BACKGROUND

- High flow nasal cannula (HFNC) is commonly used as non-invasive respiratory support in critically ill children.
- Clinical scores, such as the ROX (respiratory rate-oxygenation) index, have been used to predict HFNC failure, but they focus on escalation to mechanical ventilation (MV) and not flow rate escalation.

OBJECTIVE

To evaluate tree-based and neural network machine learning algorithms in predicting HFNC flow escalation and forecasting future flow rates.

RESULTS

- Our gradient boosting models outperform the ROX index in predicting a patient’s increased flow rate on HFNC.
- Our LSTM has potential to forecast future flow rates based on a patient’s existing electronic health record and real-time physiologic time series data.

CONCLUSION

- Our gradient boosting models outperform the ROX index in predicting a patient’s increased flow rate on HFNC.
- Our LSTM has potential to forecast future flow rates based on a patient’s existing electronic health record and real-time physiologic time series data.