Introduction:
Supplemental oxygen administration is ubiquitous in the critical care environment, yet evidence is mounting for the deleterious effects of hyperoxia (1). Concerns over the adverse effects from hypoxaemia often exceed those of hyperoxaemia in developing world settings, and inconsistent availability of blood gas monitoring may limit judicious oxygen titration. The aim of this project was to audit oxygen delivery practice and introduce QI measures to avoid excess oxygen delivery in a tertiary ICU in Lusaka, Zambia.

Methods:
A prospective snapshot of ventilatory parameters were recorded for critically ill patients over a 5-week period, including positive end expiratory pressure (PEEP), FiO\textsubscript{2}, and time-course SpO\textsubscript{2}. Systematic education was provided through group and one to one tutorials to empower nursing and medical staff to titrate oxygen safely and appropriately. Repeat data collection was then performed over 4 weeks.

Results:
Initially 18/30 patients (60%) were over-oxygenated, as defined by FiO\textsubscript{2} >0.5 and SpO\textsubscript{2} consistently >95%. 12/18 patients with an FiO\textsubscript{2} of >0.5 had PEEP ≤ 5cm (67%). No patient had a PaO\textsubscript{2} recorded in the past 24 hours. Education was provided as well as implementation of unit protocols above all patient beds documenting a stepwise approach to titration PEEP and FiO\textsubscript{2}. Post intervention fewer patients were over-oxygenated: 7/21 (33%) had FiO\textsubscript{2} >0.5 and SpO\textsubscript{2} consistently >95%, and 7/18 with an FiO\textsubscript{2} >0.5 (39%) had a PEEP ≤ 5cm. In addition, 7/21 (33.3%) had a PaO\textsubscript{2} recorded within 24 hours.

Conclusion:
This QI project has shown that nurse engagement and systematic education to titrate FiO\textsubscript{2} and PEEP can be achieved in a resource poor setting and may decrease the incidence of hyperoxia in critically ill patients. Availability of blood gas monitoring and knowledge of interpretation was a major barrier to oxygen titration

References: