Incorporating a Public Health Curriculum into a Youth Health Science Pipeline Program

Jacob Barel1; Chelsea Kolff1; Mabel Colón2; Maria Molina3; MS; Marina Catallozzi1,2,3, MD, MSCE
1Heilbrunn Department of Population & Family Health, Mailman School of Public Health, 2Ambulatory Care Network, NewYork-Presbyterian Hospital, 3Department of Pediatrics, Columbia University College of Physicians & Surgeons

1. Background

The Lang Youth Medical Program (Lang Youth) at NewYork-Presbyterian Hospital (NYP) is a six-year science enrichment and mentoring program. Lang Youth Scholars are 7th through 12th graders who attend program during the academic year and the summer.

The mission of this pipeline program is to inspire young people from the Washington Heights and Inwood communities to develop the intellectual habits of mind and life skills to achieve academic success and be the future leaders in science and healthcare.

Specifically, Lang Youth’s goals are to:
- Cultivate an interest in science and healthcare
- Interrupt the cycle of inter-generational poverty
- Instill a sense of personal commitment to community service
- Ensure that all Scholars matriculate through high school, receive college advisement, & gain admittance to a four-year college

2. Context

- The Lang Youth curriculum previously focused on exposing its Scholars to the health sciences and a mini medical school curriculum.
- Now in its 12th year, the program has recognized that as ambassadors to their community, Lang Youth Scholars need a solid understanding of public health to address local and global issues.
- Lang Youth partnered with two Mailman School of Public Health graduates to develop a curriculum, through a practicum experience to develop and implement a two-year public health curriculum.

3. Methods

- Review of Curriculum: The Mailman students reviewed the existing Lang curriculum as well as other public health curricula for students of similar ages.
- Staff Input: Lang Youth staff provided critical input regarding previous lessons and successful pedagogical approaches.
- Needs Assessment: Scholars were surveyed regarding their understanding of public health, interest in public health topics, and preferences on instructional methods. Scholar data informed the curriculum development and integrated the Scholars’ voices.
- Local Professionals: The Mailman students consulted with experts at Mailman with experience in curriculum development, public health pipeline programs and community-based initiatives.
- Model: The Understanding by Design (McTighe and Wiggins) model was used to guide lesson and curriculum development.
- Ongoing Evaluation: A curriculum evaluation was developed to collect ongoing feedback from the scholars, the advisors delivering the curriculum, and program volunteers throughout the year.

Mailman students developed a two-year curriculum with a focus on domestic issues in 10th grade and a global perspective in 11th grade.

10th Grade Curriculum: How do individuals and their surroundings interact to influence an individual’s health?
- Health and public health
- Social determinants
- Ecological model
- Health seeking behaviors
- Mental health and wellness
- Genetics and inheritance
- Teen dating violence prevention
- Gender and sexuality
- Bullying
- Homelessness and youth advocacy activity
- Obesity and food availability
- Insurance and access to care
- Physical structures and built environment
- Air pollution and asthma
- Manufactured items and waste
- Food systems
- Smoking
- Regulation

11th Grade Curriculum: How do we work globally to influence healthier populations and healthier environments?
- Introduction to global issues
- Global health landscape
- Population growth
- Tools of global public health
- Child survival
- The first five years
- Nutrition
- Education
- Fluoride and dental health
- Clean water
- Advocacy activity
- Infectious disease: malaria, epidemiology, and population
- Microbiome and its protective effect
- HIV epidemic and human rights
- Chronic disease
- Emergency response: forced migration
- Service program: US Peace Corps
- Climate change and health
- Environmental impact: Bangladesh
- Lang as a public health program
- Its evaluation and impact

4. Summary & Discussion

- Lang Youth’s public health curriculum builds on the program’s existing model by highlighting the role of youth as community ambassadors, understanding local public health issues and encouraging Scholar involvement in their community.
- This project forged vital connections with public health students and faculty, NYP community-based programs, and other youth programs nationally.
- The needs assessment helped keep the Scholars’ voices central to curriculum development.
- Implementation includes an ongoing evaluation process to ensure that the curriculum stays dynamic and reflects the interest of the youth it serves.

Acknowledgments: Robert Fukkova, Monica Hidage, Leah Hooper, Sharon Kim, Cassie Landers, Jose Luechinger, Andy Niets, and the Stanford Public Health Advocacy Curriculum

NewYork-Presbyterian Ambulatory Care Network

10th Grade Curriculum: How do individuals and their surroundings interact to influence an individual’s health?

- Health and public health
- Social determinants
- Ecological model
- Health seeking behaviors
- Mental health and wellness
- Genetics and inheritance
- Teen dating violence prevention
- Gender and sexuality
- Bullying
- Homelessness and youth advocacy activity
- Obesity and food availability
- Insurance and access to care
- Physical structures and built environment
- Air pollution and asthma
- Manufactured items and waste
- Food systems
- Smoking
- Regulation

11th Grade Curriculum: How do we work globally to influence healthier populations and healthier environments?

- Introduction to global issues
- Global health landscape
- Population growth
- Tools of global public health
- Child survival
- The first five years
- Nutrition
- Education
- Fluoride and dental health
- Clean water
- Advocacy activity
- Infectious disease: malaria, epidemiology, and population
- Microbiome and its protective effect
- HIV epidemic and human rights
- Chronic disease
- Emergency response: forced migration
- Service program: US Peace Corps
- Climate change and health
- Environmental impact: Bangladesh
- Lang as a public health program
- Its evaluation and impact

NewYork-Presbyterian Ambulatory Care Network

Incorporating a Public Health Curriculum into a Youth Health Science Pipeline Program

Jacob Barel1; Chelsea Kolff1; Mabel Colón2; Maria Molina3; MS; Marina Catallozzi1,2,3, MD, MSCE
1Heilbrunn Department of Population & Family Health, Mailman School of Public Health, 2Ambulatory Care Network, NewYork-Presbyterian Hospital, 3Department of Pediatrics, Columbia University College of Physicians & Surgeons

Needs Assessment

Public Health Knowledge
- Gap Defined: Scholars had difficulty defining public health
- Public Health Interest Articulated: 77% mentioned community in their public health definition
- 97% expressed an understanding of the relevance of public health to their life
- 100% expressed an understanding of the relevance of public health to their life

Key Public Health Topics Identified:
- TOP FIVE: Sexual and reproductive health
- Nutrition and obesity
- Epidemiology
- Community health
- HIV/AIDS

Learning Modalities
- Scholars were interested in learning through a variety of modalities.
- Preferred Learning Methods:
  - 90% Videos
  - 84% Hands-on activities
  - 74% PowerPoint presentations
  - 71% Trips into the community

Reflections on prior Lang Youth lessons underscored the success of these approaches.

n = 31 (10th, 11th, and 12th graders)