



engineeringworldhealth

Annual Report
October 2012 - September 2013



Letter from the Board Chair and the CEO

Dear Friends,

It's been a year of growth and achievement for Engineering World Health.

Our Summer Institute gained a new academic partner and a new location, with Texas A & M University joining us as the co-sponsor of a Summer Institute in Kigali, Rwanda. Duke University continued its long and productive relationship with EWH, co-sponsoring our Summer Institutes in Nicaragua and Tanzania. All told, 58 students in the three locations fixed \$1.2 million worth of medical equipment. They indisputably saved lives; and their own lives were transformed by the experience of living in a culture very different from their own and working side by side with local health professionals in very resource poor conditions.

A survey of our alumni conducted in 2013 told us that 30% of them had already done additional volunteer work related to global health, and 60% expect to do so in the near future. 73% reported the Summer Institute experience influenced their professional/career choices; and 96% said it influenced "the way I think."

Truly, EWH's Summer Institute inspires a life-long commitment to solving problems that beset global health.

In 2013, EWH continued to build our training program for biomedical engineering technicians local to countries in the developing world. Generously sponsored by GE Foundation, our BMET training sites now include Cambodia, in addition to Rwanda, Ghana and Honduras. As we work in partnership with local technical colleges, we also "train the trainers." The programs we set up therefore become self-sustaining. After three years in Honduras, we will be wrapping up our presence there, after graduating 3 classes of certified biomedical technicians, and our partnering school will completely pick up the reins.

EWH has also worked with GE Foundation and local Ministries of Health to build biomedical engineering Centers of Excellence in Ghana and Cambodia. These clean, bright, and fully equipped facilities serve as training centers and as workshops for hospitals and the clinics throughout the region they serve.

Our University Chapters - some 25 of them in the U.S., Europe and the Middle East - continue to inspire engineering students to become engaged with design challenges to serve the health needs of the developing world. Our University Chapters also reach out to the next generation of engineers, sponsoring "kit builds" with high school and middle school children.

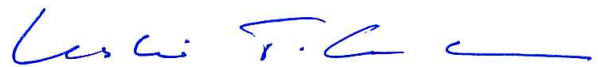
And, with the generous sponsorship of Biogen Idec, EWH has developed and taught several curricula for K-12 girls and boys to interest them in global health and give them a hands-on experience of what it feels like to do real biomedical engineering work.

Finally, 2013 saw a change in our own leadership with the addition of Leslie Calman, Ph.D. as CEO and the addition of a new office location in Washington, DC to supplement our staff headquarters in Durham, North Carolina. We are excited about the opportunity this affords us to network with our colleagues in global health.

We hope you will join us in supporting this journey to promote a vibrant international community of biomedical engineers and technicians, to ensure that no hospital, regardless of its location on the globe, will be without the skilled support staff it needs to provide top quality medical care to all patients.



*Michael R. Tracey, Ph.D.
Board Chair and President
Vice President, Research &
Development
Codman Neuro*



*Leslie J. Calman, Ph.D.
CEO*



Our Mission

To inspire, educate, and empower the biomedical community to improve health care delivery in the developing world.

Engineering World Health:

- Provides students from around the world with the life-changing educational experience of repairing vital medical equipment in the world's most resource-poor communities.
- In collaboration with local partners in Asia, Africa, and Central America, creates locally-sustainable training programs for biomedical engineering technicians (BMETs).
- Engages the next generation through K-12 STEM (science, technology, engineering and math) curricula, university chapters, and design activities to improve global health.

EWH believes we have a responsibility to stay true to these values:

- Ensuring a scientifically-based and creative educational experience.
- Leaving the communities in which we work with greater capacity than we found them.
- Finding workable solutions through innovation and creativity.
- Serving while partnering with local educators, hospitals, and clinics.
- Promoting self-reliance and capacity building.
- Providing challenge without compromising safety.



BMET Training & Centers of Excellence

Hospitals and clinics in the developing world often lack skilled biomedical technicians, resulting in constant disruption of care as vital medical equipment falls into disrepair. In partnership with the GE Foundation, AusAID, Duke University, in-country educational institutions, local Ministries of Health, and the Luce Foundation, EWH has created Biomedical Equipment Technician (BMET) Training Programs in Cambodia, Ghana, Honduras and Rwanda. Each program includes a three- to four-year curriculum which becomes an accredited academic program, and each is specially designed to fit the needs of the local population. We also train future trainers who soon take over the program, with the ultimate result that we leave the countries we work in with a sustainable source of well-trained BMETs.

Highlights of 2013:



- *Cambodia Begins* - The Cambodia BMET Training program marks our first program of any kind in Asia and we are thrilled with the progress we have made in the last year. Cambodia's first semester of BMET training finished in June with 12 students, and the second semester is set to begin in November with 25 students.

- *Rwanda starts Training Trainers* - Our oldest BMET Training program began in Rwanda in 2009. In December 2012, we celebrated as the first 17 BMET students graduated from the program. In December 2013, 17 more will join them. Most excitingly, however, we have begun to train the trainers with our local educational partner, IPRC. These instructors will soon take over the Rwanda BMET Training program, and the country will maintain its own sustainable supply of BMETs.





- *Honduras Transitions* - Started in 2010, the Honduras BMET Training program has been a great success. Twenty experienced BMETs already practicing in public hospitals graduated from an advanced training curriculum in August 2013. EWH is now in a transitional phase supporting the *Instituto Nacional de Formación Profesional* (INFOP), our educational partner. EWH facilitated a donation of medical equipment from GE Foundation to outfit the training laboratory and now provides training to three biomedical instructors. In 2014, the program will be entirely turned over to local faculty and become self-sustaining.

Centers of Excellence are state-of-the-art biomedical workshops designed to give BMETs a fully-equipped space to repair biomedical equipment and to train future technicians. These premiere facilities provide BMETs and students with training in management and proper procedures, up-to-date information, and access to the sophisticated testing, measurement, and diagnostic tools they need to understand, manage, and work effectively with modern medical equipment. With the generous support of the GE Foundation, EWH is building Centers of Excellence at Kintampo, Mampong, Axim, Apom, and Sunyani Regional Hospitals in Ghana; and has completed a Center of Excellence at Calmette National Hospital in Cambodia. We hope to build new Centers of Excellence in our other partner nations in the future.

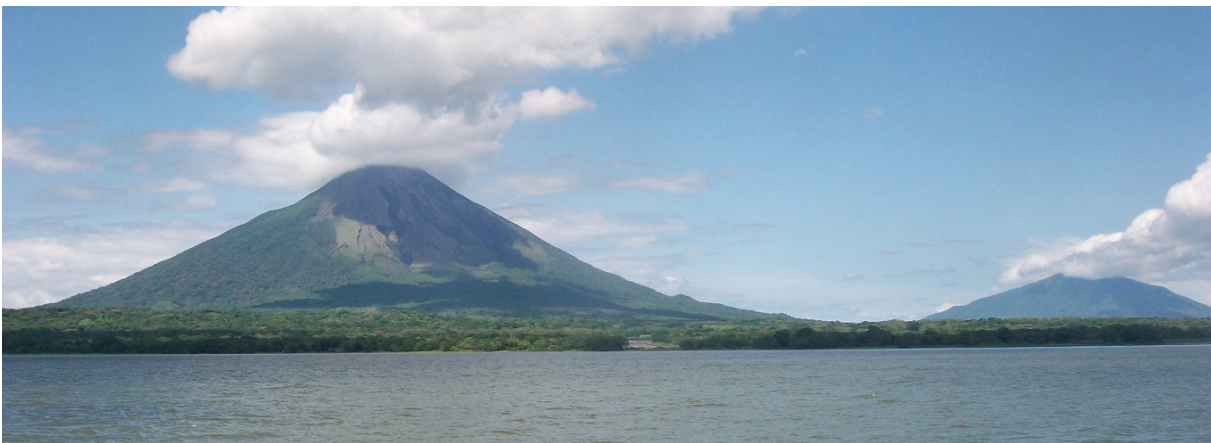


BMET Workshop in Axim Ghana before & after

Summer Institute

In much of the developing world, donated hospital equipment lies unused due to the absence of technicians to install and maintain it. In response to this need, EWH sends outstanding engineering students to Nicaragua, Tanzania, and Rwanda every summer to make an immediate contribution to the communities in which they live and work for two months. Following a month of immersive training, EWH students are placed in under-resourced hospitals where they spend the next month repairing vital medical equipment. EWH works in close partnership with Duke University and Texas A&M.

In SI 2013, Summer Institute's 10th year, 58 students from around the world, including the US, Mexico, Canada, Denmark, and the UK, repaired an estimated \$1.2 million worth of life-saving technology. Repairs are made on any equipment the hospital needs to function, ranging from stethoscopes to ultrasound machines, washing machines to back-up power generators. Students also exercise creative problem-solving skills to perform special projects around the hospitals in collaboration with the medical staff.



Nicaragua

21 students repaired 250 pieces of equipment and completed 10 special projects, including securing oxygen tanks, installing hand sanitizers, enhancing waiting spaces, decorating a cafeteria, sewing blankets and seat cushions, and more.



"One day, a nurse in the maternity ward gave us a broken Fetal Doppler, her only one, and a box of "trashed" ones and we mixed and matched parts until we had 3 working dopplers. ...Just the look on [the nurse's] face when she saw those dopplers made my heart leap." - Hannah Haire

Tanzania

24 students repaired 240 pieces of equipment and completed 11 special projects, including installing clotheslines, outlets, shelving, and space heaters; converting storage rooms into an engineering office, an exam room, and a neonatal ward; and creating a new set of bili lights.

“This experience would really help anyone to grow, learn about yourself, how you react to different cultures, your own ability to adapt to different situations, learn how to work in conditions completely different than the ones you’re used to.” - Christine Schindler



“If I ever have the opportunity to do something similar again I would do it in a heartbeat, because it is so rewarding, not only for me, but for the staff at the hospital, and the people they need to treat.” - Sonny Meyer

Rwanda

Our newest Summer Institute began this year in Rwanda. 13 students repaired \$225,000 worth of equipment in 112 pieces. Students also renovated BMET repair shops alongside our BMET training program students.

“Musanze was so much more than I could have imagined. The Northern Province of Rwanda is so beautiful. We worked so hard over the last month to clean our workshop, repair 27 different pieces of medical equipment, and secure an entire room of oxygen tanks. ...I would not trade this experience for anything in the world.” - Jamie Moreno



Student Programs

University Chapters raise awareness among students regarding health care challenges that beset the developing world and the medical technology issues unique to resource-poor settings. Participation in EWH Chapters helps students connect to a global network of biomedical engineers committed to solving health challenges and introduces them to ways they, too, can make a difference.

In 2013, 25 student chapters from universities all over the world affiliated with EWH.

Cal Poly San Luis Obispo
 Case Western Reserve University
 Clemson University
 Cornell University
 Duke University
 ITESM Chihuahua, Mexico
 ITESM Monterrey, Mexico
 Johns Hopkins University
 Lund University, Sweden
 Marquette University
 NIBE-FUTO, Nigeria
 North Carolina State University
 Northwestern University

Purdue University
 Stony Brook University
 Texas A&M University
 University of California, San Diego
 University of Illinois at Chicago
 University of Maryland, College Park
 University of Michigan
 University of Portland
 University of Science & Technology,
 Yemen
 University of Texas, Austin
 Washington University in St. Louis
 Western New England College

EWH University Chapters provide students with the unique opportunity to participate in a variety of student programs:



Northwestern Chapter (above) and Western New England University Chapter (right)





STEM Outreach - University students volunteer to teach K-12 students, sometimes using EWH-designed Kits, providing young students an introduction to the possibilities of biomedical engineering careers.

Kits provide hands-on training, insight and understanding of important biomedical engineering concepts and the practical electronic fabrication skills needed by both engineers and technicians. Kits are used in developed country university settings to teach fundamentals of electronics and to provide service opportunities for our university Chapters.



Design Competition - EWH Chapters are also invited to participate in our annual Design Competition for cash prizes. Through extensive interviews with health care providers in developing countries, EWH identifies health care challenges specific to the developing world and then asks teams to design new technologies that might deliver the most positive impact for patients in these settings.

The 2013 winners are:

*Washington University in St. Louis for their Biliblanket,
Clemson University for their Glucometer, and
John Hopkins University for their Oxygen Analyzer*

STEM K-12 Education

EWB-designed Science, Technology, Engineering and Math (STEM) curricula have been taught at NC State University Summer camps for the past 2 years. This year, EWB partnered with Biogen Idec and NC State University to reach 256 middle- and high-school students with activities such as the building of phototherapy lights and ECG Simulators.

With the support of Biogen Idec, EWB looks forward to expanding this program in the coming years.



STEM Family Night

Girl Scouts & NCSU EWB Chapter



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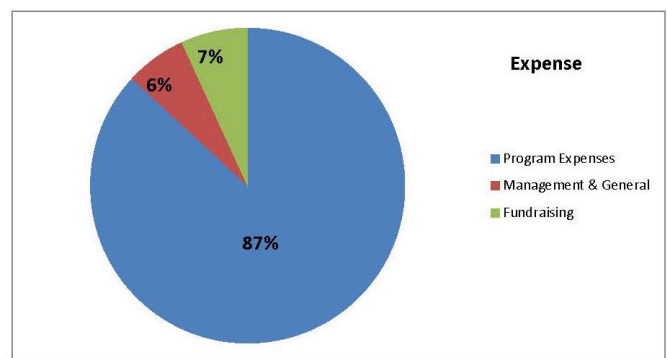
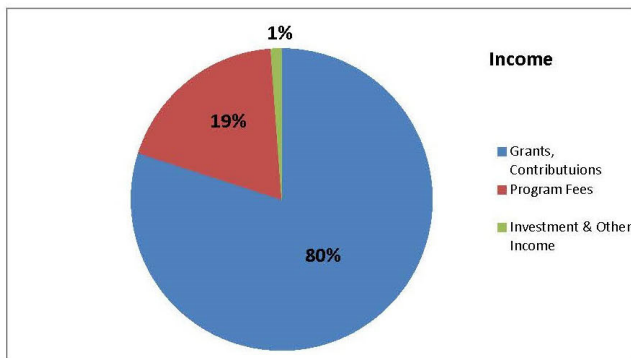
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Leslie J. Calman, Ph.D.
Engineering World Health, CEO
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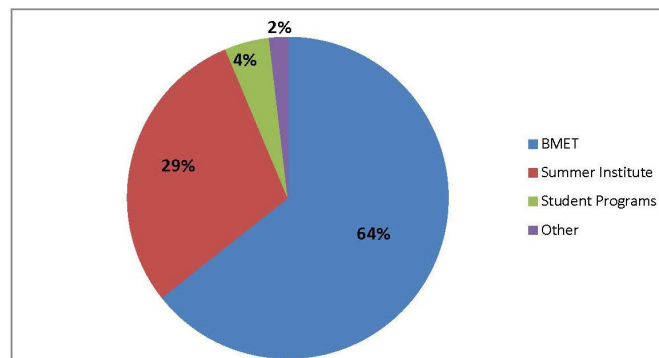
Engineering World Health Statements of Financial Position

Statement of Activities	FYE 9/30/13	FYE 9/30/12
Revenue, Support, & Other Income		
Grants & Contributions	\$ 1,688,867	\$ 1,410,194
Program Fees	\$ 397,980	\$ 352,789
Investment & Other Income	\$ 24,652	\$ 31,519
Total Revenue, Support, & Other Income	\$ 2,111,499	\$ 1,794,502
Expenses		
Program Expenses	\$ 1,520,566	\$ 1,160,461
Management & General	\$ 109,198	\$ 105,353
Fundraising	\$ 120,013	\$ 191,300
Total Expenses	\$ 1,749,777	\$ 1,457,114
Net Assets		
Change in Net Assests	\$ 361,722	\$ 337,388
Net Assets at Beginning of Year	\$ 912,827	\$ 575,439
Net Assets at End of Year	\$ 1,274,549	\$ 912,827

Income and Expenses



Spending By Program



2013 Funding Partners

Foundation and Corporate

Donors:

Biogen Idec	Hamilton Roddis Foundation
CAD Industries	The MGive Foundation
Covidien	The Donald & Alice Noble Foundation
Fenton Moorhead Evangelistic Association	Ortho Clinical Diagnostics
FJC	Rotary Club of McKees Rocks
GE Foundation	Tensentric
Global Giving Foundation	

Special thanks to the Wallace H. Coulter Foundation for the early and generous support that enabled us to grow.

Individual Donors:

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Thank you to everyone who has supported Engineering World Health! Your generous contributions build a healthier future.

Saving Equipment Is Saving Lives



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