

# Impact of the We Care Solar Suitcase

## The Solar Suitcase:

- Empowers health workers and improves their capacity to manage deliveries
- Supports health workers' timely response to obstetric emergencies
- Enables appropriate referrals
- Incentivizes women to deliver at the facility and often increases utilization of services
- Can decrease maternal mortality and morbidity when paired with other initiatives

*"Having the light changed the lives of the health workers, the lives of the patients, even the lives of the patient relations. It changed everything." Midwife, Nigeria*

## The Importance of Reliable Electricity for Maternal-Newborn Care

No woman should die giving life. Yet every year around the world, 300,000 women lose their lives from complications of pregnancy and childbirth and more than one million newborns don't survive their day of birth, often in energy-deficient health facilities. Hundreds of thousands of health facilities lack reliable electricity. The consequences are tragic. Health workers struggle in near-darkness, unable to detect life-threatening conditions, treat complications or deliver timely emergency care.

## Innovative Technology Solution: The Award Winning Solar Suitcase®

International NGO We Care Solar developed a solution: a compact solar electric system designed for maternal health care. The We Care Solar Suitcase is a safe, durable, and rugged power system with an easy user interface that facilitates successful obstetric care by providing health workers with:

- Medical quality, waterproof LED lights,
- Rechargeable headlamps,
- An electronic fetal Doppler to monitor fetal well-being, and
- Power for mobile communication and 12v DC devices.



## Impact Summary

We Care Solar is committed to making a measurable impact on obstetric care by improving access to reliable electricity. Since 2010, we have been documenting the experiences of health workers around the world working in energy-poor health centers. Without electricity, health workers are forced to work in near-darkness with a compromised ability to assess medical conditions, utilize electronic devices, assemble emergency teams, and provide urgent care. Health workers postpone critical procedures until morning. They describe their fear of nighttime duties – both because they cannot provide essential services and also because they fear for their own safety.

The Solar Suitcase transforms health workers' ability to provide quality obstetric care. Health workers describe greater confidence and improved morale as they diagnose and treat childbirth complications. Surgeons can perform nighttime cesarean sections and other surgeries. With the fetal

monitor, midwives can detect fetal well-being or distress. Having the ability to charge cell phones give health workers the capacity to call for help, get advice, and to make appropriate referrals.

### How the Solar Suitcase Improves Obstetric and Newborn Care



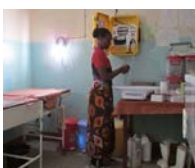
Facilitates around the clock lighting for c/sections



Provides fetal heart rate monitoring



Enhances capacity to diagnose and treat obstetric complications



Enables cell phone charging for emergency referrals



Improves health worker morale



Increases utilization of maternal skilled care

### Maternal Healthcare Without Reliable Lighting and Electricity

Our research clearly indicates that maternal healthcare without reliable light and electricity can result in hazardous and even life-threatening situations. Health workers must use inadequate sources of light for care, delay critical procedures until morning, and are at risk of contamination. Morale is low for both health workers and patients.

**1) Health workers must use unreliable and even dangerous sources of light.** Without reliable lighting, health workers are forced to conduct procedures by the dim light of candles, mobile phones, and kerosene lanterns. We have heard of instances of fires in the facilities or wax burns on mothers. Health workers are unable to communicate because they must hold the light source in their mouth, or struggle to use both hands because one is holding a light source.



*"We had to use the cell phone light for tear cases and it was very difficult. We can't show light and suture at the same time so we used to hold [the] phone in our mouth to show light."*

**2) Health workers postpone diagnosis and critical treatment until morning or even send patients away.** Health workers often wait to conduct procedures until morning because they cannot see sources of bleeding or identify location of tears. Without adequate light, health workers are

unable to start IV lines, sterilize equipment, find it difficult to observe blood and fetal meconium, read the name of necessary medications, and find equipment. Without reliable power, they cannot charge their phones to arrange for life-saving referrals or charge basic medical equipment like a fetal monitor.

**3) Working in the dark demoralizes health workers and patients, and increases the risks of contamination.** Health workers describe working in the dark as very hard, stressful, uncomfortable, unbearable, risky, unprofessional, frustrating, and fearful. They also express concern around contamination by dropping light sources in blood and fluids, and several health workers even describe that they are risking their lives to care for patients. Many say they fear working in the dark and that patients lose their confidence and interest in delivering at the facility.

### **Maternal Healthcare After Installation of a Solar Suitcase**

Health workers describe significant improvements in quality care after installation of the Solar Suitcase. They are better able to quickly and efficiently manage emergencies. They feel less stressed and reassured knowing they have reliable lighting, which also improves their relationships with the patients. They report an increase in the number of deliveries and antenatal care visits, and when combined with other interventions, the Solar Suitcase has led to a decrease in maternal mortality.

**1) The Solar Suitcase empowers health workers and improves their capacity to manage deliveries.** Health workers consistently report improved worker morale and confidence after installation of the Solar Suitcase. They are better able to do their job, respond to emergencies when they occur, and refer only when necessary. The Solar Suitcase enables a sanitary and safe environment. Health workers can also reliably call for ambulances, use their phones to call doctors or patients, and monitor fetal heart rate using the fetal Doppler.



**2) The Solar Suitcase supports health workers' timely response to obstetric emergencies.** With the Solar Suitcase, health workers can better manage emergencies. They can detect breech presentations, manage obstetric hemorrhage and retained placentas, properly repair lacerations, and conduct neonatal resuscitation at night. Health workers are also able to handle emergencies throughout the night and not postpone essential procedures until morning when they have natural light.

*"A mother came very early in the morning, at about 5 am. She had already delivered at home, but had continuous bleeding so she came to the facility. She had a retained placenta. The Solar [Suitcase] light helped me remove the retained placenta and save the mother. Before the Solar [Suitcase], the light from the cellphone would not be enough to take care of this woman. If I was to wait until morning she would die from too much bleeding."* Nurse, Tanzania

**3) The Solar Suitcase enables appropriate referrals.** The Solar Suitcase improves appropriate referrals, due to having light to better examine a patient, a charged phone to call for a referral, and using the fetal Doppler to confirm a high-risk case. Health workers no longer refer patients unnecessarily simply due to a lack of light.

**4) The Solar Suitcase incentivizes women to deliver at the facility and often increases utilization of services.** Because lighting improves health workers' ability to do their jobs and reduces the cost for mothers to deliver at the health facility, several health workers report an increase in the number of deliveries since installation of the Solar Suitcase. We have seen anywhere from a 5-30% increase in the number of deliveries and antenatal care visits after Solar Suitcase installation.

**5) The Solar Suitcase, as part of a larger set of interventions, can contribute to a reduction in maternal mortality and morbidity.** We Care Solar maximizes our impact by working with organizations that focus on improving maternal and newborn outcomes. Our Solar Suitcase programs complement the work these organizations are doing to improve maternal and newborn outcomes, and when healthcare facilities throughout a district receive reliable light as part of a comprehensive approach to strengthening maternal-newborn care, the results are impressive. Our regional programs with international NGOs in three countries showed reductions in maternal and newborn mortality.

**Uganda:** AMREF Health Africa led a three-year study of a Solar Suitcase program in 100 Southwest Ugandan health facilities, supported by the Saving Lives at Birth Program. This 2013-2016 program included the provision of laptop computers, continuing education for midwives, and community empowerment. Program results showed improvements in quality of care resulting in a 50% reduction of maternal mortality, 67% fewer perinatal deaths, and an 80% increase in nighttime deliveries at skilled health facilities.

**Tanzania:** Pathfinder International included Solar Suitcases in its Mobilizing Maternal Health Project in two districts. In addition to Solar Suitcases, Pathfinder engaged community health workers and provided emergency transportation for obstetric and newborn emergencies. This 2016 program resulted in a 40% decrease in maternal mortality and a 46% decrease in neonatal mortality.



**Nigeria:** When Pathfinder International began working to improve maternal and child care in Cross River State in 2016, only 57% of 812 assessed facilities had access to electricity. Others relied on kerosene lanterns or battery-operated torches for nighttime emergency care. After providing Solar Suitcase to facilities without reliable power, there was a 55% reduction of the maternal mortality ratio and 40% reduction of perinatal mortality.

## Reach

We Care Solar envisions a world where mothers and newborns are delivered safely in well-equipped health facilities. To date, We Care Solar has:

- Equipped more than 10,000 health facilities with reliable light and power in 49 countries,
- Partnered with over 85 local and international organizations,
- Served more than 18 million mothers and infants,
- Averted more than 125,000 tons of CO2 emissions, and
- Trained more than 42,000 health workers.