

# Clinical Research Appraisal Inventory (CRAI)

## INSTRUCTIONS:

The following items are tasks related to performing clinical research. Please indicate your ability to successfully perform each task by selecting a single number from zero to ten that best describes your level of confidence. The phrases next to the numbers (0=No Confidence and 10=Total Confidence) are only guides. You can use these numbers or any of the numbers in between to describe your level of confidence.

We would like to know how confident you are that you can successfully perform these tasks TODAY.

) GW ID number \_\_\_\_\_

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## Conceptualizing a Study

) Select a suitable topic area for study.

No confidence                5    6    7    8    9    Total confidence

) Decide when to stop searching based on a literature review.

No confidence                5    6    7    8    9    Total confidence

) Refine a problem so it can be investigated

No confidence                5    6    7    8    9    Total confidence

5) Decide when to quit searching for related research/writing

No confidence                5    6    7    8    9    Total confidence

6) Develop a logical rationale for a particular research idea

No confidence                5    6    7    8    9    Total confidence

7) Organize your proposed research ideas in writing.

No confidence                5    6    7    8    9    Total confidence

8) Articulate a clear purpose for the research

No confidence                5    6    7    8    9    Total confidence

- 9) Place one's study in the context of existing research and justify how it contributes to important questions in the area  
 No confidence                5    6    7    8    9    Total confidence
- ) Explain (in a general way) the importance of theory to research  
 No confidence                5    6    7    8    9    Total confidence
- ) Relate specific questions of interest to underlying theory  
 No confidence                5    6    7    8    9    Total confidence

### Designing a Study

- ) Compare major types of studies (such as case reports, case controls, cross-sectional, longitudinal and epidemiological studies, clinical trials, etc.)  
 No confidence                5    6    7    8    9    Total confidence
- ) Recognize important threats to internal and external validity applicable to each research design  
 No confidence                5    6    7    8    9    Total confidence
- ) Choose an appropriate research design that will answer a set of research questions and/or test a set of hypotheses  
 No confidence                5    6    7    8    9    Total confidence
- 5) State the purpose, strengths and limitations of each study design  
 No confidence                5    6    7    8    9    Total confidence
- 6) Design a study using qualitative methods, e.g. ethnography, grounded theory or phenomenology  
 No confidence                5    6    7    8    9    Total confidence
- 7) Design a study using quantitative methods, e.g. experimental, quasi-experimental designs or clinical trials  
 No confidence                5    6    7    8    9    Total confidence
- 8) Determine the universe, population, and appropriate sample for a given study  
 No confidence                5    6    7    8    9    Total confidence
- 9) Determine an adequate number of subjects for your research project  
 No confidence                5    6    7    8    9    Total confidence
- ) Select methods of data collection appropriate to the study population and variable(s) of interest.  
 No confidence                5    6    7    8    9    Total confidence

- ) Determine how each variable will be measured  
 0 confidence                5    6    7    8    9    Total confidence
- ) Select reliable and valid instruments to measure or assess variables  
 No confidence                5    6    7    8    9    Total confidence
- ) Design the best data analysis strategy for your study  
 No confidence                5    6    7    8    9    Total confidence

### **Collaborating With Others**

- ) Identify experts in your area of interest  
 No confidence                5    6    7    8    9    Total confidence
- 5) Consult senior researchers for ideas.  
 No confidence                5    6    7    8    9    Total confidence
- 6) Identify faculty collaborators from within and outside the discipline who can offer guidance to the project.  
 No confidence                5    6    7    8    9    Total confidence
- 7) Initiate research collaborations with colleagues.  
 No confidence                5    6    7    8    9    Total confidence
- 8) Participate in generating collaborative research ideas.  
 No confidence                5    6    7    8    9    Total confidence
- 9) Sustain effective collaborations.  
 No confidence                5    6    7    8    9    Total confidence
- ) Terminate a collaboration that isn't working.  
 No confidence                5    6    7    8    9    Total confidence
- ) Work interdependently in a research group  
 No confidence                5    6    7    8    9    Total confidence

### **Funding a Study**

- ) Identify appropriate funding sources (local, state, national) to support a study  
 No confidence                5    6    7    8    9    Total confidence
- ) Speak with a person at the funding agency regarding your project or project ideas  
 No confidence                5    6    7    8    9    Total confidence
- ) Describe a major funding agency's (e.g. NIH, NSF, or foundation) proposal review and award process  
 No confidence                5    6    7    8    9    Total confidence
- 5) Prepare a research proposal suitable for submission in one's research area.  
 No confidence                5    6    7    8    9    Total confidence
- 6) Establish a sufficient timeline for a grant application.  
 No confidence                5    6    7    8    9    Total confidence
- 7) Locate appropriate forms for a grant application  
 No confidence                5    6    7    8    9    Total confidence
- 8) Prepare a project budget for a grant application.  
 No confidence                5    6    7    8    9    Total confidence
- 9) Establish collaborator and consultant agreements for a grant application  
 No confidence                5    6    7    8    9    Total confidence
- ) Write a competitive grant application  
 No confidence                5    6    7    8    9    Total confidence
- ) Obtain necessary signatures for institutional approval of a grant application  
 No confidence                5    6    7    8    9    Total confidence

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### **Planning and Managing Your Research Study**

- ) Maintain an organized system for ideas and references  
 No confidence                5    6    7    8    9    Total confidence
- ) Develop plans for implementing a study, including timeline, budget and requirements for personnel, facilities and supplies  
 No confidence                5    6    7    8    9    Total confidence

- ) Adhere to a timeline for research projects.  
 No confidence      5  6  7  8  9  Total confidence
- 5) Maintain a log of your research process (experiments conducted, major decisions, analyses performed, etc.)  
 No confidence      5  6  7  8  9  Total confidence
- 6) Obtain or purchase appropriate supplies and equipment for a research study  
 No confidence      5  6  7  8  9  Total confidence
- 7) Prepare and submit required reports, budget requests and other documents to institutional administrators and funding agencies  
 No confidence      5  6  7  8  9  Total confidence
- 8) Recruit and screen research project staff.  
 No confidence      5  6  7  8  9  Total confidence
- 9) Set expectations and communicate them to project staff  
 No confidence      5  6  7  8  9  Total confidence
- 50) Train assistants to collect data  
 No confidence      5  6  7  8  9  Total confidence
- 51) Evaluate research project staff.  
 No confidence      5  6  7  8  9  Total confidence
- 52) Ask staff to leave the project team when necessary  
 No confidence      5  6  7  8  9  Total confidence

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### Protecting Research Subjects and Responsible Conduct of Research

- 53) Explain the historical events that had significant impact on the federal regulations for the protection of human subjects  
 No confidence      5  6  7  8  9  Total confidence
- 54) Identify the responsibilities of research institutions and regulatory agencies in conducting research  
 No confidence      5  6  7  8  9  Total confidence
- 55) Describe appropriate recruitment and retention methods used in clinical research  
 No confidence      5  6  7  8  9  Total confidence

56) Apply the appropriate process for obtaining informed consent from research subjects

No confidence      5  6  7  8  9  Total confidence

57) Write a human subjects consent form containing the appropriate elements.

No confidence      5  6  7  8  9  Total confidence

58) Design a process utilizing special considerations for obtaining consent from vulnerable subjects

No confidence      5  6  7  8  9  Total confidence

59) Describe ethical concerns with the use of placebos in clinical research

No confidence      5  6  7  8  9  Total confidence

60) Discuss ethical issues involved in conducting genetic research

No confidence      5  6  7  8  9  Total confidence

61) Explain the potential risks and other special considerations associated with behavioral research

No confidence      5  6  7  8  9  Total confidence

62) Be knowledgeable and respectful of diverse ethical challenges associated with conducting research with minority populations

No confidence      5  6  7  8  9  Total confidence

63) Describe circumstances when the HIPAA Privacy Rule applies to research

No confidence      5  6  7  8  9  Total confidence

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### Collecting, Recording and Analyzing Data

64) State the relationship between the chosen research design, the type of data collected, and the necessary statistical techniques

No confidence      5  6  7  8  9  Total confidence

65) Evaluate the reliability and validity of a given measurement

No confidence      5  6  7  8  9  Total confidence

66) Ensure data collection is reliable across trials, raters, or equipment

No confidence      5  6  7  8  9  Total confidence

67) Construct a plan for managing data files

No confidence      5  6  7  8  9  Total confidence

- 68) Organize data to store and analyze in a computer system  
 No confidence                5    6    7    8    9    Total confidence
- 69) Analyze data according to their level of measurement and the research design  
 No confidence                5    6    7    8    9    Total confidence
- 70) Avoid the violation of statistical assumptions  
 No confidence                5    6    7    8    9    Total confidence
- 71) Provide direction to computer specialists or statisticians on how to handle missing data.  
 No confidence                5    6    7    8    9    Total confidence
- 72) Perform commonly used statistical tests, such as chi square, t-test, analysis of variance, correlations, and multiple regression  
 No confidence                5    6    7    8    9    Total confidence
- 73) Perform more advanced statistical tests used in one's research area, such as discriminant analysis, principal components analysis, multiple logistic analysis, survival analysis or time series analysis  
 No confidence                5    6    7    8    9    Total confidence
- 74) Use computer software to generate graphic images, such as flow charts or theoretical models  
 No confidence                5    6    7    8    9    Total confidence

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### Interpreting Data

- 75) Explain the outcome of given analysis in terms of the originally stated hypotheses or research questions  
 No confidence                5    6    7    8    9    Total confidence
- 76) Express appropriate methodological and theoretical cautions in interpreting results  
 No confidence                5    6    7    8    9    Total confidence
- 77) Identify limitations of a study  
 No confidence                5    6    7    8    9    Total confidence
- 78) Integrate the research findings into the existing literature by discussing what is known, unknown, and what requires further study  
 No confidence                5    6    7    8    9    Total confidence

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### Reporting a Study

- 79) Effectively edit your writing to make it logical and succinct.  
 No confidence                5    6    7    8    9    Total confidence
- 80) Cite strengths and limitations of a study based on the data  
 No confidence                5    6    7    8    9    Total confidence
- 81) Select a journal for a manuscript submission  
 No confidence                5    6    7    8    9    Total confidence
- 82) Organize a research report for a journal article according to an appropriate professional format and standards  
 No confidence                5    6    7    8    9    Total confidence
- 83) Write a literature review that critically synthesizes the literature relevant to your own research question  
 No confidence                5    6    7    8    9    Total confidence
- 84) Write a methods section that conveys sufficient methodological detail to permit subsequent replication of your work by others  
 No confidence                5    6    7    8    9    Total confidence
- 85) Write the results section of a research paper that clearly summarizes and describes the results, free of interpretative comments  
 No confidence                5    6    7    8    9    Total confidence
- 86) Report results in both narrative and graphic form  
 No confidence                5    6    7    8    9    Total confidence
- 87) Write a discussion section for a research paper that articulates the importance of your findings relative to other studies in the field.  
 No confidence                5    6    7    8    9    Total confidence
- 88) Prevent authorship disputes  
 No confidence                5    6    7    8    9    Total confidence
- 89) Describe the stages of a manuscript review  
 No confidence                5    6    7    8    9    Total confidence
- 90) Compose a reply to reviewers' comments for a manuscript review  
 No confidence                5    6    7    8    9    Total confidence

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**resenting Your Study**

91) Design visual presentations (posters, slides, graphs, pictures).

No confidence                5    6    7    8    9    Total confidence

92) Orally present results at a regional or national meeting

No confidence                5    6    7    8    9    Total confidence

93) Defend results to a critical audience

No confidence                5    6    7    8    9    Total confidence