Comprehensive Competency Review:
Appendix C.i.i.: Evidence of Competencies 1-6: Template and Instructions

Select one piece of evidence (artifact) that you have acquired, or that you are on your way to acquiring, each of these six research competencies: Problem Formulation, Methodology, Sampling, Measurement, Data Management and Biomedical Informatics, and Applied Analytic Techniques. Review the Master’s Thesis Rubric http://www.icre.pitt.edu/cbe/MSrubric.pdf for descriptions of each competency and indications of levels of competence.

Each piece of evidence should be no more than 1 page, so it could be part of a longer paper, a section from homework, a slide from a talk, etc.

Write a short reflective statement about each of the six artifacts and why you chose it to reflect your competence. In selecting your evidence and thinking about the competencies, consider the following points when writing about your evidence, and be prepared to answer any of these questions with your CCR committee. Students should come to the CCR meeting prepared to field questions about any of the 11 competencies.

- What have you learned?
- Why is this learning important?
- Why did you choose these particular pieces of evidence? What work did you consider as evidence and then not include? Why?
- What is there still left to work on within this competence? How will you do that?
- What is your strength in this competency that this piece demonstrates?
- What about this competency has been difficult to acquire?
- Why do you think this competency and what you have demonstrated is important for clinical research?
- How will you apply the competency you have demonstrated in your professional life?
- How do you feel about deepening your mastery of this competency?
- How have your different learning experiences (writing, discussions, critiques, reading) come together as an integrated whole, and how will that integration deepen as you apply this competency?

An example of how one of your colleagues has answered this question for the Problem Formulation competency is pasted below. (Used with permission)

Competency 1: Problem Formulation
Reflective Statement
At times, the development of a novel, relevant research question that is within your capability of answering can be difficult. The clinical research methods course and clinical decision analysis course had several great sections on the formulation of research questions in the context of clinical trials and
observational studies. The piece of evidence I have selected to demonstrate this competency is the specific aims section of my application for the advanced grant writing class. This demonstrates progress towards competency via developing specific research questions that will be addressed by the study plan outlined in my NIH K grant application.

Artifact

Project Abstract:
The primary research question of interest is to determine the impact of high illuminance blue light therapy on critically ill surgical patients with abdominal sepsis or hemorrhagic shock.

Specific Aim 1: To determine whether or not high illuminance (1700 lux) blue spectrum (442 nm) light therapy reduces acute kidney injury, liver injury, inflammation, and mortality in critically ill patients with sepsis of abdominal source.

  Hypothesis: Blue light therapy in the early, hyperdynamic phase of sepsis will attenuate inflammation, thus ameliorating organ dysfunction and improving clinical outcomes in sepsis from an abdominal source.

Specific Aim 2: To determine the impact of blue spectrum light therapy on acute kidney injury, liver injury, inflammation, coagulopathy, and mortality in trauma patients with hemorrhagic shock requiring blood transfusion.

  Hypothesis: Blue light therapy as a part of damage control trauma resuscitation will improve organ dysfunction in patients with acute hypovolemic shock due to hemorrhage.

Specific Aim 3: To further characterize early, minute-to-minute physiologic changes in preclinical sepsis models using novel biotelemetry-enhanced cecal ligation and puncture methods, with focus on time and frequency-domain analyses of heart rate variability.

  Hypothesis: Expanding our understanding of acute physiologic changes in preclinical sepsis models will enhance the ability to test potential therapies in a more clinically relevant manner, using physiologic preclinical trial inclusion criteria. This will increase the likelihood of successful translation from preclinical to clinical experiments.