BUILD UNDERSTANDING

We conducted a literature review from 2009-2019 including data about oxygen therapy gaps and solutions. In collaboration with the healthcare providers involved in administering oxygen therapy to patients on five GIM units, the Cause-and-Effect diagram, process map, and Gemba walks (meeting the staff on each unit and observing workflow) were completed to help determine current process and gaps in practice.

CAUSE-AND-EFFECT/ FISHBONE DIAGRAM

This method allows the team to list and group potential causes behind oxygen overuse in GIM units.

REINFORCE OWNERSHIP & MEASUREMENT:

- We will complete a post-discharge chart audit of patients who were discussed using the "Doctor’s Orders" during morning rounds to learn if the intervention was effective in increasing weaning and decreasing total time spent on oxygen. If determined to be successful we will continue its use.
- We will continue educating new staff on oxygen ordering, titration and weaning to improve practitioner confidence.

CONTINUOUS IMPROVEMENT:

- To increase the number of patients who have formal written orders written in PDSA Cycle 2 we will introduce changes to the Connect Care admission orders to include weaning parameters for oxygen therapy.
- We will also continue to conduct teaching/orientation sessions for new learners, nursing staff and physicians.

SHARE LEARNING

Thank you to the University of Alberta GIM unit staff, physicians and management for the direction and assistance during chart reviews and developing interventions.

REduce oxygen use on General Internal Medicine (GIM) Wards

Kendra Raffael, Caitlyn Collins, Pamela Mathura, Eddie Huang, Courtney Link, Mathew Ohrt and Narmin Kassam

Nursing

- Physicians need to assess patients using a SpO2 range of 92-96%
- Weaning orders to be added into Connect Care under "Medications"
- Focus on provider comfort working in the SpO2 range of 92-96%
- Appropriate vs inappropriate weaning practices
- Creating flags or triggers in Connect Care Graphs for visual cues of when weaning should begin

Planning: =? - ABG

GIM Oxygen Process

Equipment:

- Flow meter is on
- Saturation probes issues
- Equipment not working properly

We are going to ED

- Multiple sources for documentation
- Evidence of oxygen targets
- Lack of knowledge of oxygen targets
- Lack of education on oxygen
- Inconsistent order hand over regarding weaning
- Oxygen is not measured frequently enough
- Written orders exist

OMMENTARY

- Lack of knowledge of oxygen targets
- Lack of education on oxygen
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- Oxygen is not measured frequently enough
- Written orders exist

Getting a transfusion (inpatient setting). The process of delivering appropriate oxygen therapy is complicated by outdated guidelines, varying provider knowledge of the harmful effects of oxygen use and provider comfort level related to oxygen titration and weaning.

A current state review of the University of Alberta Hospital five GIM units identified an overuse of oxygen therapy. Of the 50 randomly sampled patients on supplemental oxygen, 36 (72%) patients were at or exceeding ordered target saturations, and 5 (10%) patient chart orders did not indicate weaning. Furthermore, 2 (4%) had a documented plan to wean oxygen, however oxygen therapy continued to be documented in various forms (charts, Kardex/ team sheet and Nursing notes). These patients spent an average of 9.4 days on oxygen. Oxygen exposure may negatively impact patient outcomes, by increasing mortality, morbidity and increased length of stay, as well as increasing healthcare costs.

AIM STATEMENT

For PDSA #1 - By October 2019 we will increase formal oxygen weaning orders by 50% by:

- Adding a weaning flowchart to existing oxygen policy
- Increase nursing and physician education/awareness of best practice in the form of education sessions
- Using visual cues to wean in the form of posters
- Calling attention to the patients on oxygen therapy by documenting on the “Doctor’s Board”.

Using these interventions we successfully increased formal written oxygen weaning orders from 10% of patients to 30% of patients.

MANAGE CHANGE

COLLABORATIONS & COMMUNICATION STRATEGIES

For change implementation to be successful it is vital to engage the main stakeholders and ensure that they buy into the proposed interventions.

We surveyed 54 health professionals from medicine, nursing, physiotherapy at various levels of training. Practitioners had between 1-25 years of experience. 87% of practitioners reported they learned oxygen management techniques through practical experience/clinical rotations, and other sources of education included professional school lectures, journals and practice guidelines.

46% of providers cited a lack of time/weighty workload as their biggest barrier to weaning. 31% stated that a major barrier to weaning was patients or nursing staff feeling more comfortable with oxygen remaining on, 5% said orders were either not written or unclear, and 4% said the wall oxygen was inconveniently located.

STRENGTH STATEMENT:

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Oxygen is being appropriately ordered by physicians and guidelines are in place to ensure that patients do not experience the detrimental effects of oxygen saturations. Nursing staff and respiratory therapists are closely monitoring patient vitals and recording them often to ensure patient safety, and these findings are communicated face to face during daily rounds. There are occasional documented efforts to wean oxygen when nursing staff feel comfortable to do so. These behaviours show patient safety is being prioritized and that oxygen delivery is timely when required.

QUANTITATIVE ANALYSIS

(a) Are patients at target oxygen levels? (b) Do patients have written orders to wean? (c) Are patients being weaned appropriately?

(a) 75% of patients had saturations that were at or exceeding their ordered target. (b) In PDSA Cycle 1 only 10% of patients had formal written weaning orders, compared to Post-PDSA 1 where 30% of patients had formalized weaning orders. (c) and emerging trend found in Post-PDSA 1 was that patients were being weaned appropriately in those who are at home oxygen for COPD, and palliative patients near end of life.

SUSTAIN RESULTS

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