



WE CARE SOLAR

Co-Founders

Laura Stachel, MD MPH
Executive Director

Hal Aronson, PhD
Director of Technology

Directors

David Bank, M.A.
Alan Saldich, M.B.A.
Jane Adams, M.A., M.F.A.
Karina Garbesi, Ph.D.

Fast Facts

Founded: 2008

Selected Locations:

Nigeria
Haiti
Liberia
Rwanda
Tanzania
Burma
Nicaragua

Selected Honors

Tech Award Laureate, 2011
Ashoka Changemakers Award
Pop!Tech Fellowship, 2010
Jefferson Award for Public Service, 2010
Global Social Venture Competition SIA, 2010
UC Berkeley Chancellors Award
Global Social Benefit Incubator Fellowship, 2010
Elle Magazine Green Award, 2011

Contact

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Maternal Mortality: Frequently Asked Questions

Q: What problem is WE CARE Solar tackling?

A: WE CARE Solar is seeking to reduce maternal mortality in the developing world.

The risk of dying from pregnancy-related causes for a woman during her adult lifetime is 1 in 120 for women in the developing countries, compared to 1 in 4,300 in the developed world.¹ In northern Nigeria, where WE CARE Solar began its work, the lifetime risk of dying from pregnancy complications is 1 in 13. Most maternal deaths occur in regions where health clinics lack reliable electricity. Even in urban hospitals, electricity is often unavailable for many hours each day. An estimated 358,000 maternal deaths occurred worldwide in 2008.

Q: Where is maternal mortality the highest?

A: Sub-Saharan Africa has the highest maternal mortality ratio (MMR) of 870 deaths per 100,000 live births. This compares to a maternal mortality ratio of 13 deaths per 100,000 live births in the US.

Q: What progress has been made toward meeting the Millennium Development Goal of reducing the maternal mortality ratio by three quarters between 1990 and 2015?

A: From 1990-2008, both the number of maternal deaths and the maternal mortality ratio fell by a third worldwide, but progress has been slower in sub-Saharan Africa. According to UNICEF, "While there is progress to celebrate, efforts to save lives must be accelerated."

Q: How does the Solar Suitcase improve healthcare and save lives?

A: Around the world, 15% of pregnant women develop complications. The most common life-threatening complications of pregnancy (hemorrhage, obstructed labor, eclampsia, and infection) are highly treatable and need not result in maternal death. Prompt emergency obstetric care by skilled providers is essential to prevent loss of life. Safe, effective medical procedures are difficult and in some cases impossible to perform without adequate light and reliable communication systems.

Healthcare workers using the Solar Suitcase report greater facility and ease in conducting procedures at night. Improved lighting allows health workers to identify and treat complications such as hemorrhage and obstetric lacerations, and allows emergency Caesarean sections to be performed throughout the night. Solar-powered cell phones and walkie-talkies allow a surgical crew to be alerted when obstetric emergencies require immediate surgery. With blood bank refrigeration, life-saving transfusions occur without delay.

¹Trends in Maternal Mortality 1990-2008; WHO, UNICEF, UNFPA and The World Bank (2010).





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WE CARE Solar: Frequently Asked Questions

Q: What does WE CARE stand for?

A: Women's Emergency Communication and Reliable Electricity.

Q: How did the project get started?

A: In 2008, obstetrician Dr. Laura Stachel was studying at UC Berkeley and joined a collaborative research team in Nigeria, where maternal mortality rates are among the highest in the world. She was shocked to see women dying from treatable conditions even in a state hospital in a large city. She found that a simple lack of lighting and electricity contributed to many deaths. She watched midwives struggle to deliver women by kerosene lantern, doctors perform Caesarean sections by flashlight, and critically ill women turned away from the hospital when the power was out. Back home, Laura's husband, Hal Aronson, a solar educator and engineer, designed a small solar electric system for Laura to take to Nigeria in her luggage – the first “solar suitcase.”

Q: What's next for WE CARE Solar?

A: We are refining and testing our early Solar Suitcase design. Field tests at a dozen health facilities in northern Nigeria in the fall of 2011 will provide clinician feedback on the use and design of the solar suitcase. A refined design will go into production by the end of the year, and we plan to ramp up distribution in 2012. Over time, we aim to provide Solar Suitcases to many of the 300,000 health facilities around the world without reliable electricity.

Q: What is WE CARE's business model?

A: WE CARE is a nonprofit organization with a mission to promote safe motherhood. Ministries of health, international agencies and NGOs can purchase Solar Suitcases directly; many systems have been financed by foundations and third-party payers. WE CARE Solar raises additional money from individual donors and other funders to subsidize Solar Suitcases for facilities without other resources.

Q: What kind of recognition has WE CARE received?

A: WE CARE Solar has been recognized with numerous honors, including the 2011 San Jose Museum Tech Laureate Award, 2010, the 2010 Jefferson Public Service Award, the 2010 Our Bodies Ourselves Heroes Award, the 2010 PopTech Fellowship and the Ashoka Changemakers Award, among others. WE CARE was one of three winners of New York Times columnist Nicholas Kristof's “Half the Sky” contest.

WE CARE has been featured in The New York Times, Psychology Today, Fast Company, National Public Radio and many other news outlets. ABC World News documented the WE CARE Solar mission to Liberia to install Solar Suitcases in 20 rural health clinics.





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The Solar Suitcase: Frequently Asked Questions

Q: What is the Solar Suitcase?

A: The WE CARE Solar Suitcase is a high-quality, portable and easy-to-use solar electric solution designed for medical facilities in low-resource settings. This carry-on suitcase includes: solar panels, battery, charge controller, outlets, and LED lights. The system can be expanded to power larger medical equipment. WE CARE provides training, monitoring, and in-country servicing of the Solar Suitcase by our own staff or local field partners.

Q: What can the Solar Suitcase do?

A: The Solar Suitcase provides 12-volt DC power for:

- * High-efficiency and durable LED lighting for obstetrics and surgery;
- * LED headlamps for health workers;
- * Cell phones and two-way radios for emergency communication;
- * Fetal Doppler and other battery-powered devices;
- * Laptop computers for health library and medical records.

The 15-amp Solar Suitcase comes with 40 or 80 watts of solar panels and a 12 amp-hour battery. The suitcase can support up to 200 watts of solar panels and a 150 amp-hour battery - enough electricity for blood refrigeration, portable ultrasound, or other medical devices. We are working with partners to develop 12-volt medical appliances that integrate with the Solar Suitcase.

Q: What makes the Solar Suitcase different from other solar-powered products?

A: WE CARE Solar's mission is to provide light for childbirth and other life-and-death situations; we have challenged ourselves to build systems that do not fail. WE CARE Solar ensures energy is always available for critical lighting. The solar panels are sized to fully charge batteries every day, prolonging battery life. Our durable medical LED lights are encased in acrylic and are waterproof, with an estimated lifetime of 20 years. Our system does not require a skilled technician to install; it is ready for operation after a simple set up.

Q: How many Solar Suitcases have been deployed around the world?

A: By the end of 2011, nearly 100 Solar Suitcases are expected to be in use, primarily in Nigeria, Liberia, and other African countries. In addition, Solar Suitcases are operating in Haiti, Mexico, Tibet and in Burma. We expect to scale up production and distribution in 2012.

Q: How much does the Solar Suitcase cost?

A: The estimated cost of a complete Solar Suitcase with medical lights, headlamps, fetal doppler and cell phone charger is about \$1,500.





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WE CARE Solar: Co-Founders



Laura Stachel, M.D., M.P.H., is the Executive Director of WE CARE Solar. Laura is a board-certified obstetrician-gynecologist with fourteen years of clinical experience. She has an M.D. from University of California, San Francisco and an M.P.H. in Maternal and Child Health from University of California, Berkeley, where she is a Dr.PH. candidate, a lecturer at the School of Public Health and an editor for the University of California Berkeley Wellness Letter. Laura is Associate Director of Emergency Obstetric Research for the Bixby Center for Population Health and Sustainability

and was a principal investigator for a collaborative Population Council study aiming to improving the standard of maternity care in Nigerian state hospitals. She is the principle investigator for a research study on the solar suitcase funded by The MacArthur Foundation.



Hal Aronson, Ph.D., is the Technical and Education Director for WE CARE Solar. Hal has been a leading solar educator and workforce trainer, creating project-based learning and curriculum for students of all ages. He is co-director of Solar Way Forward, a solar design, education, and consultation firm, co-created the Solar Schoolhouse curriculum for high school and middle school teachers, and created California Youth Energy Services, a service learning program that prepares youths for jobs in energy efficiency. He helped

establish the Green Building certification program at Ohlone Community College and leads many professional development workshops. He earned his Ph.D. in environmental sociology from UC Santa Cruz; his dissertation focused on the growth of the environmental justice movement.

Supporters

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