Implementation and Evaluation of an Educational Intervention to Improve Inpatient Nurses’ Knowledge of Inhaler Technique

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Introduction - Alyssa Wislander, DNP

- Associates Degree from Blackhawk College
- Bachelor’s of Science degree from University of Iowa
- Master’s Degree at University of Illinois in Chicago - Acute Care Nurse Practitioner
- Post-Master’s Degree at University of Illinois in Chicago - Pediatric Nurse Practitioner
- Doctorate of Nursing Practice, University of Illinois at Chicago
Doctorate of Nursing Practice

- Translate evidence based care into practice
- Systems based leadership
- Changing demands of the nation’s complex health care system, higher standards of quality care and concerns over patient safety
- Nursing moving in the direction of doctoral practice the same as pharmacy, physical therapy, psychology, dentistry, medical doctorate, and audiology
Doctorate of Nursing Practice

- Practice doctorate requires utilizing evidence based practice
- Assessing “normal” practice and applying evidence based practice
- Increase quality health care
- Decrease patient errors
- Improve patient outcomes
- Decrease readmissions
- Reassessing after initiating change of practice
Nature and Scope

- COPD and asthma account for the largest proportion of lung disease in the United States\(^1\)
- Uncontrolled COPD and asthma result in significant economic burdens\(^1,2\)
- Nurses are the first-line educators for inpatients with these diagnoses
- Inpatient nurses are shown to lack inhaler competence\(^3\)
- Web based educational interventions have been effective in improving nursing knowledge of inhaler technique\(^4\)
This project was implemented to increase inpatient nurse knowledge and competence of hand-held inhaler technique to improve COPD and asthma patient teaching and clinical outcomes.
Synthesis of Literature

- GOLD guidelines and NAEPP guidelines recommend assessment of inhaler technique with each visit\(^5,6\)
- COPD and asthma patients have a high rate of inhaler misuse leading to mismanaged disease and increased economic burden\(^7\)
- Nurses are not able to demonstrate inhaler technique competently\(^3\)
- Web-based education is successful in reducing inhaler misuse with inpatient nurses\(^4\)
- Nurses report enjoying convenience and flexibility of online education, modules, audio-visual and text\(^4\)
A project performed by recent UIC students found nurse self-assessment of inhaler knowledge is not congruent with demonstrated ability\(^3\).

These nurses found a high rate of inhaler misuse (82 and 92\%) when assessed via demonstration.

Furthermore, McVey & Slana, also UIC students, utilized this data to implement a web-based educational intervention for inpatient nurses.

This intervention proved to successfully decrease inhaler misuse with inpatient nurses (from 78\% to 30\%)\(^4\).
Local considerations

- Midwestern community based hospital with 150 beds
- No current assessment or education of inpatient nurses on inhaler technique
- This hospital was invested in nurse-led patient education to improve patient outcomes
- Utilizing the evidence of acceptability and efficacy of online learning, current web-based educational resources were utilized to implement this project
Process

- 27 inpatient nurses were part of project
- Evaluated nurses knowledge level of MDI (metered dose inhaler) and DPI (dry powdered inhaler-Diskus device) inhalers via demonstrated checklist provided by Lippincott
- Nurses completed evidence based on-line educational intervention on inhaler technique
- Intervention was provided by an educational system already part of the hospital education system, however not currently utilized for inhaler teaching
- Nurses were re-evaluated with the same checklist 1 month post education
- Likert questionnaire assessed perception, ease of use, change in nursing practice
Evaluation Criteria

- Outcome evaluation included demonstrative knowledge before education with MDI and DPI compared to knowledge post education.
- Data analysis included the quantitative paired t-test.
Project Outcomes

Errors centered on proper breathing techniques

- Misuse rates pre-intervention were 53% and 56% for MDI and DPI respectively

Improvement was appreciated in all areas

- Misuse rates decreased to 5% (p<0.001) and 10% (p<0.001) after viewing the educational intervention
Nursing Perception

- Nurses felt module had a positive impact on patient outcomes
- Reported regularly using the information
- Nurses felt empowered to positively influence patient education
- Reported ease of use with on-line education
- Low percentage of nurses reported wanting a demonstrative video to augment the education
Recommendations

- Utilize education for inhaler technique as a yearly competency and expand to other departments
- Encourage nursing practice change to include education of inhaler use system wide
- Encourage nurses to assess patient inhaler competency for all COPD and asthma inpatients with every visit as recommended in the practice guidelines
- Assess inhaler competency effectiveness longitudinally for evidence of decreased COPD readmissions and decreasing economic burden
Limitations

- Small study - 27 nurses
- Assessed nurses during working hours - may have been distracting
- The web based education did not have a video demonstration which would have augmented education of nurses with different learning styles
Reporting of Project Outcomes

- Currently working on manuscript for submission to Journal of Nursing Administration for publication
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References


