Improving Obstetric and Neonatal Care in Ghana Using a Multidisciplinary Approach and Continuous Quality Improvement

Abstract Type: Original Research
Medge Owen, M.D. 1; Adeyemi Olufolabi, M.D. 2; Vernon Ross, M.D. 1; Emmanuel Srofenyoh, M.D. 3; Thomas Ivester, M.D. 4; Cyril Engmann, M.D. 4
Wake Forest University 1; Duke University Medical Center 2; Ridge Regional Hospital 3; University of North Carolina 4

Introduction: Maternal and newborn mortality remain high in Africa because disparity exists between best practices and existing healthcare. Institutions lack trained staff, evidence-based treatments, medication, equipment, blood products, prompt cesarean delivery, multidisciplinary care and systems improvement strategies (1). Maternal and infant mortality are basic health indicators that reflect the overall adequacy of a healthcare system. In 2007 Kybele and the Ghana Health Service partnered to reduce maternal and neonatal death at a large urban hospital through the development of a quality improvement model.

Methods: Systems and patient care processes were analyzed and a model was created integrating continuous assessment, implementation, advocacy and outcomes. Key interventions were grouped within personnel-based, systems-management based, and service-quality based bundles (Figure). Implementation was evaluated tri-annually using a color-coded grading system and outcome data was collected. Statistical analysis was performed with Chi-square or Fischer’s Exact test as appropriate (p<0.05).

Results: There has been a decrease in maternal death related to pre-eclampsia and hemorrhage at Ridge Regional Hospital despite an increase in patient volume (Table). Case fatality rates for pre-eclampsia and hemorrhage decreased from 3.1 to 1.1% and 14.8 to 1.9%, respectively. Still births have also been reduced by 36% since beginning the program in 2007. The maternal mortality ratio decreased from 496 maternal deaths/100,000 live births in 2007 to 328/100,000 in 2009 (p=NS).

<table>
<thead>
<tr>
<th>Year</th>
<th>Total deliveries</th>
<th>Maternal deaths</th>
<th>Pre-Eclampsia</th>
<th>Hemorrhage</th>
<th>Still births</th>
<th>Still births/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>6049</td>
<td>30</td>
<td>321</td>
<td>10</td>
<td>54</td>
<td>8.5</td>
</tr>
<tr>
<td>2008</td>
<td>7465</td>
<td>29</td>
<td>581</td>
<td>8</td>
<td>99</td>
<td>5.4*</td>
</tr>
<tr>
<td>2009</td>
<td>8230</td>
<td>27</td>
<td>994</td>
<td>11*</td>
<td>319</td>
<td>6* 48*</td>
</tr>
</tbody>
</table>

Table: Delivery and mortality trends at Ridge Regional Hospital in Accra, Ghana. *P < 0.05 for 2008 or 2009 compared to 2007.

Conclusion: Maternal and newborn mortality can be reduced in low-resource settings when appropriate models for continuous quality improvement are developed and employed.


Acknowledgements: This work was supported by grants from the International Association for the Study of Pain (IASP) and the Lacy Foundation.
Extra Files: