The Chain Reaction

Humanitarian Solutions Worldwide

Newsletter 17 • December 1, 2014

Chemists Without Borders

Letter from the President

Chemists Without Borders has begun the Arsenic Education in Bangladesh Project and our interns have visited six high schools in Bangladesh to demonstrate how to use the Hach EZ Arsenic Test Kits. The students were enthusiastic and asked many questions. Three of the schools tested at 250 ppb arsenic which is significantly higher than the 50 ppb safe threshold in Bangladesh.

Chemists Without Borders has initiated a fundraising campaign through https://www.indiegogo.com/projects/chemists-without-borders-bangladesh-arsenic-educ-n#home to raise funds for the next phase of the project, where our goal is to scale up this effort to visit more high schools in Bangladesh. Ultimately, we plan to identify local organizations that can help to provide clean water to the schools. Please spread the word about the fundraising campaign, and remember that donations are tax deductible.

Due to the Ebola outbreak in Western Africa, Professor Rusty Myers has had to postpone his fact-finding trip to Sierra Leone. In the meantime, he is working on developing the testing protocols for the microlabs that we hope to provide to high school chemistry classes in Sierra Leone.

In collaboration with Professor Marya Lieberman at Notre Dame University, Chemists Without Borders is getting involved in using Professor Lieberman's paper analytical device (PAD) for small-scale testing of pharmaceuticals sold on the market in Africa. Learn more at https://padproject.nd.edu.

Recently, progress has been made to move forward with developing a mobile app and a database to help identify water contamination and link users to local organizations who can help, as was proposed recently by IdeaConnection solvers in response to our call for water treatment solutions.

On Sunday, August 10th, Chairman of the Board of Chemists Without Borders, Bego Gerber, was invited to give a presentation at the American Chemical Society's 2014 National Fall Conference in San Francisco, CA, in the symposium *Chemistry Plus Passions, Interests: Careers on The Road Less Traveled*. Dr. Gerber gave an excellent presentation (without slides!) discussing the power of networking and how Chemists Without Borders seeks to utilize the network of chemists that make up the largest scientific society in the world (ACS) and others.

A planning meeting for 2015 took place in San Jose, CA, on Sunday, December 14th, 2014. Details can be seen on our website and Facebook group pages.

I am looking forward to a productive 2015. Best wishes to you and your families over the holidays.

STEVEN D. CHAMBREAU, PRESIDENT AND BOARD MEMBER
STEVECHAMBREAU@CHEMISTSWITHOUTBORDERS.ORG

What's Inside this Issue

Our Mission

Chemists Without Borders solves humanitarian problems by mobilizing the resources and expertise of the global chemistry community and its networks.

Our Vision

A global support network of volunteers providing mentoring, information and advice to ensure every person, everywhere, has affordable, consistent and persistent access to:

- Essential medicines and vaccines
- Sufficient safe water
- A sustainable energy supply
- Education in green chemistry and business which people can apply in their daily lives and teach to others
- Safe processes in work environments where chemical hazards exist
- Emergency support, including essential supplies and technology

Chemists Without Borders is a registered 501(c)(3) with the Internal Revenue Service. EIN: 14-1984379

Bangladesh Arsenic Project

BY RAY KRONQUIST

This is an update to the Chemists Without Borders Arsenic Education Project in Bangladesh. The project has been in the works for some time, but it was only this past summer, when Amber Wise traveled to Bangladesh, that we actually started our work there.

Amber visited two high schools with two of her former students from when she was a professor at Asian University for Women (AUW). Amber also requested the Employment Development Center at AUW to help recruit interns. We recruited five interns for a first stage project lasting 16 weeks, which started on September 1, 2014 and ended on December 19, 2014. We are now looking for funding to extend this project another 16 weeks starting on January 5, 2015.

The Problem Persists

As many of you may know, despite many other projects, arsenic contamination of drinking water is still a problem for a number of regions in Bangladesh. The arsenic causes serious health problems which may lead to death.

Our approach uses university graduate interns to visit high schools, educate the students on the health hazards of arsenic, train them to measure the arsenic concentration, provide measurement kits, follow up with the students to collect their collected data, and connect schools with an arsenic problem with organizations that can help them transition to safe water sources.

Our goal is to demonstrate with the first phase of the project that this approach is effective and economical, and thereby generate support to scale up the project nationwide in Bangladesh.

I have been coaching the interns through e-mail and Skype conferences. Four of the interns, Anowara, Shahena, Monira and Taslima, are visiting the high schools. Nishat is working in a support capacity. She has helped get the arsenic test kits from Dhaka to AUW in Chittagong. She is also editing videos, helping transfer money, building a database for the arsenic measurements, and helping with the Indiegogo crowd funding website.

Progress to Report

The interns have visited five high schools to date, and the response has been very good, with high attendance and lots of interest and questions. Arsenic concentration measurements have been made at all of the schools, and, at two of the schools, Sitakunda School and Teriail School, the concentration was found to be 250 ppb, five times the allowable limit in Bangladesh and 25 times the U.S. limit.

On November 30, two of the interns, Anowara and Monira, met with Meera Smith of Project Well and a number of people at Dhaka Community Hospital in Dhaka, the capital of Bangladesh.

Monira and Ano presented the work that the team has done and the results they have achieved so far. They also asked for suggestions on how they might help Sitakunda School and Teriail School transition to a safe water supply.

In many respects, the project is already a success. The interns have demonstrated that they can capture the attention and interest of the high school students regarding this issue,

School #6 Vaterkhil High School

School #1 Chittagong Government Girls' High School

Despite many other projects, arsenic contamination of drinking water is still a problem for a number of regions in Bangladesh.

that they can enable the schools to measure the arsenic concentration, and they can interest the responsible people at the schools in finding a solution. The interns are already in communication with other organizations that have expertise in providing safe water.

What we need to do now is to find the funding to continue the project, contacting a larger number of schools and making more progress in helping the schools with the arsenic problem find a solution. To that end, we have started a crowd funding site on Indiegogo.com. We hope, with the results that we will have at the end of the 16 week continuation of the current project, to be able to attract funding from a larger organization and bring this operational model to scale nationwide.

See a video about the project at: https://www.youtube.com/watch?v=YDliPpiNbQw&feature=youtu.beyoutube%20link

We are grateful to the many generous donors who have funded this project. The subsequent phases of this project will require additional donations. For more information, visit https://www.indiegogo.com/projects/chemists-without-borders-bangladesh-arsenic-educ-n#home.

School #4 Sitakunda Government High School

Send us your photos

We are looking for high quality photos for our Annual Report. Please send us chemistry related photographs in your community to Info@chemistswithoutborders.org. The best photo will be featured in our 2014 Annual Report. If required, obtain and include the proper permissions for Chemists Without Borders to publish your photographs (download release form here).

MEET THE TEAM

Dr. Ray L. Kronquist, Bangladesh Arsenic Project Manager

Ray Kronquist is managing the Chemists Without Borders Arsenic Project in Bangladesh. He supervises five Bangladesh interns who visit high schools in the region around Chittagong and give presentations to the teachers and students about the health hazards of arsenic in drinking water. The interns are also training the students who volunteer on how to measure the arsenic concentration in the water, and they are leaving a testing kit with the school when they leave.

The object of the program is to make the communities more aware of the dangers of arsenic contaminated water, to make measurements to identify the unsafe wells and to help the communities connect with organizations that can help them find safe water alternatives.

Ray received his Ph.D. in physics from the Massachusetts Institute of Technology and has had a very diverse educational and professional career. He worked in the semiconductor industry for eight years, three of them in Silicon Valley and five in France. The rest of his career has been spent as an entrepreneur, starting and managing companies in the semiconductor equipment, education, real estate and poverty alleviation fields.

On a personal note, Ray enjoys playing tennis, trail running and caring for his twin two year old grandsons.

Ray can be reached at ray@kronquist.com. He may also be found on LinkedIn.

Lois Ongley Sierra Leone Project

Chemists Without Borders volunteers are moving forward on the Lois Ongley Sierra Leone Project. This project can be summarized as a "lab-in-a-bag"—we are putting together materials and lab activities that can be packaged in a Zip Lok bag for secondary students in Sierra Leone. Due to the Ebola situation a September trip to Sierra Leone to work with teachers, educators, and government officials has been postponed indefinitely.

Despite this setback we are making progress in putting together a kit to perform chemistry labs activities in schools that lack laboratory facilities. Our current work involves examining a multitude of microchemistry labs originally developed by the RADMASTE group from South Africa in conjunction with UNESCO. RADMASTE labs utilize simple inexpensive materials. Selected labs will support the Western African Examination Council's (WAEC) standards for chemistry, which should help students improve performance on WAEC qualifying exams for admission to higher education.

As we review and edit RADMASTE labs we are enhancing them with introductory materials to compensate for a lack of textbooks and including, whenever possible, relevant material to help students connect the material to their daily lives. While we are specifically concerned about supplying materials for Sierra Leone, the materials should have use in any English speaking country lacking science labs in schools. Our goal is have a minimum of a dozen labs for students and a basic kit assembled during summer of 2015.

If you have an interest in contributing to this project, please contact Rusty Myers at rmyers@alaskapacific.edu.

Volunteer Opportunity: Vice President of Development

Chemists Without Borders has an exciting volunteer opportunity for a VP of Development. Reporting to the Executive Director (ED), the Vice President (VP) of Development serves as a key leadership team member and an active participant in making strategic decisions affecting Chemists Without Borders. In partnership with the ED, this position is responsible for all fundraising and development activities. The successful candidate will help forge new relationships to build Chemists Without Borders' visibility, impact, and financial resources. The VP of Development also will design and implement a comprehensive plan for developing key external alliances by cultivating individual and philanthropic support. For more information, please see the volunteer opportunity posting here: http://www.volunteermatch.org/search/opp1833771.jsp

Chairman's Message

Chemists Without Borders continues to grow, with an increasing number of projects and collaborations in various countries. All of this is owing to the generosity of our donors and the incredible commitment and dedication of our volunteers. It is humbling for me to work with such an extraordinary team of people. Recently, we were sorry to lose the participation of one such person, Lou Ciabattoni, our Vice President of Memberships and Administration. Lou made important contributions to ideas, and to organizing and building our database of volunteers and supporters, and encouraging these people's active involvement. We miss Lou and are currently seeking a replacement for him. You, dear Reader, can assist us not only by donating your own time and resources, but also by tapping into your broader circle of contacts and connections. Thank you for your support.

The Power Is in the Network.

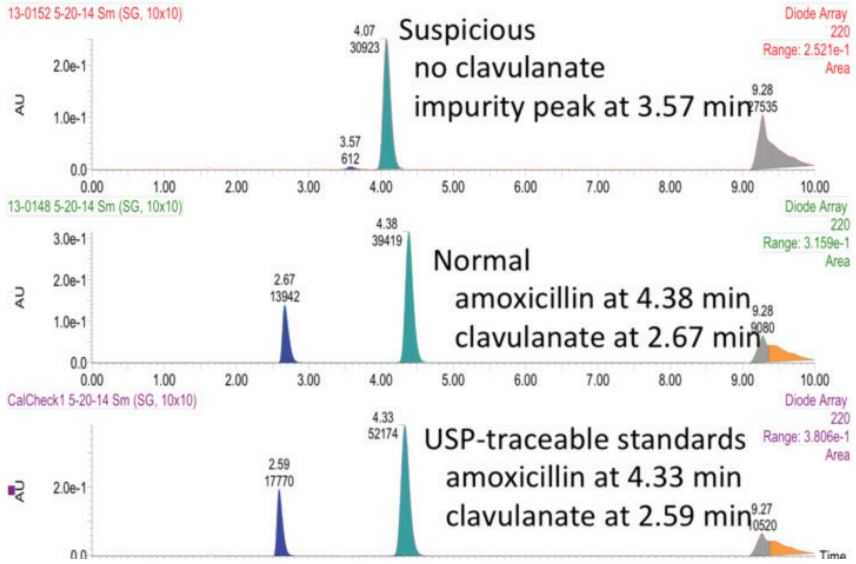
BEGO GERBER, CO-FOUNDER AND CHAIRMAN

Got Fakes?

Access to medicine is a basic human right, but as many as 1 in 3 packages of medicine sold in the developing world don't meet pharmacopeia standards (see here for an article on the cover of C&E News). Some of these products are poorly manufactured; some are degraded by bad storage conditions, and some are outright fakes in which expensive active ingredients are replaced with cheap fillers like acetaminophen, chalk, or flour. These products can cause clinical failure of treatment, and they also contribute to development of resistant pathogens and lack of trust in the country's medical system. It's an injustice that affects billions of people who happen to live in countries that lack the technological and regulatory infrastructure to ensure a safe medicine supply.

Chemists Without Borders is partnering with the University of Notre Dame (UND) to monitor the quality of life-saving medications in eastern Africa. The goal of the UND Distributed Pharmaceutical Analysis Laboratory (DPAL) project is to connect a large pool of antibiotic samples from the developing world with underutilized analytical capacity at 4-year colleges and universities. Working with faculty and students in instrumental analysis courses, HPLC methods from the US pharmacopeia will be validated on available instrumentation, and then used to assay samples collected in Kenya, Tanzania, and Uganda. Data from DPAL will be shared with the appropriate medical regulatory authorities and with the World Health Organization RapidAlert system. The DPAL project is seeking:

- college and university faculty and lab coordinators who might institute these assays in instrumental analysis or undergraduate research courses;
- student chapters of Chemists Without Borders who are looking for a service project with real impact;
- industrial chemists with pharmaceutical analysis backgrounds and HPLC expertise to act as mentors; and
- persons with expertise in logistics and database management to help ensure a smooth flow of samples and timely reporting of results.



Sample of amoxicillin-clavulanate, collected in Western Kenya in 2013, with no detectable clavulanate.

Learn More

For more information, please see the DPAL website at https://padproject.nd.edu/get-involved/distributed-pharmaceutical-analysis-lab or contact mlieberm@nd.edu. Contact Professor Lieberman at:

Prof. Marya Lieberman
Department of Chemistry and Biochemistry
University of Notre Dame
Notre Dame IN 46556, USA.

Chemists Without Borders Around the World: II CERFA Symposium in Munich

This September, the II CERFA Symposium took place in Munich (Germany) focusing the attention of the scientific society on professional activities for research scientists. Experts in different research fields had the opportunity to share their experience and passion, and to reveal the possibilities that science offers us.

Remarkably inspiring was the work of invited speakers like Thomas Kuch, the head of mission operations at the German Space Operations Center (GSOC, or DLR) and Pedro Duque, astronaut and head of flight operations at the European Space Agency (ESA) who presented the great advance of space technologies and how it influences our lives. Likewise, lectures by David del Álamo, scientific editor at "The EMBO Journal", and Michele Catanzaro, freelance journalist publishing in "Nature" and "Le Scienze", with their scientific vision showed the audience the essence of the valuable relationship between science and media.

Moreover, the symposium was partially dedicated to humanitarian aspects showing the important role of scientists in non-governmental organizations (NGOs). A great example is the talk by Jose Manuel Parceiro, the senior project manager at AFC Consultants International, in which he shared his extensive experience on international cooperation and NGOs as project manager.

Chemists Without Borders had the great opportunity to discuss its goals and current projects at the Symposium, presented by Montserrat Perez-Navarro, the external communications volunteer. Many actual topics were raised such as the gaps in solving humanitarian problems and the need for a global volunteer support network that provides mentoring, information and advice to ensure that every person, everywhere, has affordable, consistent and persistent access to basic needs.

The participation of Chemists Without Borders in such events is essential to enlarge the network and to make people aware of the current humanitarian problems in the world.

Montse Perez-Navarro presenting at II CERFA

Support Chemists Without Borders!

Please support our work with a year-end gift.
You can make a donation at http://www.chemistswithoutborders.org/index.php/donate.

Chemists Without Borders