Youth Enjoy Science Program Updates/Highlights

The UNMC YES program is in its fourth year. Despite the challenges presented this past year by the COVID-19 pandemic, we do have much to celebrate:

- The Buffett Cancer Center welcomed four new YES cancer research interns: Hayli Spellman, Promise Moore-Saufley, Mira Norman and Carmela Rigatuso.
- Hannah Butler-Robbins, YES cancer research intern, graduated with a B.S. in Microbiology from Arizona State University.
- Summer Health Professions Education Program YES WISH 2021 had the largest number of scholars participants yet!
- YES research clubs will be participating in a school-based project testing soils for heavy metals, such as lead, arsenic, cadmium and chromium.
- YES research labs created online curriculum to support student internships.
- At the national NIH SciEd conference, UNMC YES cancer e-learning modules were noted in a presentation by a National Cancer Institute official and Aislinn Rookwood (YES Program Manager) presented a poster on the YES IRadon & Cancer middle school student project (www.unmc.edu/eppley/education-outreach/CancerEducationResources.html)

We are beginning to envision plans for a new grant cycle of the YES program. We welcome your thoughts on both the program’s strengths and areas we can strengthen. Please take our stakeholder survey to support our efforts to improve student services and partner schools and organizations: https://forms.office.com/r/rWUJHZxpGx

YES Research Forum: April 23, 2021

The Youth Enjoy Science (YES) Research Education program hosted its 2nd Biennial Research Forum on April 23, 2021. Through the YES program, high school students (16 and older) and undergraduate students with Native American ancestry participate in tailored research experiences in the summer or, for students located in the Omaha metropolitan area, in part-time research projects during the school year.

CONTINUED ON PAGE 2
Seven YES research scholars presented research posters or PowerPoint presentations. These research scholars and their presentations titles are listed below:

• “Pancreatic Cancer Research Strategies” by Ms. Audrey Bavari
• “Suzanne: Lived Experience with Squamous Cell Skin Cancer” presented by Ms. Bobbie McWilliams Leesley
• “The Role of CTDP1 in Breast Cancer Development and DNA Damage Response” presented by Ms. Mira Norman
• “Arts-based Research to Promote Cancer Education Amongst Indigenous Peoples” presented by Ms. Hannah Butler-Robbins & Ms. Mariah Abney
• “Development and Characterization of a Non-alcoholic Steatohepatitis-induced Hepatocellular Carcinoma Mouse Model” by Ms. Erica Lafferty
• “HDAC Inhibitors for Pancreatic Cancer Treatment” by Ms. Cecilia Barbosa

This forum, organized by Aislinn Rookwood, MPH, YES Program Manager, included presentations by Drs. Regina Idoate (Cherokee Nation) and Keyonna King, Drs. Joyce Solheim and Maurice Godfrey, and Dr. Alison Lin, the Deputy Chief of the Diversity Training Branch of the National Cancer Institute’s Center to Reduce Cancer Health Disparities. The forum began with a welcome and blessing by Steve Tamayo (Sicangu Lakota) and ended with a travelling song by Echohawk Lefthand, MPH, Director of the Omaha Public Schools Native Indigenous Centered Education program (Diné). Recorded research sessions and detailed program descriptions can be found on the YES website.

SHPEP – YES WISH program: June 14-25, 2021

Ten Native American high school students participated in the 4th annual Summer Health Professions Education Program (SHPEP), Youth Enjoy Science (YES) Research Education Weeklong Institute for Students in High School (WISH) program from June 14-25, 2021. The goal of YES WISH is to strengthen the career development of Native American students interested in the health professions through culturally relevant curriculum and support. More information about this program can be found here: https://www.unmc.edu/eppley/education-outreach/high-school.html

Some highlights students shared from the program are:

• I liked the sense of community the program gave me. I also liked that everyone was allowed to speak up, or say what they want.
• The people involved and the closeness in the [YES] group made me feel really comfortable and at ease with our discussions.
• I liked the people who participated etc. I also enjoyed sessions like, Violence is Not Our Tradition, and QPR [Question, Persuade, Refer Suicide Prevention] Training.
• I would have to say the flexibility and how I was able to participate still even with other things going on.
• I really enjoyed the YES Wish Program! It was educational while not being boring or feeling like it was a burden.

Initial program evaluation results show that 100% of students reported that:

• “the YES WISH program provided new information about college preparation, research or health professions education preparation, and introduced new scholarship/financial aid opportunities.”
• through the YES WISH program, I learned more about Native American health and wellness.”
• “the YES WISH program was culturally relevant to Native American students”
Indigenous Perspectives on Skin Cancer presentation
American Indian Cancer Foundation: June 1, 2021

Bobbie McWilliams Leesley (YES cancer research intern), Dr. Regina Idoate (YES program MPI), and Suzanne Walsh (cancer survivor), were invited to present a special webinar for the American Indian Cancer Foundation in honor of Skin Cancer Awareness Month in May 2021. They discussed their experiences with skin cancer from various perspectives, including survivorship, research, and the arts.

Access a recording of this presentation here: https://www.youtube.com/watch?v=eqJQ8Qm5Qh4


NUIHC—YES & Bluebird Cultural Initiative Career Development Event: August 9-12, 2021

The Youth Enjoy Science (YES) program through the Soaring Over Meth and Suicide (SOMS) program, part of the Nebraska Urban Indian Health Coalition (NUIHC), met at UNMC College of Public Health on Wednesday, August 11th and Thursday, August 12th. On Wednesday, students participated in academic and career development activities including envisioning their future selves through art, career exploration through assessments, and job readiness skills, such as building a resume. On Thursday, students learned about traditional games, such as moccasin game, stick or hand games, and throwing spears, from Steve Tamayo (Sicangu Lakota), founder of the Bluebird Cultural Initiative. Twenty-two students from elementary to college level were in attendance over these two days. These events were a part of a weeklong program, organized by SOMS Director, Nicole Tamayo-Benegas (Sicangu Lakota), and Coordinator, Ethan Duncan, for the Native Youth 1492 group. This program also included health education on August 9th & 10th at University of Nebraska at Omaha and ended with bowling at the Immaculate Conception Church Bowlatorium on August 13th.

Students were provided with information about: pathways and pipeline programs, after school and in-school programs, scholarships, FASFA application assistance, personal statement writing, resume building, thank-you letter writing, and college application assistance.
UNMC Indigenous Medicine Garden

Meet Lead Garden Designer
Mi’oux Stabler

Mi’oux Stabler is an Indigenous seed keeper, plant propagator, and soil soldier.

Mi’oux wants to help restore Indigenous traditional plants back into the bioregion.

Mi’oux is a certified teacher who has been working in Indian country for non-profits for over 20 years. She is leading the development of the Indigenous Medicine Garden. She provides ethnobotany and educational consulting and loves sharing her knowledge with YES program participants!
New Program Opportunity for High School Students: Indigenous Summer Program for Advancing Research Knowledge (I-SPARK)

Building on the success of the SEPA and YES programs, Liliana Bronner, who is an assistant professor in the department of family medicine and the director of medical pathways at the College of Medicine, together with Dr. Maurice Godfrey, professor in the Monroe-Meyer Institute, received a contract from the National Institute on Drug Abuse (NIDA) and the National Institute of Neurological Disorders and Stroke (NINDS) to provide a scientific research preparatory summer course for Native American high school students. Bronner and Godfrey are both principal investigators of this two-year NINDS contract which will support the Indigenous Summer Program for Advancing Research Knowledge (I-SPARK). I-SPARK will offer a multi-week summer experience for Native American students moving into high school, giving them a chance to build relationships with researchers and visualize themselves working in the health sciences while they continue their science enrichment.

YES in Arizona

The UNMC YES grant provides a subaward to Dr. Karen Hastings at the University of Arizona College of Medicine-Phoenix that supports cancer research by undergraduates.

Kristiann Ferreira (Mentor, Dr. Taben Hale) The chemotherapy drug doxorubicin is an important tool in the treatment of cancer, but unfortunately can have some side effects on muscles, including both skeletal muscle and heart muscle. In the Hale laboratory, experiments are underway to gain a better understanding of the molecular mechanisms underlying doxorubicin toxicity. Kristiann has been examining the extent to which specific cell signaling pathways can be protective against these side effects. Her work is contributing to the identification of potential tissue-specific ways to protect muscle cells in cancer patients for whom doxorubicin treatment is necessary.

Chelsea Claw (Mentor, Dr. Suwon Kim) Development of resistance to anti-cancer therapies is a challenge in the clinical care of breast cancer patients. The Kim laboratory has identified genes that are frequently mutated in breast tumors after treatment with chemotherapy. The goal of the project in which Chelsea is involved is to determine the extent to which each of these specific genes has a functional role in causing chemotherapy resistance. From her research, increased comprehension of how chemotherapy resistance is induced may contribute to better patient-specific tailoring of breast cancer treatments.

Understanding American Indian/Alaska Native Students’ Barriers and Facilitators in the Pursuit of Health Professions Careers in Nebraska

We conducted demographic questionnaires and three talking circles with students in reservation and urban settings to better understand their lived experiences of pursuing health professions careers. We analyzed these qualitative data through content analysis and identified eight emergent themes – four barriers and four facilitators. These findings can inform the development of strategies to improve Indigenous education, research, and pathways that promote increased American Indian/Alaska Native representation in health care.

BARRIERS:
1. Lack of preparation and support
2. Cost of college
3. Self-doubt
4. Balancing priorities

FACILITATORS:
1. Culturally relevant mentorship/Student support
2. Exposure to learning opportunities
3. Self-belief
4. Motivational mindset
Hannah Butler-Robbins (Cherokee Nation of Oklahoma) has been working with the YES program for over three years. As a high school student, she was involved in the University of Nebraska Medical Center (UNMC) Summer Health Professions Education Program Weeklong Institute for Students in High School (WISH) and was introduced to the field of research through the National Cancer Institute-funded P30 CURE Program at the UNMC Buffett Cancer Center where she helped study the role of MHC class I molecules in pancreatic cancer cell viability. This inspired her to explore health research as a career and to participate in UCLA’s six-week-long Summer Health Professions Education Program in her freshman year of college.

As an undergraduate, Hannah worked as a research intern for the National Cancer Institute-funded Youth Enjoy Science program, completing both an internship at the University of Arizona, assisting with research in immunology focusing on γ-IFN-inducible lysosomal thiolreductase expression’s impact on melanoma survival, and an internship at the University of Nebraska Medical Center focusing on public health research and outreach specific to cancer prevention, treatment and research in urban American Indian communities. Hannah was accepted to the prestigious Human and Mammalian Genetics 61st McKusick Short Course at the Jackson Laboratory where she learned about heredity disease, genetics in experimental animals and humans, and molecular genetics in the diagnosis and treatment of inherited disorders. In the September 2020 YES UNMC newsletter Hannah was featured stating, “I got the opportunity to attend virtual lectures given by numerous researchers at the top of their fields on topics such as CRISPR, inherited immunodeficiencies, the genetic epidemiology of breast and ovarian cancers, and more.”

In her time with YES, Hannah has contributed four scholarly presentations at various conferences and she is co-author on three manuscripts which are currently under review. These experiences have only solidified her interest in research. She is currently applying to graduate programs and wants to explore microbial life in the environment.

### Development of new, more effective treatment strategies for pancreatic cancer

Audrey Bavari and Cecilia Barbosa, two YES scholars, both contributed to studies on the generation of new therapies for pancreatic cancer. Their studies were done in Dr. Joyce Solheim’s laboratory in the Eppley Institute. Both contributed to studies on the generation of new therapies for pancreatic cancer. Pancreatic cancer is now the third most common cause of cancer-related death overall in the United States, and improvements in treatment for this disease are urgently needed. In pancreatic cancer, proteins called histone deacetylases are increased and affect the amounts of certain other proteins in the cells, causing pancreatic cancer cells to grow and spread abnormally quickly in the body. Audrey and Cecilia assisted with laboratory investigations of the abilities of two drugs (called M344 and RGFP966) to inhibit histone deacetylases in pancreatic cancer cells. They performed experiments to optimize ways to analyze the proliferation of pancreatic cancer cells and to test the influence of these drugs on the migration of pancreatic cancer cells. The findings that the histone deacetylase inhibitors M344 and RGFP966 can decrease the ability of pancreatic cancer cells to grow and move indicates that they have potential for future clinical testing in pancreatic cancer.
“Research” By Mariah Abney

What is research?''
Well, it depends on who you ask.
A vast majority may know the answer fast
And others will wish to be picked on last
However, it’s not always about answering the question
Read, listen, and learn
Zero in and maybe even do a 180 turn
There is no one “right” way
So, hear your call, follow your path, and own your own way
In your vision find your ambition
Give it your attention with lots of dedication
For then others will see your pure intention
From the repetition that’s been your growing petition
That my friend is where you’ll find your “definition”
It resides naturally within you
Listen carefully to that inner voice
Let focus be your choice
And then you’ll find your voice
So, rejoice!
You are the change, you have the power, and you hold the knowledge
Your thoughts go up like the smoke you use to evoke
The question that’s to be awake.

Program Evaluation: Welcome Kiana Borengasser. Kamealohaokekaiakea, LLC

Kiana Borengasser is a native Hawaiian, born and raised on the island of Oahu. She is a mother, a researcher, an athlete and a first generation college graduate. She received her BS in Disease and Human Health from Peru State College where she gained mentored research experience studying gregarines, an obligate gut parasite of insects. Upon graduating from Peru State she developed extensive experience working in biomedical research, profiling immune subsets in pre-onset and recent onset diabetes patients. Her graduate studies in public health, specializing in Health Promotion, give her a holistic perspective of medicine and balance her understanding of lab sciences with social services. Kiana was taught as a child to preserve the island ecosystem, values and culture which connect us to our ancestors and all generations to follow. Growing up in Hawaii she was rarely asked what she wanted to be when she grew up but rather what she was going to do to give back to her community. As a young child she learned a Hawaiian proverb, "Ua ola loko i ke aloha, He’e ali’i ka la‘i, he ha ku‘ulani na‘a which means, life is an echo, what you give out comes back. By supporting the evaluation of community-based initiatives, she hopes to make a positive impact and create innovative solutions to health problems like cancer, obesity, diabetes and pathogenic pandemics. She believes that building strong relationships with one another and using our talents combined can prevent disease and promote health and wellness in any community. In her current role as a program evaluator for the National Cancer Institute-funded Youth Enjoy Science (YES!) program, Kiana collaborates with the YES! team and the American Indian population to contribute to continuous quality improvement in YES! curriculum, outreach and research education.
Upcoming Events

YES! Middle School IResearch Club Field Trip
University of Nebraska Medical Center & Online
September 21, 2021  9am-1pm

Inaugural Nebraska Tribal STEM Career Fair
Marriott Riverfront Hotel in South Sioux City
October 8, 2021  1pm-3pm

International Cancer Education Conference
Online Link to more info: https://2021.attendicec.org/
October 12-16, 2021

YES! Middle School IResearch Club Field Trip
Metro Community College & Online
January 21, 2022  9am-1pm

YES! Teacher Workshop: Indigenous Pedagogy, Promising Practices
Online
TBA 2022

Announcements

• Dr. Joyce Solheim announced Associate Director for training and education at the Fred & Pamela Buffett Cancer Center
• Dr. Regina Idoate announced a recipient of UNMC’s FY 2020-21 New Investigator Award
• Liliana Bronner announced as the Director of medical pathways at the College of Medicine at UNMC
• Dr. Siobhan Wescott announced as the inaugural holder of the Dr. Susan and Susette (Inshata Theumba) LaFlesche Professorship in the College of Public Health at UNMC
• Kiana Borengasser, Kamealoahaokeaiakea, LLC. Announced as the YES program evaluator
• Omaha AISES Professional Chapter announced 2020 AISES Professional Chapter of the Year