

Overview: What creates a clear, well-written graduate paper?

PLANNING:

- ❖ **Know the larger framework:** all scientific writing moves from a defined topic/issue to some sort of resolution that often includes implications for the field. This is an argument -- not mere summary or description.
- ❖ **Plan specifically** to find the paper's focus (stated as an issue) within a larger problem context.
- ❖ **Review assignment or type of paper or exam**, which determines its larger structure.

Review Academic Expectations about Structure and Style

Four major structural sections needed in almost every paper-- as they appear to readers:

- **Introduction**
- **Literature Review**
- **Discussion**
- **Conclusion**
- Everything (sections, paragraphs, sentences) must be clear, logical, and interconnected.
- Style fleshes out and clarifies the evidence. It should help present a rationale clearly in logical sequence using explanatory transitions linked to paragraph development. Good style should disappear as the aid to structure. (Bad style calls attention to itself and obscures your structure.)

WRITING: An Overlapping Process of Revision of Different Sections

- Writing is exploratory, going back and forth between sections. It is not linear. You are first exploring a larger topic that presents similarly large problems; you then narrow the focus to a specific issue, often for a specific population and setting. The writing sequence is as follows:
 - **Sketch out** a preliminary problem statement of the issue in its context -- as you understand it -- this is a rough introduction which you will refine several times
 - **Search** the literature for evidence of the issue
 - **Review** and **refine** the issue through successful literature searches. Then write successive drafts of the literature critiques (those selected articles that address your issue) and your introduction. Get reader responses
 - **Draft** a discussion that includes synthesis of strengths and weaknesses of all your selected articles related to the issue, articles that you've critiqued. Reader responses.
 - **Refine** introductory issue as a foundation for the discussion
 - **Draft** the conclusion as a final succinct statement of your findings that notes relevant implications. Get reader responses. Avoid complicated summaries
 - After a break, **review** the entire paper and/or exam. Reader responses

For ongoing improvement, see Appendix A to create a self-assessment of writing strengths and weaknesses.

(What continues to be most difficult?) Over time, develop a process for self-improvement to focus on strengthening those critical weaknesses and help fulfill all academic expectations.

Academic Expectations about Structure and Style

STRUCTURE: Four Main Sections & What They Do

1] INTRODUCTION – defines, context, issue, & approach

- Describe the context -- the larger problem and its significance that offers a rationale and demonstrates succinctly your competence in this problem area.
 - Narrow to specific issue (often population and/or setting) with its significance. This shows how you can articulate a specific, relevant issue that is particularly troublesome and will be the focus of the paper/exam.
 - Briefly note your approach – reference theory & methods
 - Set up a road map – for longer papers, a defined framework of logical order for this paper/exam
-

Following are examples from a single short paper (10 pgs) of the four distinct paper sections

Appendices B-D offers more examples of the four sections in different kinds of papers/exams

INTRODUCTION Short Paper (10 pages) *[See Appendix A, pgs 13-16, for Full Paper]*

Liberation from Mechanical Ventilation: Improving Outcomes *[Notice issue in the title]*

A Review of the Literature

Introduction *[topic & issue with significance...see the road map]*

The number of patients in intensive care units who require mechanical ventilation has increased steadily in the United States over the last several years *(two citations)*. In the intensive care setting, mechanical ventilation is a life-saving strategy for patients who experience respiratory failure. Restoration of lung function and spontaneous breathing without the ventilator are the goals of therapy *(two citations)*. Although mechanical ventilation supports life, the intervention is associated with many complications. *[General issue – following by specifics]* The process of mechanical ventilation impacts virtually every body system. Increased duration of mechanical ventilation is associated with greater frequency of complications, which, in turn, contributes to higher rates of morbidity and mortality. **This issue** suggests a continued need for innovative approaches to liberating patients from the ventilator as soon as safely possible *(citation)*, and **the following literature reviews offer insight into how what current approaches might be improved.**

2] LITERATURE CRITIQUES – provide evidence from existing research for your issue

- Critiquing published research articles **validates academically what is known about an issue that you identify and explore**. In a scholarly paper, critiques ground your issue within the context of current research and demonstrate a broader understanding of the field and an ability to navigate through it.
- **Critiques are NOT mere summaries** -- they focus on describing what is there (authors, date, purpose, design, results) and what is missing (gaps in methodology, population, etc.), all the while within a framework of how this particular research or qualitative study demonstrates a relationship to your stated issue. *(Note a change for the Comp Exam -- Lit Review Tables in Appendices)*
- Their **overall goal** is to **organize, integrate, and evaluate previous research to clarify a particular problem or issue** -- for your reader – within the context usually of a broader topical problem.

Published research and critiques exist in a relationship of mutual dependency:

Bad research should be balanced by a good critique. Out of that exchange will come more elegant design, better technique, and easier replication. The research critique is, in that sense, the final refinement of the research process.

Just as research cannot be said to be complete until it has been shared with the scientific community, so, too, it is complete only when it has withstood its critical review. It is this relationship that makes for more scholarly nursing research.

Typical Structure of a Literature Critique Section

- An **introduction** describing **your search and selection process related to a specific issue** within its context. Demonstrates a solid research foundation of what exists in the literature related to this issue, showing that you know the literature.
- An **organizational road map** that explains what articles you finally selected – justifying why you selected these articles and not others and what your chosen presentation order. (not necessarily chronological).
- **Actual critique of each article/study** or as **grouped/categorized articles** – noting author, date, purpose, design, results. Reference strengths and limitations. Identify what was done appropriately or not (gaps). *(Note changed Comp Exam -- Lit Review Tables in Appendices)*
- In the critique section, **transitions or subheadings link each critique to the introductory road map**. Be sure this is clear.

Ask these Questions When Critiquing a Study

- Was the research article's **problem stated early and unambiguously**?
In an experimental design, for instance, posed as a relationship between variables – does the hypothesis support this or not, depending upon whether the independent variable has the predicted effect upon the dependent variable?
Are the assumptions, limitations, and definitions of the research stated so the reader knows how the present work extends or departs from those earlier studies upon which it should be based?
- Is the **researcher's methodology appropriate** to the issue?
Is the methodology adequately described; are procedures for gathering data valid and reliable?

- What is the **size** of the **subject population or sample** and was **selection random or convenient**? Determines how representative the results of the study are and whether generalization can be justified.
 - Is the **presentation of results** correct, with appropriate statistical procedures described?
 - Are any tables and graphs consistent with the information in the text? Unless these data are explicit, it is difficult to determine whether the conclusions drawn from them are legitimate.
 - Are **study conclusions** relevant to the literature, substantiated by the results, and free of investigator bias? If not, note how.
-

LITERATURE CRITIQUES **Short Paper:** Liberation from Mechanical Ventilation

[longer papers usually include a search and selection paragraph, showing keywords, databases, yields.]

This **review of literature explores research relevant to improving outcomes for mechanically ventilated patients through increasing knowledge of potential physiological complications.** The studies are categorized according to the investigation's main objective and are related to: 1) gas exchange and work of breathing; 2) respiratory muscle function; and 3) cardiac dysfunction, ischemia, and arrhythmias. *[roadmap – showing 3 categories]*

Gas Exchange and Work of Breathing *[1st division of this lit section review, follows roadmap]*

Understanding respiratory gas exchange and work of breathing is an essential requirement for those health care providers who monitor and care for critically ill patients receiving mechanical ventilation. Studies performed by Dunn, Nelson, and Hubmayr (1991), Lausted et al (2006), and Marini, Capps and Culver (1985) used innovative strategies to quantify parameters that can indicate lung health.

In an effort to gauge the best reference for underlying mechanisms of respiratory distress during weaning, researchers considered the lung carbon dioxide (CO₂) recruitment threshold of mechanically ventilated patients during assisted versus unassisted breathing (citation). The ventilatory recruitment threshold refers to the upper limit of CO₂ pressure within arterial blood that triggers an increase in ventilation (cit). Dunn and colleagues' study (1991) of mechanically ventilated intensive care patients who were deemed ready for decreased ventilatory support, or weaning, measured CO₂ recruitment and determined that this parameter could assess adequacy of ventilatory load (referring to the mechanical force required for breathing). The importance of CO₂ monitoring has become well recognized and measurement of alveolar carbon dioxide (as an indicator of arterial CO₂) at the end of exhalation can be performed using a noninvasive method at the patient's bedside (cit.). On the other hand, the ventilatory recruitment threshold of CO₂ requires vigilant monitoring, along with verification of the point at which the patient's partial pressure of CO₂, measured with an arterial blood gas (an invasive procedure) and ventilation, determined by respiratory rate and tidal volume, increase in linear alignment. Given the complexity of this data collection, coordinating this effort could prove to be impractical for use in routine assessment.

In an investigation by Lausted et al (2006), work of breathing was estimated through measurements of airway pressures. Inspiratory and expiratory pressures were measured at various lung volumes to develop a mathematical model for understanding respiratory mechanics and lung health. The investigators speculated that the model could be used to describe maximum pulmonary pressures for patients with lung disorders. Although the model was not developed specifically to

describe patients receiving mechanical ventilation, the findings proved to be useful in clarifying the physiological impact of low tidal volume lung protective ventilatory strategies.

In a seminal study by Marini et al (1985), researchers observed study participants who received mechanical ventilation without endotracheal intubation and discovered that selection of ventilator mode can play a significant role in respiratory muscle function. The investigators found that inappropriate settings can lead to respiratory muscle fatigue and dyspnea, significantly increasing the work of breathing. Even though the sample size of six was small, this research highlighted the important role of the patient's respiratory muscle strength and endurance in successful return to spontaneous breathing.

The main problem with both the Lausted et al (2006) and Marini et al (1985) studies was that measurements were made in healthy participants, so generalizability to critically ill patients could be in question. Physiological processes that apply to the healthy human lung may not be directly translatable to a lung in a diseased condition (*cit.*). Nevertheless, the work of Marini et al (1985), in particular, led to further investigation into changes in respiratory muscle strength during mechanical ventilation.

Respiratory Muscle Function

[2nd section of literature review -- follows the roadmap]

Systematically recognizing and eliminating the causes of acute respiratory failure is the best way of establishing readiness to discontinue mechanical ventilation (*cit.*). In contrast, consistent, accurate prediction of a patient's ability to maintain spontaneous respirations remains elusive. Several studies aimed at anticipating factors that may delay discontinuation of ventilation were designed to measure respiratory muscle strength as a potential predictor of successful liberation. The research rests upon the foundation of pulmonary anatomy. Specifically, respiratory muscles are composed of three groups: the diaphragm, the intercostal and accessory muscles, and the abdominal muscles. The phrenic nerves enter the spinal cord at the level of C3 to C5, and innervate the diaphragm (*cit.*). The importance of adequate respiratory muscle function is becoming increasingly recognized as emphasized by the work of several research teams (*four citations*).

In a retrospective chart review of patients who underwent mechanical ventilation for seven days or longer following cardiac surgery, Herlihy et al (2006) serendipitously observed that 67% of the patients showed little progress until a point in time in which they abruptly began to make rapid progress. The research termed this moment, the "wean turning point" (p. 122). This new pattern was determined to arise from an improvement in respiratory mechanics as opposed to progress in gas exchange. The researchers speculated that this change could signify an improvement of a subclinical diaphragmatic dysfunction, or possibly resolution of phrenic neuropathy associated with open-heart surgery and related recovery of diaphragmatic function (*cit.*).

Other studies were designed specifically to investigate respiratory muscle strength. DeJonghe et al (2007) determined that limb strength and respiratory muscle are associated, and both are severely impacted after one week of mechanical ventilation. The investigators demonstrated that performing arm exercises had the potential to help maintain diaphragmatic strength. In another study (*cit.*), the patient's cough strength was determined to be a measurement associated with diaphragmatic strength. In this study, researchers sought to establish an observational scoring system of cough strength that practitioners could perform at the patient's bedside. Purro et al (2000) found that an imbalance between workload and respiratory muscle strength could cause respiratory distress in patients with chronic obstructive pulmonary disease (COPD). This study's investigators stated that noninvasive measurements such as careful observation of breathing patterns can provide insight into why certain patients have difficulty in weaning. These findings all supported the findings of Marini et al (1985), providing more evidence that assessment of respiratory muscle function is essential in liberating patients from mechanical ventilation.

Researchers interested in studying respiratory muscle function are presented with several

challenges in their research. First, there is the difficulty of accurate measurement at the bedside during critical illness (*cit*). For example, limb strength can be used to indicate adequacy of overall respiratory muscle strength, but is only an indirect estimate. Cough strength can be used to approximate diaphragmatic strength, but the value requires a subjective judgment on the part of the observer. A second problem is that results for particular groups of patients, such as those recovering from cardiac surgery (*cit*) or patients diagnosed with COPD (*cit*), may not be generalizable to the larger population of mechanically ventilated patients. Thirdly, studies of critically ill patients often use convenience sampling for ethical and practical reasons. Therefore, external validity is limited by lack of randomization.

In the future, research directed toward refining measurements of physiological parameters, such as a numerical scale to assess cough strength, may prove beneficial. Furthermore, research that includes broader populations of patients who have experienced respiratory failure could help substantiate the previous findings.

Cardiac Dysfunction, Ischemia, & Arrhythmias

[3rd section -- follows roadmap]

Researchers examined patients' cardiac function during mechanical ventilation using the electrocardiogram (ECG). One study to investigate incidence of cardiac ischemia during weaning from mechanical ventilation was performed by Chatila et al (1996). The same research team followed up with an additional study three years later to verify findings of the first one (Srivastava et al, 1999). Then a second group of investigators performed a similar study (Frazier, Brom, et al, 2006a; Frazier, Stone et al, 2006b). Both groups of researchers found that cardiac ischemia did occur during weaning; however, the teams differed widely in their conclusions regarding the extent of the problem.

Frazier, Brom et al, 2006, found that silent ischemia during ventilator weaning was a common occurrence, and that 70% of the patients demonstrated ST-segment deviation during the study period, while Chatila et al, 1996, determined that cardiac ischemia was a problem for only 6% of the weaning population. ST-segments were measured in three leads for all of the studies. In the Chatila et al (1996) study, a high respiratory rate to tidal volume ratio during spontaneous breathing and cardiac ischemia, defined as greater than 1.0 mm ST segment change from baseline, was associated with difficulty in weaning. Frazier, Stone, et al (2006) noted that the number of patients' supraventricular beats per hour almost doubled during a weaning trial with continuous positive airway pressure compared to a baseline period of mechanically assisted ventilation. Also, patients with more ventricular ectopy at baseline tended to have greater difficulty in weaning. In all studies, patients with preexisting coronary artery disease were deemed to have an increased risk of cardiac ischemia and difficulty in weaning. Recommendations were made by all researchers to consider cardiac function before, during, and after weaning in order to optimize chances of successful liberation from the ventilator and resumption of spontaneous breathing.

The wide discrepancy in the study findings of Chatila et al (1996) and Srivastava et al, (1999) and the findings by Frazier et al (2006a, 2006b) is of interest. In all cases the participants comprised a convenience sample. The studies by Frazier et al (2006a, 2006b) identified problems of small sample size and lack of power. Additionally, the data provided measurements at only two points in time during the weaning period, and did not account for artifact caused by patients' position changes. In fact, position changes can mimic ischemia (*cit.*), and therefore, lack of controlling for this variable presents a major limitation for the study. Chatila et al (1996) stated that there was no control for modality of weaning, which may have influenced results. In the study by Srivastava et al (1999), researchers noted that interrater reliability regarding the interpretation of ischemia by different cardiologists may have been a problem. In all the studies, electrocardiographic measurements were recorded in three leads only. In addition, definitions of ischemia were operationalized differently. Future research recording cardiac rhythm, and monitors for ischemia and arrhythmias using twelve leads, may provide more standardization and accurate information.

3] DISCUSSION – synthesizes critique findings, discusses implications

The discussion attempts to resolve the introductory issue by focusing on what the critiques mean and why they are important.

As part of the logical frame, you need to **link** this last section both to the stated issue in the introduction and to the critiqued studies. Discussions do **not repeat critique details** but rather integrate their findings into a discussion that includes implications for practice.

Your tasks in the Discussion section:

- **Synthesize ALL your critiqued studies** in this paper as related to your introductory issue, laying out what **patterns (similarities & differences)** are there in design, sample, measures, findings. etc. and what **strengths and weaknesses** exist in these research studies – your analysis
- **Explain what all this means** – how you interpret the meaning of this selected and critiqued evidence as it related to the stated issue and what you think needs to be added -- your own interpretation (the hardest section to do)
- **Validate your interpretation** -- its importance and its limitations
- **Lay out implications** for your field, larger implications

Organizing Themes

Note relationships among observed facts

Be honest about gaps or missing elements in research

Possible comparison with other issues – larger context but NOT new research

Give implications based on synthesis of all your selected research

Should transition into a short conclusion

Basic Principles

Critical place to interpret the research – leads to conclusion -- your interpretation, your synthesis. ***What does it mean?***

Full analysis where justification and significance come together – also implications ***Is your synthesis valid?***

Focus on resolving the issue stated in the introduction -- concisely and precisely analyzed ***Is your discussion clear?***

Avoid

Repetition of introductory background details & findings in lit. review

New information -- this is synthesis, not new research

Establish the Logical Order with Transitions -- Frame the logical flow

Adding -- *in addition, and, moreover, also, next, furthermore*

In Sequence -- *first, second, third* (but is the order placed in time, space, or by logic?)

Comparing -- *like, similarly, equally, correspondingly, despite*

Contrasting -- *by contrast, unlike, despite*

Conditionality -- *although, if, at the same time,*

Opposing -- *but, however, nevertheless*

Illustrating -- *for example, for instance, to illustrate*

Showing Results -- *therefore, thus, accordingly, consequently*

Initial paragraph transitions frame the argument.

Internal transitions in paragraphs create coherence by describing a single concept and developing it logically within that paragraph.

DISCUSSION Short Paper– Liberation from Mechanical Ventilation

Discussion, 3 paragraphs

Mechanical ventilation is known to have profound impact on all the physiological systems of the human body. Understanding the pulmonary and cardiac interactions, and the potential complications during mechanical ventilation, is an essential element in improving outcomes for patients who receive this intervention. The preceding literature review provides insight into issues affecting mechanically ventilated patients related to gas exchange along with work of breathing, respiratory muscle function, and cardiac dysfunction, including arrhythmias and ischemia. For this vulnerable population, recognizing and assessing physiological signs early is crucial in preventing complications that can lead to suboptimal outcomes. The need for critical care nurses to be expert observers of warning signs and impending setbacks is vital. This is especially true for the patients with endotracheal intubation who are mechanically ventilated, since this group typically cannot speak and may not be able to communicate the symptoms that they experience. Finally, this research reflects the continuing search for accurate predictors of readiness for discontinuation of ventilatory support and the successful return to spontaneous breathing.

The studies focused on careful identification of physiological signs of respiratory distress along with improvement in measurement. In essence, advancement in patient assessment is the main objective. The research considered the usefulness of these indicators for predicting a patient's progress in healing their respiratory condition. Several cardiopulmonary parameters intended to gauge respiratory status were examined.

Pulmonary indicators of respiratory status that were presented, included measurement of carbon dioxide recruitment threshold, airway pressures, and respiratory muscle strength. Inspiratory and expiratory airway pressures were used as surrogate measures for work of breathing. In addition,

evidence showed that respiratory muscle strength also can serve as a reflection of work of breathing. Although these parameters were deemed to produce results indicative of lung condition and function, accurate and noninvasive methods of measurement at the patients' bedside are continuing challenges. Further study is clearly needed to best distinguish precise methods of measurement for obtaining the most useful clinical information.

The lungs and heart are intimately related both through proximity in the thoracic cavity and interdependent physiological function. Assessment of cardiac status is equal in importance to pulmonary condition to help move a patient toward liberation from the ventilator. Adequacy of circulation is essential for the delivery of oxygen and removal of CO₂. Continuous electrocardiographic bedside monitoring is established practice in the intensive care unit, and analysis of patients' cardiac rhythm can provide health care practitioners with essential data about the condition and performance of the heart. However, the technology continues to be underutilized in the assessment of patients. This observation can partially be attributed to misidentification of cardiac rhythms due to artifact, a problem noticed in at least one of the studies, all of which used three ECG leads to collect data. Newer cardiac monitoring equipment and methods of ECG analysis are being developed to provide more refined, precise measurements of cardiac activity (two citations). Unmistakably, further research is needed to advance ECG training and technology to correctly identify the extent of arrhythmia and ischemia that occurs during weaning. Ideally, mechanically ventilated patients will benefit from the advancement of cardiopulmonary assessment using the continuous, noninvasive monitoring that is already in place, but with an expanded ability to monitor additional leads, thereby providing a multidimensional view of the heart.

4] CONCLUSION – restates the issue and succinctly notes what this paper argues

The conclusion pulls the entire paper together. It succinctly resolves the stated introductory issue, often offering larger applications and implications.

CONCLUSION SHORT Paper– Liberation from Mechanical Ventilation

Conclusion

Mechanical ventilation is an essential therapy for patients who experience respiratory failure. Superior understanding of the complex physiological changes that recipients of ventilatory support can experience in association with receiving this therapy is the responsibility of the patients' health care providers. In the intensive care unit, critical care nurses are the ones who spend all day and night at the bedside of these patients. Vigilance must be of the highest priority; the nurse's knowledge and expertise are indispensable. The ongoing and attentive assessment of the critical care nurse to detect minute changes of the ventilated person's condition is crucial to the patient's well-being. This is especially true of the time immediately before, during, and after discontinuation of ventilatory support when particular care must be taken to assure all issues that could contribute to the person's respiratory compromise are addressed promptly and appropriately.

This literature review has provided guidance for recognizing, assessing, and potentially alleviating issues of gas exchange, airway pressure, respiratory muscle strength, and cardiac function that might

contribute to patients' problems in returning to spontaneous breathing. Investigators have provided evidence that careful monitoring of selected cardiopulmonary parameters can contribute to decreased time on ventilatory support and successful return to spontaneous respiration. Directions for further research, especially development of more refined measurements, have been proposed.

Overall, the outcomes for patients who require mechanical ventilation can be improved by continuing with thoughtful, collaborative research studies, such as the ones presented within this review. Patients will be well-served, if healthcare investigators continue to search for parameters to evaluate respiratory status that can be accurately measured with noninvasive methods at the bedside. Future research designed to explore connections between the cardiac and pulmonary systems are essential for greater understand of the effects of mechanical ventilation and assist the transition to spontaneous breathing. Intensive care nurses are in a strategic position for conducting such studies and implementing the findings on behalf of their critically ill patients.

STYLE: Basic Principles Expected in Academic Papers

Clarity – in sentences, paragraphs, sections

Some basics...

English is a synthetic language. That means no case endings on nouns unlike inflected languages (i.e. German). The focus is on a clear, expected **word order** that places a main subject first followed by its verb and then a direct object. We know who does what to whom. Onto this active voice frame of **Subject/ Verb (action)/ Object**, English adds qualifiers that give details. Transitions (signifiers) link sentences and paragraphs to create cohesion and logical order. These become the comprehensible roadmaps.

Also use concision (cut out unnecessary words) and choose correct words, punctuation, and grammar.

Three places where clear style is essential – in sentences, paragraphs, sections

SENTENCES: Building Blocks *[Examples from sample Mechanical Ventilation paper above]*

➤ **Word Order:** Main Subject // Main Verb // Direct Object (SVO) = Active Voice

Always search for the main subject & main verb. Find an object if possible.

- The **NUMBER** of patients *[main subject]* in intensive care units who require mechanical ventilation **HAS INCREASED** *[main verb]* steadily in the United States over the last several years. *[No direct object – just a fact]*
- The **PROCESS** of mechanical ventilation **IMPACTS** virtually every **BODY SYSTEM**. *[direct object...what's affect by the verb]*

Yet, while **mechanical ventilation supports life**, the **INTERVENTION IS ASSOCIATED** with many complications. *[dependent initial clause, followed by main part of the sentence with the passive word order meaning the object is more important and the verb acts on the object].*
Object / Passive Voice Verb / subject if present. = Passive Voice]

➤ **Clearly referenced Qualifiers** (adjectives, adverbs, phrases, clauses)

See added necessary details but not so many as to obscure S/V/O word order

- The NUMBER of patients in intensive care units **who** require mechanical ventilation HAS INCREASED steadily in the United States **over** the last several years. *[Qualifiers introduced with prepositions or pronouns to add details. Do not use too many so that you have trouble finding the frame –SVO]*
- The PROCESS of mechanical ventilation IMPACTS virtually every BODY SYSTEM. *[short, clear sentence]*
- **Although** MECHANICAL VENTILATION SUPPORTS LIFE, the INTERVENTION IS ASSOCIATED **with** many complications. *[Although notes a dependent transition showing the relationship as an issue]*

➤ **Verbs:** Past tenses for completed actions. Present tenses for fact or analysis

Examples: Choose active voice when possible rather than passive

- The number of patients in intensive care units who require mechanical ventilation **has increased** steadily in the United States over the last several years. *[past tense – describing action completed – active voice]*
- The process of mechanical ventilation **impacts** virtually every body system. *[present tense – what is known – active voice]*
- Yet, while mechanical ventilation **supports** life, the intervention **is associated** with many complications. *[present tense in both but passive voice in 2nd half]*

PARAGRAPHS: developed when reading became common. They orthographically aid comprehension with structural unity (one main idea per paragraph) and readable length.

- **Content: develop one main idea fully**, using internal transitions that link details develop that main point and show they all relate together. Active voice preferred to keep the narrative moving forward. Style considerations: Concision,
- **Length:** consider going to a new paragraph for anything more than **3/4th of a page**

SECTIONS: usually defined in academic papers. Depends on assignment, format, desired length, etc. Though separate, sections need to be linked to the whole.

- Often use subheadings, introductory paragraph, and transitions – continuity

Writing Self-Assessment: Print Out This Page

Think about how you approach writing a paper...

Identify the most difficult parts -- as you plan and begin drafts.

1. Defining the topic context succinctly?
2. Narrowing to a relevant issue?
3. Searching the literature appropriately?
4. Writing the literature critiques fully yet succinctly?
5. Knowing what to put in the discussion?

Order these according to what's most difficult:

What aspects of creating a structure are difficult for you?

What aspects of style?

Now -- reorder them, addressing the most critical challenges first – but one at a time:

Create a list of what's most important for you to develop a clear structural framework and clear style that makes your argument become clear to your reader.

Every two weeks, update that list with what you should focus on next, taking notes on what you have accomplished thus far. And reward yourself each time.

Over time -- you will see how to develop the underlying frame and improve style!

Appendix A: Full Short Paper (10 pgs) Mechanical Ventilation ... reviewed at the beginning

(Thanks to Patricia Harris, PhD, who wrote this paper to fulfill the requirements for N187, Scientific Writing)

Liberation from Mechanical Ventilation: Improving Outcomes A Review of the Literature

Introduction

The number of patients in intensive care units who require mechanical ventilation has increased steadily in the United States over the last several years (*two citations*). In the intensive care setting, mechanical ventilation is a life-saving strategy for patients who experience respiratory failure. Restoration of lung function and spontaneous breathing without the ventilator are the goals of therapy (*two citations*). Although mechanical ventilation supports life, the intervention is associated with many complications. The process of mechanical ventilation impacts virtually every body system. Increased duration of mechanical ventilation is associated with greater frequency of complications, which in turn contributes to higher rates of morbidity and mortality. This issue suggests a continued need for innovative approaches to liberating patients from the ventilator as soon as safely possible (*citation*), and the following literature reviews offer insight into how current approaches might be improved.

Literature Critiques

This review of literature explores research relevant to improving outcomes for mechanically ventilated patients through increasing knowledge of potential physiological complications. The studies are categorized according to the investigation's main objective and are related to: 1) gas exchange and work of breathing; 2) respiratory muscle function; and 3) cardiac dysfunction, ischemia, and arrhythmias.

Gas Exchange and Work of Breathing

Understanding respiratory gas exchange and work of breathing is an essential requirement for those health care providers who monitor and care for critically ill patients receiving mechanical ventilation. Studies performed by Dunn, Nelson, and Hubmayr (1991), Lausted et al (2006), and Marini, Capps and Culver (1985) used innovative strategies to quantify parameters that can indicate lung health.

In an effort to gauge the best reference for underlying mechanisms of respiratory distress during weaning, researchers considered the lung carbon dioxide (CO₂) recruitment threshold of mechanically ventilated patients during assisted versus unassisted breathing (*citation*). The ventilatory recruitment threshold refers to the upper limit of CO₂ pressure within arterial blood that triggers an increase in ventilation (*cit*). Dunn and colleagues' study (1991) of mechanically ventilated intensive care patients who were deemed ready for decreased ventilatory support, or weaning, measured CO₂ recruitment and determined that this parameter could assess adequacy of ventilatory load (referring to the mechanical force required for breathing). The importance of CO₂ monitoring has become well recognized and measurement of alveolar carbon dioxide (as an indicator of arterial CO₂) at the end of exhalation can be performed using a noninvasive method at the patient's bedside (*cit.*). On the other hand, the ventilatory recruitment threshold of CO₂ requires vigilant monitoring, along with verification of the point at which the patient's partial pressure of CO₂, measured with an arterial blood gas (an invasive procedure) and ventilation, determined by respiratory rate and tidal volume, increase in linear alignment. Given the complexity of this data collection, coordinating this effort could prove to be impractical for use in routine assessment.

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Respiratory Muscle Function

Systematically recognizing and eliminating the causes of acute respiratory failure is the best way of establishing readiness to discontinue mechanical ventilation (citation). In contrast, consistent, accurate prediction of a patient's ability to maintain spontaneous respirations remains elusive. Several studies aimed at anticipating factors that may delay discontinuation of ventilation were designed to measure respiratory muscle strength as a potential predictor of successful liberation. The research rests upon the foundation of pulmonary anatomy. Specifically, respiratory muscles are composed of three groups: the diaphragm, the intercostal and accessory muscles, and the abdominal muscles. The phrenic nerves enter the spinal cord at the level of C₃ to C₅, and innervate the diaphragm (citation). The importance of adequate respiratory muscle function is becoming increasingly recognized as emphasized by the work of several research teams (four citations),

In a retrospective chart review of patients who underwent mechanical ventilation for seven days or longer following cardiac surgery, Herlihy et al (2006) serendipitously observed that 67% of the patients showed little progress until a point in time in which they abruptly began to make rapid progress. The research termed this moment, the "wean turning point" (p. 122). This new pattern was determined to arise from an improvement in respiratory mechanics as opposed to progress in gas exchange. The researchers speculated that this change could signify an improvement of a subclinical diaphragmatic dysfunction, or possibly resolution of phrenic neuropathy associated with open-heart surgery and related recovery of diaphragmatic function (cit.).

Other studies were designed specifically to investigate respiratory muscle strength. DeJonghe et al (2007) determined that limb strength and respiratory muscle are associated, and both are severely impacted after one week of mechanical ventilation. The investigators demonstrated that performing arm exercises had the potential to help maintain diaphragmatic strength. In another study (citation), the patient's cough strength was determined to be a measurement associated with diaphragmatic strength. In this study, researchers sought to establish an observational scoring system of cough strength that practitioners could perform at the patient's bedside. Purro et al (2000) found that an imbalance between workload and respiratory muscle strength could cause respiratory distress in patients with chronic obstructive pulmonary disease (COPD). This study's investigators stated that noninvasive measurements such as careful observation of breathing patterns can provide insight into why certain patients have difficulty in weaning. These findings all supported the findings of Marini et al (1985), providing more evidence that assessment of respiratory muscle function is essential in liberating patients from mechanical ventilation.

Researchers interested in studying respiratory muscle function are presented with several challenges in their research. First, there is the difficulty of accurate measurement at the bedside during critical illness (cit). For example, limb strength can be used to indicate adequacy of overall respiratory muscle strength, but is only an indirect estimate. Cough strength can be used to approximate diaphragmatic strength, but the value requires a subjective judgment on the part of the observer. A second problem is that results for particular groups of patients, such as those recovering from cardiac surgery (citation), or patients diagnosed with COPD (citation), may not be generalizable to the larger population of mechanically ventilated patients. Thirdly, studies of critically ill patients often use convenience sampling for ethical and practical reasons. Therefore, external validity is limited by lack of randomization.

In the future, research directed toward refining measurements of physiological parameters, such as a numerical scale to assess cough strength, may prove beneficial. Furthermore, research that includes broader populations of patients who have experienced respiratory failure could help substantiate the previous findings.

Cardiac Dysfunction, Ischemia, & Arrhythmias

Researchers examined patients' cardiac function during mechanical ventilation using the electrocardiogram (ECG). One study to investigate incidence of cardiac ischemia during weaning from mechanical ventilation was performed by Chatila et al (1996). The same research team followed up with an additional study three years later to verify findings of the first one (Srivastava et al, 1999). Then a second group of investigators performed a similar study (Frazier, Brom, et al, 2006a; Frazier, Stone et al, 2006b). Both groups of researchers found that cardiac ischemia did occur during weaning; however, the teams differed widely in their conclusions regarding the extent of the problem.

Frazier, Brom et al, 2006, found that silent ischemia during ventilator weaning was a common occurrence, and that 70% of the patients demonstrated ST-segment deviation during the study period, while Chatila et al, 1996, determined that cardiac ischemia was a problem for only 6% of the weaning population. ST-segments were measured in three leads for all of the studies. In the Chatila et al (1996) study, a high respiratory rate to tidal volume ratio during spontaneous breathing and cardiac ischemia, defined as greater than 1.0 mm ST segment change from baseline, was associated with difficulty in weaning. Frazier, Stone, et al (2006) noted that the number of patients' supraventricular beats per hour almost doubled during a weaning trial with continuous positive airway pressure compared to a baseline period of mechanically assisted ventilation. Also, patients with more ventricular ectopy at baseline tended to have greater difficulty in weaning. In all studies, patients with preexisting coronary artery disease were deemed to have an increased risk of cardiac ischemia and difficulty in weaning. Recommendations were made by all researchers to consider cardiac function before, during, and after weaning in order to optimize chances of successful liberation from the ventilator and resumption of spontaneous breathing.

The wide discrepancy in the study findings of Chatila et al (1996) and Srivastava et al, (1999) and the findings by Frazier et al (2006a, 2006b) is of interest. In all cases the participants comprised a convenience sample. The studies by Frazier et al (2006a, 2006b) identified problems of small sample size and lack of power. Additionally, the data provided measurements at only two points in time during the weaning period, and did not account for artifact caused by patients' position changes. In fact, position changes can mimic ischemia (*citation*), and therefore, lack of controlling for this variable presents a major limitation for the study. Chatila et al (1996) stated that there was no control for modality of weaning, which may have influenced results. In the study by Srivastava et al (1999), researchers noted that interrater reliability regarding the interpretation of ischemia by different cardiologists may have been a problem. In all the studies, electrocardiographic measurements were recorded in three leads only. In addition, definitions of ischemia were operationalized differently. Future research that records cardiac rhythm, and monitors for ischemia and arrhythmias, using twelve leads may provide more standardization and accurate information.

Discussion

Mechanical ventilation is known to have profound impact on all the physiological systems of the human body. Understanding the pulmonary and cardiac interactions, and the potential complications during mechanical ventilation, is an essential element in improving outcomes for patients who receive this intervention. The preceding literature review provides insight into issues affecting mechanically ventilated patients related to gas exchange along with work of breathing, respiratory muscle function, and cardiac dysfunction, including arrhythmias and ischemia. For this vulnerable population, recognizing and assessing physiological signs early is crucial in preventing complications that can lead to suboptimal outcomes. The need for critical care nurses to be expert observers of warning signs and impending setbacks is vital. This is especially true for the patients with endotracheal intubation who are mechanically ventilated, since this group typically cannot speak and may not be able to communicate the symptoms that they experience. Finally, this research reflects the continuing search for accurate predictors of readiness for discontinuation of ventilatory support and the successful return to spontaneous breathing.

The studies focused on careful identification of physiological signs of respiratory distress along with improvement in measurement. In essence, advancement in patient assessment is the main objective. The research considered the usefulness of these indicators for predicting a patient's progress in healing their respiratory condition. Several cardiopulmonary parameters intended to gauge respiratory status were examined.

Pulmonary indicators of respiratory status that were presented included measurement of carbon dioxide recruitment threshold, airway pressures, and respiratory muscle strength. Inspiratory and expiratory airway pressures were used as surrogate measures for work of breathing. In addition, evidence showed that respiratory muscle strength also can serve as a reflection of work of breathing. Although these parameters were deemed to produce results indicative of lung condition and function, accurate and noninvasive methods of measurement at the patients' bedside are continuing challenges. Further study is clearly needed to best distinguish precise methods of measurement for obtaining the most useful clinical information.

The lungs and heart are intimately related both through proximity in the thoracic cavity and interdependent physiological function. Assessment of cardiac status is equal in importance to pulmonary condition to help move a patient toward liberation from the ventilator. Adequacy of circulation is essential for the delivery of oxygen and removal of CO₂. Continuous electrocardiographic bedside monitoring is established practice in the intensive care unit, and analysis of patients' cardiac rhythm can provide health care practitioners with essential data about the condition and performance of the heart. However, the technology continues to be underutilized in the assessment of patients. This observation can partially be attributed to misidentification of cardiac rhythms due to artifact, a problem noticed in at least one of the studies, all of which used three ECG leads to collect data. Newer cardiac monitoring equipment and methods of ECG analysis are being developed to provide more refined, precise measurements of cardiac activity (two citations). Unmistakably, further research is needed to advance ECG training and technology to correctly identify the extent of arrhythmia and ischemia that occurs during weaning. Ideally, mechanically ventilated patients will benefit from the advancement of cardiopulmonary assessment using the continuous, noninvasive monitoring that is already in place, but with an expanded ability to monitor additional leads, thereby providing a multidimensional view of the heart.

Conclusion

Mechanical ventilation is an essential therapy for patients who experience respiratory failure. Superior understanding of the complex physiological changes that recipients of ventilatory support can experience in association with receiving this therapy is the responsibility of the patients' health care providers. In the intensive care unit, critical care nurses are the ones who spend all day and night at the bedside of these patients. Vigilance must be of the highest priority; the nurse's knowledge and expertise are indispensable. The ongoing and attentive assessment of the critical care nurse to detect minute changes of the ventilated person's condition is crucial to the patient's wellbeing. This is especially true of the time immediately before, during, and after discontinuation of ventilatory support when particular care must be taken to assure all issues that could contribute to the person's respiratory compromise are addressed promptly and appropriately.

This literature review has provided guidance for recognizing, assessing, and potentially alleviating issues of gas exchange, airway pressure, respiratory muscle strength, and cardiac function that might contribute to patients' problems in returning to spontaneous breathing. Investigators have provided evidence that careful monitoring of selected cardiopulmonary parameters can contribute to decreased time on ventilatory support and successful return to spontaneous respiration. Directions for further research, especially development of more refined measurements, have been proposed.

Overall, the outcomes for patients who require mechanical ventilation can be improved by continuing with thoughtful, collaborative research studies, such as the ones presented within this review. Patients will be well-served, if healthcare investigators continue to search for parameters to evaluate respiratory status that can be accurately measured with noninvasive methods at the bedside. Future research designed to explore connections between the cardiac and pulmonary systems are essential for greater understand of the effects of mechanical ventilation and assist the transition to spontaneous breathing. Intensive care nurses are in a strategic position for conducting such studies and implementing the findings on behalf of their critically ill patients.

Appendix B: Introduction Examples from Different Papers

Introductions: Short Papers with Focused Issue // emboldened font shows topic & approach

- Pain is one of the most universal human experiences and a widely recognized phenomenon. **Although** many theories exist about the **characteristics of pain**, it still is a subjective experience and difficult to measure. **This paper defines one method to determine objectively and quantitatively the pain experience.**
- Many elderly Chinese immigrants have a strong belief in Chinese medicine and a distrust of Western care. *[general topic area]* Health care professionals **can use** a basic knowledge of traditional Chinese medicine to guide them in helping clients to accept medically indicated care. **However**, few practitioners have an interest in or an understanding of Chinese medicine. **This clinical vignette illustrates how cross-cultural knowledge can facilitate the Chinese patients' compliance with Western care.**
- **In hospital settings**, pediatric nurses are faced with the **problem of assessing child development under abnormal conditions**. Children are sick, frightened, and removed from their family and familiar environment. Their assessment requires a working knowledge of normal developmental tasks and an understanding that an abnormal experience like hospitalization may affect age groups differently. Such knowledge can aid the nurse in assessing age-appropriate behavior and in developing interventions to ease the trauma of hospitalization. **Yet, in actual practice, this kind of knowledge is uncommon.** Bibace and Walsh (*cit.*) have observed that health professionals lack an understanding of how children perceive and respond to illness issues and hospitalization. **This paper presents, through a case study, an example of nursing considerations inherent in the interplay between hospitalization and age-specific development tasks.** *[APA introduction example]*

Introduction: Theories of the Policy Process *[critique using Kingdon's theory of social policy]*

A **critical shortage of registered nurses (RNs)** is a serious problem existing in the delivery of health care in the United States (US). The problem is critical because the quality of care has decreased leaving patients at risk for injury or death (*cit.*). Currently there are 126,000 vacant, full-time positions for RNs in hospital settings throughout the country (*cit.*). With RNs as the largest group in the health care delivery system, this level of vacancy is a national crisis that has the potential to undermine the current healthcare system (*cit.*). Simply revisiting the traditional cyclic solution of increased spending on nursing education alone for RNs is overly simple. Such a revisit does not address all of the facets of the complex problem. **Instead, this paper reviews the quantitative demand for more RNs and proposes reasons for the shortage.** **John Kingdon's Stream Model** will be used to trace the development of the Nurse Reinvestment Act, 2002 (NRA) as it relates to the complexities surrounding the supply and demand of RNs. **This critique of the effectiveness of Kingdon's model will provide also an appropriate, long-term solution.**

Introduction: Theory and Ethics in Advanced Practice *[using Parse's theory]*

Rosemarie Rizzo Parse's Human Becoming Theory (formerly Man-Living-Health) was first published in 1981, offering an alternative to the medical and natural science theories more prevalent at that time (*cit.*). While her theory is somewhat abstract and complex, it offers an appropriate approach which one may apply broadly to any situation involving change, crisis, or decision-making. **This paper will describe the major principles of Parse's theory using an abbreviated version of Meleis' model for theory evaluation (*cit.*) and apply it to a specific clinical scenario, addressing its usefulness and drawbacks in a practical nursing situation.**

Introduction: Ethics Course *[using Thomasma & Marshall]*

Coherent approaches to ethically difficult clinical situations are essential. The demand for ethical care requires quickly integrating medical facts with classical ethical theory and the particular sensibilities of those who make health care decisions. Based on the **ethical workup guide** developed by **Thomasma & Marshall**, **this paper will describe such an approach by examining the values at stake and concluding with a recommended course of action.**

Introduction: Clinical Post-Instruction rooted in **Bandura's Theory** [*& Social Cognitive Learning*]

The **entry level nursing clinical experience** is often students' first exposure to the realm of professional nursing. As such, expert utilization of the post-clinical conference ("post conference") is essential to complement the psycho-motor and critical thinking skills honed during the hands-on phase. The post conference is also an opportunity to develop students' enthusiasm and confidence as they begin to assume the professional nursing role. Attention to the cognitive learning needs articulated by Bandura's Social Cognitive Learning Theory (SLT) ensures that conference time continues the development of clinically competent professional nurses who are able to integrate theory (nursing, family, social, patho-physiology) with daily practice (cit). While SLT theory offers guidance, it does have some limitations. **This paper describes plans for eight clinical post-conferences and includes their roots in Bandura's theory, the theoretical limitations of SLT, and the evaluation process** for students participating in this clinical experience.

Introduction: Longer Paper -- Depression Eradication Strategies for APPN

Eradicating Recurrent Depression: A Multi-dimensional Holistic Strategy for the Advanced Practice Psychiatric Nurse in Private Practice

According to the World Health Organization (WHO), **the lifetime risk of developing a single depressive episode in the United States now approaches 15% of the population.** In addition between 50% and 70% of those who have experienced one episode will have another episode at some later point in their life, sometimes leading to a chronic state. The WHO ranked this chronic form, known as **Major Depressive Disorder (MDD)**, the fourth most disabling medical disorder compared to bipolar disorder (6th in rank). More disturbing is the WHO's projection that by 2010, MDD will be ranked second unless meaningful improvements occur in prevention, diagnosis, and treatment. Controversial is whether these numbers reflect actual increased incidences of depression or whether they show an increase in the reporting of depression. However, the research does reveal substantial increased use of antidepressants as well as demand for psychotherapeutic services. According to recent national surveys in any given year, a total of about 15% of the US adult population use mental health services. Annually, nearly 21% of the child and adolescent population use mental health services. As a corollary, **XX** reports that teen suicides have increased four-fold in the past several decades, ranging from a low of 2.3 per 100,000 in 1956 to 9.5 per 100,000 in 1997.

Within this context of projected increasing severity of depression, severe recurrent (or chronic) depression is of particular concern. Recurrent depressive disorders are common, accounting for approximately 1/3 of all cases of depression. In the past, such chronic depression has been thought to be treatment-resistant, **yet new** evidence suggests that it is currently under-diagnosed, misdiagnosed, and sub-optimally treated. The disorder poses a major public health concern and problem. Chronically depressed individuals are hospitalized more often, require more health care, and attempt suicide more frequently than those suffering from episodic depression. They have more severe problems with work, family, and social relationships. **In fact, recurrent depression accounts for an inordinate portion of the enormous illness burden costs associated with depression.**

If we are to reduce the personal and societal costs of MDD, we must deal realistically with the problem of depression particularly as it manifests itself chronically. In the light of exciting new research about the issue, **this paper focuses on what can be done to prevent depression recurrences.** It **examines two major clinical questions** that range from theory to practice, grounded in the specific clinical setting of private practice: What are the seminal issues, theories, and research now available, relating to the recurrence of depression? (For the purposes of this paper, we define recurrence as "the occurrence of a depressive episode after 1 year following remission of symptoms." And **within this context, what can the Psychiatric Nurse Practitioner in private practice do to address this problem? Overall, this paper**

argues for relevant intervention, the non-pharmacological methods available to nurses, methods that include special knowledge and skills. **Specifically, this multi-modal holistic treatment strategy includes psychotherapy, pharmacotherapy, spiritual interventions, exercise, light therapy, and massage.**

Introduction: Problem-Solving Comprehensive Exam // Neonatal Resuscitation

Ten percent of newborns need some form of resuscitation at birth, of which one percent needs extensive maneuvers to successfully transition to extrauterine life. Nearly two decades ago, concerns about inconsistent and ineffective management of neonatal resuscitation led the American Academy of Pediatrics (AAP) and the American Heart Association (AHA) to propose guidelines for systemic principles and skills required to provide **resuscitation of the neonate**. This became the **Neonatal Resuscitation Program (NRP) (cit)** that is maintained by a network of regional trainers and hospital-based instructors who offer ongoing skill training to providers on a bi-annual basis. NRP has evolved into a worldwide program, and 2.4 million U.S. healthcare providers have been trained in NRP techniques (*database cited*). **Currently**, it focuses on clinical skill sets, utilizing an algorithm for the steps of neonatal cardio-pulmonary resuscitation. Continuously evaluated by the NRP Steering Committee and the International Liaison Committee on Resuscitation (ILCOR), **NRP is considered the care standard for neonatal resuscitation.**

Despite its standardization and high utilization, however, NRP's training is generally provided only episodically every two years. Recent studies have revealed that skills and content retention of life-saving courses such as NRP and even Cardiopulmonary Resuscitation (CPR) decline over time (cit) More than ten years ago, Kaczorowski et al., (*date*) **found that knowledge of NRP skills and concepts by family practice residents declined significantly over time in both written and performance indicators.** While multiple choice tests given immediately after initial training yielded mean scores of 93% for all participants, three to five months later repeat testing revealed that test scores dropped to 80% with only 59% of the residents attaining a passing score of 80%. **Similarly**, megacode standard performance testing dropped from an initial score of 100% for all participants in the original course to a follow-up score of 79%. **These findings suggest the need for NRP provider content to be delivered in a way that enhances knowledge retention.** Recent literature has shown that medical simulation may be an effective way to teach these emergency skills that would lead to greater retention of information (*cit*). **This paper proposes a simulation program for neonatal resuscitation that would enhance high-level retention of content and skills while also promoting good teamwork behavior.**

While the current NRP curriculum promotes actual hands-on skills for managing newborn resuscitation, **its overall curriculum does not sufficiently address principles of effective communication, leadership, and teamwork in the delivery room.** These soft skill principles have been noted as critical to successful neonatal resuscitation because they relate directly to full team performance and consistency when caring for these compromised neonates (cit). A study by xy and z. found 54% of 100 actual videotaped resuscitations deviated from NRP guidelines. **The study findings included** as common, ineffective positive pressure ventilation and prolonged intubation attempts. **This suggests** that curricular and training needs are not being met and imply the need for a new training direction in which teams learn the necessary knowledge and skills but also retain them over time in practice.

This problem leads to the question: How can a neonatal Clinical Nurse Specialist (CNS) practicing in a tertiary level intensive care nursery, implement a program to increase retention of NRP skills while improving performance in a neonatal resuscitation? A multi-phase "Simulation and Team Training for Neonatal Resuscitation" (NRP Sim) program is proposed for Registered Nurses (RNs) who will attend high-risk deliveries in the role of Triage Nurse....*[further description]*

This paper **will propose a Phase I intervention** of "Simulation and Team Training for Neonatal Resuscitation" to address how a CNS can implement a program that improves knowledge and skills retention as well as teamwork and communication for nurses new to the Triage Nurse role. The **theoretical framework** guiding this intervention is **David Kolb's Experiential Learning Theory (ELT) (cit)**. **Since specific research on simulation and team training for neonatal resuscitation is limited, the literature review will critique use of these training modes in both nursing and physician training** as well as in diverse settings for adult, perinatal, and neonatal patients with the intention of synthesizing current analogous research and suggesting definitive directions for future research.

Introduction: Critical Literature Review Comprehensive Exam // Multigenerational Staffing

The nursing shortage in the United States is increasing, with 1.2 million new registered nurses (RNs) required by 2014 to meet the nursing needs of the country (*cit*). Approximately 500,000 RNs will be needed to replace those leaving practice (*cit*) with an additional 700,000 RN positions needed to meet the growing demand for nursing services (*cit*) This shortage has been widely reported in the literature within healthcare organizations outside of the United States as well (*cit*) Sharing the concern over this projected nursing shortage are not only nurse administrators and nurse managers but also an increasingly gender diverse and multigenerational work force. Several authors (*cit*) have cited the increased prevalence of this more complex work force whose perspectives, approach, and cultural work ethic need to be known and understood within the framework of evidence-based nursing practice. Since managers are expected to create a healthy work environment (*cit*) in their units, these expectations present them with a complicated staffing challenge that needs to take account not only of numbers but also of generational differences that will affect employee productivity, innovation, and corporate citizenship (*cit*) This, in turn, may decrease turnover and cost while increasing job satisfaction for RNs.

....[*other material explaining the problem and context in more detail*]

Little literature exists about the emergence of gender differences in nursing. Thus, this literature review will focus on the multigenerational issue, examining two out of the four generational cohorts of bedside registered nurses (RNs) and their job satisfaction in the acute hospital setting. This paper will first define the four generational cohorts in the RN work force and discuss selection of the two cohorts. It will then evaluate recent pertinent literature discussing factors needed to improve nursing job satisfaction for the Baby Boomer and Generation X cohorts. **The discussion will include findings and limitations found in the current research literature on generational job satisfaction, and discuss the implications** for nurse managers so that they can help meet the needs for increasing job satisfaction among the current multigenerational nursing workforce. This literature review discussion will also use the theoretical framework of ... to provide reflections on practice implications of nurse managers.

Longer Introduction: A Research Proposal // Two ICU Nursing Procedures

This proposed research study examines the effects of two nursing procedures [turning and endotracheal suctioning (ETS)] on pain and dyspnea symptoms and their inter-relationships in mechanically ventilated patients in the intensive care unit (ICU). It is well established that critically ill patients suffered from multiple distressing physical and emotional symptoms, yet recent findings indicated that symptom management remains unsatisfactory. Nearly 40% of ICU patients required mechanical ventilation (MV) for an average duration of six days. Significant levels of pain and dyspnea related to MV and ETS have been reported. [*context -- leads to gap and importance of study*] **Yet, there is no known study that has examined the magnitude of and relationships between both symptoms in this clinical population. While some evidence has suggested that pain and dyspnea exist as a symptom cluster in patients with high disease acuity, the nature of their coexistence has not been elucidated and warrants further studies.** [*issue -- broad & then specific*]

The National Institute of Nursing Research has placed pain and symptom management on the national nursing research agenda. Patients on MV are at a particularly high risk for under-management of their symptoms. The major barrier to assessment is the inability of these patients to communicate verbally. Many of them also have altered cognition related to pathological, pharmacological, or environmental effects. **This study is unique in providing** important knowledge concerning patient perceptions of pain and dyspnea symptoms associated with routine ICU nursing activities, i.e. turning and ETS. Such knowledge lays the foundation for symptom management of non-communicative ICU patients. **The specific aims of this study** of mechanically ventilated patients are to:

1. **Describe** pain and dyspnea symptom intensity (current, average and worst), symptom frequency, and symptom distress during a resting state.
2. **Examine** changes in pain and dyspnea intensity and distress across a resting to turning state, and across a resting to ETS state.
3. **Examine** the relationship between pain and dyspnea intensity change from baseline scores.
4. **Describe** patient characteristics associated with two levels (mild, moderate/severe) of pain and dyspnea intensity and distress, such as age, gender, types of diagnoses, and duration of intubation.

Longer Paper Introduction: Parent Gender Differences in Child-rearing

Research Question Extracted from Research

Until recently, little research has been done in this country on parent gender differences in the child-rearing process. Instead the focus has tended to be on mothers in relation to rearing their children with little attention paid to the father's role. Research that did include fathers was generally on children's **perceptions** of parental roles and behavior...*[brief specifics about CONTEXT or research problem in general]*

During the last ten years, however, widespread changes in family roles and structures ... *[brief definition of these terms and the changes giving the specific context for the importance of asking the research question]* **These changes** have led researchers to focus increasingly on the role of the father in the family. **Seminal studies on this new focus** *[parenthetical citation of major authors]* have **typically centered on two areas limited** to specifically young ages of the children: fathers' interaction with infants under the age of two and fathers' interactions with preschool-aged children. The **comparison of parents' roles** during their children's **first two years** have shown that while fathers were engaged in more active, stimulating interaction, mothers were spent more time with care-taking functions. **Comparisons** of parental roles **during their children's pre-school years** showed similar more active, physical interaction between fathers and their children in structured play, doing tasks, or teaching situations with an emphasis on fathers giving functional information and encouraging better task performance. With this age group, greater differences in the father's interactions also appeared dependent on the child's gender. The mother's interaction at this age similarly included more focus on care-taking functions as opposed to play. *[brief context and background of studies done on issue]*

To understand more fully the different influences fathers and mothers may have on their children's social and emotional development, **it is important to conduct research beyond these younger age groups and to observe everyday patterns of parental behavior that emerge in relation to older children who have entered the more complex world of school and community.** *[specific research area]*

The present article focuses on in-home interactions of fathers and mothers in this country with their school-aged children **to consider whether substantial differences continue to exist between the parents' behavior with their children at this later age or whether they change** as the child enters the larger, more complex world of interactions with other adults and with age-similar peers ... *[research question and objective, followed by specifics of this study.]*

Draft Article Introduction: Racism and Health Outcomes

The Problem: Appropriately Defining the Concept of Racism in Health Outcomes

In recent years the scientific literature on health outcomes has seen a newly emerging focus on racial and ethnic disparities. African Americans in the United States suffer from the highest rates of mortality in health categories such as infant mortality, diabetes, HIV/AIDS, and cardiovascular diseases; they are also likely to experience differential medical treatment in health care settings (xx). **Although the reasons** for such disparities treatment and outcomes are **complex and remain unclear**, the **consequences** of this racial discrimination, whether real or merely perceived, **have been identified as a potentially significant factor contributing to their poor health outcomes** *(citation)*.

African Americans have reported racial discrimination in a variety of situations such as obtaining housing, securing employment, and gaining quality access to health and social services *(cit)*. In each of these situations whether an action is intended to be racist is arguable; however, an often neglected critical element in assessing positive change is the individual's perception that a negative outcome occurred because of the color of one's skin. **If we focus on this perception of racism, it may have particularly important implications on the widely document adverse health outcomes for this target population.**

Scientific and scholarly research are currently exploring some dimensions of racial and ethnic health disparities; this focus has even become a priority on many national health agency agendas *(cit)*. **Yet, seeking answers to this complex and seemingly pervasive problem requires clear conceptual understanding.** Current empirical studies have not sufficiently examined the concept of perceived racism because they have not demonstrated differing conceptual presentations of this complex issue. Developing a fuller contextual meaning of perceived racism will enhance interdisciplinary communication and influence the manner in which an appropriately defined concept is consistently applied in research, especially with the studies seeking to unravel specific factors associated with health disparities.

Catherine Norris' (*cit.*) model for concept clarification is used as a theoretical guide to examine this concept of perceived racism. *[briefly says why this model]*

Appendix C: Literature Critique Examples from Comp. Exams

Lit. Review Section: *Not updated - 2015 Comp Exam guidelines using Appendix Research Review Tables Problem-Solving Comprehensive Exam // Geriatric Care in Acute Setting

Geriatric care in an acute setting is a special practice area. Implementing age-specific sensitive care can decrease functional decline in the hospitalized elderly, reduce lengths of stays, early re-hospitalization, and discharge to long-term care facilities. The elderly population is at risk for deterioration in an acute setting. **The following review first includes two critiques of relevant randomized clinical trials** that both concluded providing geriatric sensitive care decreases length of stay and functional decline of the elderly in an acute care setting. **The third critique is an earlier randomized clinical trial that concluded** that educating the nurses in proper tools to evaluate delirium may improve age-specific care.

The first and classic randomized clinical study by Landefeld, Palmer, Kresevic, Fortinsky, and Kowa, (1995) **evaluated a clinical system** of care designed to improve overall outcomes in a group of older adults hospitalized for acute care. **Correctly stating the significance** that older patients admitted for acute care are at a high risk for loss of independence and institutionalization, the authors reviewed the literature and compared their findings with those of other studies and suggested other interventions that involved nurses had positive results similar to their results. The authors use theoretical principles of quality improvement and geriatric assessments to develop a system of care for acutely ill patients. This care system, Acute Care for Elders (ACE), was designed to assist hospitalized patients in an acute care unit to maintain independence in activities of daily living (ADL).

This randomized clinical trial compared the care patients received in the ACE unit with a regular acute care unit. Researchers' interviews of nurses caring for the patients were done at time of admission and at discharge only. Interviews of the patient and family member were done on admission, at discharge, and three months after discharge. Dependent variables **appropriately** included the major outcomes of ability to perform ADLs **measured with the KATZ tool** (citation) **which has proven validity and reliability** for measuring physical function in older patients. The Geriatric Depression scale (citation) measured depression along with 21 items of the Mini Mental State Exam (citation). To determine the patient's acuity, the Charlson co-morbidity score and the Acute Physiology and Chronic Health Evaluation (APACHE) II (citation) score were utilized on admission. **Design validity was controlled by** the random assignment of patients and use of measurements tools with established reliability and validity. Patients and family were asked on admission about the functional status and overall health two weeks prior to admission. Three months after discharge, information was obtained regarding any stays in long-term care, readmission to acute care, and paid health care services. **A threat to validity of design resulted, however, when** information about function was not available from the patients. Several patients' data was also obtained before admission from proxy respondents, such as family and caregivers. The authors referred to a study using proxy respondents to validate this method. **Several pieces of important data were also missing** for some patients. *[3 short descriptive paragraphs]*

Study strengths include a randomized control trial design, a large sample, and care was taken in the measurement and analysis of most outcomes. This classic study provided evidence that an ACE unit can assist older patients improve the ability to perform ADLs at time of discharge compared to a regular care unit.

A similar, second randomized clinical trial was conducted seven years later when Cohen, et al (2002) investigated whether the combination of an inpatient special geriatric assessment and special outpatient geriatric management improves quality of life and mortality in the older population in 11 Veterans Affairs Center (VA). *[2 paragraphs describing details, methodology, etc.]*

These findings are significant. There was a considerably lower decline in physical ability for patients in a special geriatric unit and considerably greater improvement in mental health for the patients treated in the outpatient clinics for geriatric evaluation and management. **Equally important** is that **these improvements were found without realizing an increase in cost and are consistent with results of other studies.**

In an earlier study, Inouye, Foreman, Mion, Katz, and Cooney (2001) had compared nurse and researchers ratings for delirium and specific delirium features using the Confusion Assessment Method (CAM) to identify risk factors associated with under-recognition of delirium by nurses. *[3 paragraphs & details]*

These findings should be incorporated into the health care system and in health care facilities where there is a high turnover rate of nursing staff. Such high turnover rates suggest ongoing training of nurses for using the CAM given that a lack of training results in inappropriate diagnosis of delirium in elderly patients.

[Since there is no third section discussion, this final paragraph wraps up their relevant to the proposed intervention] **These randomized control trials have shown consistent and substantial improvement** in the process of hospital care, improved discharge outcomes, improved patient, family, and healthcare professional satisfaction. ADL function can be improved and thus lessen the need for transfers to long-term care settings. **Questions arise as to how long the ACE intervention can be beneficial** to older adults over time. Also relevant is the question regarding additional concurrent geriatric care models that can assist the older adult to reach positive outcomes during hospitalization. However, one can argue that it is easier to prevent the problems of hospitalization before they happen rather than treating them once they have occurred.

Lit Review Section:

Critical Literature Review Comprehensive Exam // Treating Overweight Adolescents

A lit review comp exam that focused on reviewing the literature that explores the role of pharmacotherapy in the treatment of overweight adolescents, and examined the possibility that Metformin used in this population might potentially delay onset of T2DM by reducing BM while, decreasing fasting insulin and fasting glucose levels. With a focus aimed at studies of adolescents 12-19 years, this review's ultimate purpose is to familiarize the Nurse Practitioner (NP) about pharmacotherapy options for the treatment of overweight adolescents.

[Introductory paragraph noting search & selection process. Gives road map]

This review critiques eight research articles dating from 2001-2008 since the approval of pharmacotherapy by the United States Food and Drug Administration. This review encompasses randomized controlled trials (RCTs) published in English from 2001-2008, which included adolescent subjects (aged 12-19), and tested a treatment/intervention for overweight or obesity. The articles obtained were medical and nursing journals. A search strategy included using PubMed Medline and Cochrane Central Register for Controlled trials, using the following keywords in various combinations; (*obesity, overweight*) (*adolescents, youth, teens*) weight loss interventions, Pharmacotherapy (*metformin, sibutramine, and orlistat*). **Eight research studies** were selected for **their insight into the role of pharmacotherapy in treatment of overweight adolescents.** The review is organized into two sections. **Section one** studies **focus on approved drugs**, examining the effects on weight loss using orlistat in conjunction with behavioral modifications and then sibutramine in conjunction with behavioral modifications. **The first two studies** here address the efficacy of **orlistat** on weight loss in obese adolescents, with one conducted in a primary care setting illustrating orlistat's role in primary care, versus tertiary care. **The last two studies** here focus on **sibutramine's** efficacy in weight loss in obese adolescents. Although both medications have already been approved for weight loss in the adolescent population, they will be reviewed in this paper briefly. **Section two** studies **focus on the unapproved drug, Metformin**, exploring known effects on weight loss and as a marker for metabolic syndrome. **These last four studies** review the efficacy of metformin's weight loss effect and modification of metabolic parameter. **They were selected because they are four of five published studies that focus on metformin's positive benefits in non-diabetic overweight adolescents.**

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Critiques in this Lit. Review Comp Exam Example – Grouped by categories, not chronological organization

Two comparative studies of the effectiveness of Orlistat with behavioral modifications on adolescent obesity:

First Critique. Author X et al., (2005) conducted a 54 week, multicenter, randomized, double-blind study at 32 centers in the U.S. and Canada, to assess the efficacy and safety of orlistat, plus diet, exercise in weight management of adolescents. The sample included 539 obese adolescents aged 12-16 with a BMI ≥ 2 units above the 95th percentile. Subjects were randomized at 2:1 ratio to receive either orlistat 120 mg (n=357) or a placebo (n=182) three times daily after a two-week, single-blind placebo lead-in period. All subjects received general guidelines for diet, exercise, and behavioral modifications. Assessment of BMI change, body weight, waist & hip circumference, lipid levels, blood pressure, and glucose and insulin responses to an oral glucose challenge test were analyzed.

Results indicated metabolic syndrome was present in 25.3% of the participants at randomization. BMI reduction occurred in both groups up to week 12, but subsequently stabilized in the orlistat group. In the placebo recipients, BMI increased to beyond baseline. However, the analysis of variance model (ANOVA), found orlistat recipients had an overall BMI reduction compared to an increase in placebo recipients (0.55 vs. 0.31 respectively; $P = .001$) by the end of the study. A 5% or higher decrease in BMI was reached by 26.5% of the orlistat recipients compared to only 15.7% of the placebo group ($P = .005$) whereas a 10% or higher decrease in BMI was reached by 13.3% vs. 4.5% correspondingly. Weight increased 0.53 kg with orlistat but 3.14 kg with the placebo ($P < .001$) at the study's end. From end points, the orlistat recipients had significantly greater decreases in waist circumferences compared to an increase in placebo recipients (-1.33 cm vs. +0.12cm; $P < .05$). Diastolic blood pressure was also reduced in the orlistat recipients compared to an increase in the placebo recipients ($P = .04$).

Side effects reported were mild to moderate gastrointestinal events among both groups: 9% to 50% in the orlistat and 1% to 13% in the placebo, leading to a 2% discontinuation within the orlistat group. Only a single symptomatic cholelithiasis that resulted in a cholecystectomy was considered to be possibly related to orlistat by the investigators of the 11 reported adverse effects.

Study findings demonstrated that orlistat when combined with behavioral modifications, significantly reduced BMI, waist circumference, and body fat in obese adolescents. **Study strengths** include use of a double-blind randomized design and a placebo lead-in period that strengthened internal validity whereas use of a multicenter approach strengthened the study's external validity, particularly given that the treatment effect across centers was similar. Strict inclusion criteria of two additional BMI units, also strengthen internal validity reducing the likelihood that treatment would be given to normal weight adolescents. The authors' use of a Mann-Whitney test appropriately compared attrition rates between both groups (citation). **Threats to external validity** include use of a predominately white population that limits generalizability to ethnic backgrounds and a greater number of female participants that limits generalizability to males. The lack of standardized behavioral modifications also **limits internal validity**. Furthermore, since the average BMI was at the 98th percentile, **it is unclear** if less obese adolescents would have had similar results. **Other limitations** include short study duration of one year limiting assessment of safety beyond that period.

Second Critique. Author... (2006) *[description of study. similar to that above – 2 detailed short paragraphs]*

Side effects included ...

The authors suggested this study as well as two previous ones ... had similar efficacy to ... and would be effective for supporting weight loss in overweight individuals, **thereby improving weight-related risk factors** such as CHD by significant improvement of serum lipids and blood pressure as demonstrated in this study. **The study suggests as an adjunct to lifestyle interventions, orlistat can be an effective and a safe facilitator of weight management in overweight individuals.** **Study strengths included** randomization of subjects, study uniqueness in demonstrating that a low dose orlistat provides significant weight loss and improvements in weight-related risk factors associated with CHD in mildly to moderately overweight individuals. **The other unique feature** was the primary care study setting, illustrating for NPs in this setting a viable weight loss option. **Study limitations include** a short duration (16 weeks) to assess maximum weight loss, which usually occurs at 24-36 weeks (citation). Although the study included adolescents, the focus was not primarily in this population.

Two Comparative studies of the effectiveness Sibutramine with lifestyle modifications on adolescent obesity:

First Critique. Author A et al. (2006) ... [3 detailed paragraphs on study]...

...
Findings demonstrated sibutramine's weight loss effect at an average of 6.35 kg compared to placebo plus behavioral therapy weight gain of 1.8 kg, **suggesting that behavioral therapy alone may not be enough to assist some adolescents achieve weight loss** (citation). Additional metabolic parameter changes in insulin and triglyceride levels were significantly reduced, potentially reducing risk of obesity-related complications.

Study strengths include randomization methodologies, blinding of the researchers as well as use of ANCOVA in subjects who completed the study thereby reducing variability and error and strengthening internal validity. High specificity of choosing a higher BMI value for the inclusion criteria helped reduce likelihood that treatment would be offered to an adolescent who was not overweight.

Study limitations include pubertal stage changes, threatens internal validity, as well as 24% of the sibutramine 38% of the placebo groups did not complete study. The short duration of one year precluded assessment of long term weight maintenance, health benefits and harms. Behavioral modifications were not standardized which **limit generalizability**.

Second Critique. Author B et al., (2003) ... [2 detailed paragraphs on study]...

...
The study demonstrated the use of sibutramine in conjunction with BT significantly reduced more weight loss than BT and placebo alone. **It also illustrated** that weight loss plateau after six months with sibutramine, suggesting to the authors that a weight loss limit may occur as a result of various biological mechanisms, therefore emphasizing the importance for simultaneous lifestyle interventions to be practiced in conjunction with taking sibutramine. **However**, use of an open label during phase two further helped demonstrate the potential benefits of sibutramine as there was an additional 2.4% in those subjects who were switched from the placebo to treatment group. **Overall, the study underscores the need** for increased vigilance of vital signs while taking sibutramine given the occurrence of increased pulse rate and blood pressure in some subjects.

Study strengths include randomization methodologies, blinding of the researchers and inclusion of a comprehensive behavioral program that was standardized for all participants, which strengthened internal validity. **A design limitation** includes power analysis not used to determine an adequate sample size, which threatens external validity. Other weaknesses include use of an open label treatment of sibutramine from months 7-12, which could create bias. **Lack of a theoretical framework** to guide the study as well the authors' lack of discussion regarding limitations of the study also weakened the study.

Four Critiques of Effectiveness of Metformin on weight loss and prevention of T2DM: [following same pattern of organization and description]

Lit Review Section:

Another Literature Review Comprehensive Exam // Application of CRT in HF Patients

The concept of CRT has evolved through three distinct stages. The first included a number of acute and a few intermediate-term case studies and descriptive correlational studies from 1990 to 1998 involving CRT use. **The second included** several pivotal studies complete between 1998 and 2000 that utilized prospective randomized studies with larger sample size to expand the evidence linking CRT to improved patient function. **The third phase involved** the completion of a large-scale randomized trial of CRT and its effects on outcomes of mortality and hospitalizations, from 2000 to the present. **Seminal studies will be critiqued in each phase.**

A PubMed MeSH Database search was used to **identify clinical trials** testing the efficacy of CRT. **Limits were set** in including the terms "10 years," "randomized control trial," "human," and "Medline" **along with the search words**, "biventricular pacemaker" and "quality of life." This **generated eight articles. One article was eliminated** because it researched the use of left ventricular (LV) pacing only. **A second article was eliminated** since enrollment was not completed due to a historical change that limited the method of LV lead implantation. This search resulted in six viable articles. **A second PubMed MeSH Database search**

was conducted with the same limits set at: “10 years,” “randomized control trial,” “human,” and “Medline”; however, this search included “biventricular” and “mortality.” **It generated six articles. Two articles were eliminated** because of the use of LV pacing only. Four of these articles had been identified from the first search. **As a result, the two MeSH searches resulted in five relevant articles for critique, with a sixth article** included that reported the results of a much anticipated study that was published in April, 2005.

THEORY & THIS ADDED NOTE ON LITERATURE REVIEWED – followed by the review

This literature critique will be limited to studies that advance the understanding of the application of CRT in patients with HF. **Pivotal studies in Phase I demonstrated the effect of CRT** utilizing case study and descriptive correlational studies. **Cazeau et al. (1994)** demonstrated the application of CRT with four chamber pacing to resynchronize the hear in a single patient with severe congestive HF that improved pulmonary capillary wedge pressure and increase cardiac output and improved symptoms at 6 weeks. **Bakker et al. (1994)** advanced the knowledge base by replicating CRT research in five patients demonstrating improved hemodynamics and NYHA class as well as a reversal of previous improvements with the loss of CRT. **Foster et al. (1995)** demonstrated that atrio-biventricular pacing is superior to atrial pacing, atrial-RV pacing, and atrio-LV pacing in patients after cardiac revascularization. **Gras et al. (1998)** demonstrated efficacious use of transvenous placement of the LV lead through the cardiac vein to the lateral wall of the heart. **Overall, these initial studies demonstrated that theory of CRT had clinical benefit for the patient, and they paved the way for studies determining specific efficacies.**

Phase II is marked by the use of prospective, randomized, multicenter, blinded experimental designs using crossover and parallel designs. Prospective studies identify variable in present and study them in the future allowing the researcher to control the variables. Randomization is used to distribute covariates into study groups in an attempt to equalize the effect. Use of multiple centers increases the ability to generalize the results but decreases control of research protocols. Blinded refers to techniques in which experimenters in contact with subject or subject are unaware of the experimental or non-experimental intervention. A crossover design is an experimental design that allows the same subjects to be studied with the control and experimental protocol at a different period of time whereas a parallel design is an experimental design that allows the control and experimental protocol to be studied at the same time but with different groups of subjects. **The six characteristics work together to ensure** the independent variable is the cause of the effect on the sample, and they provide internal validity (Burns & Grove, 2001; Polit & Beck, 2004). **In Phase II,** application of CRT as the independent variable was evaluated based primarily on improved patient function. **The Phase III outcomes studies** represent patient function and alteration in cardiac size also called remodeling.

Appendix D: Discussion /Conclusion Examples (Comp. Exams & PhD)

Discussion / Conclusion Section:

Problem-Solving Comprehensive Exam // Incorporating lifestyle changes in diet and physical activity for women in the postpartum period with prior GDM

INTERVENTION, IMPLEMENTATION, and EVALUATION

The research literature and studies have suggested that lifestyle modifications by individuals can help prevent or postpone diabetes. However, there is less literature regarding the application of these lifestyle changes specifically to women previously diagnosed with GDM. *[summarizes main issue & findings]* The solution is to increase the staff’s knowledge and ability to utilize these interventions and incorporate lifestyle changes in diet and physical activity for women in the postpartum period with prior GDM. These interventions will be implemented as the standard of care in this clinic. A multi-disciplinary team already exists that will be accountable for their practice in the postpartum management of these women. Clinic resources will be evaluated and reallocated accordingly.

The staff will be involved in*[details about roles & responsibilities in the intervention]*.

Postpartum women identified with GDM in pregnancy by medical/prenatal history and elevated glucose laboratory values will be monitored. The ultimate goal of maintaining glycemic control with lifestyle change interventions to prevent or postpone the development of T2DM will be implemented. Considerable evidence demonstrates a three year time frame for monitoring and tracking glycemic status after delivery in this population of women is realistic. The prenatal diabetes nurses and providers will continue the practice of writing the name of newly diagnosed GDM women in the postpartum GDM logbook (**See Appendix A**). This will occur at the first orientation visit for glucometer teaching skills session. The provision of the glucometer to the patient will remind the nurses to record the names. Labor/Delivery staff and all other outside hospital referring clinics will contact the diabetes clinic nurse coordinator or Perinatal CNS to submit names of patients for entry into the log book. Patients who have received instructions on glucometer use in their particular setting will be delivering at SFGH, and returning for postpartum care will be included in the intervention programs.

[Details about intervention... nurse care managers, nutritionist, health educators, CNS]

Goal setting and problem solving to promote health for daily living will be addressed by providers and the individual woman using Prochaska and DiClemente's Transtheoretical Model and Miller and Rollnick's Motivational Interviewing constructs.

During the postpartum visits, medical history, birth experience/events, diabetes knowledge, health beliefs and attitudes, readiness to learn, self-management skills, cultural influences, family support, financial status, and physical limitations will be re-assessed for appropriate referrals. Documentation of all these encounters will provide evidence of diabetes care rendered by the collaborative team and their adherence to clinic practice guidelines.

The Diabetes Prevention Program's Lifestyle Change Program strategies will be the model used for achieving the weight loss and physical activity goals. Previous studies have indicated that 10% weight loss improves cardiovascular risk factors and lowers glucose, with an apparent dose-related relationship between magnitude of weight loss and improvement in these parameters (DPP, 1996). The DPP has selected a 7% weight loss goal because it is believed to be feasible, effective, and safe. The weight loss goal should be at a level that will be challenging for the women with previous GDM but reasonable.

The nutritionist will be mainly responsible for helping the postpartum GDM women to achieve and maintain the weight loss goal. A concurrent nutrition session will be scheduled at the postpartum visits and future Family Planning Clinic appointments. Women will be instructed on self-monitoring skills and taught to record weight trends rather single values and to respond with positive behavior changes until results are seen. Fat intake and calorie goals will be recorded in patient's diary and brought to providers at scheduled clinic appointments for review. The DPP recognizes that many experts consider self-monitoring the single most effective approach to changing dietary intake.

The DPP physical activity goal is to reach and maintain energy expenditure of 700 kilocalories/week. The DPP has set this goal based on studies that this level is sufficient to produce improvement in weight, glucose, insulin sensitivity, and overall health. The goal is 2½ hours of moderate physical activity per week. The clinic population will be able to achieve this goal through brisk walking. There are numerous equivalents to brisk walking activities that the DPP recommends, but for this population of women realistic, acceptable activities are: dancing, rope jumping, jogging, hiking, bicycle riding and water aerobics.

The health educators will be responsible for the physical activity goals. They will coordinate physical activity instructions individually and in groups. They will assist the postpartum GDM in finding free or low cost exercise classes as well as group walks. Women will be encouraged to develop support networks for being active and sharing childcare.

The lifestyle change interventions suggested should integrate individual cultural practices, psychosocial stressors, and barriers to learning. The time limitations of these women from the demands of caring for the newborn, other children, and social/economic responsibilities should be considered if they are expected to embrace these new changes to their existing lifestyle.

The Women's Health Center at SFGH has adopted the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) performance improvement framework model to develop, implement, and evaluate programs that continuously improve safety, health status, and outcomes of patients. Using this framework, the appropriateness of the diabetes management of postpartum women with previous GDM and lifestyle

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change interventions will be evaluated. This framework is called FOCUS-PDCA, which is a planned, step-by-step approach to solve problems to improve the delivery of care to patients.

- Find a process to improve
- Organize to improve the process
- Clarify current knowledge of the process
- Understand sources of the process variation
- Select the process improvement
- Plan the improvement and the data collection
- Do the improvement and the data collection
- Check the results of the implementation
- Act to hold the gain and continue the improvement

An interdisciplinary team will be organized and led by the Perinatal CNS that involves medical providers, nurses, nurse practitioners, nurse manager, and the Hospital Quality Management staff. This workgroup will be responsible for ensuring compliance of staff in implementing the guidelines for diabetes lifestyle management of the postpartum GDM by auditing medical records. The medical charts will be reviewed for prenatal, postpartum, and family planning clinic visits, as well as, attempts made by telephone or letter for missed appointments with documentation by appropriate staff. The areas of acknowledgment of laboratory glucose values with follow up, psychosocial, nutrition, and health education assessments during the 3 year period following the delivery when the GDM diagnosis was first made will be evaluated. These items will be checked off as “documented” or “not documented”. The audit results will be shared with providers and clinic staff. The medical record review audit will be repeated every 6 months for the duration of 3 years. The results will be compiled by the Hospital Quality Management staff and the desirable outcome of postpartum glycemic control through lifestyle changes of the previous GDM women, and other identified issues will be addressed with the Women’s Health Center staff.

Conclusion

The challenge of today’s health care environment is effectively implementing efficacious diabetes treatment across populations. Social, educational, biological, cultural, geographic (urban/rural), and psychological influences on society, health care systems, the patient, and provider may present barriers to implementation. The seriousness of diabetes is unappreciated since early diabetes is relatively asymptomatic or unrecognized and therefore the importance of comprehensive care is diminished (*cit*).

Although studies have demonstrated that lifestyle interventions and medications may prevent or postpone the progression of impaired glucose tolerance to T2DM, few studies have examined these findings specifically related to women who had GDM and continued to progress to T2DM. In a study conducted by Stage, Ronneby, & Damm (2003) it was suggested that although the majority of participants were concerned about developing overt diabetes, few lost weight after pregnancy and few had changed their lifestyle. The authors indicated that lifestyle instructions for these women need to be more frequent and intensive in pp period. Other researchers suggest that, despite close medical monitoring during pregnancy of women diagnosed with GDM, further follow up with the health care system and information about long term consequences of GDM for later T2DM development seems to be generally lacking (*cit*).

The studies critiqued suggest that T2DM can be prevented or postponed with modification in lifestyle or medication treatment. The lifestyle interventions have been more effective than medication treatment in longer term studies up to 3 years. Structured diet and PA can prevent postpartum weight retention in women with previous GDM. Successful interventions have been those that increase behavior-specific self-efficacy and consider the psychosocial factors associated with changes in exercise and food intake in the postpartum period. A collaborative oriented lifestyle intervention program led by the CNS to prevent or postpone T2DM in postpartum women may be practical and cost effective in community or clinic settings.

Discussion/Conclusion Section:

Literature Review Comprehensive Exam // CRT synchronization – *see lit critiques above*

A primary goal of CRT is to correct synchronization which causes immediate improvement in hemodynamics. This alleviates heart failure symptoms that improve the clinical status and improve quality of life. **The research demonstrates** an evolution in the application of CRT use into more extended and

positive clinical practice on patients with more severe heart failure progression. **Initial studies in Phase I demonstrated** that CRT does affect hemodynamics (*cit*). Others expanded the understanding of the application of CRT (*cit*).

Phase II trials focused primarily on patient function utilizing NYHA functional class, quality of life, and exercise tolerance with ancillary data collection measuring cardiac remodeling and underpowered observation of the effect of CRT on mortality. Cazeau et al. (2001) had demonstrated that CRT increased exercise tolerance, quality of life, and functional class, and Abraham et al. (2002) had then replicated the improved function from this earlier study and added the concept of measuring outcomes related to cardiac remodeling, health care utilization, and mortality. Unfortunately, this study was underpowered for these outcomes but did provide initial observations to guide further research. Then Young et al. (2003) combined therapy for the natural progression of HF and sudden death related to dysrhythmia. Significantly, the authors found that combining CRT with ICD continued to improve patient function and remodel the heart without affecting the efficacy of CRT. There was a trend toward a decrease mortality which suggested new research studies. Finally, Higgins et al. (2003) added to the knowledge base by demonstrating cardiac remodeling as improved cardiac size and function with all patients regardless of NYHA classification. Improved function continued in the subgroup analysis of NYHA Class III and IV.

This foundational research led to Phase III research powered to study the efficacy of CRT on mortality and hospitalization as primary outcomes. In a seminal study, Bristow et al. (2004) showed that CRT and CRT-D significantly improved clinical course of HF. Both CRT and CRT-D decreased hospitalization while increasing function. CRT-D actually decreased the risk of mortality in HF. However, Cleland et al. (2005) demonstrated that CRT alone is effective in decreasing mortality and hospitalization while increasing the remodeling process and improving patient function. The evidence in the research literature clearly shows that CRT and CRT-D are effective treatment therapies for moderate to severe HF patients with intraventricular conduction delays.

Significance to Nursing and the Advance Practice Nurse [untitled conclusion]

Adding CRT use to treatment of moderate to severe HF patients would showcase the role of the advanced practice nurse (APN). In addition to understanding the significance of research reports cited in the literature, the APN would need to be able to move from theory to clinical practice. The APN would need to collaborate with other healthcare providers in establishing CRT within the local hospital practice. During clinical practice, the APN would identify patients who could benefit from this treatment modality. The APN would develop guidelines for care or standards of care and would be instrumental in educating the nursing staff in the appropriate care of this patient group. APNs are in a strategic position to monitor both patient care and patient education.

Future Research

Data from Higgins et al. (2003) study demonstrates CRT affects cardiac remodeling regardless of functional class. Future research needs to be designed to explore utilization of CRT in patients who are NYHA Class II so this tool can help minimize HF progression. An initial small, prospective, randomized, controlled, clinical trial could monitor the effectiveness of early placement. Measurement outcomes that have shown sensitivity to change in NYHA Class II include functional measures of peak oxygen consumption and 6MWD. Measures of cardiac remodeling that have shown sensitivity to change include LVEF, LVEDd, and left ventricular end systolic diameter. (*cit*) A minimum time frame of 12 months would be needed to allow for evaluation of a projected smaller change effect. (*cit*) The comparison of outcomes in NYHA Class II with and without CRT over 12 months would then allow for monitoring of the natural progression of the disease compared to the CRT intervention.

Since current research has demonstrated CRT with atrio-biventricular pacing improves outcomes (remodeling the heart, improving functional level, decreasing healthcare utilization, and decreasing mortality), it is an appropriate treatment for patients with moderate to severe HF and intraventricular conduction delay refractory to optimal medical therapy. Future research might focus on CRT use with mild HF with intraventricular conduction delay. APNs are in a key position to understand the literature, collaborate in bringing research to clinical practice, develop practice guidelines, and educate staff toward appropriate patient care that may well save lives.

Discussion/Conclusion Section:

PhD Example // Facilitators and Barriers Related to Participation of Under-represented Populations in Clinical Trials *(Last Part of PhD Lit. Review Paper)*

Discussion / Summary

This review provides a background into the multi-faceted phenomenon of under-represented population's participation in clinical research. The exclusion of these groups contributes not only to poor science but questions the equality of providing quality health care to the nation's varied population. *[context that justifies and signifies importance]* Reports from study participants regarding the clinical trial decision making process are scarce. In addition, there is little available information describing the characteristics of study participants and non-participants. Patient recruitment into clinical trials is a complex process and there is limited research exploring the optimization of study recruitment. Lack of knowledge concerning the facilitators and barriers of study participation means there is no way of knowing how the process can be improved. *[issue significance]*

Under-representation of vulnerable groups appears to be caused by number of factors. A greater understanding of the importance of provider and patient factors and their interactions influencing the process of clinical trial decision making is needed. Physicians have a great deal of influence over a patient's decision to participate in research studies and their attitudes are important when identifying potential participants. It is **not clear** *[pointing out the issue – what's not clear]* if physicians concerns about patient eligibility are due to comorbidities, a specific patient's health literacy, whether the protocol will be adhered to or a combination of these factors. The physician's communication style and explanation of the trial's goals and requirements considerably influences whether the patient will accept or decline entry into a clinical trial. While further exploration of physician attitudes regarding patient's beliefs is needed, the failure of a physician to offer a trial due to prior patient triage is inappropriate. A greater understanding of physician-patient factors and their interactions on influencing clinical trial decision making is needed. Patients' attitudes and their decision-making process when faced with trial entry also need further exploration. Participation in research appeals to the self-interest of the participant and enrollment appears facilitated when the patient has prior knowledge of CT process. Nonetheless, patients and researchers must be able to truthfully acknowledge research is not without risk and that while there may be some benefit, the pursuit of scientific knowledge is the primary purpose of research.

Few interventions have been designed to increase recruitment of women and minority entry into clinical studies. Strategies are needed to reduce fear and mistrust of the medical community to help facilitate trial participation in these population groups. One way is to conduct education programs for professionals that address culture, race and class, create opportunities to work with vulnerable populations, and incorporate ethics training to enhance skills that aid in reducing distrust.

A major barrier identified was the increased costs associated with study participation. While historically study related expenses have not been covered by insurance, recent changes with Medicare's extension of reimbursement includes coverage for standard of care costs associated with clinical trials *(citation)*. This initiative began in September, 2000. Also a number of state governments have passed laws that require health plans to cover the cost of routine medical care for clinical trial participants *(citation)*. These financial remediations might have a significant impact on the financial drawbacks of participation and help to elevate some of the barriers women and minorities face due to financial considerations.

More directly, however, efforts to increase minority participation need to focus on increasing access to research, not changing minority attitudes. Information gleaned from research on the barriers women and minorities confront can be used to develop, refine and conduct research protocols. Researchers have traditionally been rigid in the implementation of protocols. The reluctance of researchers to accommodate their target populations with flexible hours and/or schedules has contributed to the persistence of low rates that vulnerable population groups experience when participating in clinical research. There remains a need for researchers to continually establish and maintain trusting relationships within the communities they serve. Developing trust within minority communities can potentially advance the public's health and the health care of women and minorities in general. This beginning is a crucial step to eliminating disparities in the health status of this population group.

Recently, Wendler et al (2006) published a meta analysis that evaluated the claim that "racial and ethnic minorities are less willing to participate in health research". The specific aim of their analysis was to

determine if, when eligible and asked to participate in research, this population consented to participate less frequently than non-Hispanic whites. The authors identified 20 research studies that reported the consent rates by race or ethnicity for over 70,000 individuals. They found that when invited to participate in a research study, minorities were no less likely than non-Hispanic white to agree to participate in clinic research. These findings challenge the widespread view that the major barriers to minority participation are not issues related to mistrust or the willingness to participate but whether they have access to entry into clinical research. Efforts are needed to ensure access for women and minorities, placing the burden directly on the research community. The findings from this analysis suggest more research is needed to ferret out the reasons under-represented populations are not offered entry to research at the same rate as non-Hispanic whites.

Conclusion

Unless women and minorities are routinely included in clinical trials the scientific value of the results is not generalizable. Detailed information is needed to understand the issues surrounding the decision-making process of the potential trial participant. In addition, more research is needed to investigate the decision-making process surrounding the issue of physician triage.

To conclude, this author supports the suggestion made by Ehrenberger et al. (2003) that the utilization of nurses, as patient educator and advocates, {not sure if this should be expanded more to explain specifics of suggestion} can play an integral part in increasing understanding of the research process and possibly increase patient participation in clinical trials especially in vulnerable/ underserved and minority populations.