ABSTRACT

***Introduction*.** Respiratory distress (RD) contributes to common causes of neonatal mortality. Bubble continuous positive airway pressure (bCPAP) is a safe, low-cost therapy for RD; however, adoption of bCPAP programs remains challenging. *Aim*. To increase the percentage of neonates with RD treated with bCPAP from 2% to 25% by January 2019.

***Methods*.** In the newborn unit (NBU) at the Nakuru County and Referral Hospital in Kenya, a pre-initiative (pre) period (March 2016 to December 2017) and a post-initiative (post) period (January 2018 to December 2018) were defined. Tests of change included organization of infrastructure, staff trainings, development of a nurse educator role, and treatment protocols. Clinical and outcome data were abstracted from all available medical records.

***Results*.** A total of 405 infants were included in the pre group, with 2% bCPAP use. A total of 1157 infants were included in the post group, with 100 (17.6%) treated with bCPAP. bCPAP use increased during the post period. Rates of RD (49.9% pre, 49.0% post, $P = .64$) and mortality (30.9% pre, 29.1% post, $P = .35$) were similar. Neonates treated with bCPAP had lower mean birth weight and a higher risk of death (relative risk = 1.41, 95% confidence interval = 1.21-1.65) compared with those not treated with bCPAP.

***Conclusion*.** It was possible to build capacity for the use of bCPAP to treat neonates in this low-resource setting. Gaps in the delivery bCPAP remain, and the current capacity in the PGH NBU allows for application of bCPAP to smaller, likely, sicker neonates.

Keywords: Kenya; bubble CPAP; global health; implementation; low-resource setting; neonate; quality improvement; respiratory distress.