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Making a Difference: Steps to Develop a Research Pipeline in Puerto Rico

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Months of preparation, weeks of coordination, and the day finally arrived. It was still dark as we arrived at the Puerto Rico Convention Center on Wednesday, December 12, 2012 to make sure everything went smoothly. We watched the early risers sweat away to the sound of salsa during the 6:00 a.m. Zumba lesson. We anxiously waited for those first buses of high school students to arrive, knowing that the students would have a once-in-a-lifetime experience that could frame their future careers.

Numerous small-scale science outreach activities go on every day in Puerto Rico, yet the 13th RCMI International Symposium on Health Disparities provided the perfect venue to target a larger group of students interested in science careers. In collaboration with the RCMI, the Universidad Central del Caribe (who spearheaded the event), Ponce School of Medicine and Health Sciences, University of Puerto Rico Medical Sciences Campus, and the University of Puerto Rico-Río Piedras joined forces to offer hands-on demonstrations and activities to 150 talented students from public and private schools from multiple regions of the Island.

As the kids began arriving, all donning the characteristic yellow t-shirt that we designed for this activity, their excitement was evident (along with the sleepiness, as some of them had travelled over two hours to get here). Little did they know, we were as excited as they were! We wanted to make a difference, we wanted them to become excited about science, we wanted them to consider a career in science. We were about to meet our future scientists!

During the next five hours, students and their teachers participated in 14 different demonstrations in six different health related areas such as proteomics and genomics, HIV prevention, and brain plasticity, among others.

The main facilitator for this event was Eddy Ríos-Olivares, PhD, MPH from the Universidad Central del Caribe. The Proteomics and Medical Applications module was moderated by Nawal Boukli, PhD from the Dept. of Microbiology and Immunology, Universidad Central del Caribe. The HIV and AIDS Risk Behaviors Knowledge module was moderated by Margarita R. Moscoso-Alvarez, M.Ed., PhD from the Foundations in Education Department,

University of Puerto Rico, Río Piedras Campus. The Triggers: A Community Approach module was led by Lourdes E. Soto de Laurido, MPHE, EdD, Director, Research Institute for Global Health Promotions and Education, University of Puerto Rico, Medical Sciences Campus. The Brain Plasticity module was led by Kenira Thompson, PhD, Dean of Research, Ponce School of Medicine and Health Sciences. The session on Genomics and Medical Applications was led by Miguel Otero, PhD, Department of Microbiology, University of Puerto Rico, Medical Sciences Campus. In addition, the HIV and AIDS Prevention Strategies module was directed by Diana M. Fernandez, EdD, Retrovirus Research Center, Universidad Central del Caribe.

Hands-on interactive activities were the main focus, as we wanted to capture and maintain the high-school student's attention. For example, in the Brain Plasticity stations hosted by Ponce School of Medicine, students had the opportunity to see and touch a real human brain, participate in an interactive activity to learn how our neurons generate and propagate an action potential, as well as understand how we use animal models to study learning and memory mechanisms. After the interactive table activities, students also visited the scientific poster session and the exhibits at the symposium. One of the main objectives of this activity was to allow students to meet local scientists and get to know the latest research being conducted on the Island. These activities were aimed at developing the students' interest in health-related careers, which might focus on decreasing health disparities in their communities.

Participating schools were selected based on their strengths in science education, as well as based on their regional localization, given that we wanted to include a broad group of students from all of Puerto Rico. The schools included were Escuela Rexville Superior, Escuela Superior Cacique, Escuela Superior Miguel de Cervantes, Escuela Superior Miguel Melendez, Escuela Superior Papa Juan XXIII, Escuela Juan Ponce de León, Escuela Superior Amalia Marín, Escuela Superior University Gardens, Escuela Superior Josefina Barceló, Escuela de Ciencias y Matemáticas Armstrong, CROEM, Caribbean School-Ponce, Escuela Superior Ramon José Dávila, and Colegio San José-San Germán.

At the end of the activity, participating students were expected to increase their knowledge of health issues and the scientific approaches being used to address them, enhance their understanding of scientific strategies used to analyze research data leading to new discoveries that could minimize health disparities, improve professional skills in communication and critical thinking, and develop an interest in a health-related career. All in all, the outcome was superb. The students and their teachers were extremely enthusiastic and pleased; many have since visited our campuses in order to get additional information about research and career opportunities available. In fact, two of the participating students from Caribbean School are currently working in laboratories, as part of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) High-School Summer STEP-UP Program.

Developing a research pipeline is crucial as we encounter alarming disparities in the number of Hispanic scientists. The NIH has been steadily working to build a robust program to address health disparities, and development of scientists from underrepresented groups is

crucial in order to promote a culturally diverse biomedical research program. The RCMi Program and the collaborative integration between a few key researchers, their research teams, and four institutions allowed what was a distant thought to become a magnificent reality for 150 young Hispanic minds. We hope to continue these efforts, as developing a pipeline with exposure that begins in high school is clearly an innovative way to attract our future scientists!