Clinical Research Appraisal Inventory

Name _____ Date _____ When are you taking this? _____

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. When you are finished, please print the form and turn it in to the BREP staff on the second day of MSCR Orientation.

Conceptualizing a Study

(1) Select a suitable topic area for study _____

(2) Decide when to stop searching based on a literature review _____

(3) Refine a problem so it can be investigated _____

(4) Decide when to quit searching for related research/writing _____

(5) Develop a logical rationale for a particular research idea _____

(6) Organize your proposed research ideas in writing _____

(7) Articulate a clear purpose for the research _____

(8) Place one's study in the context of existing research and justify how it contributes to important questions in the area _____

(9) Explain (in a general way) the importance of theory to research _____

(10) Relate specific questions of interest to underlying theory _____

Designing a Study

(11) Compare major types of studies (such as case reports, case controls, cross-sectional, longitudinal and epidemiological studies, clinical trials, etc.) _____

(12) Recognize important threats to internal and external validity applicable to each research design _____

(13) Choose an appropriate research design that will answer a set of research questions and/or test a set of hypotheses _____

(14) State the purpose, strengths and limitations of each study design _____

(15) Design a study using qualitative methods, e.g. ethnography, grounded theory or phenomology _____

(16) Design a study using quantitative methods, e.g. experimental, quasi-experimental designs or clinical trials _____

(17) Determine the universe, population, and appropriate sample for a given study _____

(18) Determine an adequate number of subjects for your research project _____

(19) Select methods of data collection appropriate to the study population and variable(s) of interest _____

(20) Determine how each variable will be measured _____

(21) Select reliable and valid instruments to measure or assess variables

(22) Design the best data analysis strategy for your study

Collaborating With Others

(23) Identify experts in your area of interest

(24) Consult senior researchers for ideas

(25) Identify faculty collaborators from within and outside the discipline who can offer guidance to the project

(26) Initiate research collaborations with colleagues

(27) Participate in generating collaborative research ideas

(28) Sustain effective collaborations

(29) Terminate a collaboration that isn't working

(30) Work interdependently in a research group

Funding a Study

(31) Identify appropriate funding sources (local, state, national) to support a study

(32) Speak with a person at the funding agency regarding your project or project ideas

(33) Describe a major funding agency's (e.g. NIH, NSF, or foundation) proposal review and award process

(34) Prepare a research proposal suitable for submission in one's research area

(35) Establish a sufficient timeline for a grant application

(36) Locate appropriate forms for a grant application

(37) Prepare a project budget for a grant application

(38) Establish collaborator and consultant agreements for a grant application

(39) Write a competitive grant application

(40) Obtain necessary signatures for institutional approval of a grant application

Planning and Managing Your Research Study

(41) Maintain an organized system for ideas and references

(42) Develop plans for implementing a study, including timeline, budget and requirements for personnel, facilities and supplies

(43) Adhere to a timeline for research projects

(44) Maintain a log of your research process (experiments conducted, major decisions, analyses performed, etc.)

(45) Obtain or purchase appropriate supplies and equipment for a research study

(46) Prepare and submit required reports, budget requests and other documents to institutionalagencies administrators and funding agencies

(47) Recruit and screen research project staff

(48) Set expectations and communicate them to project staff

(49) Train assistants to collect data

(50) Evaluate research project staff

(51) Ask staff to leave the project team when necessary

Protecting Research Subjects and Responsible Conduct of Research

(52) Explain the historical events that had significant impact on the federal regulations for the protection of human subjects

(53) Identify the responsibilities of research institutions and regulatory agencies in conducting research

(54) Describe appropriate recruitment and retention methods used in clinical research

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

(56) Write a human subjects consent form containing the appropriate elements

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

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

(59) Discuss ethical issues involved in conducting genetic research

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

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

(62) Describe circumstances when the HIPAA Privacy Rule applies to research

Collecting, Recording and Analyzing Data

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

(64) Evaluate the reliability and validity of a given measurement

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

(66) Construct a plan for managing data files

(67) Organize data to store and analyze in a computer system

(68) Analyze data according to their level of measurement and the research design

(69) Avoid the violation of statistical assumptions

(70) Provide direction to computer specialists or statisticians on how to handle missing data

(71) Perform commonly used statistical tests, such as chi-square, t-test, analysis of variance, correlations, and multiple regression

(72) 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

(73) Use computer software to generate graphic images, such as flow charts or theoretical models

Interpreting Data

(74) Explain the outcome of given analysis in terms of the originally stated hypotheses or research questions

(75) Express appropriate methodological and theoretical cautions in interpreting results

(76) Identify limitations of a study

(77) Integrate the research findings into the existing literature by discussing what is known, unknown, and what requires further study

Reporting a Study

(78) Effectively edit your writing to make it logical and succinct

(79) Cite strengths and limitations of a study based on the data

(80) Select a journal for a manuscript submission

(81) Organize a research report for a journal article according to an appropriate professional format and standards

(82) Write a literature review that critically synthesizes the literature relevant to your own research question

(83) Write a methods section that conveys sufficient methodological detail to permit subsequent replication of your work by others

(84) Write the results section of a research paper that clearly summarizes and describes the results, free of interpretative comments

(85) Report results in both narrative and graphic form

(86) Write a discussion section for a research paper that articulates the importance of your findings relative to other studies in the field

(87) Prevent authorship disputes

(88) Describe the stages of a manuscript review

(89) Compose a reply to reviewers' comments for a manuscript review

Presenting Your Study

(90) Design visual presentations (posters, slides, graphs, pictures)

(91) Orally present results at a regional or national meeting

(92) Defend results to a critical audience

Important Information about the CRAI

This Clinical Research Appraisal Inventory (CRAI) has been developed to assess an individual's perceived abilities to perform tasks and activities needed to conduct clinical research (i.e. clinical research self-efficacy). Self-efficacy has been reported as an important factor in career decisions and outcomes. The CRAI is not a measure of competency, motivation or self-esteem and should be not used or interpreted as such. Since self-efficacy can change over time and varies across domains for a single individual, it is important to recognize that it be administered and interpreted as an assessment of confidence in one's abilities at any given time. For more information regarding the self-efficacy construct and its importance in career development, a list of readings are provided below.

The psychometric properties of the Clinical Research Appraisal Inventory have been reported in a manuscript that has been accepted for publication in the Journal of Career Assessment. Although it appears to have excellent reliability and some degree of validity, further analyses need to be performed and additional samples need to be studied to support our claims. Keeping these limitations in mind, we encourage you to use the CRAI for assessing the research self-efficacy of your trainees and hope that you will share your findings.

If you have further questions about the development of the CRAI or its use, please contact:

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Reminder: Please don't forget to print your finished CRAI and turn it in to the BREP staff at Orientation. Thanks!

Print Form