**Acupuncture for Chronic Headache RCT Data**

**Teaching Resource 01   
*8-3-2015***

**TSHS Resource Portal Data Set Name**

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| **Data Set Name:** | Vickers Acupuncture for Headache RCT Data |

**Teaching Resource Core Information** (This will appear on the portal)

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| **Teaching Resource Title:** | Calculating and Interpreting Confidence Intervals |
| **Posting Date:** | 8-4-2015 |
| **Contributor Name/ Email:** | Steve Grambow ([steven.grambow@duke.edu](mailto:steven.grambow@duke.edu))  Megan Neely ([megan.neely@duke.edu](mailto:megan.neely@duke.edu)) |
| **Resource Type:** | 2=Lab |
| **Statistical Topic:** | 1=Confidence Intervals |
| **Software:** | R |
| **Keywords (up to 6):** | confidence interval, clinical research abstract |

1. Audience:  
   This resource is appropriate for introductory courses in statistics or biostatistics and is targeted at non-major health science learners.
2. Resource Type:   
   This resource would be appropriate for use primarily as an in-class activity that could be assigned individually or in groups. It could also be used as a homework assignment.
3. Learning Objectives:  
   The goal of this activity is to familiarize students with interpreting confidence intervals within the general context of the clinical research setting. Concepts covered in the activity include: (1) Providing a proper statistical interpretation of a calculated confidence interval, (2) Providing a clinical interpretation of a confidence interval appropriate to the context of specific clinical studies.   
     
   *Notes for Instructors:   
   (1) This exercise assumes that students have already been introduced to the basic notion of both the confidence interval for the mean and the confidence interval for the difference in means.   
   (2) This exercise doesn’t require students to write any R code. They only need to run a script file. The exercise could easily be modified to require this by removing parts of the script file or the output of the script file could be included in the actual exercise so that running R code isn’t required – in this case the script file could be provided as a supplemental resource for those interested in the code.   
   (3) The dataset used in the exercise is a modified version of the original data files provided by Vickers with fewer variables to keep things simple. Notice that the script file will directly load the data file from a provided web URL so students don’t need to deal with manually downloading and loading the data file.  
   (4) This exercise proposes a suboptimal method for addressing the research question of interest, that is, using separate confidence intervals for each intervention arm mean instead of calculating a confidence interval for the difference in means. The hope is that students will realize through the exercise that the correct parameter of interest is the difference in the means. When discussing the answers the correct confidence interval and R code can be discussed/demonstrated.  
   (5) There is substantial missing data at 1 year – something that can be discussed. Also, there is some uncertainty about how the primary outcome was actually constructed and resulting confusion in what it represents – also something that can be the basis for an interesting discussion about clinical interpretation of values in the CIs.*
4. Contents of zip file, “ACUPUNCTURE – Resource 01 ZIP.zip”
   1. filename – “ACUPUNCTURE – TEACHING RESOURCE 01.docx”
   2. filename – “Acupuncture Data Description.docx”  
      Description and location of original resource files publicly available on the internet with URLs to the main paper, dataset, and other supporting papers (research design paper, etc).
   3. filename – “Acupuncture – Resource 01 Exercises.docx”  
      Class Activity Exercise Document with instructions to students and questions.
   4. filename – “AcupunctureCI\_RScript.R”  
      R Code file with embedded URL that automatically loads the acupunc\_data\_reduced R data file directly from the web used for the exercise.
   5. filename – “acupunc\_data\_reduced.RData”  
      R Data file used in exercise – this is a modified version of the original trial data file containing a limited number of variables to keep things simple.
   6. filename – “Acupuncture – Resource 01 Exercises.pptx”  
      Powerpoint slide set with slides providing introductory material and discussion of exercise.
   7. filename – “Acupuncture – Resource 01 Solutions.pptx”  
      Powerpoint slide set with slides providing introductory material and discussion of exercise.