Online Supplement

Original Research

Clinician-Perceived Barriers and Facilitators for Initiation and Management of Noninvasive Ventilation Among Patients With Chronic Hypercapnia From COPD: A Qualitative Study

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Supplemental Appendix 1: Consolidated Criteria for Reporting Qualitative Studies

Manuscript: Clinician-perceived barriers and facilitators for initiation and management of non-invasive ventilation among patients with chronic hypercapnia from COPD: A qualitative study

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:
Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Methods – Semi-structured Interviews
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Title Page
3. Occupation	What was their occupation at the time of the study?	Methods – Analysis, Methods – Semi-structured Interviews
4. Gender	Was the researcher male or female?	Both
5. Experience and training	What experience or training did the researcher have?	Methods – Analysis, Methods – Semi-structured Interviews
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	No
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Reasons for doing research

8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	None

Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Methods – Analysis
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Methods – Sample
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Methods – Sample
12. Sample size	How many participants were in the study?	Results
13. Non-participation	How many people refused to participate or dropped out? Reasons?	None
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Home .
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Methods – Sample, Results, Table 1
Data collection		

17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Methods – Semi-structured interviews, Supplemental Appendix 2
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	No
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Methods – Semi-structured interviews
20. Field notes	Were field notes made during and/or after the interview or focus group?	No
21. Duration	What was the duration of the interviews or focus group?	20 – 60 minutes
22. Data saturation	Was data saturation discussed?	Methods – Analysis
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Methods – Analysis
25. Description of the coding tree	Did authors provide a description of the coding tree?	Methods – Analysis
26. Derivation of themes	Were themes identified in advance or derived from the data?	Methods – Analysis
27. Software	What software, if applicable, was used to manage the data?	Methods – Analysis, no form of artificial intelligence assistance was used through MAXQDA24 in the coding of transcripts.
28. Participant checking	Did participants provide feedback on the findings?	No
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was	Results, Tables 2 - 6

	each quotation identified? e.g. participant number	
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Results, Discussion
31. Clarity of major themes	Were major themes clearly presented in the findings?	Results, Discussion
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	No

Supplemental Appendix 2: Interview Guide

1. **Can you share with me how you screen your COPD patients for hypercapnia?**
    - What symptoms do you ask your patients about?
    - How do results from labs or PFTs factor into obtaining an ABG on a patient?
    - How do prior hospitalizations play a role in your decision to obtain an ABG?
    - What leads you to obtain an ABG on a patient?
    - How frequently do you check ABG's on your COPD patients?
    - Are there any other tools you use in your clinic to measure a patient's CO2 level other than an ABG?

2. **If you identify compensated hypercapnia, what next steps do you take in that patient's management?**
    - Do you discuss NIV initiation?
    - If your patient agrees, do you order it yourself? Do you refer to sleep medicine or a specialist in chronic mechanical ventilation?
    - If you prescribe NIV yourself, could you describe the process of setting this up for your patient? What type of device do you order and what initial settings do you set?
    - How is your clinic set up to help you with initiating NIV? What support do you have?

3. **When you initiate your patient on NIV, what does a follow-up look like for this patient?**
    - When do you set up the first follow-up appointment for?
    - How frequently do you see this patient back in clinic?
    - How do you measure their clinical improvement (ABG, TCO_2, etc.)?

    - If get an ABG, what do you look for?
    - Do you regularly interpret data downloads from the device?
    - How comfortable do you feel making NIV setting adjustments based on data downloads?

4. **What are some of the barriers you face to regularly prescribing NIV for your hypercapnic patients with COPD? (*If interviewee does prescribe NIV – Are there any barriers you face when prescribing NIV for your hypercapnic patients with COPD*?)**
    - Does lack of familiarity or education on NIV initiation for COPD patients play a role?
    - Does identification of appropriate patients contribute to this?
    - Are there any patient-centered factors you face, such as compliance?

- Do you have any difficulty with getting insurance approval for NIV?
- Do relationships with DME companies play a part?
- Have you had a prior negative experience trying to initiate NIV for a patient? Could you describe this experience for us and how it influenced your practice.

5. **What do you think could help you start incorporating NIV into your management strategy for patients with advanced hypercapnic COPD?**
    - Education for you and your practice?
    - An algorithm on how to start NIV and monitor patients once started?
    - Electronic Medical Record alerts notifying you about patients at risk?
    - More support staff and tools, such as TCO_2 monitor?

Supplemental Appendix 3: Demographic Survey

1. How many years have you practiced in the field of pulmonary and critical care medicine post fellowship training?
2. Do you have a specific clinical focus? If so, what type of patients do you see?
3. Are you sleep certified?
4. What is your clinical breakdown in terms of how much outpatient vs inpatient care you provide?
5. Tell me about your current practice:
    a. How long have you been at your current practice?
    b. Do you work alone or in a group practice?
    c. What support staff do you have at your clinic (MA, RN, RT, APP, etc.)?