

Interview Guide of Virtual ICU Managers

Name of virtual ICU: _____

Day: _____

Researcher's name: _____

Manager number: _____

Room number: _____

Time of interview: Beginning: _____ End: _____

Total duration of interview: _____

Interviewers (Circle initials): PC PH KM AK DW

Introduction:

Our research team at the University of Wisconsin received a grant from the National Science Foundation to study the work of virtual ICU nurses and the challenges they face when working with multiple ICUs.

You are being invited for this study because we are interested in general information about the virtual ICU and its organization. Participation in this study is voluntary. You may change your mind at any time and discontinue your participation in this study. [Hand out the information sheet/one page summary to the director/manager.]

There is minimal risk associated with this interview. No identifying information will be collected. Only researchers associated with this project will have access to the data gathered.

Do you have any questions about the study?

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Background of interviewee:

Position: MD RN Other_____

Gender: Male Female

Tenure with virtual ICU:_____

Tenure in job as manager of the virtual ICU:_____

Brief work history

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1. History of virtual ICU

We are interested in how the virtual ICU began and how it has evolved.

1.1. When did the virtual ICU go live?

- Note: managers might not have been there when virtual ICU opened.

1.2. What were the main reasons and motivation for opening the virtual ICU?

1.3. How has your virtual ICU developed over time?

- Growth in size, expansion to include more ICUs, recent changes in staff, etc.

2. Management of the virtual ICU

We are interested in learning about how your virtual ICU is managed.

2.1. How do you manage the virtual ICU?

- Do you have an organizational chart?
- Roles and responsibilities of various people.
- Do you have regular staff meetings with the virtual ICU staff?
- How do you communicate with the virtual ICU staff?
- Who handles the scheduling of the virtual ICU staff?
- Legal entity—relationship with academic medical center.

2.2. How do you assign virtual ICU nurses to ICUs? What are the criteria that you use to assign virtual ICU nurses to ICU? (questions asked only to the nurse or operational director) [**Note:** If there is more than one physician working in a shift, please ask the manager to explain how the physicians are assigned to ICUs.]

- Examples of criteria: experience working in virtual ICU, experience working in ICU, connection with specific ICUs, number of beds, patient acuity in each ICU

2.3. When new staff is hired, what training do they receive to work in the virtual ICU?

- What are the methods and duration of training?
- Training for physicians.
- Training for nurses.

2.4. Is there additional training provided to the virtual ICU staff once they are in their job?

- Additional training for physicians and nurses.
- Additional training in general (e.g., cardiac life support and yearly training) and specific to virtual ICU (e.g., training on software updates).

3. Relationship with ICUs

We are interested in the relationship of your virtual ICU to ICUs you monitor.

3.1. Have you visited any of the ICUs that you are connected to?

- How many ICUs?
- How often?
- What was the purpose of the visits?
- How have the visits affected your relationship with staff (physicians, nurses) in these ICUs?

3.2. Have ICUs that you are connected to visited you?

- When? How often?
- What was the purpose of the visits?
- How have the visits affected your relationship with staff (physicians, nurses) in these ICUs?

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3.3. What type of relationship do you have with the ICUs?

- Does it vary by ICU?
- Why? (e.g., interpersonal skill, trust)

3.4. How do you communicate with the ICUs?

- Frequency of communication.
- Is the communication formal or informal?
- Does it vary by ICU?
- Do you use different methods to communicate with the different ICUs?

4. **Impact of the virtual ICU on the care provided in the ICUs**

4.1. What do you think the impact of the virtual ICU has been on the care provided to patients in the ICUs?

- Positive impact –could you provide us specific examples?
- Negative impact –could you provide us specific examples?
- Quality of care: positive and negative impact
- Patient safety: positive and negative impact

4.2. What is it specifically about the virtual ICU that impacts quality of care?

4.3. Do you think there is any impact on [quality of care measure] after virtual ICU implementation?

- Quality of care measures include
 - Appropriate use of DVT prophylaxis
 - Appropriate use of SUD prophylaxis
 - Ventilator day performance
 - Low tidal volume ventilation compliance
 - Glycemic control
 - Mortality rate
 - Length of stay
 - Family/patient satisfaction
- Patient safety
 - Patient falls
 - Self-extubation
 - Medication safety
- How does [quality of care measure] change after virtual ICU implementation?
- Could you explain why [quality of care measure] changes after virtual ICU implementation?
- Could you provide an example of an incident in which virtual ICU affected [quality of care measure]?

4.4. Is there any other impact of the virtual ICU on quality of care or patient safety that we have not discussed yet?

We are interested in understanding the challenges that virtual ICU nurses have in interacting with multiple ICUs.

4.5. What are the challenges that virtual ICU nurses have in interacting with multiple ICUs?

- Do differences in the way information is presented (e.g., different EHR for different ICUs) create challenges for them?
- Do differences in care processes (e.g., different care routines for different ICUs) create challenges for them?

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5. **Employee outcomes**
 - 5.1. In general, how satisfied/dissatisfied are the nurses in virtual ICU?
 - What is it about their jobs that make them satisfied/dissatisfied?
 - Why?
 - 5.2. In general, how satisfied/dissatisfied are the physicians in the virtual ICU?
 - What is it about their jobs that make them satisfied/dissatisfied?
 - Why?
 - 5.3. Have you encountered any problems in organizing the work of the nurses and the physicians in the virtual ICU?
 - Why did you encounter such a problem?
 - How did you solve the problem?
 - 5.4. Have you ever had a problem in hiring and/or retaining nurses and physicians in your virtual ICU?

6. **Is there anything else that you would like to bring up to our attention related to the organization of the virtual ICU?**

Thank you for your participation!