



# DOES FAMILY UNDERSTANDING ABOUT MECHANICAL VENTILATION CHANGE DURING ICU STAY?

by *Herbert Patrick MD*

This issue's column is based on the peer-reviewed article by Tasnim Sinuff MD, PhD, Mita Giacomini, PhD, Rhona Shaw, MA, PhD, Marilyn Swinton, MSc and Deborah J. Cook, MD, MSc, for the CARENET (Canadian Researchers at the End-of-Life Network) entitled: "Living with dying': The evolution of family members' experience of mechanical ventilation." It was published in *Critical Care Medicine*, January 2009; Volume 37 (Number 1): pages 154-158. We'll review this article by sections to teach the scientific method for research: Background or Introduction, Question, Hypothesis, Methods, Results, Discussion/Reflections, Future Research, Conclusions, Acknowledgements, Conflicts of Interest and Bibliography.

The Background or Introduction of the research project explains interest in the topic and why the topic is significant. The authors indicate that when an ICU patient has no previously defined healthcare directives, the ICU team is left to discuss life support and end-of-life care with family members. Mechanical ventilation is the most commonly administered and the most commonly withdrawn life support. However, no studies have investigated what family members experience and understand about mechanical ventilation. The authors desired the information about how family members of critically ill patients experience and understand the application of mechanical ventilation separate from end-of-life discussions. Therefore, their study was designed to address this gap of knowledge and, if successful, provide a basis for more respectful and meaningful communication with families about the daily care plan, life support and end-of-life issues.

**No studies have investigated what family members understand about mechanical ventilation**

The Question being asked by the researchers was: Do family experiences and understanding of mechanical ventilation change over time in the ICU? Note: The Question asked in a research project may have the possible answers: "yes" and "no" as in this study, or may be a numerical result. The preconceived answer by the researchers to the Question is called the Hypothesis. The authors implied that with proper experimental design and data gathering

their hypothesis was yes, family experiences and understanding of mechanical ventilation do change over time in the ICU.

The Methods for the research project describe the study design, setting and steps to answer the Question. This study was approved by the Institutional Review Ethics Board. Patients and their family members were recruited at a tertiary care Med-Surg ICU. Patients included were receiving mechanical ventilation for at least one week in the ICU and had a 50% or greater probability of death per the Attending. The family member or designated spokesperson needed to agree to multiple audio taped interviews conducted up to the fourteenth day in the ICU. Each interview was 45-60 minutes long and included participants' feelings and experiences when 1) seeing their loved one receiving mechanical ventilation, 2) visiting their loved one in the ICU, and, 3) interacting with the ICU team. Every interview was transcribed verbatim and reviewed for recurrent themes arranged by the day of the interview. This permitted a separation of earlier and later ICU experiences, with changes evident.

The Results section displays the data compiled to answer the Question. A total of 376 families were screened, of which 31 were eligible and 27 agreed to participate in the study. A faulty audiotape eliminated 1 family interview, leaving 26 in the study. Mean patient age was 71.1 years, with an Acute Physiology and Chronic Health Evaluation (APACHE) II score of 28.5. Interview participants were spouses (n=10), children (n=14), father (n=1) and brother-in-law (n=1). None of the patients had DNR status prior to ICU admission. Interviews indicated the participants' experiences and understanding changed with time in the ICU. The earliest theme expressed by the participants was "living with dying" as they had difficulty understanding if their loved ones receiving mechanical ventilation were alive or dead. At first, participants viewed mechanical ventilation as overwhelming and disturbing, changing their loved one physically as if he/she seemed to be gone. Even after participants knew mechanical ventilation was not a standard procedure and their loved one would die without it, they felt compelled to continue mechanical ventilation. They rarely associated it with life support. As days progressed, the participants viewed mechanical ventilation as a sign of life

instead of a sign of death. They began viewing mechanical ventilation as a good thing keeping their loved one alive with possible recovery. They started viewing mechanical ventilation as a means to allow the exhausted body to rest and heal.

The Discussion/Reflections/Future Research starts with a summary discussion of the research project. In their Discussion, the authors noted the study was qualitative and not quantitative. Families initially were shocked by mechanical ventilation due to lack of familiarity, leading to horrible and disturbing emotions of "living with dying;" supporting life but heralding death. Families expressed the need for an orientation to mechanical ventilation upon entering the ICU for the first visit. Overtime, as their loved one was living with mechanical ventilation, families developed hope for recovery. Many families failed to associate mechanical ventilation with life support, although this association did increase with ICU time. These common perceptions by families about mechanical ventilation, which vary according to the length of stay in the ICU, should help ICU teams focus on the information useful to families. Families likely change their understanding of mechanical ventilation due to the influence of daily routines in the ICU. In Reflections, the authors acknowledged a limitation that the interviews were initiated after the patient was in the ICU, not before. A second limitation was the single center versus multiple center design. Future Research describes modifications to the project or new projects that would contribute to this research topic. The authors noted that additional research is warranted on families' perceptions, roles and values about mechanical ventilation, the most common ICU life support.

The Conclusion is the final summary of the research project. This project demonstrated that family members' experiences and their understanding of mechanical ventilation change over time in the ICU. At different times, mechanical ventilation was seen in different ways: as a dehumanizing intrusion, as a lifeline, as a means to rest the body, and as a sign of end-of-life care. The answer to the Question was yes, family experiences and understanding of mechanical ventilation do change over time in the ICU. The proposed hypothesis was correct.

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Conflicts of Interest are listed for all participating in authorship of the research project. Conflicts include advisory board membership, ownership of stock, receipt of services, grants, honoraria, and consulting fees or gifts from companies related to the research project. The authors have not disclosed any potential conflicts of interest.

The Bibliography section includes references to support the research as included in the manuscript by reference number. For this research project, there were 25 references plus an Appendix with the complete Interview Guide.

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