STUDENT IMPROVEMENT PRACTICUM SUMMARY REPORT

Team Members: Up to 4 students may receive credit for one practicum project.
1) Gordon M. Buchanan       Area of study: Final year medical student
2) Fraser R. Pryde          Area of study: Final year medical student

Faculty sponsor: School of Medicine
Institution: University of Dundee

Health Care Setting Sponsor: NHS Tayside
Institution: Ninewells Hospital, Dundee

Title: Can nurse-led oxygen management improve the delivery of oxygen therapy in the acute medical admissions unit

RESULTS
Prediction (project level):

That nurse-led oxygen management will improve oxygen delivery in the AMU

Learning (comparison of questions, predictions, & analysis of data.):

Current oxygen delivery methods are inadequate and do not comply with the most recent BTS guidelines. From baseline data collected looking solely at current methods, we highlighted areas of potential improvement. Currently, medical staff are usually responsible for oxygen management including prescription, initial administration, step-up and down measures and stopping its use but we wanted to analyse whether or not oxygen management was improved when maintenance of oxygen therapy after being prescribed was handed over to the nursing staff. Our results showed no significant improvement with nurse-led management over the period of data collection

Results: Present your results graphically.
Summary of results:

70 out of 333 patients (21%) were not administered oxygen when SpO2 was below target range. 74% had SpO2 <93% - most likely due to SEWS systemic failure. 26% had SpO2 <93% (81% was the lowest recorded SpO2, target range SpO2 94-98%) which is most likely due to poor recognition and action on deteriorating SEWS.

Overall, no one method we introduced improved oxygen management significantly above baseline.

CONCLUSIONS
Summarize the outcome of the project.

- although we were able to achieve 100% oxygen prescribed, this was not sustained and we were unable to get oxygen correctly prescribed to more than 42%, reflecting the previous study performed by 5th year medical students last year
- we raised awareness in the patient safety and local governance as well as nursing and medical spheres within NHS Tayside of the importance of correct oxygen management and the risks that patients on oxygen therapy face in Dundee

Discuss its significance to the local system

Our results are important for raising awareness of current failures in systems adopted by NHS Tayside. The secondary healthcare setting and wider community this project was performed offers excellent respiratory and general medical services to its population which prides itself on safe practice. Despite our findings, oxygen therapy was generally administered when needed albeit not via the correct device or at the correct flow rate. With huge numbers of patients in our specific community having respiratory illnesses such as COPD as a result of tobacco inhalation, it is imperative that oxygen management is administered correctly and safely with oxygen being recognised as a potentially harmful medication that must be administered correctly to avoid oxygen-related patient harm. With medical and patient safety teams now aware of the results and their implications, it is hoped that sufficient resources will be allocated to the topic to make further improvement.

Discuss any findings that may be generalisable to other systems.

Our project has identified systemic failures in the national SEWS chart used Scotland-wide as opposed to just in NHS Tayside. These charts do not reflect the latest recommendations as set out by the BTS which means that patients who saturate at 93% (and are therefore technically hypoxic) are not receiving oxygen. This is therefore a problem nationwide. Additionally because oxygen is used worldwide, the same problems we experienced in improving management will be reflected elsewhere with the same issues regarding staff workload, high staff and patient turnovers and the increase in workload associated with the modern trend of patient improvement.
Is the project sustainable? What are the requirements for sustainability?

The project is non-sustainable using the resources we had throughout the project. It requires more people to perform data collection and to analyse the data, financial help allowing printing of double-sided colour protocols, laminated copies of the flowchart and time resources allowing appropriate and extensive training of both medical and nursing staff to utilise the new changes.

REFLECTIONS/DISCUSSION
Discuss factors that promoted the success of the project and that were barriers to success.

Support from senior medical and nursing staff was an integral part of the project and key to its success without which we would not have been allowed to implement the changes. For example, we needed permission from the Medical Director to implement changes to the SEWS charts as described above. We also were wholly reliant on participation in the study of nursing staff who we were asking to observe and critique throughout the project. Barriers to change included a ‘hierarchy’ within medicine which delayed some of our tests, a high staff turnover requiring us to educate new staff on a daily basis, costs of printing the protocols, staff scepticism and the demanding workload of the staff which we were technically attempting to increase.

What did you learn from doing this project?

A greater understanding of the principles behind patient management as well as the specific issues relating to oxygen management of various patient. Clinical skills in the prescription of oxygen, choice of which mask to use and deciding whether or not patient need oxygen. Increased understanding of the importance of PDSA cycles, statistical analysis and data interpretation. Awareness of ethical issues such as social structure and hierarchial issues relevant to medicine. Decision making and prioritising skills relating to which areas to focus on depending on the area performed most poorly. An in-depth understanding of the importance of teamwork, getting on with colleagues from differing departments and specialties and the importance of communication skills.

What are your reflections on the role of the team?

Teamwork is essential in all walks of medicine. However, specifically relating to patient safety, quality improvement can only occur if the whole team is involved in the project where each member has a particular role, where each member knows the extent and limitations of said role and where achievements are recognised and concerns addressed.

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