



PCOM OPPORTUNITIES ACADEMY: A **STEM+M- HEALTH PROFESSIONS PIPELINE DEVELOPMENT PROGRAM**

**30th Annual Conference of the Hispanic Association of Colleges
& Universities (HACU) in San Antonio, TX**

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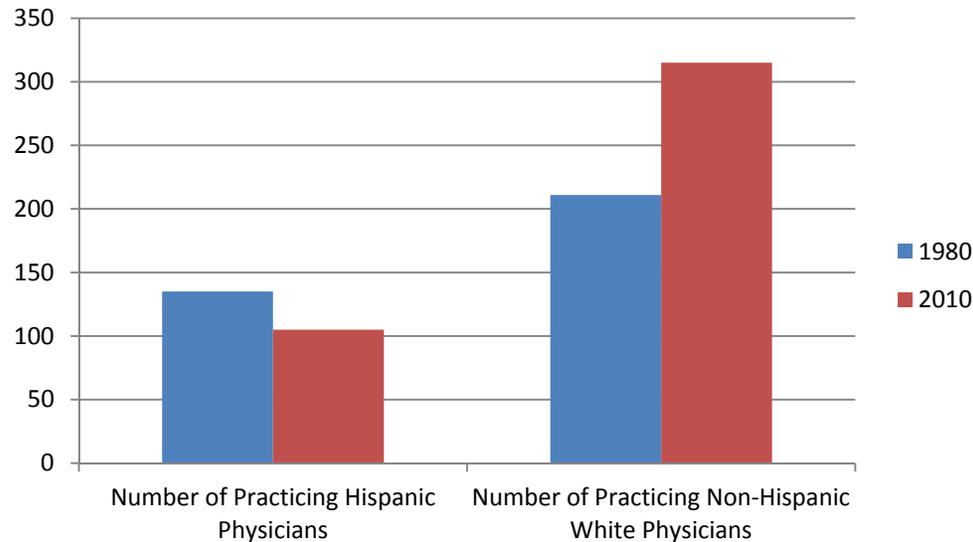
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Development of PCOM STEM + M Health Professions Pipeline Program

- Need for more Hispanic/Latino professionals in healthcare is critical.
- A new U.S. Census Bureau population projections indicate that the Hispanic population is expected to double by 2050 mandating that as a nation we continue to increase the number of Hispanic leaders and role models in healthcare.
- African-Americans and Latinos are more willing to practice medicine in underserved areas
- To address the dearth of Hispanic health practitioners, PCOM is working with two of the city's largest Hispanic-serving—to help raise interest in STEM+M at the high school and undergraduate level

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Even more startling according to the American Medical Association Physician Masterfile, is that only 5 percent of practicing physicians in the U.S. are Hispanic. In 1980, there were 135 Latino physicians for every 100,000 Latinos in the U.S.; by 2010, that figure had dropped to just 105 per 100,000. Meanwhile, the national rate of non-Hispanic white physicians increased from 211 for every 100,000 non-Hispanic whites to 315 per 100,000.





Labor Occupational Outlook

- Employment of healthcare occupations is projected to grow 19 percent from 2014 to 2024
- Healthcare occupations will add more jobs than any other group of occupations. This growth is expected due to an aging population and because Affordable Care Act.
- Science, technology, engineering, and mathematics (STEM) skills are necessary now more than ever to compete in a global economy.
- Improving access to quality STEM education will strengthen the caliber of the U.S. workforce, drive economic growth, and keep the U.S. competitive.
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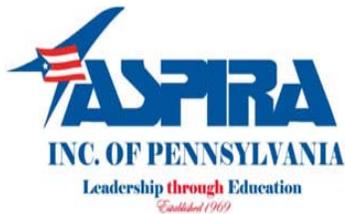


Labor Occupational Outlook

- [A 2016 study](#) conducted for the Association of American Medical Colleges (AAMC) predicts that by the year 2025 the United States will face a shortage of almost 95,000 physicians.
- These shortages pose a real risk to patients.
- These workforce shortages are due mainly to the myriad weaknesses of American K-12 education in science and mathematics, which international comparisons of student performance rank as average at best.
- Hispanics, who, although accounted for 18% of the U.S. population in 2015, only earned 9 percent of all certificates and degrees awarded in the STEM fields between 2012 and 2013.



Demographics of our Partner Schools



- Aspira of PA has a student population of nearly 1,800 in grades 9 to 12. The population is 57% Hispanic and 37% African American.
- For 20% of students, English is a second language. Nearly 600 ninth graders have registered this year.
- Esperanza College was founded in 2000, as a fully-accredited, two-year, Associate's degree awarding branch campus of Eastern University.
- Esperanza College is the only Hispanic Serving Institution (HSI) in the state of Pennsylvania.
- The student body is 96.23% is Hispanic; the remaining 3.56% is African-American.
- Esperanza College has a 92.7% retention rate and a 64.1% graduation rate

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PCOM OPPORTUNITIES ACADEMY CURRICULUM

- Each week of the PCOM Opportunities Academy focuses on one of the five great disease categories:
 - ✓ Cardiovascular
 - ✓ Neurological
 - ✓ Kidney Disease/Diabetes
 - ✓ Infectious Disease; and
 - ✓ Cancer
- The lectures were led by PCOM students, faculty, and alumni and special guest lecturers like Dr. Velma Scantlebury—the first African-American female transplant surgeon





My favorite part about coming to PCOM was that the staff was very welcoming & nice!!!

What I liked most about this program was the anatomy lab, taking our blood pressure and getting to practice what I learned.

Favorite thing is learning many new things and looking at what a college would be like. Also making new friends.

Students in the Academy when surveyed indicated their **most memorable experience was seeing their first cadaver**. While the cadaver was, of course, a real person, one student stated, “It didn’t initially feel quite right to call it a person — it can’t breathe, its skin isn’t the right color, and it reeks of preservative fluid.” Another group of students commented, “**Our faces automatically curl in disgust as soon as we enter the room, an automatic reaction to the stench of formaldehyde. It was that initial internal aversion to being near a dead body.**” They were **even more reluctant to hold an enlarged heart** during an exercise that examined the “Anatomy of the Heart.”



PCOM OPPORTUNITIES ACADEMY CURRICULUM

- In addition, students in the Academy had the chance to broaden their horizons through field trips to institutions such as the Franklin Institute and the Mutter Museum; were provided with SAT and ACT preparatory materials; were mentored on topics including dining room etiquette and study skills; and took part in biomedical research.
- Other lectures including Cardiovascular Pathology, Cardiovascular Pharmacology, Neurosurgery, Neurological Physical Exams, Brain Tumor Resection Surgery, Nutrition & Diabetes, Blood Glucose Levels, Introduction to Microbiology, Handwashing, Modes of Transmission for Popular Diseases, Osteopathic Manipulative Medicine, as well as an examination of the Tuskegee Experiment



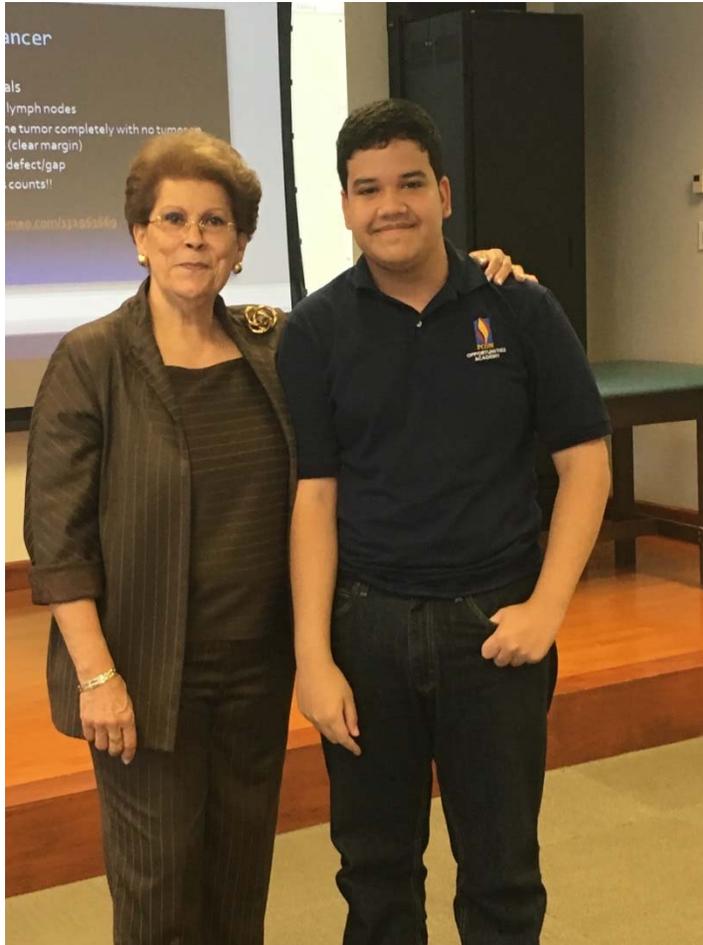
2016 PCOM Opportunities Academy Inaugural Class



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Keynote Graduation Speaker: Dr. Antonia Novello 14th U.S. Surgeon General



As a medical institution, PCOM is in a unique position to create the ultimate case study and best practices for building a pipeline of Latino healthcare professionals said Dr. Antonia Novello, the first woman and first Hispanic to serve as U.S. *Surgeon General* and keynote speaker at the PCOM Opportunities Academy graduation.

Dr. Novello recommends that to bolster the number of medical school applicants, medical schools like PCOM must “get involved in the teaching of science as early as junior high school and continuing such interest throughout high school in pursuing healthcare occupations.”

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Brain Lab at PCOM with Esperanza Students



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Neurosurgery Experience Embedded Within the Clinical & Basic Neuroscience Curriculum



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PCOM's Opportunity Academy: Brain Lab



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Franklin Institute's Creation Station at Esperanza College



Esperanza College is transformed into the
CREATION STATION!



Engineering comes to life in Hunting Park!

Construct a marshmallow tower, float a boat, and see the inner workings of robots!

Saturday, February 27
11:00 am-2:00 pm
Esperanza College
4261 North 5th Street
2nd Floor



*It doesn't matter if you're 1 or 101!
Stop by the Creation Station
and experience the fun of making,
building, and engineering!*

This event is produced by the Hunting Park Community Science Network and The Society of Hispanic Professional Engineers.

A community science network convened by The Franklin Institute



The Hunting Park Community Science Network is a collaboration of APH, APHRI, Inc., Apollo, Edison High School, Esperanza, Inc., Esperanza College, The Franklin Institute, Hunting Park United, Learning in New Context Charter School, the Lankenau Center, Northeast Treatment Centers, and the Philadelphia Center for Arts and Technology.



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Franklin Institute's Science Festival



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ASPIRA of Pennsylvania Schools

Overview and Model





Overview

of ASPIRA of Pennsylvania School Model K-12

- Serves Grades K-12 /Spanish as a Second Language and Dual Language Models
- Multi-language approach and instructional model which promotes bi-literate and bi-cultural academically prepared students
- Serves a student population that has nearly double the state average of special education and English language learner students.
- Supports full staffing for social-emotional, behavioral, and academic intervention needs.



ASPIRA HISTORY

ASPIRA of PA - Founded in 1969, 45 years of successfully operating Pennsylvania-based youth leadership and educational programs

Recognizing the high dropout rates in Philadelphia, ASPIRA of PA moved into direct school management in 1998, and we now run 5 schools and 9 other educational programs. Over 50% of ASPIRA employees are residents and parents in support services to encourage local economic community development

Mission and Goal

We believe that leadership and character development are crucial in producing academically and socially conscious youth who will be leaders in transforming their community.

Our educational model is interdisciplinary, technology-rich & data driven, STEM focused, and provides multiple learning paths to meet the needs of all students

ASPIRA's Goal is to implement a comprehensive **Cradle-to-College**, multi-lingual, educational model that will prepare our students to succeed in the 21st century

Educational Demographics K-12

	Hostos	Pantoja	Stetson**	ASPIRA Cyber	Olney**
Founded	1998-1999	2008-2009	2010-2011	2010-2011	2011-2012
Grades Served	K-8	K-8	5-8	K-12	9-12
Enrollment	455	701	856	302	1726
Low Income Enrollment	365	626	758	284	1125
% Low Income	77.9%	86.3%	96.3%	92.5%	67.2%
Special Education Enrollment	126	181	173	119	453
% Special Education	25.9%	25.6%	20.2%	39.4%	26.2%
LEP Enrollment	76	115	162	29	337
% LEP	16.7%	16.4%	18.9%	14.9%	19.5%
Minority Enrollment	482	704	847	180	1698
% Minority	99.3%	99.5%	98.9%	93%	98.4%
Attendance Rate	94.6%	94.5%	90.9%	75.5%	84.2%





Special Education Program

Highlights of our Services:

Low Incidence:

- Inclusion programming for low incidence above 40% for an average school day.
- Positive School Wide Behavior Supports
- Diversified domestic maintenance planning

High Incidence:

- Comprehensive screening process and early intervention intake processes
- Emotional Support Classrooms
- Adapted Curriculums for Math, English, History, and Science
- Co-teaching model with both a regular education and special education teacher
- ESL 1 Class with Special Education Support

K-8 Gifted:

- A blocked schedule on Wednesdays for pull out services
- Instruction that blends the arts, technology, and literacy
- Project-based learning and civic engagement



English Language Learners

ASPIRA's ELL Program:

- Over 775 ELL students = 20% of ASPIRA's K-12 school population
- Significant academic proficiency increases among our ELL students

Highlights of our ELL Services:

- **Newcomer Program** – for students who are recent immigrants
- **Pull-Out Support** – students who are enrolled less than 3 year
- **Co-Teaching Model** – Co-taught math, science, social studies classes and/or the content area has a bi-lingual teacher.
- **Coordinated ELL/SPED Support** – for our ELLs with disabilities
- **Increased ELL Staff to support our model**
- **K-12 Spanish as a Second language model**



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PCOM Opportunities Academy & ASPIRA Schools

- ASPIRA Central Office staff supported in the recruitment of 30 students in the 9th and 10th grades at ASPIRA Olney Charter High School
- Biology and Algebra 1 teaching staff identified strong candidates and met with students, parents, and families in conjunction with PCOM staff
- 22 freshman and sophomore students from our Hunting Park and Olney neighborhood attended the Opportunities Academy this summer
- 18 of those students are now slated to take Honors/AP Science or Math classes this year



Philadelphia College of Osteopathic Medicine

Opportunities Academy

A STEM+M Health Professions Pipeline Program

Lessons from Startup

April M. W. Young, PhD
Project Evaluator

Hispanic Association of Colleges and Universities

San Antonio, Texas USA

09 October 2016

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WHO ARE THE *OPPORTUNITIES ACADEMY* STUDENTS?

35 Students total: 20 female, 15 male

RACE/ETHNICITY	NUMBER OF STUDENTS	PERCENTAGE OF STUDENTS
Black	12	34.3
White	4	11.4
Native American	4	11.4
Asian	5	14.3
Arab	1	2.9
Other	14	40.0

22 Hispanic/Latino: 15 Puerto Rican, 6 Dominican

22 Bilingual

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WHAT DO THE *OPPORTUNITIES ACADEMY* STUDENTS WANT TO DO?

29 plan to attend college

HIGHEST INTENDED LEVEL OF EDUCATION	NUMBER OF STUDENTS	PERCENTAGE OF STUDENTS
Bachelor's	4	11.4
Master's	7	20.0
Doctoral	8	22.9
Other degree	1	2.9
Undecided	11	31.4

22 considering medical school



WHAT DO THE *OPPORTUNITIES ACADEMY* STUDENTS THINK THEY NEED?

NEED TO STRENGTHEN	NUMBER OF STUDENTS	PERCENTAGE OF STUDENTS
Math	15	42.9
Reading	8	22.9
Writing	12	34.3
Job interviewing	13	37.1
Career networking	7	20.0
Public speaking	14	40.0
Study skills	14	40.0
Judgment	7	20.0
Personal confidence	9	25.7



WHAT WE **KNOW** *OPPORTUNITIES* *ACADEMY* STUDENTS NEED...

S **T** **E** **M** **!**

- Only two students had taken trigonometry. No students had taken statistics, pre-calculus, or calculus.
- Students from low-income families complete college at 1/7th the rate of those from high-income families.
- Only about 30 percent of US 12th-graders interested STEM careers; just over half of those have sufficient math skills to do well in college
- Minority students and those from low-income families have the least access to rigorous college-prep curricula.



LESSONS

- Students are ambitious, but probably not well-prepared
- Under-resourced schools struggle to deliver adequate STEM curricula
- Post-secondary institutions must help with secondary education
- Utilize rigorous “boot camp” models to improve STEM skills
- Do not overlook reading and writing, and “21st century skills”