

Supplementary Online Content

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eAppendix. Methods

eTable. Study sites and number of patients enrolled at each site

This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix

Methods

Continuous monitoring, intermittent monitoring, and weaning protocol

Continuous pulse oximetry monitoring group

Patients will be placed on continuous pulse oximetry from admission until discharge. Management of oxygenation status will be as outlined below.

Intermittent pulse oximetry monitoring group

Patients with SpO₂ of $\geq 90\%$ will undergo pulse oximetry monitoring only when vital signs are being evaluated as scheduled or if clinically significant deterioration is suspected by healthcare personnel or upon parental/guardian request. If the patient is found to be $< 90\%$ on spot check, they will then be monitored continuously for five minutes to determine if hypoxia is transient. This observation period is waived if oxygenation drops below 80%. This SpO₂ level is used because 80% is near the inflection point of the oxyhemoglobin dissociation curve and represents a transition to markedly decreased available arterial oxygen (PaO₂) and markedly increased tissue hypoxia. Persistent hypoxia will result in initiation of supplemental oxygen and initiation of continuous monitoring while on oxygen. Once the patient has been off supplemental oxygen for 1 hour, the continuous oximetry monitoring will be stopped and spot checks resumed for those children randomized to intermittent monitoring.

Weaning of supplemental oxygen

1. Supplemental oxygen will be initiated for an initial goal SpO₂ $\geq 92\%$. This will be supplied by nasal canula. Pulse oximetry will be monitored continuously in both groups as detailed above. Oxygen rate may be weaned when SpO₂ remains $> 92\%$ for 1 hour.
2. Patients who are less than 10kg body weight will be weaned by 0.25 liters per minute (LPM) every hour if SpO₂ is consistently greater than 92%.
3. Patients who are $\geq 10\text{kg}$ will be weaned 0.5 LPM every hour if SpO₂ is consistently $> 92\%$.

eTable. Study sites and number of patients enrolled at each site

Study Site	Location	Number of patients enrolled
Children's Mercy, Kansas City	Kansas City, MO [*]	35
Hasbro Children's Hospital	Providence, RI	117
Children's Hospital of San Antonio	San Antonio, TX	6
University of Missouri Children's Hospital	Columbia, MO	3

^{*}Patients were only enrolled at the community hospital location in Overland Park, KS