

Online Data Supplement

Enhancing Implementation of Complex Critical Care Interventions through Interprofessional Education

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Data Supplement

a. Interview Guide

Introduction

Hello, my name is _____ and I am a research assistant from the University of Pittsburgh in the Department of Critical Care Medicine. The purpose of this research interview is to learn more about patients at risk of respiratory failure following extubation. Our understanding is that you work as part of an interprofessional team. Sometimes during this interview, I am going to ask about your experiences and opinions as a member of that team, and sometimes I am going to ask about your own individual experiences and opinions. When I am talking about the team, I am talking about the nurses, respiratory therapists, physicians, and advanced practice providers caring for the patient. When I am asking about you, I am asking about your own personal experience as a [MD, RN, RT, APP]. Your answers will be confidential; no one will be able to associate your answers with you or your hospital. You will be identified by an ID number and your profession, not by name. Do you have any questions before we begin?

If you have questions at any time, please let me know. Are you ready to begin?

[Begin recording: state date, time, profession, and participant ID number]

First, let us talk about concerns that patients will experience respiratory failure following a planned extubation, by which I mean soon after extubation they need to be re-intubated.

1. Prior to extubation, based on your experience as a [MD, RN, RT, APP], under what circumstances would you have concerns that a patient might need to be reintubated?
 - a. Please tell me more about how spontaneous breathing trials (SBTs) factor into your thoughts about extubation.
 - i. Tell me more about how a marginally successful SBT affects your decision to extubate.
 - ii. Tell me more about how a successful SBT affects your decision to extubate if other concerns are present.
 - b. When you have concerns, how do you communicate that to the rest of the team?
2. If you are concerned that a patient might experience respiratory failure after extubation, what do you do to maximize a patient's chance of being successfully extubated? Please give me an example.
 - a. If high-flow oxygen is mentioned, please tell me more about the decision to use high-flow oxygen.
 - b. If non-invasive ventilation is mentioned, please tell me more about the decision to use non-invasive ventilation.

Now I would like to talk [a bit more] about non-invasive ventilation.

3. How familiar are you with using non-invasive ventilation?
 - a. If cared for patient receiving non-invasive ventilation:
 - i. Please tell me more about when you have used it.
 - ii. What is it like taking care of patients receiving non-invasive ventilation?
 1. In what ways does it make care easier?
 2. In what ways does it make care harder?
 - iii. If cared for a patient receiving post-extubation non-invasive ventilation:

1. Under what circumstances have you used post-extubation non-invasive ventilation? [distinguish between preventative use, rescue use, or both]
4. From your perspective, when would you consider using preventative post-extubation non-invasive ventilation?
 - a. What are some of the potential drawbacks of preventative post-extubation non-invasive ventilation?
 - b. What are some potential benefits of preventative post-extubation non-invasive ventilation?
5. From your perspective, when would preventative post-extubation non-invasive ventilation be contraindicated?

Now, I would like to shift gears and talk a little about the ways you like to stay current with new clinical evidence and new health care treatments.

6. How do you currently obtain information about new clinical evidence?
 - a. What do you like about how you obtain this information?
 - b. What do you not like?
7. When would you change your practice based on new evidence?
8. How do you currently obtain ongoing education? [Probe for sources]
 - a. What do you like about how you obtain this information?
 - b. What do you not like?
9. One approach is to provide online education. What do you think of education provided online?
 - a. What are some benefits to online education?
 - b. What are some drawbacks?
10. Another suggested approach is to provide interprofessional education. By interprofessional education, we mean different professions of the ICU team learning together. What would you think about education provided to the interprofessional team?
 - a. What would be some benefits of interprofessional education?
 - b. What would be some drawbacks?
 - c. Ideally, what would this look like?
 - d. Ideally, who would deliver the education?
11. Another suggested approach is to provide just-in-time education. By just-in-time education, we mean education delivered to the bedside team at the moment of need rather than ahead of time in a classroom or other situation. What would you think about receiving education as needed for specific patients?
 - a. What would be some benefits of just-in-time education?
 - b. What would be some drawbacks?
 - c. Ideally, what would this look like?
 - d. Ideally, who would deliver the education?

Next, I have a few questions about evidence-based practice.

12. For your profession as a [MD, RN, RT, APP], what are the greatest barriers to implementing evidence-based practices?
 - a. What are the greatest facilitators to implementing evidence-based practices?
13. How does working in a team influence the use of evidence-based practices? [probe for team level barriers and facilitators]
14. How does leadership influence the use of evidence-based practices?

We are almost done.

15. Is there anything else you would like to add to our conversation today?

Thank you very much for your time. If you have any questions or concerns about this interview, please contact the PI of the study, Dr. Timothy Girard at timothy.girard@pitt.edu or 412-383-0582.

Definitions:

Non-invasive ventilation—the provision of ventilatory support through the patient's upper airway using a mask or similar device.

Preventative post-extubation non-invasive ventilation—use of non-invasive ventilation immediately following planned extubation, with a patient who is doing well but considered at high risk, for the purpose of preventing re-intubation.

High-flow oxygen—a form of respiratory support used in the hospital where oxygen, often in conjunction with compressed air and humidification, is delivered to a patient at rates of flow higher than that delivered traditionally in oxygen therapy.

Evidence-based practice—the integration of clinical expertise and the best research evidence into the decision-making process for patient care.

Interprofessional education—educators and learners from 2 or more health professions and their foundational disciplines who jointly create and foster a collaborative learning environment.

Just-in-time education—providing a learning solution when it is actually needed, rather than on a deferred basis.

b. Focus Group Guide

Preparation

- Informed consent completed
- ID number assigned and demographic survey completed
- Wepay

Introduction

Thank you for agreeing to be part of this focus group. We appreciate your willingness to participate.

[Moderator introductions]

The purpose of this focus group is to learn more about patients at risk of respiratory failure following extubation. We are also interested in learning about how you stay current with new clinical evidence as well as how your team adopts evidence-based care. We are trying to develop new strategies to reduce the risk of re-intubation after extubation, and we would like to get your input. We want you to share your honest and open thoughts with us. Everything said in this discussion today will remain confidential. Do you have any questions before we begin?

Focus Group Points

- There are no right or wrong answers.
- It is important to hear all sides of an issue—both positive and negative. It is also important to respect others' views.
- We will be tape recording the group and you will be identified by your unique ID number.
 - As we will be tape recording, we ask that one person talks at a time.
- Apart from the tape recording, which will be stored securely to protect your confidentiality, what is said in this room stays in this room. You should not repeat the comments you hear during today's focus group after the meeting is over.

Focus Group Questions

[Begin recording and make sure to state the **date, time, professional composition, and participant ID numbers.**]

To begin, let us talk about the circumstance where, after you extubate a patient, they need to be reintubated and go back on the ventilator.

1. How do you assess a patient's readiness to extubate?
 - a. What types of patients raise concern that they might need to be re-intubated if extubated?
 - i. How do you currently manage these patients?

2. Does your ICU use preventative non-invasive ventilation for patients who have just been extubated?
 - a. Under what circumstances do you use preventative post-extubation non-invasive ventilation?
 - b. Is this practice generally supported by evidence?
 - c. When would preventative post-extubation non-invasive ventilation be contraindicated?
 - d. What are your thoughts about the use of high-flow oxygen following planned extubation?
3. What are drawbacks to using preventative post-extubation non-invasive ventilation?
 - a. What are the benefits to using preventative post-extubation non-invasive ventilation?

Next, I would like to hear your ideas on learning new clinical evidence.

4. How do you currently learn about new clinical evidence?
 - a. How would you improve the ways in which you stay current with new clinical evidence?
 - b. How do you judge the strength of new clinical evidence? [probe for when new clinical evidence crosses into practice]
5. Thinking about ongoing education, how would you improve education to increase the adoption of evidence-based practices?
 - a. What are your thoughts about receiving online education?
 - b. What are your thoughts about interprofessional education? By interprofessional education, we mean different members of the ICU team learning together. [Probe for if they have experience interprofessional education]
 - c. What are your thoughts about just-in-time education? By just-in-time education, we mean education delivered to the bedside team at the moment of need rather than ahead of time in a classroom or other situation. [Probe for if they have experience just-in-time education]
6. What makes it easier for you to integrate new practices into the care you provide?
7. Please tell us about any team factors that might either increase or decrease the use of evidence-based care. By team we mean nurses, physicians, respiratory therapists, and advanced practice providers.
 - a. Are there ever any disagreements about the use of evidence-based practice? Please tell me more about that.
 - i. How are disagreements resolved?

In conclusion,

8. Is there anything else you would like to add to today's discussion?

Definitions:

Non-invasive ventilation—the provision of ventilator support through the patient's upper airway using a mask or similar device.

Prophylactic post-extubation non-invasive ventilation—use of non-invasive ventilation immediately following planned extubation, with a patient who is doing well but considered at high risk, for the purpose of preventing re-intubation.

High-flow oxygen—a form of respiratory support used in the hospital where oxygen, often in conjunction with compressed air and humidification, is delivered to a patient at rates of flow higher than that delivered traditionally in oxygen therapy.

Evidence-based practice—the integration of clinical expertise and the best research evidence into the decision making process for patient care.

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Just-in-time education—providing a learning solution when it is actually needed, rather than on a deferred basis.

Data Supplement

c. Consolidated Criteria for Reporting Qualitative Studies: (COREQ): 32-item checklist

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
<i>Personal Characteristics</i>		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	7
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	1, 7
3. Occupation	What was their occupation at the time of the study?	7
4. Gender	Was the researcher male or female?	7
5. Experience and training	What experience or training did the researcher have?	7
<i>Relationship with participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	7
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	7
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	7
Domain 2: study design		
<i>Theoretical framework</i>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	2, 7
<i>Participant selection</i>		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	6, 7
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	7
12. Sample size	How many participants were in the study?	8
13. Non-participation	How many people refused to participate or dropped out? Reasons?	7
<i>Setting</i>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	7
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	7
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Table 1
<i>Data collection</i>		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	6, Data Supplement
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	7

19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	7
20. Field notes	Were field notes made during and/or after the interview or focus group?	7
21. Duration	What was the duration of the interviews or focus group?	8
22. Data saturation	Was data saturation discussed?	6, 8
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	7
Domain 3: analysis and findings		
<i>Data analysis</i>		
24. Number of data coders	How many data coders coded the data?	7
25. Description of the coding tree	Did authors provide a description of the coding tree?	7
26. Derivation of themes	Were themes identified in advance or derived from the data?	7
27. Software	What software, if applicable, was used to manage the data?	7
28. Participant checking	Did participants provide feedback on the findings?	7
<i>Reporting</i>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	9-12, Tables 2-4
30. Data and findings consistent	Was there consistency between the data presented and the findings?	8-13, Tables 2-4
31. Clarity of major themes	Were major themes clearly presented in the findings?	8-13
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	10-11