

The Robert Wood Johnson Foundation and the College Board dedicate this magazine to the many teachers, schools and public health professionals who helped to make the YES Competition a success. We especially salute the exceptional students who participated in YES over the years. Their talent and commitment to improving the public's health have been an inspiration. We look forward to seeing their contributions as they continue to do exceptional work in public health and advance the YES legacy for years to come.

June 2012



# CONTENTS

### **REFLECTIONS ON YES**

Pamela G. Russo, Robert Wood Johnson Foundation	2
Kevin Xu, YES Scholar	12
Diane Tsukamaki, The College Board	22
David Fraser, YES Judge	30

### YES BY YEAR

Scott Bauer: Collaborating on Chronic Disease	6
Katherine Dillon: Passionate about Women's Health	7
Andreea Seicean: Abandoning Law for Health	8
Julienne Yamamoto: Investigating Adolescent Health Challenges	9
Aman Prasad: Getting It Right	14
Maya Wolpert: Passionate About Biomedical Ethics	15
Sarah Phillips: Improving People's Lives through Epidemiology	18
Jennifer Schindler: Nutrition and Obesity Prevention for a Healthier Generation	19
Scott Kobner: Focusing on Disaster Preparedness and Response	20
Emily Barker: Improving Maternal and Child Heath	21
Tiffany Chen: Continuing Influence of YES	24
Aleah Goldin: Unraveling Public Health Mysteries	25
Shoshanna Goldin: A Global Health Perspective	26
Jeffrey Wang: Dancing with Epidemiology	27
Jazmin Branch: Contributing to the YES Legacy	28
Neel Koyawala: Looking through Different Lenses	29
	Katherine Dillon: Passionate about Women's Health Andreea Seicean: Abandoning Law for Health Julienne Yamamoto: Investigating Adolescent Health Challenges Aman Prasad: Getting It Right Maya Wolpert: Passionate About Biomedical Ethics Sarah Phillips: Improving People's Lives through Epidemiology Jennifer Schindler: Nutrition and Obesity Prevention for a Healthier Generation Scott Kobner: Focusing on Disaster Preparedness and Response Emily Barker: Improving Maternal and Child Heath Tiffany Chen: Continuing Influence of YES Aleah Goldin: Unraveling Public Health Mysteries Shoshanna Goldin: A Global Health Perspective Jeffrey Wang: Dancing with Epidemiology Jazmin Branch: Contributing to the YES Legacy

### FROM THE JUDGE'S SEAT

Shiriki K. Kumanyika: Opening Doors	10
Denise Koo: Toward Transformational Change	11
Lorna Thorpe: Manipulating Dynamic Data	16
Deirdra Forte-Wilson: Glimpsing the Future	16
Amrita Sehgal and Leonard Syme: A YES Mentorship Story	17

### YES: INSPIRING AND CONNECTING

Epi Calendar Explores Public Health Milestones	5
Georgia High Schools Welcome YES Scholars	5
/isiting the CDC	11
YES at the White House	13
YES Partners with Science Olympiad	19
YES in the Press	31
Distinguished Speakers	32
The YES Experience: Past, Present, Future	32

# **REFLECTIONS ON YES** BY PAMELA G. RUSSO, M.D., M.P.H.



Senior Program Officer, Robert Wood Johnson Foundation

During the decade prior to the YES Competition, it was increasingly apparent that the leading causes of premature death in the United States were due to behaviors conditioned by the physical and social environments that people were exposed to over their lifetimes. The increasing disparities between different populations were not going to be solved by the healthcare system. To address these challenges, outstanding leaders were needed who could investigate the causes and develop solutions, and bring the perspectives of multiple disciplines to the field of population health. To build the capacity for leadership required attracting brilliant people early in their training to become interested in population health and prevention.

Students who cared about

improving health were largely thinking about pursuing healthcare professions or biomedical research. Students who were considering careers in health, public policy, government or environmental issues were mostly unaware of public health and how they could combine those career tracks. We believed that high school students could bring their intelligence and innovation to tackle research projects using epidemiological methods and that through a competition that selected the top projects, would give epidemiology and public health greater visibility. The goal of YES was to attract "the best and the brightest" high school students to learn about public health and their potential to improve health for hundreds, thousands or millions at a time.

The first key player was Michael McGinnis at the Robert Wood Johnson Foundation. He envisioned something like a Westinghouse Competition for public health. The second key player was David Fraser, who set out to find out why and how high schools might teach epidemiology. Along the way, he found incredible high school teachers and epidemiologists who became part of the program. David was our first national judge and remained as a judge and guiding light throughout the YES Competition. The third key player was the College Board and Diane Tsukamaki, whose experience with high school research competitions, wise judgment on delicate issues, and passion for seeing students get the epidemiology bug whether or not they won the top prizes made the YES Competition sing.

Then came the judges. I started by approaching academics I knew from my own education and training, such as Len Syme and Lee Riley at UC Berkeley. The next layer came from the Health and Society Scholars program at RWJF, including Lisa Berkman, Bruce Link and Shiriki Kumanyika. A contact with CDC brought Denise Koo, Ruth Jiles, Wayne Giles, Jose Cordero and Ralph Cordell. Through the practice world came state epidemiologists like Gianfranco Pezzino and Gil Chavez. Others came on board through various channels, including Ken Moritsugu, Lorna Thorpe, Nicki Lurie, Steven Teutsch, Jonathan Samet, Richard Jackson, Robin Taylor Wilson, Barbara DeBuono, Ian Rockett and Howard Frumkin. We also found outstanding high school teachers like Chris Olsen. After our national judges experienced the YES Competition once, they were hooked and proudly called themselves "lifers." Often there were no new openings for national judges, because earlier judges held on so preciously to

THE YES EXPERIENCE: PAST, PRESENT, FUTURE

returning each year.

And then there were the preliminary judges. They were critical for reviewing all the applications and narrowing them down to the top 120, including the 60 Regional Finalists. We worked with the Association of Schools of Public Health and the CDC to recruit their most promising interns, epi graduate students and young faculty. Almost all asked, "why wasn't this program around when I was in high school?" They, like the national judges, got reenergized and inspired and became another group of "lifers."

Speakers were another set of key players. We pulled on our networks to find the most outstanding experts to persuade our students of the wonders of epidemiology and a career in public health. Many were so inspired by the students that they joined the program as judges.

Looking back at the first competition, I remember the buzz of intellectual energy that emanated from the students. It was electric. As we began to hear their presentations and talk to them, we discovered that they were scary smart. Their projects were ingenious, original and out of the box. They gave unbelievably poised presentations. And their responses during the Q&A went far beyond what most of the judges and I thought high school students were capable

of. All of the professionals concurred: We were not this smart in high school and would not have made it in our careers against this competition!

In that first year and each successive competition, students tackled health problems they saw around them in their own schools and communities. Their projects showed them that they could make a difference and solve important health issues that touched them. They met judges who advocated for them to learn more about epidemiology and the kind of exciting, fulfilling and intellectually challenging careers they could pursue in the field. They met other outstanding students like themselves from around the country and connected.

So many highlights stand out. I remember meeting a junior from Idaho named Aman Prasad. Energized and inspired, he looked me in the eyes and said earnestly, "I am going to come back next year and win." And he did – after taking an epi course at his local college and connecting with the Idaho state department of health.

I remember Will Slack from Atlanta presenting his work on social networks in his high school and the association with clusters of smoking, drinking or drug abuse. When asked what social network program he had used, he explained that he could not afford one so he built



REFLECTIONS

one himself, filling in circles and drawing lines between the nodes on his computer.

A few years later came Katie Everett, who tackled a public health issue that was generating a huge amount of media and public attention, the new vaccine to prevent human papilloma virus infection. Katie read a sociology article about the use of social network modeling in adolescent health, and made a quantum leap - thinking that she could use a social network model to determine how HPV vaccine could optimally be targeted to reduce spread of the infection. Katie taught herself computer programming, created a mathematical model, found that the effectiveness of the HPV vaccine to prevent infections among adolescents was significantly greater than the previous research, based on adult sexual networks, had shown.

There was Josh Pepper from the Fresno area who got interested in asthma patterns in different schools. He obtained records from school nurses, figured out where students' zip codes were, tested the air and soil all around Fresno, and learned to do GIS so he could do spatial modeling and analysis. Truly a multidisciplinary study!

There was Carl Nist-Lund who was concerned about dengue fever in Florida and did real shoe-leather epidemiology, walking around his community and identifying all varieties of containers and places where water collected – thus forming mosquito breeding areas – and that eliminating these could help prevent breeding. The stories go on and on.

Many of the students from these eight cohorts are going to re-energize public health to become leaders of the future and blaze new paths. They are going to infect other students and their teachers with their enthusiasm and brilliance. They will be ambassadors. Those who don't pursue public health are going to be skeptics in a good way. They will ask questions, probe research designs and think about alternative explanations. All of them will understand the factors that affect health in a broader way, not simply as what happens inside the doctor's office.

In closing, my call to action to the YES Scholars is this: Never fear to question. Use your minds. Keep your innovation, ingenuity and fearless pursuit of knowledge. Keep the principles you learned through the YES experience in mind both in your work and in your own health and the health of those you love. Remember that your intelligence is a gift. You should use it to improve the health and well-being of all.

SCHOLARSHIP DOLLARS AWARDED ANNUALLY IN THE YES COMPETITION

# Epi Calendar Explores Public Health Milestones

In the fall of 2010, YES introduced an exciting new website, www.EpiCalendar.com. This interactive resource for students, teachers and the public explored many of the most important events, people and institutions that have shaped the course of public health from the 14th century to the present. From the first cases of bubonic plague to today's obesity epidemic, the Epi Calendar offered 12 months of milestones in the investigation, control and prevention of public health threats.

Examples of YES Scholar projects related to the public health topics in the Epi Calendar were featured throughout the site. Visitors also had the option of importing the calendar to Microsoft Outlook or a mobile device through Google Calendar.

References to YES epidemiology teaching units were embedded throughout the Epi Calendar. These innovative curricula were designed for high school classrooms across many subject areas to help teachers incorporate epidemiological methods of analysis into existing curricula. A poster version of the calendar suitable for posting in classrooms was mailed to high school teachers across the country.

Education World posted an enthusiastic review of the Epi Calendar in 2011, noting that "as a tool to spark discussion, Epi Calendar excels." The review also noted that

the Epi Calendar "could be a great addition to a health, public health or science

curriculum."

About Epi Calen<u>dar</u>

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CALENDAR

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Young Epidemiology Scholars **27**<sub>2010</sub> Barefoot running study published

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# Georgia High Schools Welcome YES Scholars

Epidemiology took center stage in Atlanta when YES Scholars Michelle Krakowiak and Scott Kobner visited South Cobb and Dunwoody High Schools to share their passion for public health with hundreds of local students. The visits in October 2010 coincided with Georgia becoming the first U.S. state to adopt state standards for high school epidemiology, approving the course for students to take to fulfill state science requirements.

The Scholars, who both plan to pursue careers in public health, talked to large student assemblies about their YES research, current academic work, and the wide range of career options available in public health. "I want students to understand that research is a good career to pursue," Michelle told the *Atlanta Journal-Constitution*, which covered the events. The presentation at South Cobb High School was a homecoming for Michelle, a South Cobb graduate and Ph.D. student in biological sciences at Vanderbilt University. She described some of the many academic disciplines – from mathematics to anthropology – that can lead to a public health career.

A biology major at Emory University, Scott spoke passionately about his commitment to public health, telling the Atlanta students: "The best part of YES is that it empowers you to affect change in your own community." During question and answer sessions, high school attendees asked about everything from what it takes to be an epidemiologist to practical questions on how to get started on the seemingly daunting task of preparing a research paper.

### L E A D N ATI O N A L J U D G E S

**Dr. David Fraser** Freelance Epidemiologist, Adjunct Professor of Epidemiology, University of Pennsylvania HUT THUỐC LA

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**JI PHU TRÁCH** 

**Dr. Lisa Berkman** Thomas D. Cabot Professor of Public Policy and of Epidemiology, Harvard School of Public Health

### FIRST PLACE PROJECTS

### **Benjamin Eidelson**

Akiba Hebrew Academy, Merion Station, PA, "An Epidemiologic Study of Smallpox Preparedness and Response Policy"

### **Robert Levine**

Adlai E. Stevenson High School, Lincolnshire, IL, "Artificial Tanning by Suburban Teenagers: A Survey on the Prevalence of and Motivations for Indoor Tanning in the Midwest"

# COLLABORATING ON CHRONIC DISEASE SCOTT BAUER, 2003-04 YES REGIONAL FINALIST

Menlo Park, California, "Risk Factors Associated with Asthma in a Multiethnic High School"

Competing in the very first YES Competition had a lasting impact on Scott Bauer. "YES provided me with an early and meaningful experience in epidemiology and gave me the confidence to pursue my research interests at a younger age."

Scott's interest in public health has only intensified since he competed in YES. A first-year medical student at the University of California, San Francisco, he currently works in the areas of prostate cancer, genetics and nutritional epidemiology. He is particularly interested in defining what constitutes a healthy diet in a simple and clear public health message, as well as helping patients make meaningful lifestyle changes.

Scott has co-authored six publications to date, including two as first author. He is excited about upcoming collaborations with researchers at UCSF and the Harvard School of Public Health and now hopes to expand his work beyond U.S. borders. Having spent the summer of 2011 studying modifiable risk factors for stroke in Vietnam, he is now looking for collaborators to investigate the rising prevalence of chronic disease in developing countries.

# PASSIONATE ABOUT WOMEN'S HEALTH KATHERINE DILLON, 2003-04 YES NATIONAL FINALIST

Philadelphia, Pennsylvania, "Evaluation of Possible Elevated Cancer Rates in the Pottstown, Pennsylvania Area"

A third-year student at the University of Pennsylvania School of Medicine, Katherine Dillon is passionate about women's health. Her current research focuses on measuring the impact of cancer therapies on ovaries and the future fertility of young female cancer patients. Katherine is also working with ectopic pregnancy detection and characterization of hCG curves.

Katherine is completing a Doris Duke Clinical Research Fellowship and will graduate with an M.D. and a Master of Bioethics in 2013. Before embarking on an Ob/ Gyn residency, she will spend time in Botswana doing clinical work and research. She is also closely following the debates about H5N1 research and biosecurity. "This is an interesting intersection of public health and bioethics." In the future, she looks forward to working as a physician at an academic institution, splitting her time between seeing patients and conducting clinical research.

"The YES experience set me on a

path to be more mindful and aware of the impact that public health has, and as a result, it has expanded my career goals to include conducting clinical research."

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# COME PREPARED TO WIN. LEAVE PREPARED TO CHANGE THE WORLD.

Robert Levine (2003-04 Competition)

### L E A D N A T I O N A L J U D G E S

### **Dr. David Fraser**

Freelance Epidemiologist, Adjunct Professor of Epidemiology, University of Pennsylvania

### **Dr. Jonathan Samet**

Professor and Chairman, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health

### FIRST PLACE PROJECTS

### **Jessica Cohen**

Roslyn High School, Roslyn Heights, NY, "The Impact of Condom Education on High School Students"

### **Andreea Seicean**

Bay High School, Bay Village, OH, "A Significant Association Between Short Sleeping Hours and Teens Overweight/Obesity: Results from Bay High School"

# ABANDONING LAW FOR HEALTH ANDREEA SEICEAN, 2004-05 YES NATIONAL FINALIST

Cleveland, Ohio, "A Significant Association between Short Sleeping Hours and Teens Overweight/Obesity: Results from Bay High School"

YES completely changed Andreea Seicean's understanding of medical research and its real world applications. "YES helped open my eyes to the great importance, diversity and necessity of public health and epidemiological research; and is the reason why I chose to abandon my initial intent of pursuing a career in law." Instead, Andreea completed a bachelor's and master's degree in Public Health at Case Western Reserve University. She is currently enrolled in an M.D./Ph.D. dual degree program in Health Services Research at Case Western Reserve School of Medicine.

Andreea's primary areas of interest are outcomes, comparative effectiveness research and quality improvement. In her Ph.D. dissertation she applied these concepts to neurological surgery. Since participating in YES, she has completed over 30 abstracts and co-authored 13 peerreviewed articles. In 2012, she received the Medical Student Abstract Award from the American Academy of Neurological Surgery.

After completing her residency training in neurosurgery, Andreea sees herself dividing her time equally between operating and conducting research at a major academic center. She looks forward to expanding her mentorship activities, which have included mentoring 2010-11 YES Regional Finalist Selena Pasadyn. A strong believer in collaboration, Andreea is "happy to help any YES alum with ongoing and future projects pertinent to my training: public health, biostatistics and a range of health services research topics ranging from study design to outcomes research."

# NEVER BEFORE HAVE I BEEN TAKEN SO SERIOUSLY FOR MY RESEARCH.

Louise Clemens (2004-05 Competition)

### INVESTIGATING ADOLESCENT HEALTH CHALLENGES JULIENNE YAMAMOTO, 2004-05 YES REGIONAL FINALIST

Honolulu, Hawaii, "Adolescent Ordering Behavior at Restaurants"

Julienne Yamamoto has continued to focus on adolescent health challenges since competing in YES with a project on adolescent behavior in restaurants. She is especially proud of her work with homeless adolescents at Youth Outreach, a Waikiki center for homeless and runaway youth. In addition to volunteering at the Center, she completed a study on the association between primary pediatric care and participation in risky behaviors. "The results reinforce the importance of a medical home for adolescents."

Julienne completed an M.P.H. in Epidemiology at Boston University's Department of Graduate Medical Sciences. She returned to her native Hawaii for her thesis research at Kapiolani Medical Center and the University of Hawaii Cancer Center, where she is working on implementing "a physical activity and nutrition protocol into the electronic medical record of adolescent survivors of pediatric cancers in a long-term follow-up clinic." Her other public health interests include childhood obesity and its effects in adulthood. Julienne will attend medical school at the University of Hawaii in the fall of 2012.



TOTAL NUMBER OF STUDENTS WHO PARTICIPATED IN THE YES COMPETITION



# OPENING DOORS SHIRIKI K. KUMANYIKA PH.D., M.S.W., M.P.H.

Professor of Epidemiology, Department of Biostatistics and Epidemiology and Department of Pediatrics, Associate Dean for Health Promotion and Disease Prevention, University of Pennsylvania School of Medicine

As a YES Competition judge, Shiriki Kumanyika often found herself smiling from ear to ear when she saw the results of exposing young people to epidemiology at an early stage of their education. "Epidemiology came to life at the competitions, often in very sophisticated projects that tackled important questions."

Dr. Kumanyika is currently engaged in the obesity epidemic. Her group is working on a study designed to empower black American youth to engage in counter-marketing to combat the disproportionate marketing of unhealthy foods and beverages to black communities and black teens in particular. The study uses a combination of social media and communitylevel youth social media. "This project addresses one of the key drivers of the obesity epidemic and the higher risks of obesity in the black population."

She is excited to see signs of progress, in the U.S. and globally, in slowing the increases in obesity prevalence. "This is an epidemiologist's dream. It means that there are clues out there to factors that can have an impact. If we can find them we have the potential to get the epidemic under control and then reverse it."

Looking toward the future, Dr. Kumanyika sees an increasing reliance on multisectoral collaborations to achieve public health goals. "Public health professionals will need to know how to work effectively with people who speak different professional languages and have missions or goals that are not explicitly health oriented, but which affect health, such as transportation, economics, housing, urban planning, crime prevention, marketing and others."

Dr. Kumanyika extols the benefits of epidemiological study. "The greatest reward you will find in epidemiology and public health is the incredible satisfaction and influence you can derive from the ability to think systematically about a range of societal problems. This will open many, many doors to making important contributions to society."

PROBABLY THE MOST IMPORTANT EDUCATIONAL PROGRAM IN PUBLIC HEALTH AND EPIDEMIOLOGY I HAVE COME ACROSS IN THE LAST 25 YEARS.

Dr. Lee Riley, University of California, Berkeley

THE YES EXPERIENCE: PAST, PRESENT, FUTURE

# TOWARD TRANSFORMATIONAL CHANGE DENISE KOO, M.D., M.P.H.

Director, Scientific Education and Professional Development Program Office, Centers for Disease Control and Prevention

Denise Koo looks back fondly on her years as a YES Competition judge. "I loved meeting impressive young people who were already so capable in the field at such a young age. It gives one hope for the future!"

Dr. Koo encourages YES Scholars planning their careers to find their own flavor of epidemiology. "Are you interested in academic epidemiology in a university setting with its intellectual rewards? Are you interested in applied epidemiology with the challenges and rewards of practical applications? Maybe a medical setting or governmental public health? These are only a few of the possible settings for a career in public health."

In her own work, Dr. Koo is excited about the convergence of medicine and public health fields.

Her current efforts at the CDC are focused on linking public health and health care systems toward one integrated system of health. "The health care system needs to partner with public health and address the underlying causes of illness and prevent health problems from happening, not just treat illness after it occurs."

Dr. Koo sees a fascinating change coming to the field with the growing use of information technology in public health. "Epidemiologists will need to be equipped to leverage technologic advances to make sense of data for public health purposes. It's a transformational change in which young folks in particular will be essential."

Dr. Denise Koo consults with fellow judge Dr. Diane Marie St. George

# Visiting the CDC

Visits to the Centers for Disease Control and Prevention in Atlanta were a special part of the YES experience for Scholars from several competition years. Highlights included visiting the Global Health Odyssey Museum exhibit on the history of the CDC, sitting in on an Epidemic Intelligence Service seminar, and touring the Emergency Operations Center, the high-tech command center for coordinating responses to domestic and international public health threats.

Scholars also met distinquished CDC staff, including former CDC Director Dr. David Sencer and Dr. Stephen Thacker, CDC Deputy Director and Director of the Office of Surveillance, Epidemiology and Laboratory Services. No visit to the CDC was complete without some Scholars taking advantage of the chance to try on hazmat suits. But perhaps the biggest highlight of all was the opportunity for Scholars to present their YES research to CDC professionals. The CDC's Denise Koo, Director, Scientific Education and Professional Development Program Office, and Ralph Cordell, Epidemiologist, were indispensable in making these special visits possible.



The YES program has been one of the most inspiring experiences in my life. I was a two-time Regional Finalist and conducted two epidemiological studies for YES. The first, in 2009, examined psychosocial correlates of breast cancer treatment disparities. My follow-up project, in 2010, focused on behavioral, economic, and psychosocial correlates of low mammography adherence among Brooklyn's public housing project residents. The YES program's impact on me has been lasting. I am an incoming junior at Columbia University studying sociology with a premedical concentration and a long-term goal of becoming a social epidemiologist.

My YES experiences gave me a special understanding of health disparities and helped me realize a passion for public health research and fieldwork. From my YES experiences, I learned first-hand that the biggest public health problems and humanitarian challenges of the future require increasingly interdisciplinary solutions. It is not enough to simply study the factors affecting healthcare in a particular population because health is much more than just healthcare. The YES

# **REFLECTIONS ON YES** BY KEVIN XU, 2008-09 AND 2009-10 YES REGIONAL FINALIST

Competition helped me realize that. In order to truly understand "health," all factors that provide humans with the conditions that allow them to have control over their lives need to be considered. These factors run the gamut from the biomedical, economic and scientific to the anthropological, sociological and historical. What is health then?

I believe health is a matter of agency; it is health that provides the conditions that enable humankind to thrive. Part of what makes epidemiological inquiry such a powerful and amazing tool is that it enables us to study not only healthcare but also the conditions that are conducive to human health. This is part of why I find epidemiology such a stimulating and important field of study.

The YES program made me aware of a need to catalyze student discourse on public health research. Since arriving at Columbia, I have spearheaded the launch, development and growth of The Journal of Global Health (JGH). As Editor-in-Chief, I recently co-founded a podcast called What is Global Health? (WiGH?), which explores the philosophical underbelly of the newest developments in public health and science research. By bringing together the voices of student researchers, activists, and prominent scientists representing the humanities, social

sciences, and natural sciences, we hope to synthesize crosscultural and cross-curricular solutions to major public health and scientific problems.

Undergraduates at Columbia and nationwide have been enormously supportive of JGH and WiGH?. In little over a year, JGH has become the largest academic publication at Columbia, with over 50 undergraduate editors serving on its publication staff. Subscribers, authors and submissions represent over 70 institutions in 15 countries spanning five continents. I think all of this is a testament to the popularity of public health and a growing sense of recognition of epidemiology as an undergraduate mainstay. The YES Competition undoubtedly played a huge part in making this happen.

The JGH team at Columbia is presently working on a YES legacy podcast that features Harvey Fineberg, M.D., Ph.D., M.P.P., President, Institute of Medicine, and J. Michael McGinnis, M.D., M.P.H., M.P.P., Senior Fellow, Institute of Medicine, both of whom spoke at the YES finals in 2009. One particular moment in Dr. Fineberg's interview with WiGH? was very memorable. Regarding the importance of epidemiology as a mainstay for undergraduates and high school students, Dr. Fineberg says: "One of the big challenges to our country is that many people do not

understand the principles of probability, uncertainty, risk, assessment of the evidence... all of these principles, they are life skills, not just professional skills...it's part of what it takes to be a good citizen, to understand the role of citizens in shaping choice in our communities, in our states, in our nation, and even for the world."

As Dr. Fineberg suggests, epidemiology provides people with the tools for thinking about risk, and it helps us better understand how and why things are the way they are. It's more than just an academic discipline or a form of scientific inquiry. Epidemiological inquiry embodies life skills that enable us to be healthy and have agency. The YES Competition introduced these skills to millions of young Americans.

This past spring, I was deeply disappointed when I found out about the closure of the YES program. The upcoming generation of high school students will not have the same opportunities that we had. However, there is a solution to this problem and the burden lies on the pool of YES alumni. Since the YES program's inception, 4,955 students have submitted projects to the YES Competition with nearly 1,000 students winning \$3.5+ million in scholarships. I feel strongly that as YES alumni, we should and can take action to fill the niche that has been occupied by the YES Competition.

The legacy and future of the YES program lies in the hands of YES alumni. It does not lie in those of the College Board or Robert Wood Johnson Foundation. Given what the YES Competition has offered to us, now is the time for us to take the initiative to reciprocate. It is our responsibility and obligation.

# WINNING ISN'T EVERYTHING. JUST BEING WITH 59 OTHER MOTIVATED, BRIGHT AND ENTHUSIASTIC STUDENTS IS ENOUGH.

Catherine Lu (2009-10 Competition)

# YES at the White House

YES Scholars had the opportunity to meet President Barack Obama at the White House on two separate occasions. In October 2010, Shoshanna Goldin and Jeffrey Wang (2009-10) attended the first White House Science Fair. Manasa Bhatta (2010-11) attended and displayed her research at the second in February 2012.

The events honored winners of the nation's most prestigious science competitions, including YES, Science Olympiad and the Siemens Competition in Math, Science & Technology. Students had the opportunity to meet the President and talk about their projects. President Obama congratulated his guests on their diligence, desire to tackle hard problems, and drive to invent and discover.



### L E A D N A T I O N A L J U D G E S

**Dr. David Fraser** Freelance Epidemiologist, Adjunct Professor of Epidemiology, University of Pennsylvania

**Dr. Lisa Berkman** Thomas D. Cabot Professor of Public Policy and of Epidemiology, Harvard School of Public Health

### FIRST PLACE PROJECTS

### Natalia Nazarewicz

Oak Ridge High School, Oak Ridge, TN, "Deliberate Self-Harm Among Adolescents: Prevalence, Risk Factors, and Treatment Options"

### **Aman Prasad**

Century High School, Pocatello, ID, "Physical Activity and Mood in Adolescents"



# **GETTING IT RIGHT** AMAN PRASAD, 2005-06 YES NATIONAL FINALIST, 2004-05 YES REGIONAL FINALIST

Pocatello, Idaho, "Physical Activity and Mood in Adolescents"

Two years into an M.D./Ph.D. program at the University of Wisconsin–Madison, Aman Prasad continues to be awed by "the sheer amount of information to know about the human body." As he transitions out of medical school to work on his Ph.D., he looks forward to a grand adventure "with all the highs and lows of research I've come to expect. After all, nature does not reveal its secrets easily."

Aman's passion for his chosen field is fueled by what he sees around him. "I'm appalled at the disparity in access to healthcare services in this country. We deny care to people along very specific economic and racial boundaries. It's not right. It is certainly not fair. I have hope that my generation of physicians can get this right, and I want to be a part of that process."

YES helped shape Aman's identity as a scientist. "The YES experience gave me the confidence and skills to do research. But YES also showed me that what we do in science matters to people in a deeply personal way – from a mom who is ill with breast cancer to a teenager with depression."

A skilled chef, Aman has enjoyed living in the heart of American dairyland. He promises to introduce any YES Scholar who visits him to "fried cheese curds, bratwurst and outstanding local beer."

THE NUMBER OF STUDENTS WHO WON \$50,000 SCHOLARSHIPS



# PASSIONATE ABOUT BIOMEDICAL ETHICS MAYA WOLPERT, 2004-05, 2005-06 YES REGIONAL FINALIST

Shaker Heights, Ohio, "Atypical Visual Behaviors as Early Indicators of Autism in Children"

Maya Wolpert is a two-time YES Regional Finalist in 2004-05 and 2005-06. "By participating in YES, I learned poise and public speaking skills, as well as effective presentation styles for both scientific and broader audiences." Maya has continued along the path of public health and medicine. Today, she is Program Manager at the Stanford Center for Biomedical Ethics, exploring topics as diverse as maternal cell-free fetal DNA, the genetics of autism, and the ethics of whole genome sequencing. "Genetics is an exciting field, and

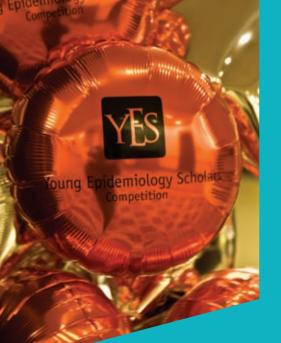
the ethical implications of this new frontier of science and technology are fascinating."

Shortly after participating in YES, Maya was awarded the Grand Prize at the Intel International Science and Engineering Fair. "The same study that made me a Regional Finalist at YES was recognized at Intel, and among other prizes, an asteroid was named in my honor." Maya's impressive array of honors includes the 2007 Haas African Service Fellowship from Stanford University. She used the grant to spend a summer in South Africa conducting AIDS research and public service work in a rural village, "simultaneously helping people in need and advancing scholarship in this important area

of public health research."

Maya is fascinated by epidemiological aspects of population-level genetic testing. "The widespread adoption of whole genome sequencing in clinical scenarios, while exciting, will also pose significant challenges. Bioinformatics and epidemiology will be necessary to sift through massive amounts of data to pull out meaningful associations." She is applying to medical school and looks forward to becoming a physician and researcher in biomedical ethics, "the field about which I am most passionate."

Maya is a member of TaskRabbit, a company through which she helps others accomplish tasks, and for which she was recently named TaskRabbit of the Week.



I NEVER REALLY LIKED SCIENCE CLASSES IN HIGH SCHOOL. BUT AFTER GETTING INVOLVED WITH THE YES COMPETITION, I DISCOVERED MY PASSION FOR EPIDEMIOLOGY. THE YES COMPETITION PROVIDED ME WITH THE REAL WORLD APPLICATIONS OF SCIENCE.

Nicole Anderson (2005-06 Competition)

# MANIPULATING DYNAMIC DATA LORNA THORPE, PH.D., M.P.H.

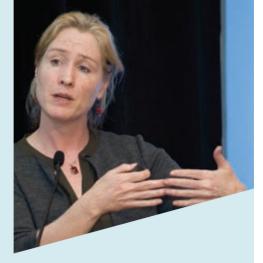
Associate Professor. Director, Epidemiology and Biostatistics Department, The City University of New York School of **Public Health** 

Lorna Thorpe has some advice for YES Scholars in the early stages of their epidemiology careers: "Get out and collect data, work with programs, and be involved with action-oriented public health!"

Dr. Thorpe runs the epidemiology and biostatistics program at the CUNY School of Public Health and served as lead national judge at the 2008-09 and 2009-10 YES Competitions. Previously, she spent a decade working in applied public health at government agencies, including the Centers for Disease Control and Prevention and the New York City Health Department, where she served as deputy commissioner in charge of the Division of Epidemiology.

Dr. Thorpe is fascinated by efforts to better link primary care and population health and sees an increasing need for epidemiologists to be well versed in public health informatics. "We are increasingly faced with the need to be able to manipulate multiple streams of disparate, dynamic data."

Dr. Thorpe was recently awarded a large grant to conduct a health exam survey on New York City adults, ten years after overseeing the first such survey. The NYC Health and Nutrition Examination Survey



will compare the health of New Yorkers over the past decade and examine whether key municipal policies had an impact on population health status. For example, the survey will investigate whether tobacco and trans-fatty acids dropped, using biomarkers as the outcome. Using the survey as the gold standard, the project will then assess how well large electronic health record networks can provide population health profiles and be used for population health surveillance.

# **GLIMPSING THE FUTURE DEIRDRA FORTE-WILSON, PH.D., M.P.H.**

Epidemiologist, San Francisco Department of Public Health, Assistant Professor, Touro University, California

As a YES Competition judge evaluating papers in the first phase of the



judging process, Deirdra Forte-Wilson took great satisfaction in reading projects that future public health researchers and practitioners had developed. "The projects gave me a glimpse into the future of public health...and it's bright!"

Dr. Forte-Wilson's current research interests center on the role of social determinants in the perpetuation of disparities in health and health outcomes in minority populations. "I'm most excited about the trends in addressing the social determinants of health. Research and public health programs that address social determinants will impact populations that are most in need through a 'bottom-up' instead of a 'trickledown' approach." Today, she is developing a community health assessment for the City and County of San Francisco.

Her advice to YES Scholars is to find a mentor in their field of research or area of interest who can provide insight and support as they develop their career. She encourages the next generation to "be courageous in your research and public health practice. Then you will see real change."

# AMRITA SEHGAL AND LEONARD SYME: A YES MENTORSHIP STORY

When asked to single out the most valuable aspect of their YES experience, Scholars and judges alike often cite the in-depth interaction between students and professionals that the program fostered. In the case of YES Scholar Amrita Sehgal and longtime judge Leonard Syme, that interaction continued long after the competition concluded. Their story illustrates another benefit of the YES experience: ongoing mentorship.

"Amrita was in the regional group that I chaired at the YES Competition," recalls Dr. Syme, Professor Emeritus at the UC Berkeley School of Public Health. "Her project was incredible. Here was a young woman in high school understanding how important it is for women to maintain high calcium levels during their lifetime especially during their teen years. She presented her research so beautifully and cogently."

When Dr. Syme heard that Amrita had enrolled at UC Berkeley, he was thrilled. He contacted Amrita to check up on her and see how she was doing in her freshman year. "When I met with him that first time, I was lost and confused," Amrita remembers. "He told me how much potential he saw in me and that he knew I was going to make an impact. That really touched me."

On arrival at UC Berkeley, Amrita had a one-track agenda: "I was going to do pre-med to be a doctor." Talking to Professor Syme broadened her horizons. "I learned that I could do lots of other things. He told me about the endless opportunities both at CAL and in the Berkeley community. He told me I could go abroad, pursue epidemiology, consider a joint medical program, even study architecture or something else for a year and then come back to medical school. He showed me all the options."

After that first meeting, the two met once or twice every semester. "Every time I've seen Professor Syme I've left feeling more confident. He inspires me, challenges me, and really gets me thinking about my future and all the things I can do. He's been a constant source of inspiration."

Amrita wound up pursuing a pre-med track while majoring in economics. This summer, she will spend three months on Capitol Hill with the House of Representatives Ways and Means Committee as an intern under the chairman of the committee responsible for healthcare law. She plans to continue pursuing her interest in healthcare policy and healthcare economics in the years ahead.

While Amrita is quick to praise Dr. Syme for helping her navigate her undergraduate years, he is equally quick to defer credit back to her. "For a person to do premed at Berkeley is an overwhelming challenge," Dr. Syme says. "To add a major in economics to that is remarkable. To then parlay those two interests into an internship with the House of Representatives on the healthcare committee is unbelievable. For an emeritus professor like me there could be nothing more satisfying than seeing a student go on to such success."

"The YES Competition can have a huge impact in changing people's lives. It's one of the most ex-

hilarating and inspiring events of my professional career," Dr. Syme stated. "I have participated in the YES program since its inception. I cancel, postpone and defer all other obligations so that I can attend the meeting. The reason for this devotion is absolutely clear to me. We are encouraging a new generation of the very brightest young people in the country to become interested in health and, more particularly, in public health. This is crucial for the nation. I see the YES contestants as the most clever and innovative way of dealing with this problem. The students, like Amrita, are remarkable."

AMRITA SEHGAL won a \$50,000 scholarship in the 2008-09 YES Competition for her project on teenagers' intake of calcium and their risk of osteoporosis later in life, "Can We Start the War Against Osteoporosis Early? Are Teenagers Taking Enough Calcium?"

S. LEONARD SYME, PH.D., is Professor Emeritus of Epidemiology and Community Health at the UC Berkeley School of Public Health. His newly released book is entitled, *Memoir* of a Useless Boy.



Young Epidemiol Scholars Competition

### L E A D N A T I O N A L J U D G E S

**Dr. Lisa Berkman** Thomas D. Cabot Professor of Public Policy and of Epidemiology, Harvard School of Public Health

**Dr. Jonathan Samet** Professor and Chairman, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health

### FIRST PLACE PROJECTS

### Megan M. Blewett

Madison High School, Madison, NJ, "A Space/ Time Epidemiological Comparison of Multiple Sclerosis (MS) and Amyotrophic Lateral Sclerosis (ALS)"

### **William Slack**

Decatur High School, Decatur, GA, "Teen Drug, Alcohol, and Tobacco Use: A Social Network Examination"

# IMPROVING PEOPLE'S LIVES THROUGH EPIDEMIOLOGY SARAH PHILLIPS, 2006-07 YES SEMIFINALIST

Stuart, Florida, "Become More Involved for a Healthier BMI"

"With the evolving threat of more virulent strains and re-emerging diseases, the challenges in epidemiology grow every year," Sarah Phillips says. "I am very interested in novel strains and the concept that our science needs to evolve at the same rate as the viruses and bacterial diseases we fight. It makes the field of public health very exciting."

Sarah has always felt a strong desire to help improve people's lives. When she discovered the YES Competition, "it felt like a fire had been lit inside of me." Today, she is pursuing an M.P.H. in Epidemiology at the University of Florida, researching the ecological



health of Floridian estuaries at UF's Institute of Food and Agricultural Sciences lab. She is also in charge of data management for the Afghanistan National Drug Abuse Survey, done in collaboration with the UF College of Public Health and Health Professions and the Epidemiology and Prevention Research Group.

Sarah believes that "the most effective way to approach public health is with the collaboration of several multidisciplinary sciences." This philosophy has guided Sarah's pursuits, allowing her to gain exposure to the many fields that contribute to public health.

As the first undergraduate student intern at the UF Student Health Care Center, she implemented a campus-wide health promotion program that focused on raising awareness of flu vaccinations. "I take pride in the knowledge that my work helped keep the UF student population healthy during an outbreak of H1N1 in 2009." She also spearheaded her health education honorary's scooter helmet safety campaign. "We provided 500 free scooter helmets to UF students and encouraged the community to take responsibility for its health and safety." Her goal is to work at the CDC or the NIH, "somewhere with the resources to allow my work to influence the nation's health."

### NUTRITION AND OBESITY PREVENTION FOR A HEALTHIER GENERATION JENNIFER SCHINDLER, 2006-07 YES REGIONAL FINALIST

Rockville Centre, New York, "Gene Polymorphisms Associated with Mutant Biomarkers in Vinyl Chloride Factory Workers"

The research Jennifer Schindler presented at YES has since been published in the *Journal of Human Genetics*. She looks back fondly on her YES experience – and still uses her YES backpack. "My experiences with YES inspired me to pursue a career in public health."

Today, Jennifer is completing a master's degree in Public Health with a concentration in Health Promotion at Columbia University's Mailman School of Public Health in the Department of Sociomedical Science. Her current research interests include obesity prevention, food access and nutrition. She recently created a nutrition education curriculum for elementary school students.

Jennifer feels privileged to



studied nutrition and obesity prevention with pioneers in the nonprofit arena: New York University School of Medicine, the NYC Department of Health and Mental Hygiene, several public schools and community based organizations. A decade from now, she hopes to be working with "a passionate nonprofit or government organization to promote youthbased health programming so we can all look forward to a healthier generation."

### IF YOU TRULY WANT TO MAKE A DIFFERENCE WITH YOUR LIFE, EPIDEMIOLOGY CAN GIVE YOU THE KEY.

Jennifer Schindler (2006-07 Competition)

# YES Partners with Science Olympiad

YES partnered with the national Science Olympiad to engage the 13,000 students who participate in the Disease Detectives challenge and encourage them to enter YES. At least two Science Olympiad coaches were invited to serve on judging panels each year and coaches of the winning Disease Detectives teams were invited to attend.

Troy High School teachers and Science Olympiad coaches Nga Ngo and Kurt Wahl attended the 2010 YES Competition. "I loved watching the students present and getting to meet such a variety of people who are experts in their field," Ms. Ngo told the YES Alert newsletter. "You rarely get to meet so many people who are so good at what they do all at one time."

### L E A D N ATI O N A L J U D G E

**Dr. Lee Riley** Professor of Epidemiology, University of California, Berkeley

### FIRST PLACE PROJECTS

### **Katie Everett**

Huron High School, Ann Arbor, MI, "A Sexual-Network-Based Model Evaluating the Impact of Human Papillomavirus Vaccination on Infection Prevalence in an Adolescent Population"

### **Jessica Palmer**

Ossining High School, Ossining, NY, "Examining Repetitive Behaviors in Parents and Siblings of Individuals with Autism"



# FOCUSING ON DISASTER PREPAREDNESS AND RESPONSE SCOTT KOBNER, 2007-08 YES NATIONAL FINALIST

Flemington, New Jersey, "CA-MRSA: Efficacy of Prevention Education Among Athletes"

A senior at Emory University in Atlanta, Scott Kobner is working on malaria research and outreach at Emory's Yerkes Primate Research Center. He is the Training Officer for Emory EMS, "which involves a significant amount of public health analysis and education." Scott has also conducted gene therapy research at the University of Pennsylvania and given a lecture on ethics in EMS at the National Collegiate Emergency Medical Service Foundation in 2012.

YES inspired Scott's public health pursuits. "I can still remember the overwhelming intensity of YES Scholars meeting for the first time. All of that enthusiasm, passion and dedication is impossible to forget." Today, Scott is most interested in disaster medicine, disaster response and infectious disease surveillance. "I hope to continue my education to explore these areas and end up contributing significantly to these fields."

Scott looks forward to applying to M.D./M.P.H. programs and continuing his education in medicine and public health. In the future, he hopes to be part of the CDC Epidemic Intelligence Service (EIS) postgraduate training program and continue research and public health outreach related to infectious disease and disaster preparedness/response.

# TOTAL NUMBER OF SCHOLARSHIPS AWARDED IN THE YES COMPETITION

THE ACTUAL PROCESS OF PERFORMING MY OWN, ORIGINAL RESEARCH ON A TOPIC THAT IS RELEVANT TO MY AGE GROUP HAS REALLY CHANGED MY OUTLOOK ON POTENTIAL CAREERS. PUBLIC HEALTH RANKS AMONG THE TOP 5 CAREER GOALS OF YES SCHOLARS

Katie Everett (2007-08 Competition)

# IMPROVING MATERNAL AND CHILD HEATH EMILY BARKER, 2007-08 YES NATIONAL FINALIST

Marshfield, Wisconsin, "A Study of the Rate of Contact in Children to Apply to Influenza Transmission Calculations"

Competing at YES in 2008, Emily Barker was struck by how professionally she was treated. "I felt like a respected colleague presenting before a group of interested and engaged peers." This sense of being a professional helped give Emily the confidence to "pursue opportunities in public health I would never have thought possible before YES."

Through YES, Emily also developed a commitment to incorporating the ideals of public health and epidemiology into her future career. A senior at the University of Wisconsin, Madison, Emily is majoring in biology and minoring in environmental studies and global health. She is also working with a research group focused on lifecourse epidemiology and family health. "I study maternal life stress in conjunction with obstetric outcomes, methods for assessing child quality of life in resourcelimited settings, and quality of life in children diagnosed with cancer."

Emily believes that improving maternal health is crucial to global health. She plans to practice medicine and to specialize in women's health, while maintaining a focus on global medicine and public health. "Ideally, I would be involved in a practice that allows me to travel regularly to work with disadvantaged, vulnerable or

resource-limited communities both in the U.S. and abroad."

Since participating in YES, Emily has co-authored several research papers and been accepted to medical school. She regularly talks about current issues in public health with her sister Carly, a 2010-11 YES National Finalist. Next year, Emily will travel to Tanzania to teach math and science to middle schoolers. In the meantime, she is training for a marathon and triathlon and enjoys live music and the occasional ice cream at the Memorial Union Terrace at the University of Wisconsin.



# **REFLECTIONS ON YES** BY DIANE TSUKAMAKI, M.S.

Director, National Recognition and Scholarship Programs, The College Board

The YES Competition was funded by a generous grant from the Robert Wood Johnson Foundation to focus on important health problems and apply epidemiological methods of analysis to identify solutions. We wanted to attract some of the nation's best and brightest high school students to the YES Competition – to awaken them to the power and principles of epidemiology and enhance their ability to evaluate complex problems.

Prize competitions, including YES, offer an indirect way to bring new fields to the attention and interest of students at an age when they begin to explore and identify their academic and career interests. Most prize competitions, particularly in the sciences, have been targeted to traditional sciences such as chemistry, physics or biology and often engage students at schools capable of supporting advanced lab work. YES provided a unique opportunity for students with a broad range of interests to conduct research related to a population-based health outcome – students who are analytical and interested in health, science and social issues.

Health affects all populations, regardless of socioeconomic status. The goal of YES was to reach out to students across economic, ethnic and geographic lines to develop potential leaders dedicated to improving the health of the public.

No one was quite prepared for the magnitude of what it would take to create and launch this type of program in such a unique and largely unknown discipline. If there is one person who deserves a preponderance of the credit, that would be Dr. Pamela Russo, Senior Program Officer at the Robert Wood Johnson Foundation. Since its inception, she guided the program and the YES staff with patience, intelligence, integrity, humor and the passion she instills in others. Passion – that's a trait we often talk about in describing the YES Scholars, and Pamela is the perfect role model.

Major kudos also go to Dr. David Fraser who led a group of eight - four epidemiologists and four teachers - better known as the "YES Working Group." Since epidemiology was not on the tips of the tongues of teachers or students in high schools, this dedicated group spent months creating 25 teaching units that were pilot tested and eventually available to download at no cost. The goal was to provide teachers with tools so that students could begin to learn the scientific methods that are employed by epidemiologists.

One can only imagine the logistics of launching a new program – online registration, guidelines, marketing plans and materials, judging rubrics, recruiting judges and speakers – even finding photos to depict epidemiology.

We had no way of knowing what the level of interest would be and if any students would submit epi research to the competition. So you can imagine the excitement when we received 595 submissions that first year. But that was only topped when we met the 60 Regional Finalists face-to-

THE YES EXPERIENCE: PAST, PRESENT, FUTURE

# TOTAL SCHOLARSHIP DOLLARS AWARDED TO YES SCHOLARS SINCE 2003

face at the first YES Competition in Washington, D.C. The judges, speakers and staff from the foundation and the College Board were all blown away by the caliber and passion of these students. We had our first glimpse of what the future would bring for those who would follow in their footsteps.

I always enjoyed hearing YES Scholars from prior years speak to the students. They were asked to give five minutes to reflect on their experience from the year before and provide some words of encouragement. So many things could be said about those moments - how much they had grown academically, intellectually and personally. But nothing surpassed their passion, enthusiasm and whole-hearted support of the new Scholars - reminding them that it wasn't about who got the top scholarships in the end, but that the experience, the networking with like-minded students and distinguished professionals was what they would value once they left the YES event.

YES is quite young compared to other scholarship programs. Even

so, after eight competitions, it is clear that students would not have thought about or known what epidemiology was without YES. The first cohorts of students have completed their undergraduate degrees, and it is evident that the program has nurtured students' interest and awareness of public health. Several have finished or are enrolled in M.P.H. programs. Numerous others are in Ph.D., M.D. or M.D./Ph.D. programs with a focus on public health. The foundation's investment has raised awareness of population health and the field of epidemiology among the school population, attracting bright, interested high school students to engage in epidemiological research and created a pipeline of students to pursue public health in their academic and career choices.

Equally important, I will always remember what Dr. Lee Riley, UC Berkeley, remarked after one of the competitions: "I think this is exactly how we should get more people into a public health and epidemiology career. One thing for sure is that even if they don't ultimately become card-carrying epidemiologists, they will never forget what they've done and what epidemiology is. They will always think like an epidemiologist."

What a privilege it's been to be part of the YES Competition and to interact with such remarkable and inspiring students. I'm confident that the YES Scholars will have incredible opportunities and that they are part of a new generation of leaders to help us to be more aware of the very real consequences of decisions that each of us makes about our own health, the health of our communities, our families, our children and our planet. I hope that YES served as a jumping off point to a life that is influenced by their concern about health, their analytical skills, their intellect and their passion. My message to them is the same I relayed at each YES Competition – that with the blessings they've been given comes a responsibility to give back, to reach out to those who do not have the same gifts or the opportunity to be part of a program like YES. My best wishes to each and every one of them.

### L E A D N ATI O N A L J U D G E

**Dr. Lorna Thorpe** Deputy Commissioner, Division of Epidemiology, New York City Department of Health and Mental Hygiene

### FIRST PLACE PROJECTS

### Alexander

Chernyakhovsky

William Mason High School, Mason, OH, "Global Epidemiological Analysis of Avian Influenza Viruses in Humans"

### Amrita Sehgal

Menlo-Atherton High School, Atherton, CA, "Can We Start the War on Osteoporosis Early? Are Teenagers Taking Enough Calcium?"



# CONTINUING INFLUENCE OF YES TIFFANY CHEN, 2008-09 YES REGIONAL FINALIST

Fremont, California, "An Epidemiologic Analysis of Kidney and Renal Pelvis Cancer in California"

For Tiffany Chen, the most meaningful impact of her YES experience was "meeting amazing students and professors who have continued to influence my life." Case in point: Dr. Jonathan Samet, a former YES judge who now serves as Tiffany's mentor at the University of Southern California, where she is majoring in Health Promotion and Disease Prevention Studies while concurrently pursuing a master's degree in Global Medicine at USC's Keck School of Medicine.

"From him, I have learned so much about not just epidemiology, but also about research skills and methods." She is currently working with Dr. Samet on a systematic review and meta-analysis of pregnancy outcomes after maternal exposure to tobacco smoke during pregnancy.

This summer, Tiffany will travel to Taiwan for a class that doubles as "culture class and clinical, medical school class" in her Progressive Masters in Global Medicine program. In the fall, she will take her first two master's classes at Keck Medical School. "I am excited to have a first taste of medical school so I know what I am getting myself into!"

The founder and director of USC's Health Promotion Students Association, Tiffany looks forward to a career as a pathologist. She hopes to still make time for two passions: French cooking and sewing new creations out of vintage clothing.

NUMBER OF SCHOLARSHIPS AWARDED ANNUALLY IN THE YES COMPETITION

# THE INTERACTION WITH FELLOW POTENTIAL COLLEAGUES OPENED MY EYES TO THE FIELD OF PUBLIC HEALTH.

Grant Day (2008-09 Competition)



# THE YES TOP 10

Top public health topics tackled by YES Scholars:

- 1. Youth and teenage health
- 2. Environmental, social and cultural influences on health
- 3. Obesity
- 4. Infant and pediatric health
- 5. Athlete health
- 6. Cancer
- 7. Nutrition/diet
- 8. H1N1, flu and influenza
- 9. Women's health
- 10. Autism

# **UNRAVELING PUBLIC HEALTH MYSTERIES** ALEAH GOLDIN, 2008-09 YES REGIONAL FINALIST

Allentown, Pennsylvania, "Influenza Risks: Effective Communication with High School Students Targeted in 2008-09 CDC Vaccination Recommendation"

Until she participated in YES, Aleah Goldin intended to pursue a career as a writer. The YES experience was transformative, sparking her interest in global health and setting her on a path of exploration in public health. Today, she hopes "to be unraveling a public health mystery," with a long-term goal of "improving guality of life around the world."

Aleah spent her junior year at the University of Richmond studying global health and comparing health care delivery systems in Europe, India, China, South Africa and Mongolia. "The rapid changes in developing countries as a result of urbanization, economic development and changing diets fascinate me." She researched how changes in traditional diets and the influx of Western foods, including sweetened carbonated beverages, fast fried food, and high carbohydrate snacks, have affected health, particularly increasing diabetes rates.

Aleah also studied the rapidly evolving role of traditional medicine, from the efficacy and increased Western use of herbs grown in India to the use of fermented mare's milk to treat tuberculosis in Mongolia. She interviewed traditional medicine providers to hear their perspectives on how patients' lifestyles impact their health. "As these cultures modernize, it is fascinating to observe changing attitudes between traditional and Western medicine."

While in Mongolia, Aleah spent

a month traveling with nomadic herders through the Gobi desert. Her next stop is Atlanta for an internship at the Centers for Disease Control and Prevention before returning to the University of Richmond for her senior year. Her passion for creative writing remains alive and well, and she is working on a young adult novel about international street art.



# 2009-10

### L E A D N ATI O N A L J U D G E

**Dr. Lorna Thorpe** Associate Professor, Director, Epidemiology and Biostatistics Dept., City University of New York School of Public Health

### FIRST PLACE PROJECTS

### Shoshanna Goldin

Moravian Academy, Bethlehem, PA, "Energy Epidemic: Teen Perceptions and Consumption of Energy Drinks"

### Gazelle Zerafati

The Baldwin School, Bryn Mawr, PA, "Epidemiology of Migraine in Teenage Girls, A Student Population Based Study"

# A GLOBAL HEALTH PERSPECTIVE SHOSHANNA GOLDIN, 2009-10 YES NATIONAL FINALIST

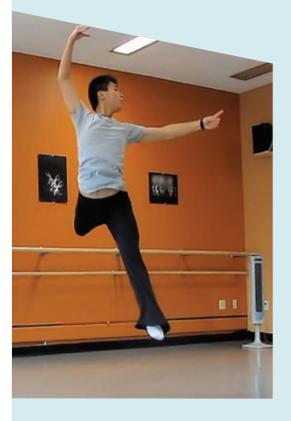
Allentown, Pennsylvania, "Energy Epidemic: Teen Perceptions and Consumption of Energy Drinks"

All kinds of opportunities opened up for Shoshanna Goldin after she won top honors at YES for research on adolescent energy drink consumption. She is especially proud of developing a Report to Parents on Energy Drink Risks, which the National Association of **Elementary School Principals** distributed to families across the country in 2011. She also presented her research at the CDC and met President Obama at the White House Science Fair: "two incredible opportunities made possible by YES."

Her YES research led her to Dr. Mary Claire O'Brien and Dr. Kimberly Wagoner of Wake Forest Medical School. While majoring in Global Health with a minor in Middle Eastern and South Asian studies at Wake Forest University, she assisted them on their article, "Alcohol Abuse, Drinking Games, and Binge Drinking," which is slated for publication in a peer-reviewed medical journal. She is now co-authoring the paper "Caffeinated Alcohol and Risk of Injury" with Dr. O'Brien and Dr. Mark Wolfson, which will be submitted to the *Journal of American College Health* for publication in 2013.

Having traveled throughout Israel and Jordan in addition to Asia and Europe, Shoshanna made her first trip to India in 2010 and became fascinated by the healthcare problems in Asia, particularly access to clean water and basic preventive health issues. This summer, she returns to India to research pediatric eye care at the Kalinga Eye Hospital in Ornissa. In the summer of 2013, she plans to visit the Middle East to research water contamination and desalination.

Shoshanna credits YES with altering her life path. "YES exposed me to another perspective for examining healthcare. Instead of a career in private practice and patient care, I now plan on becoming a pediatric epidemiologist."



Machesney Park, Illinois, "A Spatial Approach to Epidemic Dynamics Using Stochastic Cellular Automata with a Case Study of Novel H1N1 in Illinois"

Jeffrey Wang dreamed of becoming a biology researcher since childhood. Inspired by his YES experience, he expanded his horizons to include epidemiology. "Epidemiology relies on people with

# DANCING WITH EPIDEMIOLOGY JEFFREY WANG, 2009-10 YES NATIONAL FINALIST

backgrounds from physics, math, computer science and biology all under the same mission of tackling emerging public health threats." A YES keynote by Dr. Lorna Thorpe on her public policy work at New York City's Department of Health was particularly memorable. "She explained how a simple legislative action such as banning smoking in public areas dealt a critical blow against one of the leading causes of lung cancer."

Now a freshman at Harvard University, Jeffrey plans to major in Applied Mathematics with a possible minor in Global Health and Health Policy or Statistics. He was recently awarded a fellowship at Harvard's Program for Research in Science and Engineering and an internship at the Systems Biology Department. "I'm very excited to be working on a project on gene expression control."

Jeffrey remains active in his hometown community. Having

danced ballet with the Rockford Dance Company for many years, he still comes home during breaks to take classes, volunteer and recruit new dancers. Concerned about the science and math curriculum in his school district, he met with the superintendent to make the case that a stronger math and science curriculum holds the key to turning their community around.

Last summer, Jeffrey interned at his County Health Department, participating in a state-wide training exercise simulating an outbreak of a serious influenza-like illness. He also worked at a local Planned Parenthood clinic, where he was shocked to see a case of an 11 year old. "When I confirmed with a nurse that there was not some sort of error, she grimaced and said, 'we see these every once in a while. Remember, these are the people we have to help.' This will resonate within me for the rest of my life, no matter what career I eventually pursue."

INSTEAD OF BEING PRESENTED WITH FACTS TO UNDERSTAND AND RETAIN AS IN SCHOOL, RESEARCH DEVELOPS ONE'S CAPACITY TO THINK BACKWARDS, TO QUESTION THE WORLD AROUND YOU, AND TO CREATE METHODS BY WHICH ONE CAN SOLVE OR ANSWER QUESTIONS.

# 2010-11

### L E A D N ATI O N A L J U D G E

### Dr. Jonathan Samet

Professor, Flora L. Thornton Chair, Department of Preventive Medicine, University of Southern California Keck School of Medicine, Director, University of Southern California Institute for Global Health

### FIRST PLACE PROJECTS

### Michelle Lee

North Allegheny Senior High School, Wexford, PA, "Routine Outpatient Testing of Skin Infections for Methicillin-Resistant Staphylococcus Aureus (MRSA) in High School Athletes"

### **Rebecca Leong**

Columbia River High School, Vancouver, WA, "The Effect of Footwear Habits of Long-Distance Runners on Running-Related Injury: A Prospective Cohort"

# CONTRIBUTING TO THE YES LEGACY JAZMIN BRANCH, 2010-11 YES NATIONAL FINALIST

Chicago, Illinois, "Analysis of Existing Disparities in Breast and Cervical Cancer Among African-American and Latina Women"

"If I had to choose just one lasting impact of my YES experience, it would definitely be joining a larger YES family," says Jazmin Branch. "I have so much that I plan on contributing to the YES legacy." An undergraduate student at Washington University in St. Louis, she has decided to minor in Public Health and is considering pursuing a master's degree in Epidemiology.

Jazmin credits YES with opening her eyes to the field of epidemiology. "I learned that healthcare is not confined to a hospital, but instead has a global footprint on every part of the world." She continues to be interested in breast cancer in the African-American community, the focus of her YES project, while she explores different opportunities in public health. One of the highlights of Jazmin's YES experience was representing a different side of the African-American community in Chicago. "When I watch Chicago news, there is typically a negative light shed on minorities. For a couple of months, news coverage highlighted the positive work I was doing with YES. That was definitely a proud moment for me."

A dancer and performer, Jazmin loves to step out of her own cultural niche. Most recently, she performed in an annual cultural showcase featuring a mix of traditional and modern West African dance moves. "It was so fun – and exhausting!"

I LEARNED MORE DURING YES ABOUT PUBLIC HEALTH, RESEARCH, STATISTICS AND EPIDEMIOLOGY THAN I HAVE IN MULTIPLE COURSES AT MY SCHOOL.

Eva Gelernt (2010-11 Competition)

THE NUMBER OF STATES (AS WELL AS PUERTO RICO, THE DISTRICT OF COLUMBIA AND AMERICAN SAMOA) FROM WHICH STUDENTS APPLIED TO THE YES COMPETITION

THE BEST PART OF THE YES COMPETITION WAS ITS ABILITY TO MAKE EACH PARTICIPANT FEEL LIKE THEY CAN TRULY MAKE A DIFFERENCE IN THE WORLD THROUGH PUBLIC HEALTH.

**Camille Pfister (2010-11 Competition)** 

# LOOKING THROUGH DIFFERENT LENSES NEEL KOYAWALA, 2010-11 YES NATIONAL FINALIST

Dublin, Ohio, "Sleep Problems and Suicide Attempts Among Adolescents: A Case-Control Study"

An undergraduate student at the University of Pennsylvania, Neel Koyawala enjoys looking at health through different lenses. "In my Global Health class we frequently discuss the effects of poverty on health outcomes. Recently, we examined racial and socioeconomic disparities in treatment in my Healthcare Management class."

Neel developed an interest in

child health early on. "During high school, I loved being part of the Nationwide Children's Hospital environment, where I did my research on teen suicide for the YES Competition." In the summer of 2011, he worked in a genetics lab at Nationwide Children's Hospital in Columbus. This summer, he will work on childhood obesity under Dr. Tracy Orleans and Dr. Laura Leviton at the Robert Wood Johnson Foundation. "I will be evaluating previous success stories in childhood obesity efforts and finding information that will help convince private industry

to make healthier foods." During college he plans to get involved at the Children's Hospital of Philadelphia.

Neel credits YES with showing him

the diversity of public health as a career and "how easy it is to integrate public health with my other interests in medicine and business." He hopes his undergraduate background in business and health "will help me find sustainable ways to create change."



# **REFLECTIONS ON YES** BY DAVID FRASER, M.D.



Freelance Epidemiologist and Adjunct Professor of Epidemiology, University of Pennsylvania

There is a dire need for more public health leaders well trained in science and philosophy. Through YES we hoped to identify and encourage students to enter this field. I was involved in shaping various aspects of the YES Competition from its inception and served as a Regional and National Judge since the first student competition.

My involvement began as a member of a Working Group of teachers and epidemiologists that developed free and downloadable epidemiology teaching units for high school. Involving high school teachers was essential. First, we needed to determine what about epidemiology was already being taught in high school, what about epidemiology would be interesting to teach there, and how should the epidemiology curriculum be packaged so as to make it most useful. Second, teachers needed to be involved in the crafting of the curricular modules so that they were pitched at the appropriate level, did not presume too much prior knowledge, and would be engaging.

From the beginning of the YES Competition, I was impressed by the smoothness of the presentations. I most enjoyed the Q&A exchange in which I could observe students grappling successfully with a new idea. Teaching is very important to me – and much more interesting than judging. Most of the YES presenters at the regional and national level were quite bright and showed great initiative, but were not particularly well trained in epidemioloqy. The Q&A sessions offered the best opportunity for judges to use the Socratic Method to teach. Those students, under great pressure, who could hear a new line of questioning, understand its implications and

rise to a new level of understanding were learning epidemiology there and then. That was the most satisfying part of the YES experience for both judges and students.

Epidemiology is about encouraging critical thinking taking a healthy skepticism about the easy conclusions and thinking outside the box to find the solutions and causes. At its heart epidemiology involves building solid arguments about causation from observations of patterns. All disciplines require analysis of patterns, probing of causation and building sound arguments. So the study of epidemiology is relevant to a wide spectrum of disciplines, either directly or as good practice in clear thinking.

The YES Competition tapped into a great reservoir of curiosity about how the world works and challenged students early in their education to think systematically about relevant health issues.

Epidemiology is an exciting field with many opportunities for satisfying professional work. Probably the most important achievement of the YES Competition was bringing to the attention of high school students and their teachers the fact that epidemiology is a scientific discipline applicable to a wide range of human activities.

# YES IN THE PRESS

YES Scholars gained significant media attention during each year of the competition. Scholars were profiled in newspapers, magazines, television, radio and online media outlets nationwide. Competition winners were even featured on the giant Reuters billboard in Times Square.

YES Competition news coverage reached a total audience of more than 567 million people over the course of the competition's eight years. More than 1,370 unique media stories appeared in print, online, TV and radio with coverage in major outlets including CNN, the *Philadelphia Inquirer, Chicago Sun-Times, Atlanta Journal-Constitution*, FOX TV, CBS Radio and NPR.



# THE NUMBER OF MEDIA STORIES ABOUT THE YES COMPETITION

THE NUMBER OF PEOPLE REACHED WITH MEDIA COVERAGE

### THE YES EXPERIENCE: PAST, PRESENT, FUTURE

June 8-9, 2012 Mayflower Hotel, Washington, DC

To culminate the YES Competition, a special event was organized for YES Scholars to network and explore present-day health concerns with nationally renowned epidemiologists and public health professionals. The YES Experience at the Mayflower Hotel in Washington, DC, on June 8-9 was attended by YES Scholars from all eight years of the program. Special guests included Matthew L. Myers, President of the Campaign for Tobacco-Free Kids, Michael McGinnis of the Institute of Medicine of the National Academies, and many former judges who have supported the program since its inception.

A plenary session was organized as the centerpiece of the event, beginning with a panel discussion on Improving Conditions for Health: From Research to Practice, followed by breakout sessions on Malaria and Other Infectious Diseases; Antibiotic **Resistance:** Environmental Health: Social Determinants of Health; Chronic Diseases; and Public Policy and Health. Working groups were also planned to give Scholars the opportunity to brainstorm possible future action on internships, continuing to inspire high school students and college campus activities in epi and public health.

# **DISTINGUISHED SPEAKERS**

YES was both an educational experience and a competition. Distinguished epidemiologists and health officials were invited to speak to the students at every YES Competition, including:

Dr. Richard Baker, U.S. Senate Historical Office

Dr. Richard Besser, Senior Health and Medical Editor, ABC News

**Dr. Paula Braveman**, Director of the Center on Social Disparities in Health at the University of California, San Francisco

Dr. Barbara DeBuono, President and CEO, ORBIS International

**Dr. Virginia Ernster,** Professor Emerita of Epidemiology and Biostatics at the University of California, San Francisco School of Medicine

Dr. Harvey V. Fineberg, President, Institute of Medicine of the National Academies

**Dr. William H. Foege,** Emeritus Presidential Distinguished Professor of International Health, Emory University, and Gates Fellow, Bill and Melinda Gates Foundation

Dr. Howard Frumkin, Dean, School of Public Health, University of Washington

Ms. Laurie Garrett, Senior Fellow for Global Health, Council on Foreign Relations

**Dr. Jesse Goodman**, Chief Scientist and Deputy Commissioner for Science and Public Health, U.S. Food and Drug Administration

**Dr. Shelley Hearne,** Managing Director, Health and Human Services, The Pew Charitable Trusts

**Dr. Sharon Kardia**, Professor and Chair of Epidemiology at the University of Michigan and Director of the Public Health Genetics Program, Director of the Life Science and Society Program and Co-Director of the Michigan Center for Genomics and Public Health

**Dr. Shiriki K. Kumanyika**, Professor of Epidemiology, Department of Biostatistics and Epidemiology and Department of Pediatrics, Associate Dean for Health Promotion and Disease Prevention, University of Pennsylvania School of Medicine

Dr. Risa Lavizzo-Mourey, President and CEO, Robert Wood Johnson Foundation

**Dr. J. Michael McGinniss,** Senior Scholar, Institute of Medicine of the National Academies

**RADM Kenneth Moritsugu**, Vice President, Global Strategic Affairs, LifeScan, Inc. and former Acting Surgeon General of the U.S. Department of Health and Human Services

**Dr. Walter Orenstein,** Deputy Director, Vaccine Delivery, Bill and Melinda Gates Foundation

**Dr. Joshua Sharfstein**, Secretary of Maryland's Department of Health and Mental Hygiene

**Dr. Alfred Sommer**, Dean Emeritus, Johns Hopkins Bloomberg School of Public Health, and Professor, Epidemiology, Ophthalmology, and International Health, Johns Hopkins University

Dr. Harrison Spencer, President and CEO, Association of Schools of Public Health

**Dr. S. Leonard Syme**, Professor Emeritus of Epidemiology and Community Health, UC Berkeley School of Public Health

**Dr. Lorna Thorpe**, Associate Professor, Director, Epidemiology and Biostatistics Dept., City University of New York School of Public Health

**Dr. Michelle A. Williams**, Chair, Department of Epidemiology, Harvard School of Public Health

Ms. Brenda Wilson, National Public Radio

# About YES

The Young Epidemiology Scholars (YES) Competition (http://yes.collegeboard.org) was established in 2003 by the Robert Wood Johnson Foundation and the College Board to encourage high school students nationwide to apply epidemiological methods to the investigation of public health issues and inspire the brightest young minds to enter the field of public health. Nearly 5,000 students from all 50 states, as well as Puerto Rico, the District of Columbia and American Samoa, participated in the YES Competition. YES awarded \$3.7 million in college scholarships to 976 students over the program's eight years. The eighth and final YES Competition was held in April 2011.

Each year, 120 finalists were selected based on the quality of their written research projects. Of these, 60 Semifinalists received scholarship awards of \$1,000, completing their participation in the competition. Sixty students were named Regional Finalists – ten from each of six regions – and invited to compete at the YES National Event in Washington, D.C., in April, where they presented their research to distinguished judges including leading epidemiologists and educators. All 60 Regional Finalists were awarded at least \$2,000 each. The top 12 YES Scholars – two from each of the six regions – advanced to compete as National Finalists for scholarships ranging from \$15,000 to \$50,000.

YES engaged students to investigate the many behavioral, biological, environmental and social factors that affect public health. YES Scholars investigated osteoporosis and whether teens are taking enough calcium, the effect of socio-economic determinants on obesity, reaching underserved women with mammography, and global health issues ranging from HIV/AIDS to tuberculosis and malaria. Many YES Scholars have gone on to pursue academic and professional careers in epidemiology and public health. Examples of the exciting work done by YES alumni can be found at http://yes.collegeboard.org.



The Robert Wood Johnson Foundation focuses on the pressing health and health care issues facing our country. As the nation's largest philanthropy devoted exclusively to health and health care, the Foundation works with a diverse group of organizations and individuals to identify solutions and achieve comprehensive, measurable and timely change. For 40 years the Foundation has brought experience, commitment and a rigorous, balanced approach to the problems that affect the health and health care of those it serves. When it comes to helping Americans lead healthier lives and get the care they need, the Foundation expects to make a difference in your lifetime. For more information, visit www.rwjf.org.

# CollegeBoard

The College Board is a mission-driven not-forprofit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success – including the SAT<sup>®</sup> and the Advanced Placement Program<sup>®</sup>. The organization also serves the education community through research and advocacy on behalf of students, educators and schools. For further information, visit www.collegeboard.org.



Young Epidemiology Scholars Competition

yes.collegeboard.org

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