|  |
| --- |
| **Mann Whitney U Test: Tutorial** |
| 1. The following data shows the age at diagnosis of type II diabetes in young adults. Is the age at diagnosis different for males and females?  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Males | 19 | 22 | 16 | 29 | 24 | | Females | 20 | 11 | 17 | 12 |  |  1. A new approach to prenatal care is proposed for pregnant women living in a rural community. The new program involves in-home visits during the course of pregnancy in addition to the usual or regularly scheduled visits. A pilot randomized trial with 15 pregnant women is designed to evaluate whether women who participate in the program deliver healthier babies than women receiving usual care. The outcome is the [**APGAR score**](javascript:void(0);)http://sphweb.bumc.bu.edu/otlt/mph-modules/bs/bs704_nonparametric/ada-reference.gif measured 5 minutes after birth. Recall that APGAR scores range from 0 to 10 with scores of 7 or higher considered normal (healthy), 4-6 low and 0-3 critically low. The data are shown below.  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Usual Care** | 8 | 7 | 6 | 2 | 5 | 8 | 7 | 3 | | **New Program** | 9 | 9 | 7 | 8 | 10 | 9 | 6 |  |   Is there statistical evidence of a difference in APGAR scores in women receiving the new and enhanced versus usual prenatal care?   1. A clinical trial is run to assess the effectiveness of a new anti-retroviral therapy for patients with HIV. Patients are randomized to receive a standard anti-retroviral therapy (usual care) or the new anti-retroviral therapy and are monitored for 3 months. The primary outcome is viral load which represents the number of HIV copies per milliliter of blood. A total of 30 participants are randomized and the data are shown below.  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Standard Therapy | 7500 | 8000 | 2000 | 550 | 1250 | 1000 | 2250 | 6800 | 3400 | 6300 | 9100 | 970 | 1040 | 670 | 400 | | New Therapy | 400 | 250 | 800 | 1400 | 8000 | 7400 | 1020 | 6000 | 920 | 1420 | 2700 | 4200 | 5200 | 4100 | undetectable |   Is there statistical evidence of a difference in viral load in patients receiving the standard versus the new anti-retroviral therapy?   1. Twenty participants were given a list of 20 words to process. The 20 participants were randomly assigned to one of two treatment conditions. Half were instructed to count the number of vowels in each word (shallow processing). Half were instructed to judge whether the object described by each word would be useful if one were stranded on a desert island (deep processing). After a brief distractor task, all subjects were given a surprise free recall task. The number of words correctly recalled was recorded for each subject. Here are the data:  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Shallow Processing: | 13 | 12 | 11 | 9 | 11 | 13 | 14 | 14 | 14 | 15 | | Deep Processing: | 12 | 15 | 14 | 14 | 13 | 12 | 15 | 14 | 16 | 17 |   Did the instructions given to the participants significantly affect their level of recall (alpha = .05)? |