

Abstract G259(P) Table 2 Studies ranked against the hierarchy of evidence framework

Author, Date, Study Design	Effectiveness of intervention	Appropriateness of intervention	Feasibility of intervention
Agarwal, R. et. al, 2007, Before and after	Fair	Not specified as per framework	Fair
Arif & Arif, 1999, Prospective matched case-control	Good	Good	Fair
Conde-Agudelo, A., Diaz-Rossello, J., 2014, Systematic review of RCT	Excellent	Excellent	Excellent
Msemo, G. et. Al, 2013, Before and after	Fair	Not specified as per framework	Fair
Mufti, P., Setna, F. & Nazir, K., 2006, Before and after	Fair	Not specified as per framework	Fair
Van Der Mei, 1994, Descriptive study	Poor	Fair	Good

The values excellent, good, fair, or poor were designated based on the varying strengths of different research designs according to the Hierarchy of Evidence. The framework evaluates three dimensions of the intervention: effectiveness, appropriateness and feasibility.

### G260(P) EFFECT OF SOLAR PANELS ON IN-PATIENT PAEDIATRIC MORTALITY IN A DISTRICT HOSPITAL IN SIERRA LEONE

<sup>1,2,3</sup>B Morrissey, <sup>2</sup>N Conroy, <sup>3</sup>A Estelle. <sup>1</sup>Paediatrics, Homerton University Hospital NHS Trust, London, UK; <sup>2</sup>Paediatrics, Bo Government Hospital, Bo, Sierra Leone; <sup>3</sup>Willing and Abel, Norwich, UK

10.1136/archdischild-2015-308599.253

**Background** Sierra Leone has one of the highest child mortality rates in the world. Most of these deaths are due to pneumonia, malnutrition, diarrhoea, malaria and neonatal causes, with hypoxia often being the final factor. Electricity reaches less than 10% of the population in Sierra Leone. This is a significant challenge for health facilities, as without a constant supply of electricity they cannot administer oxygen (provided by oxygen concentrators,) or have reliable lighting. Fuel to run generators is expensive, and there are frequent fuel shortages.

**Methods** In conjunction with a local non-for-profit organisation we designed a hybrid solar power system to support the electricity needs of a paediatric department in a district hospital in Sierra Leone. The system was designed to provide lighting and electricity to power two oxygen concentrators. The solar power system along with low-energy lights was installed in July 2013. The hospital had received training in ETAT (Emergency Triage, Assessment and Treatment) and set up a paediatric triage sixteen months prior to this.

We retrospectively analysed in-patient paediatric mortality pre and post solar power installation, to evaluate whether there was any impact on mortality. In order to minimise any differences seen being due to seasonal variations in mortality we collected data during the same six months of the year, pre and post solar power installation. Data was analysed in Stata 12.1 using Wilcoxon signed rank test.

**Results** From August 2012 to January 2013, 920 children were admitted to the paediatric wards, and from August 2013 to January 2014 902 children were admitted. Mean in-paediatric mortality across the six-month period prior to solar panel installation was 3.7% (95% CI 2.0–5.3%), which reduced to 1.8% (95% CI 0.5–3.0%) in the six-month period after solar panel installation;  $p = 0.028$ .

**Conclusions** The installation of solar panels was associated with a reduction in mortality in one paediatric department. The cost effectiveness of this intervention in comparison to other interventions, and its longer-term impact on child mortality requires further evaluation. This initiative could be effective at reducing paediatric mortality in other similar low-resource settings, with limited access to electricity, in combination with other improvements to paediatric hospital care.

### G261(P) ENERGY EXPENDITURE IN THE THIRD TRIMESTER IN RURAL PREGNANT WOMEN IN JUMLA NEPAL: A PILOT STUDY USING THE ACTIHEART ACCELEROMETER

<sup>1,2</sup>H Costello, <sup>1,2</sup>J Talbot-Ponsonby, <sup>1,2</sup>S Dulal, <sup>1,2</sup>B Bhandari, <sup>1,2</sup>D Adikari, <sup>1,2</sup>T Cracknell, <sup>1,2</sup>N Saville. <sup>1</sup>Institute for Global Health, University College London, London, UK; <sup>2</sup>MIRA, Mother and Infant Research Activities, Kathmandu, Nepal

10.1136/archdischild-2015-308599.254

**Aims** Two markers show a constant positive association with infant birth weight: maternal pre-pregnancy weight for height and weight gain during pregnancy. Both are dependent on a positive energy balance in pregnancy where nutritional calorific intake is greater than energy expended.

Our pilot study used the Actiheart accelerometer device that measures continuous ambulatory activity and heart rate to