the College of Education and a founding partner in CPHHE. Dr. Smith was also the HS-MACA department's evaluator on nearly all programs and grants. Dr. Smith passed in the Fall of 2021. Thus, in his honor, CPHHE started the Dr. Jeffrey M. Smith Memorial Lecture Series where CPHHE honors the life work and legacy through engaging community and academia by providing a speaking engagement and reception. **On June 8, 2022, we held the inaugural memorial lecture and invited the New York Times Best-Selling Author, D. Watkins, to kick off the series. A total of 60 individuals attended the lecture.**

## TRAINING AND DEVELOPMENT

- The 16th Annual Addressing Health Disparities Seminar was held on April 29, 2023. The seminar was held virtually to maximize attendance and outreach. The Seminar is a collaborative activity of the Center with HS-MACA and Health Sciences' Continuing Education Department. **The 2023 Seminar topic was "Health and Tech: The Intersection of Technology and Healthcare"** and featured our keynote speaker, Dan Brillman, CEO and Founder of Unite US, a nationally integrated health referral and navigation system. Our opening speaker, Cartiear Madlock, Founder of Lets Live Long (formally Vegan Black Guy), is a master social media marketer and media guide in health education and personal well-being. Twelve students (12) from the post-Baccalaureate program students attended the Health Disparities Seminar and wrote reflection papers about what they learned from the presenters and discussion. General attendees had the opportunity to provide feedback and evaluation through paper and electronic forms. **We had a total of 174 participants registered and 122 participants attended the virtual seminar.** CPHHE partners will review evaluation results to identify how participants will apply the information, including how they might change their professional practices.
- To encourage pursuit of careers promoting health equity, the Center continues providing summer research opportunities for underrepresented high school and undergraduate students' community-based participatory research with a community, public health organization, and undergraduate students participate in biomedical bench research with a Creighton faculty researcher. **In summer 2022, CPHHE hosted eight (8) undergraduate students who participated in biomedical research.**
- CPHHE also hosted the Community-Based Research for high school students. The community-based research program is designed to introduce high school students to community health and public health research methods and processes that help them gain understanding of health outcomes within the community. **In summer 2022, CPHHE hosted two (2) high school students who participated in community-based research.**





**THE CPHHE PARTNERSHIP 2022-2023. Men behind from left: DC Scott Gray/Omaha Police Dept, Dr. Alexander Roedlach/College of Arts & Sciences, Mr. Joel Dougherty/One World, Dr. Richard Brown Brown and Associates, Dr. Jeffrey Lang /School of Medicine. Women in front and from left: Dr. Rebecca Davis/College of Nursing, Dr. Sade Kosoko-Lasaki/HS-MACA, Ms. Jeanne Burke/CU Library Carolina Landeen/School of Medicine, Ms. Maria Valentin /No More Empty Pots.**

**Note: The picture was taken after the Partnership Meeting held December 8<sup>th</sup>, 2022, at One World Omaha. Other partners attended online via Zoom.**

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- The Health Disparities Research Training Program (HDREP), a collaboration between CPHHE and the University of Alabama-Birmingham, provided another year-long program of mentoring, career development, grant writing, and research training for one Creighton University faculty scholar. Drs. Stone and Kosoko-Lasaki continue mentoring HDREP scholars Dr. Kate Nolt (Health Disparities and Internet Gaming Disorder), Dr. Sarbinaz Bekmuratova (Health Disparities in Sex Trafficking) and Dr. Carolina Landeen, MD (Addressing Disparities in Lung Cancer Screening & Incidental Lung Nodule Tracking). **This year, we onboarded Dr. Julia Shin from Creighton University School of Health Professions, Occupational Therapy (To Evaluate a Capacity Building Program for Children’s Racial-Ethnic Minority Caregivers to Enhance Their Culturally Effective Collaboration and Partnership with Pediatric Rehabilitation Service Providers; Community Based Participatory Action Research.**
- The Engaging African American Students in STEM Education (EASE) Program was implemented in 2021 in partnership with Hampton University in Hampton, Virginia, to provide a 2-week education session on disease epidemiology, physiology, and biology to African American students from 8th grade to 12th grade in the Omaha Public School system and the Hampton, VA Public School system virtually. **In 2022, 8 high school students participated.** In the inaugural year of 2021, 18 students participated.

## RESEARCH

- The 6th Annual Dr. Frank T. Peak Health Disparities Essay Writing Competition, designed to encourage students at the intersection of public health, healthcare, and the social sciences to address how to promote health equity in lives of ethnic/racial minorities, and other disadvantaged populations was held in 2022 after postponement. Four (4) students submitted an abstract and essay. **The winner of the essay competition presented at the Fall 2022 Health Disparities Seminar.** The 7th Annual Dr. Frank T. Peak Health Disparities Essay Writing Competition only had one (1) submission in 2023. Thus, no award given.
- **CPHHE’s Health Disparities Journal Club provided eight (8) sessions from August 2022 to May 2023. This makes a grand total of 58 sessions total since inception of January 2015.** Participants in the Journal Club meetings are former and current HDRTP faculty, CPHHE partners, and HS-MACA staff. Participants review and discuss articles from

peer-reviewed journals related to health disparities and health equity and consider how the information can apply to our local communities. Future Journal Club invitations and announcements will be disseminated to a broad Creighton University audience who are interested in the subject of reducing health disparities.

### **PUBLICATIONS**

- Kosoko-Lasaki S, Nolt K, Stone JR, Brown R, Ekúndayò OT, Lassiter D, Ejike E, Santiago-Stommes I, Issaka S, Dineen K, Vazquez L, Early V, Marcos L, Smith J, (2023) Promoting Covid- 19 Vaccination Rates thru Community Health Ambassadors/Advocates in Racial/Ethnic Minority Communities. *Journal of Community Medicine and Health Education* 13(3), 816. (Accepted)
- Stone, J.R. (March-April 2022) The Secundyian Framework. *The Hastings Center Report*, 52(S1), S85-86. <https://onlinelibrary.wiley.com/doi/full/10.1002/hast.1379>. (Full reference: Sodeke, S., Fletcher, F.E., Brown, V.A., Stone, J.R., Wilson, C.B., Franklin, T.H., Royal, C.D.M. and Bonham, V.L. (2022), Her story as an Important Force in Bioethics. *Hastings Center Report*, 52: S83-S88. <https://doi.org/10.1002/hast.1379>)

### **GRANTS**

- Nebraska Tobacco Settlement: Center for Promoting Health and Health Equity (CPHHE) – 2022-2023, **\$225,000**
- Center for Disease Control and Prevention (CDC): Racial and Ethnic Approaches to Community Health (REACH) September 2023 to August 2028. **\$7.337.292** over 5 years - Pending
- National Institutes of Health: Point-of-Care Technologies Research Network (POCTRN)-Technology Research and Development Centers (TRCD) Global Health at Creighton University. July 2023 – June 2028. Not funded.
- Health Resources and Services Administration (HRSA) Human Health Services (HHS): Community Health Worker Training Program - Community Health Worker – Training and Placement Program (CHW-TAPP), September 15, 2022-September 14, 2025, **\$2.974 million**
- United Healthcare and Creighton University: Community Initiative Capacity Building Pathways Program Opportunity - Protecting the Underserved Program (PRoUD). 2022-2023. **\$250.000.**



2022 Fall Addressing Health Disparities Seminar

# A Public Health Approach to Gun Violence: Prevention and Responses

Saturday, October 15, 2022 | 8:00 a.m.–2:00 p.m.

Seminar to be held via Zoom.



FEATURING  
KEYNOTE SPEAKER:

**David Hemenway, PhD**  
*Professor of Health Policy at Harvard University  
and Director of Harvard's Injury Control Center*

To register, visit: [creighton.edu/events/2022Fallhealthdisparities](https://creighton.edu/events/2022Fallhealthdisparities)



Center for Promoting  
Health and Health Equity

Creighton  
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Continuing Education



16th Annual Addressing Health Disparities Seminar

# Health and Tech: The Intersection of Technology in Advancing Healthcare

Saturday, April 29, 2023 | 7:30 a.m.–3:30 p.m.

Seminar to be held via Zoom.



KEYNOTE SPEAKER:

**Dan Brillman**  
*Co-Founder and CEO  
Unite US*



Opening Speaker:

**Cartiear Madlock**  
*Owner & CEO  
Vegan Black Guy  
Rocket Community Fund*



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# CPHHE – Summer Research Institute 2022

## Summer Research Institute 2022 - Table of Participants

Name	Professor/ Site Mentor	Project Title
High School Community Research Program		
Jackson Brandenberg	Mr. Manne Cook	Improving the Burt Street Corridor
Katie Valencia	Mr. Errik Ejike	The Social Reality of Troubled Young Adults in Juvenile Involvement
Undergraduate Biomedical Program		
Jack Branby	Dr. Laura Hansen	Pro-NP™ Antioxidant Enzymes Protect from Ultraviolet-Induced DNA Damage
Giselle Cruz	Dr. Ben Brandsen	Generation of Chimeric Lasso Peptide Antibiotics
Jude Koussai	Dr. Yaping Tu	NFL-28 Cell growth is inhibited by treatment with Aurora A Kinase Inhibitor MLN8054
Emily Schmidt	Dr. Tal Teitz	Tamiflu Protects Against Cisplatin Induced Ototoxicity Using a Multi-Cycle Treatment Protocol
Amber Szaro	Dr. Eric Haas	Fatty Acid Quantification in a Zebrafish Model of CPT-II Deficiency
Adam Vaske	Dr. Shashank Dravid	The Role of Ionotropic Glutamate Receptors in Cisplatin-induced Neuropathy
D'Andre Wilson	Dr. Catherine Opere	Evaluating Effects of Glutathione on the Release of Hydrogen Sulfide from Diallyl Polysulfides Using a Novel Sulfide – Specific Electrochemical Method
Elizabeth Wolfson	Dr. Jian Zuo	A Cellular Model for Tinnitus

## Summer Research Institute – Students' Abstracts



### Jack Branby

College of St. Scholastica (Duluth, Minnesota)  
Mentor: Laura A. Hansen, PhD.  
Department of Biomedical Sciences

#### Pro-NP™ Antioxidant Enzymes and UV-Induced DNA Damage

Ultraviolet radiation (UVR) from the sun is the primary cause of skin cancer as it induces DNA damage. Direct exposure of skin to UVR causes DNA damage such as cyclobutane pyrimidine dimers (CPD) and  $\gamma$ H2AX which, if not repaired prior to DNA replication in basal keratinocytes, can lead to cancer-causing mutations. Reactive oxygen species (ROS) levels in skin cells increase after exposure to UVR which can contribute to tumorigenesis. This project proposes to evaluate the delivery of two antioxidant enzymes—superoxide dismutase (SOD) and catalase (CAT)—to the skin to suppress UV-induced DNA damage. This would be done through the use of a topical, FDA-approved, Gransil GCM-5 lotion along with Poly (Lactic-co-Glycolic Acid) nanoparticles to produce Pro-NP. The aim of this project is to establish whether or not the topical use of Pro-NP can reduce ROS levels in the skin after exposure to UVR. The reduction of ROS levels should reduce the risk of development of DNA mutations that can lead to skin cancer.

Based on previous studies with Pro-NP, we expect to see a reduction in DNA damage as indicated by the decrease in CPD and  $\gamma$ H2AX positive cells in the pig skin. If Pro-NP treatment reduces levels of UVR-induced ROS in the skin and reduces the accumulation of ROS-induced DNA damage, there could be a long-term reduced risk in the development of skin cancer. Pro-NP would need to undergo clinical trials in order to reach the open market if indeed it resulted in a variable reduction of DNA mutation.



### Giselle Cruz

University of Nebraska Omaha (Omaha, Nebraska)  
Mentor: Benjamin Brandsen, PhD.  
Department of Chemistry

#### Generation of Chimeric Lasso Peptide Antibiotics

**Background:** Developing new and improved antibiotic agents is critical due to the rising antibiotic resistance crisis. Ribosomally-synthesized and post-translationally modified proteins (RiPPs) are naturally occurring proteins found in a variety of microorganisms. Lasso peptides are one class of RiPPs, named for their unique lariat structure. Lasso peptides are produced by a gene cluster that encodes a precursor peptide, tailoring enzymes that generate the lariat structure, and a transport protein that exports Lasso peptides. Lasso peptides have been found to be involved in many biological processes, most notably possessing relatively narrow-spectrum antibiotic activity.

Several lasso peptides from gram-negative bacteria inhibit a common molecular target, RNA polymerase (RNAP), but show activity against only closely related bacterial species.

**Aim:** Here we used mutagenesis to generate variants of the lasso peptide klebsidin that included loop mutations from a related peptide, MccJ25. We sought to identify if these loop amino acid mutations could alter the antibiotic activity of klebsidin.

**Results:** I used site-directed mutagenesis to generate four klebsidin variants that encoded MccJ25 mutations in the loop region. I expressed these variants in *E. coli*, isolated the crude peptide by reverse-phase solid-phase extraction, and confirmed their identity and conformation using mass spectrometry. In addition, I confirmed these variants inhibit RNAP when expressed intracellularly. In subsequent experiments, I will test the antibiotic activity of these klebsidin variants against *E. coli* and *K. pneumoniae* when administered extracellularly.

**Conclusion:** The loop region of klebsidin can be mutated to include amino acids that can serve as a starting point for potentially improved antibiotic agents that target specific strains of bacteria, which may help combat the growing antibiotic resistance crisis.



## Jude Koussai

Howard University (Washington, D.C.)  
Mentor: Yaping Tu, PhD.  
School of Medicine

[NFL-28 Cell growth is inhibited by treatment with Aurora A Kinase Inhibitor MLN8054](#)

**Background:** Colorectal cancer is a cancer that begins in the large intestine and afflicts the final stages of the digestive tract (colon, rectum). It begins as small, benign polyps form on the inside of the colon. Over time these polyps can develop into colorectal cancers. Therapies include radiation therapy, drug treatments, and chemotherapy. Colorectal cancer also affects the Black community at an increased rate compared to other racial and ethnic groups. In a study conducted by the Center for Disease Control, incidences of colorectal cancer were found in 49.1 Black males, 41.4 White males, and 34.7 Asian/Pacific Islander males per 100,000 men. (+)- JQ1 is a BET bromodomain inhibitor. (+)- JQ1 engages with the bromodomain pocket in a way that is similar to acetylated peptide-binding, causing the displacement of BET proteins from chromatin with high affinity and cell permeability. This displacement occurs during the G1 and mitosis phases, causing inhibition to cell growth. We believe that (+) JQ1 may prove to be an effective treatment to inhibit the growth of colorectal cancer. Recent studies have also found that MLN8054, a small molecule Aurora A inhibiting drug, may also prove to be an effective treatment for cancers. The Aurora Kinases are essential for cell mitosis. The dysregulation of Aurora A and B has been linked to the etiology of cancers. Aurora A inhibitors such as MLN8054 are known to induce temporary mitotic arrest, causing cell apoptosis during the mitosis phase. We believe that MLN8054 and (+)-JQ1 can potentially be an effective inhibitor of colorectal cancer cell growth. In this study, we will treat HCT116 (colorectal cancer) cells at 3 various concentrations of MLN8054 and (+)- JQ1 to assess cell growth over a 24- and 36-hour period.

Methods: To assess the efficacy of these compounds we performed 2 assays. First, we conducted an MTT Cell Viability Assay over a 24hr period. HCT116 cells were subcultured and seeded in a 96-well plate at  $1 \times 10^5$  cells/mL maintaining triplicates of control, 30nM 100nM and 500nM MLN8054, as well as 30nM and 100nM (+)-JQ1. A baseline was performed prior to treatment, and cells were incubated for 24hrs. After this, an MTT Assay was performed to determine cell viability at each concentration. Cell Viability Assay: Cells were subcultured and seeded in a 24-well plate at  $\approx 2.5 \times 10^5$  cells/mL, maintaining duplicates of control, 30nM 100nM and 500nM MLN8054, as well as 30nM 100nM and 500nM (+)-JQ1. Before treatment a basal cell count was acquired to determine cell growth before 36 hours of incubation. After 36 hours, cells were trypsinized and counted manually using a hemocytometer. Results: Compared to Basal cell viability and cell count, HCT116 (colorectal) cancer cell growth is inhibited at 100nM and 500nM MLN8054 and (+)-JQ1 by 20-45%. Conclusion: MLN8054 and (+)-JQ1 inhibit Colorectal Cancer (HCT116) cell growth.



### Emily Schmidt

Northwestern College (Orange City, Iowa)  
Mentor: Tal Teitz, PhD.  
Pharmacology & Neuroscience

**Tamiflu Protects Against Cisplatin Induced Ototoxicity Using a Multi-Cycle Treatment Protocol**

Cisplatin is a common chemotherapy treatment for a variety of cancers. While effective at killing tumor cells, in many patients it also causes detrimental side effects such as neural and renal toxicity, neuropathy, and hearing loss.

Unfortunately, there is no FDA-approved drug available to provide relief from these side effects. The Teitz laboratory seeks to repurpose FDA-approved drugs to allow chemotherapy patients to continue to benefit from cisplatin's effective cancer killing while also being protected from the associated hearing loss. Previously, single-dose cisplatin experiments have shown that Tamiflu (oseltamivir phosphate) protects against hearing loss. To improve clinical relevance, we employed a multi-cycle treatment protocol that more closely mimics a clinical setting where patients are given multiple rounds of cisplatin in small doses rather than a single, large dose. We found that Tamiflu protected against cisplatin induced hearing loss (CIHL) at doses of 50 and 10 mg/kg twice daily and was not toxic to the mice.



### Amber Szaro

Wayne State College (Wayne, Nebraska)  
Mentor: Eric Haas, PhD.  
Department of Chemistry

**Fatty Acid Quantification in a Zebrafish Model of CPT-II Deficiency**

Lipids are one of the four types of biochemical molecules for all organisms, the other three being nucleic acids, carbohydrates, and proteins. Although glucose is the main molecule of metabolism to produce ATP, lipids (fatty acids), are used in the mitochondria in times of stress, physical exertion, or fasting. Because of their importance for energy, if the chemical pathways and enzymes are altered by mutation, life can be threatened and possibly result in death.

For this research project, four different samples of zebrafish larvae (*Danio rerio*) were used and modeled after a lipid metabolism disease: CPTII Deficiency. The zebrafish lipids were extracted and processed with a known fatty acid amount (referred to as a spiked-in fatty acid) to determine absolute lipid quantities. The samples were analyzed through gas-chromatography-mass-spectroscopy. The types and quantities were recorded and plotted to better understand lipid metabolism mutations and visualize the difference between the four zebrafish samples.



## Adam Vaske

Truman State University (Kirksville, Missouri)  
Mentor: Shashank Dravid, PhD.  
Department of Pharmacology

### The Role of Ionotropic Glutamate Receptors in Cisplatin-induced Neuropathy

**Purpose:** Chronic neuropathy, characterized by dysfunction in the peripheral nervous system, is typically accompanied by hyperalgesia, allodynia and spontaneous pain; often debilitating patients suffering from the condition. Estimated to impact more than 20 million people in the United States alone, chronic neuropathic pain has limited treatment options, leaving a huge gap in patient needs. Although known to stem from injury to the peripheral nervous system, diabetic neuropathy, postherpetic neuralgia, and chemotherapy, the molecular mechanisms of neuropathy are not yet understood. The goal of this study is to identify the effect of key ionotropic glutamate receptors, as well as key receptor subunits, on cisplatin-induced neuropathy.

More specifically, we examine the role of the GluN2D subunit in NMDA glutamate receptors and the delta family receptor GluD1, as well as its associated protein Cbln4. Better elucidating the involvement of ionotropic glutamate receptors and their subunits in neuropathic and chronic pain pathways could be clinically useful in the development of pain management therapies.

**Methods:** Using adult C57BL/6 GluN2D WT mice, two major techniques were utilized to observe the effects of GluN2D and GluD1 on neuropathic pain in response to the chemo therapeutic cisplatin: Western blotting and the von Frey filament test. In the former, synaptoneurosome samples were collected from the spinal cord and nucleus accumbens (NAc) of both saline and cisplatin treated mice. Samples were then loaded into an SDS gel and gelelectrophoresis was performed. After transfer to a nitrocellulose membrane, primary and secondary antibodies were added to the membrane; protein expression was then analyzed using chemiluminescence. To establish that samples were uniformly loaded, GAPDH was used as a loading control. In the latter, paw withdrawal threshold was detected using an electronic von Frey anesthesiometer in cisplatin-treated mice. On day 4, three mice were injected with UBP-141, a GluN2D antagonist, to determine GluN2D effect on neuropathic pain.

**Hypothesis:** Because central sensitization in several types of neuropathy has been shown to increase as a result of increased activity of NMDA receptors, it is likely that increased GluN2D subunit expression would aggravate symptoms of chronic neuropathy. On the other hand, GluD1 expression has been shown to be downregulated in the central amygdala in neuropathic pain models; thus, it would be expected that expression of GluD1 in the spinal cord and NAc would decrease in response to cisplatin.



**Results:** While no significant change was found in either the expression of GluN2D or GluD1 within the spinal cord synaptosome samples in response to cisplatin, GluN2D expression significantly decreased in NAc samples treated with cisplatin. On the other hand, GluD1 expression significantly increased in NAc samples introduced to cisplatin, while Cbln4 showed an insignificant change in expression. Von Frey testing indicated a significant increase in paw withdrawal threshold in mice 30 minutes after injection with UBP-141, indicating an increase in pain tolerance as a result of decreased GluN2D receptor activity.



## D'Andre Wilson

University of Mississippi (Oxford, Mississippi)  
Mentor: Catherine Opere, MBA, PhD  
School of Pharmacy and Health Professions

### Evaluating Effects of Glutathione on the Release of Hydrogen Sulfide from Diallyl Polysulfides Using a Novel Sulfide Specific Electrochemical Method

**Purpose:** Hydrogen sulfide ( $H_2S$ ) is a gaseous neuromodulator with important role in mammalian pathophysiological functions such as learning, memory, inflammation, regulation of blood pressure, modulation of synaptic activities in central nervous system, neuroprotection, etc.<sup>1</sup>  $H_2S$  is under investigation for potential applications in several neurodegenerative disorders owing to its antioxidative activity.<sup>2,3</sup> A major challenge in handling  $H_2S$  is its gaseous nature. For this reason,  $H_2S$  donors have been widely used in literature. Diallyl polysulfides derived from garlic are some of the commonly used  $H_2S$  donors for pharmacological applications.

Hence, exogenous GSH is required to produce the required quantity of  $H_2S$ . In this study, we evaluated the effect of GSH on  $H_2S$  release from diallyls *in vitro*.

**Methods:** Three diallyls polysulfides; diallyl disulfide (DADS), diallyl trisulfide (DATS), and diallyl tetrasulfide (DATTS) were used as  $H_2S$  donors in this study. 2% solution of each compound was made using dimethyl sulfoxide and deionized water.  $H_2S$  release from each compound was evaluated in the absence and presence of GSH (0.5%, 1%, 2%, 3%, 4%, 5%) hourly up to 6 hours. Hydrogen sulfide was detected using an amperometry technique (World Precision Instruments (WPI), ISO- $H_2S$ -100 electrode) attached to an Apollo 1100 Free Radical Analyzer (WPI).

**Results:** DADS solution in water did not show any release of  $H_2S$  for up to 6 hours. However, on addition of GSH,  $H_2S$  was detected instantaneously. Maximum  $H_2S$  concentration of  $1657 \pm 60$  nmoles/mL was observed with GSH (3%). Similar to DADS, DATS did not show any immediate release of  $H_2S$ , until a small peak of  $20 \pm 4.6$  nmoles/mL was observed after 5 hours. With the addition of GSH, significantly higher amount of  $H_2S$  was detected. The maximum quantity detected was  $2412 \pm 129$  nmoles/mL with GSH (5%). On the other hand, DATTS showed an initial burst release of  $H_2S$  of  $41.7 \pm 0.5$  nmoles/mL. With addition of GSH, maximum  $H_2S$  amount of  $2912 \pm 205$  nmoles/mL was observed with GSH (4%).

**Discussion:** Diallyl polysulfides have been reported to require oxidation to release  $H_2S$ . Theoretically, the amount of  $H_2S$  released is directly proportional to the number of sulfur atoms in each parent diallyl polysulfide. In the absence of GSH, DADS did not release any  $H_2S$ , thereby affirming its need for an oxidizing agent such as GSH to stimulate  $H_2S$  release.

DATS had a delayed H<sub>2</sub>S release, while DATTS had a modest burst release. GSH significantly increased the H<sub>2</sub>S production from all three diallyls. Moreover, each compounds exhibited different release profiles and required different GSH quantities to maximize the amount of H<sub>2</sub>S released. DATTS was observed to produce highest H<sub>2</sub>S followed by DATS and then DADS.

**Conclusion:** The presence of an oxidizing agent maximized the release of H<sub>2</sub>S from the polysulfide diallyls. Moreover, the quantity of H<sub>2</sub>S release was directly proportional to the number of sulfur atoms in each compound. For pharmacological applications of H<sub>2</sub>S, its release with different GSH quantities should be critically considered.



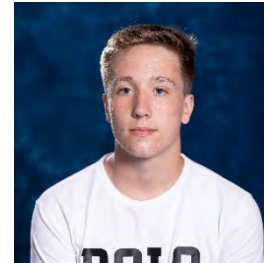
## Elizabeth Wolfson

Regis University (Denver, Colorado)  
Mentor: Jian Zuo, PhD.  
School of Medicine

### A Cellular Model for Tinnitus

**Background:** Tinnitus, a phantom sound perception affects 10-15% of the world's population. Though links to cochlear damage, hypertension, and neurodevelopment are suggested, the mechanisms are unknown with no targeted treatment options. One study found WDPCP to be significantly linked with tinnitus in their sample. **Methods:** We aimed to fill the gap in knowledge by continuing this research and knock in a previously identified mutation in the WDPCP gene in human neural progenitor cells using CRISPR.

**Results:** We found that Wdpcp is expressed in the auditory pathway in adult mice. We also found that it's expressed in neural progenitor cells and neurons differentiated from those cells. Furthermore, we found significantly reduced cell viability in neural progenitor cells with WDPCP in comparison to normal neural progenitor cells. **Conclusion:** The results can be used to further investigate morphological differences. The use of human neural progenitor cells can provide significant advancement in understanding the mechanisms of tinnitus in humans by providing a cellular model.



## Jackson Brandenberg

Omaha Central High School (Omaha, Nebraska)  
Mentor: Manne Cook, MSUS  
Spark CDI

### Improving the Burt Street Corridor

**Purpose:** To understand how people use Burt Street between 24th Street and Highway 75 and to make recommendations on ways to improve the area over time.

**Hypothesis:** The area is a highly utilized by pedestrians and those using multimodal transportation options other than cars. However, the study area pushes people on foot along the edges of the street and sidewalk and prioritizes the majority of street space to cars.

**Methods:** Public life study constituted of a series of counts and tracing exercises to depict how people move through the space today.

**Results:** I learned how city planning revolves around cars more than people, and human habitat is not researched enough.



## Katie Valencia

Omaha Central High School (Omaha, Nebraska)

Mentor: Errik Ejike, MPH  
Center for Promoting Health and Health Equity

### Recommendations for Omaha Parks

Parks and green spaces are good sources of exercise and recreation in many communities and neighborhoods. Parks are not just for exercise but also for recreation, playtime for children, and family gatherings. Our hypotheses are that (1) people use/frequent their parks at least once a month and that their primary reason for attending is for events and that (2) most people believe their parks are in fair condition and have at least one suggestion for improvement. We created an 11-question digital survey tool and visited various Omaha farmers markets. We collected 75 total surveys. Our results showed that most patrons visited the parks once a month or less per year. Additionally, people went to the parks primarily for recreation exercise and for children play/playground when they indicated they had children under the age of 19 years of age. The participants indicated that there is a need to increase water refill stations and water fountains, provide more park benches, increase the number of adult exercise stations at parks, and update the existing park equipment and courts.



Summer Research Institute 2022 Cohort

## Health Careers Opportunity Program (HCOP)

The Pipeline to Success Health Careers Opportunity Program (HCOP) is one of the pipeline programs offered through Creighton University's Health Sciences Multicultural and Community Affairs (HS-MACA) Office. Since being awarded the five-year HCOP grant through the Health Resources and Services Administration (HRSA) in 2018, HCOP has impacted 549 (251 high school, 247 undergraduates, and 51 health professional) students, with 514 (235 high school, 230 undergraduates, and 49 health professional) of them successfully completing the program. HCOP's mission is to provide students from economically and educationally disadvantaged backgrounds the skills needed to successfully compete for, enter, and ultimately graduate from health professional school. We aim to provide our students with the access, education, and training necessary to become health care professionals with the overarching goal of increasing diversity in the healthcare workforce and reducing health disparities.

HCOP concluded the 2022 Structured Summer Program with 48 students (23 high school and 25 undergraduate

HCOP closed out its fourth year with another virtual session filled with future health professionals! We concluded the 2022 Structured Summer Program with 48 students (23 high school and 25 undergraduate students), each of whom had made the commitment to continue preparing themselves for success during the summer by taking courses like Tools for Academic Success, Cell Biology, Chemistry, Physics, Gross Anatomy, Biochemistry, and others. Every student committed to a program schedule consisting of 4 classes taken during a block schedule Monday to Thursday (10:00 A.M. – 3:40 P.M. CDT) and Friday Fun Days (11:00 A.M. – 2:00 P.M. CDT) for the entire six-week session.



The HCOP Health Careers Ambassador Program was a 7-month program in which students participated in workshops, took part in clinical shadowing, met with mentors, and more. Students also participated in virtual field trips and attended workshops with health professionals to help build their understanding of a broad range of health careers. Besides the above-mentioned activities, all participants had the benefit of meeting with an academic success counselor, accessing tutoring and test preparation resources, and were paid a stipend for their participation in the program!

On Saturday, October 22nd, 2022, we successfully kicked off the 2022-2023 Online Health Careers Ambassador Session with a new cohort of 33 students amongst the high school, undergraduate, and health professional student levels. The Ambassador program concluded on April 29th, 2023, with 25 students (7 high school, 9 undergraduates, and 9 health professional) completing the program.

**The Ambassador program concluded on April 29th, 2023, with 25 students (7 high school, 9 undergraduates, and 9 health professional) completing the program.**

As we came to the end of the 2022-2023 Health Careers Opportunity Program (HCOP) Ambassador Program, on April 29th, 2023, we celebrated a year full of success and growth with our HCOP Virtual Awards and Recognition Ceremony. The keynote speaker, Dr. Alvin R. Samuels, Jr., gave a powerful speech on “embracing the journey” and “knowing your why” followed by personal reflections from a few of our students. We were thrilled to have witnessed the students’ personal and professional growth throughout the program, as they developed leadership skills, discovered their strengths, and honed their passion for health equity. We were immensely proud of the hard work, perseverance, and accomplishments of our Ambassador Program students and looked forward to continuing to support them as they pursued their career goals. The 2022-2023 HCOP Ambassador Program had been an extraordinary success, and we were confident that this year's cohort of students would continue to make an impact in their communities and in the healthcare industry for years to come.



The 2023 Online Structured Summer Session commenced on Tuesday, June 20, 2023, and concluded on Friday, July 28, 2023. The HCOP Team, along with our devoted instructors, facilitators, and presenters helped create a new community of 63 students (36 high school and 27 undergraduate) for the six-week summer program. Students engaged in enrichment courses like Psychology, Genetics, Gross Anatomy, ACT Prep, Organic Chemistry, and more. They also took part in informative and immersive virtual experiences like Virtual Clinical Shadowing using Body Interact software, Cultural Competency Training, and a session with the Creighton Career Center on Resumes, Personal Statements, and Interviews during our Friday Fun Day activities. We have applied for the new five-year HCOP grant in May and are looking forward to hearing back from HRSA in August.



**The 2023 Online Structured Summer Session commenced on Tuesday, June 20, 2023, and concluded on Friday, July 28, 2023, with 63 students (36 high school and 27 undergraduate) for the six-week summer program.**





## Community – Oriented Primary Care (COPC) Program

Over the past eighteen (18) years, (2006-2023) the National Institutes of Health (NIH) supported Creighton University (CU) Community Oriented Primary Care (COPC) Endowed Research Grant. Under the direction of the PI, Omofolasade (Sade) Kosoko-Lasaki, MD, the NIH has developed and maintained the advancement of the Community Oriented Primary Care (COPC) Endowed Research Grant.

The COPC Research Endowment Grant has specific aims to increase medical students' exposure to and an awareness of issues related to cultural competence and health disparities, to develop an endowed tutoring program to increase the success rate of medical students, and to increase the enrollment of students interested in participating in health disparity research. The program was successful in establishing an endowed summer research program and an endowed, longitudinal public health research experience for medical students. Additionally, Common Ground was formalized as a student-faculty forum used to present and discuss issues related to cultural competence and health disparities from local physician-instructor/researchers' practices.

### Specific Aims and Objectives:

The five (5) specific aims and objectives of the COPC Research Endowment Grant are presented below. A summary of the progress toward each aim/objective is presented after each objective.

Objective 1-1: Establish an endowed summer research program to support three (3) pre-clinical medical students per year in an eight-week COPC public health research assistantship during the summer following their first year of medical school to increase the students' knowledge of and expose them to health disparities issues.

Objective 1-2: Establish an endowed community research elective to support two (2) fourth-year medical students per year in a longitudinal COPC public health research experience to increase the students' knowledge of and expose them to health disparities issues.

**COPC has supported four (4) M1 students in Public Health Research Assistantship Program - that is 25% above its goal and two (2) M4 students in longitudinal COPC Public Health Research - that is 100% of its annual goal.**

Objective 1-2: Establish an endowed community research elective to support two (2) fourth-year medical students per year in a longitudinal COPC public health research experience to increase the students' knowledge of and expose them to health disparities issues.

Objective 2-1: Formalize the existing Common Grounds program and establish it as an endowed student/faculty forum for discussing health disparities research in a "shared inquiry" format to increase the students' knowledge of and expose them to health disparities issues and to increase students' cultural proficiency skills.

Objective 2-2: Establish an endowed program for training medical student tutors to increase the academic success rate of medical students.

**Table 1** (Objective 1.1) – COPC Public Health Summer Research Program:

Student's Name	Topic/Title of Resarch	Mentor's Name
Taylor Billion	Local Racial Disparities on Reproductive Health: Women covered by Medicaid in Douglas County, Nebraska	Dr. John R. Stone
Victoria Johnson	The Necessity of Serial Ultrasounds when Assessing for Intraventricular Hemorrhage in Neonates	Dr. Hemananda Kumar Muniraman
Pranavya Manickavelu	Midwifery and Birthing Practices with the Maya Community in Omaha, Nebraska and Huehuetenango, Guatemala	Dr. Alexander Roedlach
Yanick Tade	Literature Review and Summary Paper of Medicaid Expansion in Nebraska: The Effects of Obamacare or Lack thereof on Primary Care in Underserved Populations in Federally Qualified Health Centers In Omaha, NE.	Dr. John Stone

In 2022, each of the four students were provided with a mentor who engaged them in the planned research activities. Thus, all four tasks in objective 1 were accomplished. Regarding recruitment and completion, they exceeded the annual objective by an extra 25%. The success in imparting knowledge was assumed based on the mentors' knowledge, training, and experience. Objective was fully implemented and exceeded.

**Table 2** (Objective 1.2) COPC Longitudinal Public Health Research (FAP 481)

Student's Name	Topic of Research	Faculty/Mentor
Patricia Le	Ultrasound Cost Savings for Uninsured Patients at St. Vincent de Paul Clinic	Dr. Daniel Gridley
Lauren Gillispie	Minor Anomalies of the Face in Fetal Alcohol Spectrum Disorders	Dr. Omar Addul-Rahman

In 2021-2022, two students, who had previous research experience in health disparities during their M1 year (to fulfill the criterion for entry) applied through the medical school electives program, to participate with mentors in this longitudinal endowed community research elective.

Study foci were: 1. Ultrasound Cost Savings for Uninsured Patients at St. Vincent de Paul Clinic; and 2. Minor Anomalies of the Face in Fetal Alcohol Spectrum Disorders . Students survey indicated that the participants expressed satisfaction of 3.47 and 3.57 respectively. The Objective was fully met, and students submitted their papers for peer reviewed publication and scientific presentations.

**Common Ground**

A formalized Common Ground centered discussion forum series was established in 2007. This activity spanned 7 months between November 2022 and April 2023 featuring various experts in each of 24 health disparity areas, to moderate and lead discussions on health disparities. Experts, who are known in the Nebraska communities, from a wide-ranging field of research and practice in health disparities and volunteered to support with their work in health disparities by providing their expertise in the events, were invited to conduct the seminars and lectures. Topics were selected based on areas of focus for Healthy People 2030 and the expertise of the presenter in Nebraska or in the nation. All presenters had a stated objective that was reviewed and approved by the principal investigators. Events were successfully implemented as planned, and objective was achieved. **The total participants for Fall 2022 and Spring 2023 is 674 students in 22 sessions/topics. Overall approval by the audience was high; so were presenters, importance, and impact ratings high.** Objectives were fully met.

**The average participants for Fall 2022 and Spring 2023 Common Ground is 30 students in 22 sessions on selected topics.**



# Fall 2022 Common Ground



## Health Sciences–Multicultural and Community Affairs Community–Oriented Primary Care Program (COPC)

### Fall 2022 Schedule

September 2	Introduction to Common Ground with Pre-Test Evaluation Dr. Sade Kosoko-Lasaki and Dr. Olujobemi T. Ekundayo	Via Zoom
September 9	Building Culturally Competent and Sensitive Leadership Skills in the Health Profession Dr. Kate Holt   Department of Clinical Research and Public Health	Via Zoom
September 23	Social Determinants of Health Ecosystem Dr. Joy Doll   CyncHealth, Inc.	Via Zoom
September 30	IPE Course: Cultural and Ethnic Approaches to Health with Case Studies Dr. Sade Kosoko-Lasaki - Associate Vice Provost, Health Sciences	Via Zoom
October 7	Overview of Methamphetamine and its Effects on the Body and Brain and Its Current Epidemiological Trends Dr. Elena Balasanova O University of Nebraska Medical Center/Nebraska Medicine	Via Zoom
October 14	United States Air Force Special Session for USAF Scholarship   MSgt. Christopher Powers & TSgt. Corey West	In Person - HLSB G-04
October 21	Scoping Review of Assessments Measuring Cultural Responsivity in Rehabilitation providers Dr. Julie Shin - School of Pharmacy and Health Professions	Via Zoom
October 28	The Long Road Towards Health Equity: Building a Participatory Action Research with Black Seniors Dr. LaShuane Johnson and Dr. Laura Heinemann - School of Medicine	Via Zoom
November 4	Midwifery and Birthing Practices with the Maya Community in Omaha, NE and Huehuetenago, Guatemala   Pransyya Merickanetu (MS student)	Via Zoom
November 11	How We Treat People during Drug Treatment in the Healthcare System Dr. Kelly Dineen - School of Law	Via Zoom
November 18	CHI health-Investing in Healthy, Equitable Communities Ms. Ashley Carol, CHI Health	Via Zoom
December 2	Community Local Racial Disparities in Reproductive Health   women Covered by Medicaid and the Necessity of Serial Ultrasounds in IV Hemorrhage in Neonates Taylor Billion and Victoria Johnson (M2 students)	Via Zoom

Weekly Zoom Link: <https://creighton.zoom.us/j/94200391421>

Common Ground is funded by National Institutes of Health, COPC Endowment Fund (NIH#152MD001102-01)

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# Spring 2023 Common Ground



## Health Sciences–Multicultural and Community Affairs Community–Oriented Primary Care Program (COPC)

### Common Ground – Spring 2023 Schedule

January 20	Health Disparities Issues on Ethics and Equity: Why and How to Care? Dr. John R. Stone, Center for Promoting Health and Health Equity (CPHHE)
January 27	Overview of the Pipeline to Success - Health Careers Opportunity Program Mr. Jonathan R. Saffold   HCOP Supervisor
February 3	African American Contributions to the Healthcare Profession Dr. Richard Brown   Lee Brown & Associates
February 10	The Resilience of the Black Community Mrs. Doris Lassiter   NE Center for Healthy Families
February 17	Trauma Informed Care Approach to Patient Interviews Dr. Michael Greene   Director, Residency Program Department, Family Medicine
February 24	HIV 101: A Client's Journey at Nebraska AIDS Project Nebraska AIDS Project Representative
March 3	IPE Course: Cultural and Ethnic Approaches to Health - Case Studies Dr. Sade Kosoko-Lasaki   Associate Vice Provost, HS-MACA
March 17	Introduction to ILAC Program and Opportunities in the Dominican Republic Ms. Jill Meugge, MA   ILAC Director of Operations
March 24	The Role of Humanities in Healthcare Education Dr. Nicole Piemonte : Assistant Dean, Student Affairs, School of Medicine
March 31	TECHnically Speaking: Tech to Advance Equity Dr. Renaisa Anthony   Momentum Park
April 14	PCORI Findings: Vulnerable Families of Children with Type 1 Diabetes in Rural Communities Dr. Amy Abbott   Associate Professor, College of Nursing
April 21	Wrap Up Session with Dr. Ekundayo

Weekly Zoom Link: <https://creighton.zoom.us/j/92086102220>

Common Ground is funded by National Institutes of Health, COPC Endowment Fund (NIH#152MD001102-01)

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## Tutoring Services

COPC continues to support mentoring and tutoring within the medical school. Programs offered include Training Tutors (Train-the-Trainer Approach), one-on-one tutoring, Supplemental Instruction (SI), and Step 1 Preparatory (Prep) training. This program is offered in collaboration with the Office of Student Affairs in the School of Medicine, to improve the academic success of the medical students.

In the 2021 – 2022 academic year, sixty-four (64) students were trained as tutors, ten (10) students as Step 1 Prep leaders, and six (6) students as SI leaders. Ninety (90) students received tutor support, one hundred sixty (160) students participated in Step 1 Prep sessions, and one hundred seventy-three (173) students attended supplemental instruction sessions. There were twelve (12) tutors and 23 students attending sessions in Foundations, Immunology, Microbiology, Neuro Self tutoring, Hematology/Oncology, MSK-Study Strategy, Reproductive Medicine, Pediatrics, HEENT, Pediatrics Self Tutoring, Neurology and Cardiology. In all, there were 56 encounters and 12 areas of study over 75.5 hours.

**Table 3** (Objective 2.2) Distribution of Students in Endowment for Training Medical Student Tutors for 2021-2022

Activity	No. Enrolled	Number Completed
Tutor Training	64	64
Step 1 Prep Leader Training	10	10
SI Leaders Training	6	6
Tutor Support	90	90
Step 1 Prep	160	160
Supplemental Instructions	173	173
<b>Total</b>	<b>503</b>	<b>503</b>

## COPC Scholarship

Students applied and were selected and provided with scholarship ranging from \$1,000 to \$10,000 based on previous research in health disparity. Students were also encouraged to present their research at Common Ground These students we tracked to determine their specialties of interest and location in the country.

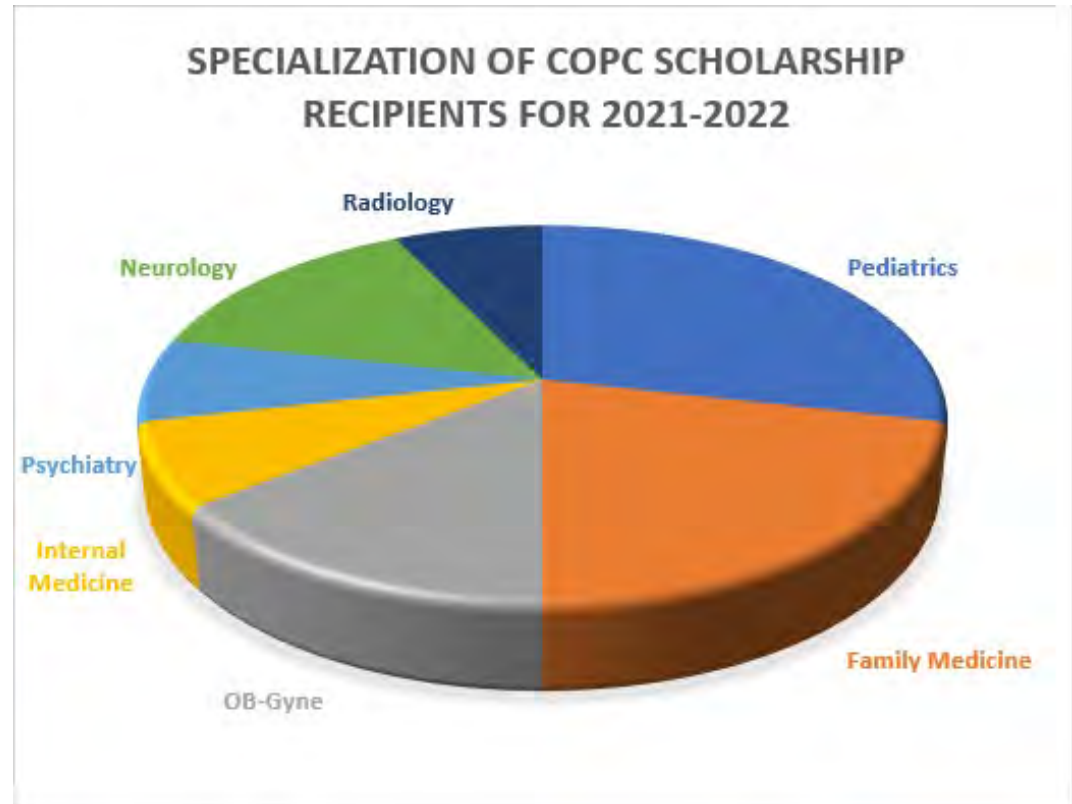
In 2021 and 2022, 14 students, who had been awarded COPC scholarships graduated from Creighton University medical school. Of the 14 students, 4 specialized in Pediatrics, 3 in Family Medicine, 2 in Neurology, 2 in Obstetrics and Gynecology, 1 in Preliminary Medicine, 1 in Psychiatry and 1 in Transitional Diagnostic Radiology. Of this distribution, 10 (71.4%) specialized in primary care. We define primary care specialties as pediatrics, obstetrics and gynecology, psychiatry, internal medicine and family medicine, following the national guidelines and definition.

Overall, 102 students (65 female, 37 male) were awarded a total of \$338,600.00 (\$217,300 – 64.18% – female, and \$118,300.00 – 34.94% male). However, in 2021-2022, ten scholarships were awarded, the largest number of awards over the twelve-year period.

In the past fourteen years (2008-2022), with a scholarship disbursement of \$338,600.00, the program has graduated 102 professionals in 15 medical specialties (5 in Primary Care) who are currently situated in 28 states across the United States. An additional 17 are in line to graduate in 2022 (13) and 2023 (4).

### Conclusion

The COPC program continues to achieve its objectives with an impressive cumulative output. The outcomes continue to have significant impact and presence in helping to diversify healthcare and reduce health disparities. Racial distribution, documentation of student performance, student research dissemination and repository of scholarly products from the COPC program are needed and there is increasing trend in graduation from Creighton University School of Medicine on COPC Scholarship recipients.





## Pipeline Program: Focus on Health Professions

Since its inception in 2000, the Health Sciences Multicultural and Community Affairs Office (HS-MACA) has introduced over ten thousand young individuals to careers in the Health Sciences through pipeline programs that serve area students beginning in the 4th grade and continuing through their middle school, high school, college, and professional school years.

The program exposes young people of diverse backgrounds to career opportunities they might not otherwise consider and helps them envision a possible profession in the Health Sciences. Mentors encourage students to establish short-term and long-term educational and professional goals that will foster an ongoing interest in science. Pipeline programs lay the groundwork that can assist students in becoming competitive applicants to professional schools of medicine, dentistry, and other health sciences.



Baolong Truong , Pipeline Program Coordinator for the Middle School Initiative -After School Program at Liberty Elementary School, Omaha.

### **Focus on Health - Afterschool Program**

The HS-MACA Focus on Health Afterschool Program was created in 2009 as a sustainability program for the Health Careers Opportunity Program (HCOP). Through a collaborative agreement we established a partnership with the City of Omaha's Middle School Learning Initiative (MSI) to provide Science, Technology, Engineering, and Math (STEM) programming to their afterschool and summer programs. The schools partnered with were Marrs Middle School and the King Science and Technology Magnet Middle School. Additionally, HS-MACA partnered with Liberty Elementary School, Omaha Central High school, and the Girls, Inc. of Omaha to expand the STEM education to elementary and high school students. A STEM curriculum was developed by HS-MACA, in which educational and career presentations were given in seven-week sessions during the academic school year. In total, 238 students were impacted by the afterschool program classes in the 2022-2023 academic year, with many of them participating in other programs offered by HS-MACA, such as HCOP and the Mini Health Sciences School.



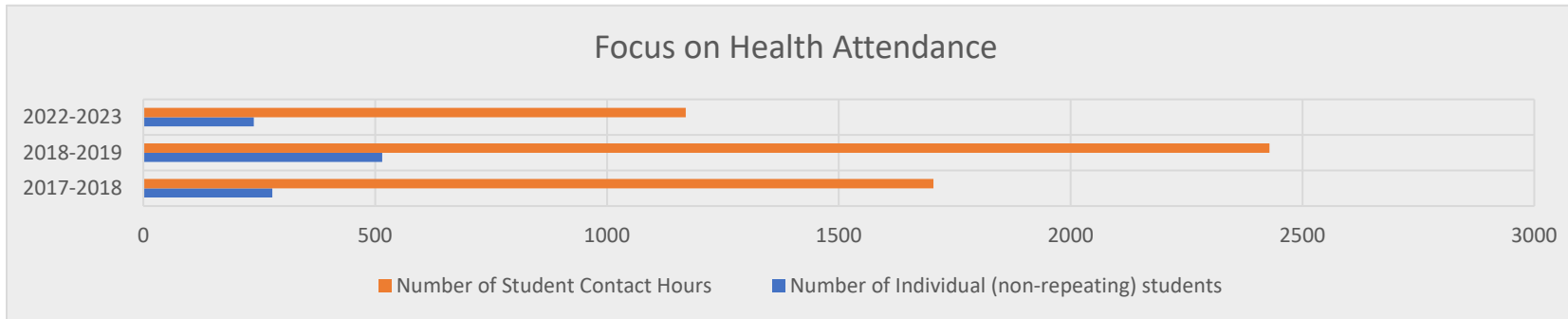
**Pipeline Programs with the Omaha Community**  
HS-MACA attended the Partnership 4 Kids (P4K) Family Day on March 25, 2023, in which Creighton faculty met with precollegiate students and their families at the ICC Bowlatorium and Gymnasium to promote and discuss the health science programming offered at Creighton University. HS-MACA Staff brought snacks, drinks, giveaway promotional items, flyers, pamphlets, and interactive models to provide students and their families with information about Creighton. Contact information for the students were provided by their families and the program supervisors.



Mini Health Science School



On April 20<sup>th</sup>, 2023, the middle schools and high schools participating in the Focus on Health – Afterschool Program were invited for a one-day tour of the undergraduate science departments and health science schools at Creighton University. **Working in collaboration with the College of Arts and Sciences Department of Chemistry, the School of Dentistry, the College of Nursing, and the School of Pharmacy and Health Professions**, HS-MACA organized the Mini Health Sciences School in which precollegiate students would visit the Creighton science programs and perform interactive activities that would allow them to envision themselves in health science careers. Students walked to each of the health science programs, rotating every hour to see dentistry work benches, physical therapy wheelchairs, occupational therapy log swings, and a simulated emergency room courtesy of the college of nursing. After visiting the health science schools, they ate a buffet lunch at the Brandeis Dining Hall. Students were then taken to the Rigge Science Auditorium where they watched the “Chem Show” in which Creighton faculty and students performed engaging chemistry demonstrations, such as lighting hydrogen balloons on fire and freezing objects with liquid nitrogen, to entertain and educate the precollegiate students. After the show was concluded, health science students and faculty sat in on an interview panel where participants were free to ask questions about the rigors of education and the path that people took to become health science professionals.



*\*Note: Pipeline Programming was shut down from 2019-2022 due to the COVID-19*



# Community Health Workers Training and Placement Program (CHW-TAPP)

In January 2023, HS-MACA began its Community Health Worker Training and Apprenticeship Placement Program (CHW-TAPP), a project to train 240 community members to become certified Community Health Workers (CHWs) and place 45 as apprentices.\* During this first year, HS-MACA began training 80 people and for 11 weeks, community members met online twice a week for three hours each session. Often these students came straight from work, as they picked up children from sports practice, or after preparing their family dinner. They came again and again, craving the health knowledge HS-MACA had to share so that they could go out to serve their communities. These communities are some of the most vulnerable or overlooked in Omaha, and the students bring the challenges these communities face to class through their stories and through their lives. HS-MACA is dedicated to both educate these students with the knowledge they need to serve and advocate their communities as well as support the student in their whole being. That is to say, HS-MACA not only cultivates community members to serve the most vulnerable, but cares for the whole person in the process.

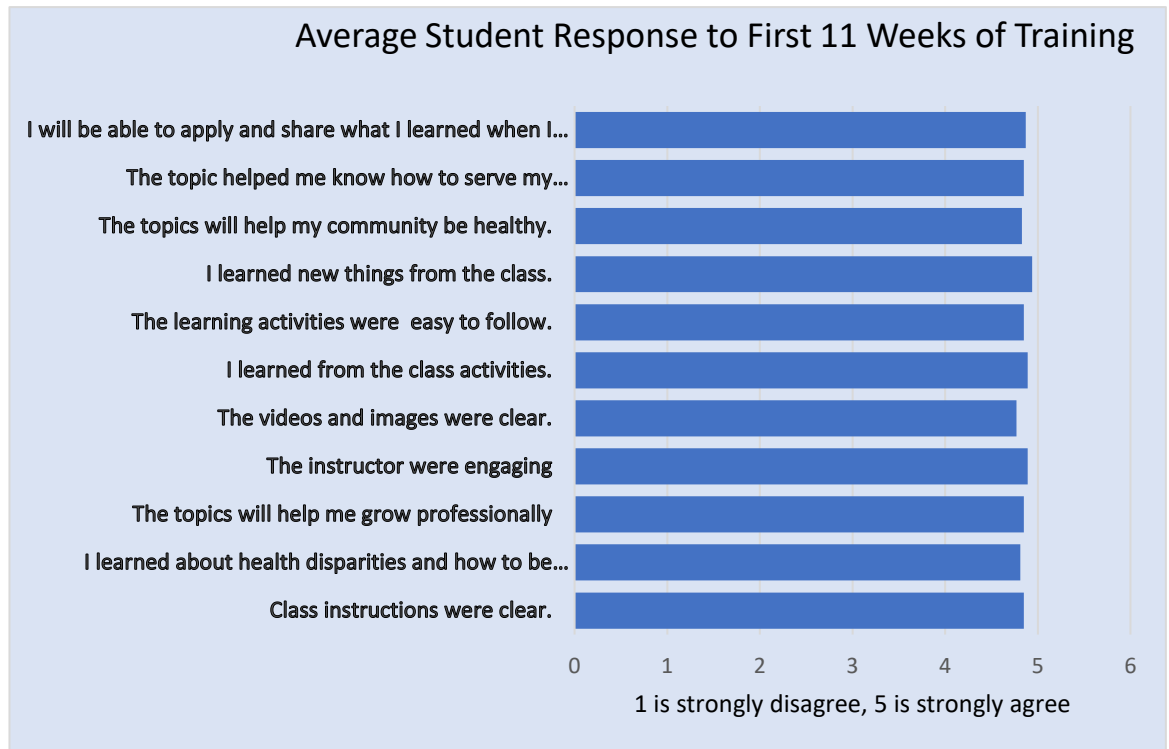
**The CHW-TAPP project aims to train 240 community members to become Certified Community Health Workers (CHWs) and place 45 of them as apprentices in various health facilities in Omaha.**

In the first six months of this program, HS-MACA has trained students in basic health issues and prepared them to enter the workforce. Students learned about health models, chronic disease, and how to support people in their health needs. The curriculum builds on HS-MACA's years of experience training dozens of Community Health Advocates. Trainers from across the country have helped students think about their roles as CHWs and how capable they are to assist those around them. As one student describes, during her son's recent hospital stay, "I was able to ask very detailed questions and became an advocate for the care of my son.... he developed some complications and there was some confusion between the... I was able to instruct the nurses on what care I wanted them to do and what I things I wanted the doctors to look for." Our students are learning health information that they can immediately apply, are growing more confident in their abilities to care for others and are becoming advocates for those around them.



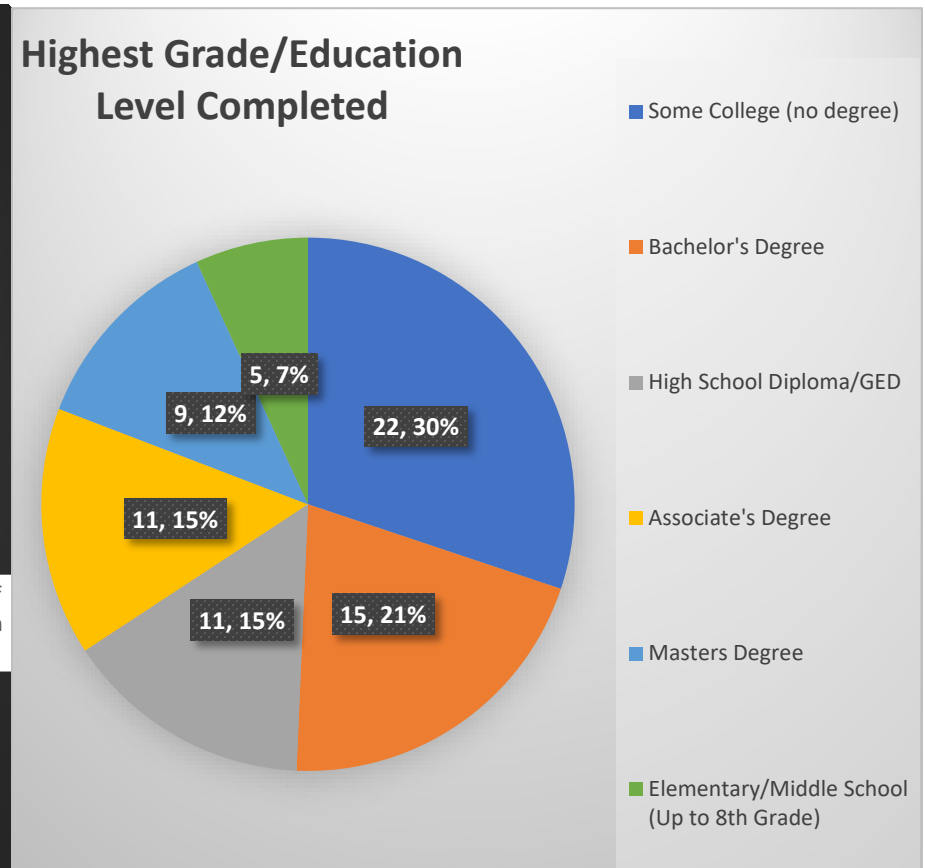
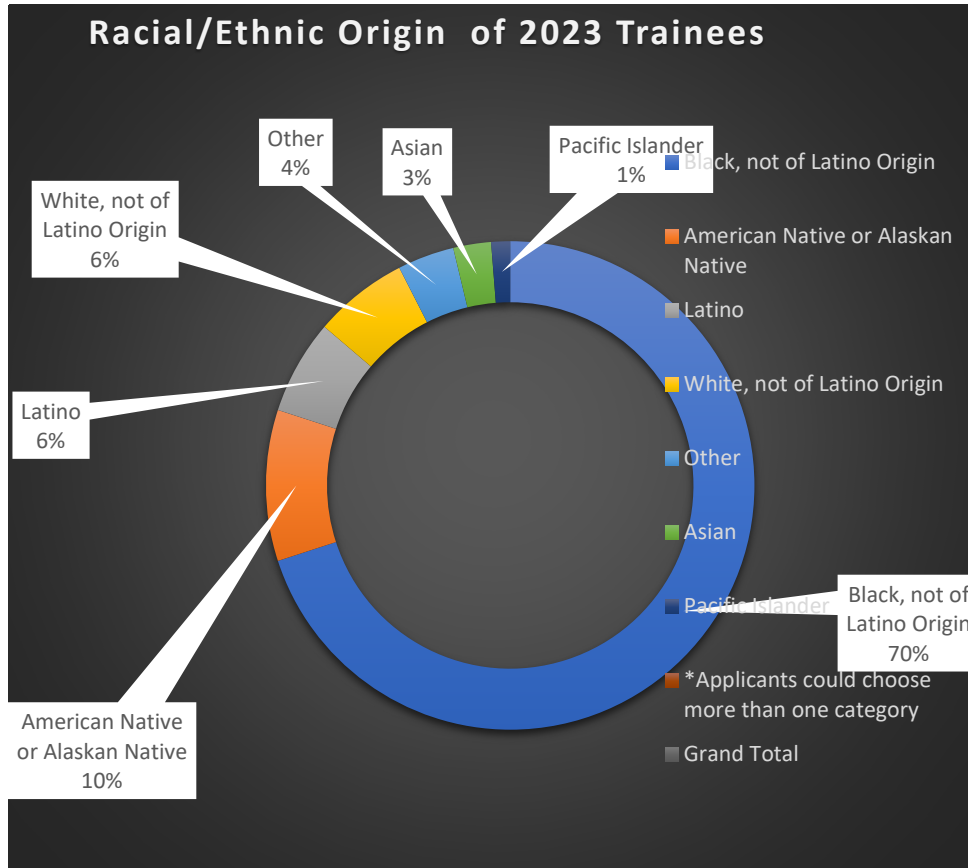
While students engage in the training and care for the communities, HS-MACA makes sure to care for the whole person as well. Students receive ongoing mentorship throughout the program to make sure no one falls behind, that everyone has someone they can ask additional questions, or receive support in their goals. The training also consists of a workforce development portion where students learn valuable job skills and grow in a deeper understanding of themselves. One student shared that she has learned more about herself and has grown to appreciate the different personalities she encounters in her family and at work. She feels this has helped her in interactions with others. What's more, students receive a new laptop, funds for internet, childcare, or other resources to help them attend the sessions, and they receive a monthly stipend for their participation. Over the course of the year, students will receive \$7,500 of support through the training, not including the technical help, mentoring, and other services that HS-MACA provides.

The initial intensive training period has ended for the first year, but HS-MACA's work continues. Currently, 11 apprentices have been placed at sites across the metro and Northeast Nebraska. HS-MACA supports these student-apprentices and their organizations. Additionally, all the students are participating in an advanced training, teaching students about specific health issues such as maternal and child wellness, emergency preparedness, and mental health. These sessions continue through September. HS-MACA is also preparing for a September 8<sup>th</sup> seminar on CHWs and how to bring them in to an organization. There is much to do as HS-MACA works with apprentices, continues to train CHWs, prepares a seminar for the community, and gets ready for two more years of training CHWs in this way. Students are already using their new knowledge in their communities, and HS-MACA feels excited to see how 240 well-trained and certified CHWs including 45 Department of Labor certified CHW apprentices can reduce health disparities in Omaha and across Nebraska.



\*A \$2.9 million grant through the Health Resources and Services Administration (HRSA) makes this training and additional student support possible.

Of the students who responded, 97% agreed that they learned valuable information to help them better serve their community.



The Health Sciences Multicultural and Community Affairs (HS-MACA) office had its third Femtoring event in 2023, an activity that started in September 2021. **Femtoring** is a social gathering event led by Dr. Kosoko-Lasaki, Associate Vice Provost of HS-MACA and Co-Founder and Co-Executive Director of the Center for Promoting Health and Health Equity (CPHHE). **Dr. Kosoko-Lasaki’ s desire to help women who were affected physically or emotionally during the Covid-19 Pandemic and provide mentorship, encouragement, and inspiration as the women engage themselves in several community outreach activities.** The objective of the Femtoring event is to “match” experienced faculty, staff, and others (women) as mentors with female community Femtees.



First Femtoring Event: September 25, 2021, at Ahmanson Ballroom, Harper Center

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With the goal of training and empowering the female health ambassadors/advocates/workers and other ladies in the community, Dr. Kosoko-Lasaki started the program with the monetary award she received as “Creighton University Presidential Kingfisher Awardee in 2020”, a prestigious annual award rooted in the Liberal Arts and Professions and a campus-wide commitment to the humanities, to organize the Femtoring event.

The second Femtoring event was conducted last February 26, 2022, at the Mutual of Omaha Ballroom, Skutt Student Center. Many women Femtors and Femtees from both the academe and the community attended the event. The focus was on Heart Disease Awareness and Reducing its Effects.







The event on April 1, 2023, was held at the Skutt Student Center Ballroom, and had in attendance sixty-two new Community Health Workers – who were undergoing training for the HRSA funded CHWTAP (Community Health Worker Training and Apprenticeship Program). During the event SHERO, Shaping Healthy Equitable Reproductive Outcomes, was launched in Omaha by its founding physician, Dr. Renaisa Anthony. Ms. Gail Ross of United Healthcare gave an update presentation on Medicaid insurance, post Covid 19 pandemic.

The Beauty Hat competition and the extraordinary jazz musical rendition of Dr. Richard Brown, CPHHE Chair, were typical features of all three events, which made the Femtoring events special and memorable.



**Dr. Sade Kosoko-Lasaki, Associate Vice Provost, Femtoring Organizer and Dr. Richard Brown, Chair, CPHHE**

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*Participants of Femtoring Event held at the Skutt Student Center Ballroom, April 1, 2023*





## Grants, Presentations and Publications

### Grants

#### A. Funded

- a. Nebraska Tobacco Settlement: Center for Promoting Health and Health Equity (CPHHE) –2022-2023, \$225,000
- b. National Institute of Health, Center for Minority Health Development - NCMHD/NIH Endowment Program for Increasing Research and Training in Health Profession Schools – 2005-Perpetuity, \$1.8 Million
- c. Community Health Worker Training and Apprenticeship Placement Program (CHW-TAPP) – 2022-2025, \$2.974 million
- d. UHC Community Pathways Fund – Protecting the Underserved from COVID-19 Disparities (ProUD) – 2022-2023, \$250,000
- e. HRSA: Creighton University Pipeline to Success – Health Career Opportunity Program (HCOP), 2022-2023, \$629,000 (\$3.25 million over 5 years)

#### B. In-Progress

- a. Racial and Ethnic Approaches to Community Health (REACH) – Centers for Disease Control and Prevention (CDC)/Agency for Toxic Substances and Disease Registry (ATSDR) – 2023-2028, \$7.341 million
- b. HRSA: Creighton University Pipeline to Success – Health Career Opportunity Program (HCOP), 2023-2028 (\$3.25 million over 5 years)
- c. Nebraska Tobacco Settlement: Center for Promoting Health and Health Equity (CPHHE) –2023-2028, \$225,000

### Presentations

- a. Kosoko-Lasaki, O., *FEMTORing the CHAs*; presentation during the Femtoring Tea Party Events, September 25, 2021, February 26, 2022 and April 1, 2023.
- b. Kosoko-Lasaki, O., *2023 Progress Report: Nebraska Tobacco Settlement Biomedical Research Development Fund*; presentation during the Annual Health Disparity Seminar, April 2023.

### Publications

- a. Kosoko-Lasaki, O., Nolt, K., Stone, J., Brown, R., Ekundayo O. T., Lassiter, D., Ejike, E., Santiago-Stommes, I., Issaka, I., Dineen, K., Vazquez, L., Early, V., Marcos L., and Smith, J. M. (2023) Promoting Covid- 19 Vaccination Rates thru Community Health Ambassadors/Advocates in Racial/Ethnic Minority Communities. *Journal of Community Medicine and Health Education* 13(3), 816. (Accepted)

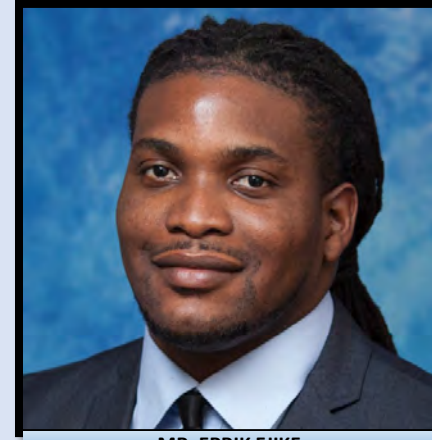
## The HS-MACA Staff 2022-2023



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HS-MACA Annual Report 2023

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