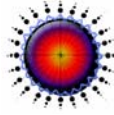


Harlem Children Society

'The Purpose of Souls is to Assist Each Other'



Harlem Children Society *Internship Program in Science, Medicine & Engineering* *2007 Workshop & Lecture Series # 2*

Weill Cornell Medical College, Uris Auditorium
1300 York Avenue, 68th Street Entrance between 68th & 69th Street on York Avenue
July 17th 2007

July 17, 2007 marked the second lecture in a summer-long series for the Harlem Children Society interns. After HCS staffers took care of some formalities, the bulk of the presentations began. Dr. Balaji from UNICEF spoke about helping decrease child mortality in the countries in the developing world. Ten students followed with presentations of their ongoing lab research, and Prof. Susan Fahrenholtz from Fordham University concluded the session in the afternoon, discussing the college application project.

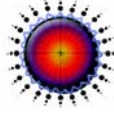
UNICEF's Dr. Bajaji gave a PowerPoint slideshow, "Medium Term Strategic Plan, 2006-2009: Focus on reducing child mortality." He maintained the theme of giving awareness to and improving child development, but also touched on many key points concerning the overall health of the world.

Dr. Balaji laid out a twelve-point plan for improving the life expectancy of most children in the at-risk populations of targeted countries, mainly in Africa. He explained that sustainable vaccinations need to be administered to at least 80% of the populations, working towards universal coverage. He pointed specifically to eradicating polio and malaria, focusing first on young children and pregnant women. Money should be allocated to improving nutrition for the most poverty-stricken families.



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He insisted that countries need to set benchmarks for achieving these goals. The number of families with access to healthy, nutritious child food and basic services needs to be increased by 50%. Governments need to establish clean water and sanitation systems that can be accessed by all people.

Dr. Balaji, in an attempt to demonstrate how many child deaths can be avoided, created a chart detailing the number of mortalities that could have been avoided with a single treatment or vaccination. Though some of his proposals would take a serious overhaul of many policies and redirection of significant funds, certain efforts would be cheap and easy. For example, bed-nets would eliminate thousands of deaths, as would increasing the zinc and vitamin A in people's diets, and sanitizing areas for baby deliveries.

Dr. Balaji ended by giving UNICEF's goals for the future, including a 90% reduction in global measles. He also listed a variety of indicators of child survival problems, which will keep everyone aware of national epidemics worldwide. After applauding Dr. Balaji, the students broke for lunch.

After returning from the intermission, ten students reported on their current lab work. The following is a summary of a selection of those reports.

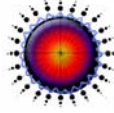
Anna Feng and Tamika Roberts spoke about their project, "The Construction of Stable Nucleic Nanostructures." They first presented background information on DNA, explaining that deoxyribonucleic acid contains genes that are passed on from generation to generation. The DNA that they used in their experiments was made synthesized in their lab.

They explained that their goal was to modify DNA, and strengthen it to stay rigid under extreme mediums, such as acids, bases, and high temperatures. Using organic synthesis, Anna and Tamika were able to successfully construct a new molecule that was stiffer. They verified this using Nuclear Magnetic Resonance Spectroscopy, a reliable method of analyzing the chemical make-up of a molecule. They explained that their work is useful in medicine, pharmacology, and nanotechnology.



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Sheri Huang displayed her work, “The Autonomous Vehicle.” She has not completed much of her project yet, but her goals have set the stage for an interesting final result. She wants to create the design for a vehicle completely run and driven by a computer.

Though she acknowledged the fact that producing this kind of car en masse would be difficult, due to costs and lack of public trust in them, she feels it is worthwhile experiment. Using the programs “Solid Works” and COSMOS, she plans to construct a model that is usable and effective.

Jae Yoo continued with his PowerPoint, “Nanotoxicology.” Jae is not finished with his research either, but his results could make a difference for every American. By examining the nanoparticles TiO_2 and SiO_2 , both found in common sunscreens, he hopes to discover whether these substances are toxic, and harmful to the human body. He recorded his meticulous method of measuring for these chemicals, and HCS is eager to see the results of his research.

Ka Lai Poon has completed much of her project, “The Role of Nigral Potassium (K_{ATP}) Channels in Hypoglycemic Seizures” She is concerned with hypoglycemia, and its influence on seizures. Nigral Potassium Channels are close to the brain, and may help protect neuron function while the brain loses blood during a hypoglycemic seizure.

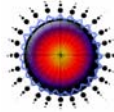
Conducting her research on mice, she discovered that if she blocked the K_{ATP} channels, the seizures became more frequent. Ka Lai proved that, although many other parts of the mice’s bodies were unaffected, including weight and glucose levels, the K_{ATP} channels directly change the rate at which seizures occur.

Ka Lai only had time to experiment channel closers. For the future, she wishes to use channel openers, and see if that helps decrease the number of seizures.



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After the students finished, the lecture exited the realm of science for the rest of afternoon. Though Harlem Children Society and its mentors expect a great deal of commitment, they understand that the students will be applying to college soon, or are in the process of doing so. With this in mind, Prof. Susan Fahrenholtz, a professor at Fordham University, gave an instructional on what to look for when applying to universities.

Prof. Fahrenholtz understands that all the children from HCS come from under-resourced and under-served backgrounds. She stressed the need to be aware of what a school offers in the way of financial assistance before committing anywhere. *The U.S. News & World Report* rankings do matter, but avoiding massive post-graduation debt is far more important. When choosing between schools, Ms. Fahrenholtz advised that the students should opt for the one that provides significantly better financial aid, even if it is slightly lower ranked. This led to her praise of the New York State university system, which would be of comparatively lower costs to the New York residents in the audience. She went as far as to hand out her own assessments of an array of colleges, and how they handle their financial aid. This was a good general information session on what to pursue and what to avoid in the application process.

In the third week, the interns received some crucial, broad information, though it was not necessarily specific to their scientific research. Those that have not applied to schools yet got a peek into tedious but important college application procedures. Prof. Fahrenholtz gave useful tips to prevent students from being blindsided senior year.

They were also able to view global health issues, and see that their research can have a tangible affect on millions of people, and not just test tubs in a fluorescent-lighted science lab, or mice in a cage. The students must realize there are millions struggling to live every day, and their scientific study is for those people.

