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Report to Participants of the Health Testing in March & April 2013

Thank you for your support and participation in this preliminary study.

The following explanation of the testing and preliminary results is based on how Puna and Hilo groups compared and the need to compare them to a Tennessee control group measured previously.

The strategy was to compare 30 people from Puna near the geothermal plant with Hilo people. The plan was to test body balance, speed of reaction time, color discrimination, grip strength, and pulmonary vital capacity and flow by spirometry. The measurements were made in March and April 2013 by Laura and Tom Travis with help from their daughter Geneva Travis and two other recent college graduates, Sean McConkie and Carey Priebe. The protocols were developed by Dr. Kaye H. Kilburn and were from procedures used to determine the effects of hydrogen sulfide (H_2S) and other toxic chemical exposures by Neuro-Test in the past 30 years.

These neurophysiological data showed Hilo people were similar, in fact almost identical, to the Puna group. Five factors influence the measurements: gender, age, educational attainment in years, height, and weight. A Tennessee unexposed group from Columbia and Warrenberg provided referent controls.

Women outperform men, most functions improve with years of education, and all functions but vocabulary decrease with age. To compare across groups of different ages and

educational level, we predict the performance of each person on every test. All their values are expressed as percentage of this predicted performance score.

This is equivalent to measurements made before toxic exposure or made on an unexposed identical twin. Thus take care of differences between groups - i.e. old verses young, women verses men. Another way of comparing groups is percentage of the group whose values exceed the limits of normality that is % abnormal.

The results of testing are shown in the graphs 3, sets of 3 graphs. The first shows neurophysiological abnormalities for Puna, for Hilo, and Tennessee. Notice that the Tennessee controls have almost all abnormalities below two, 60% are zero, while only 7.5% were above two, the threshold of abnormality, three is the limit of abnormality. Puna has 36% above three, and Hilo has 32% above three. Both are similar and greatly different from Tennessee controls.

Spirometry showed Puna with 43% with 1 or 2, and Hilo has more: 65% abnormal with 1 or 2. While Tennessee controls have 86% normal at zero. The Hilo people have more pulmonary impairment than Puna and both had much more than Tennessee controls.

Profile of Mood States measures feelings for tension, depression, anger, fatigue, and confusion verses or minus vigor (meaning the adverse moods are subtracted from vigor). Puna people have 60 with Hilo, 80% and Tennessee controls 88%. As the block graphs show, Hilo and Tennessee are similar while Puna has 40% with adverse moods.

CONCLUSIONS

Brain - People in Hilo and Puna have adverse neurophysiological effects to a similar degree when compared to Tennessee control people.

Pulmonary - People in Puna and Hilo have similar adverse effects on breathing functions, but Hilo may have greater impairment.

Feeling States - POMS - Puna people have greater adverse feeling states than Hilo and Tennessee.

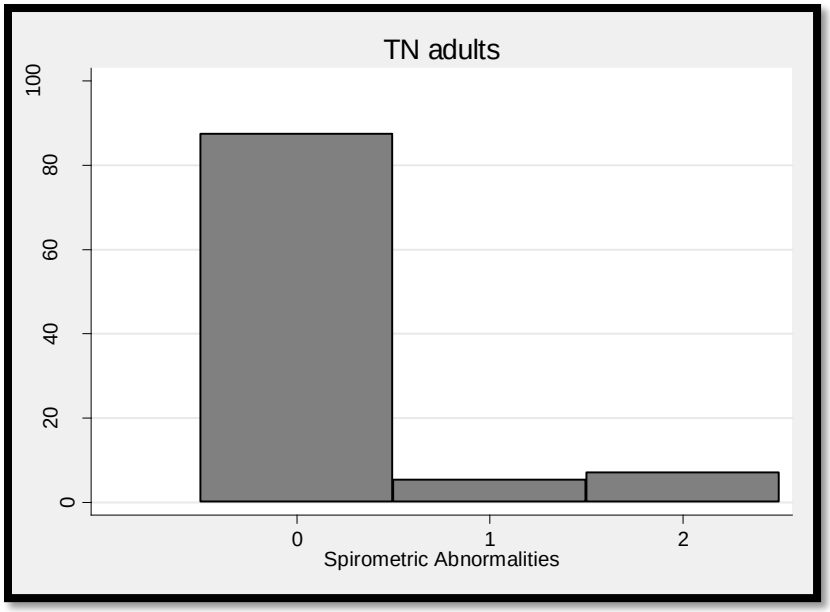
RECOMMENDATIONS

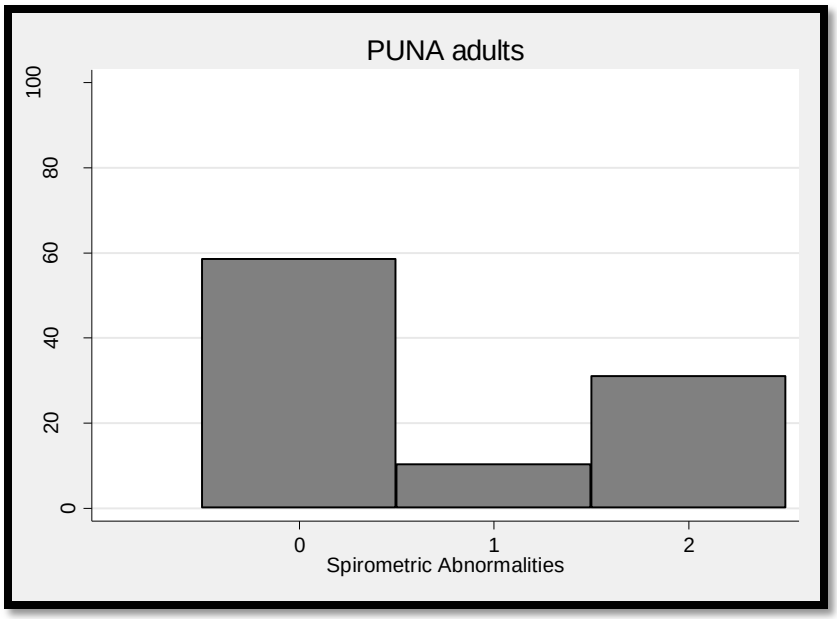
1. Complete testing using 30 tests is needed in larger groups on Hawaii Island with a (North Kohala) control group.
2. Testing should focus on including children born of pregnancies under toxic exposure and their mothers.
3. Current and retired PGV workers should be tested.
4. Interventions directed to reverse ill effects should be explored.

Cordially,

Kaye H. Kilburn, M.D.
Ralph Edgington Professor of Medicine
University of Southern California, Keck School of Medicine (ret.)
President of Neuro-Test, Inc.

Figure Group 1





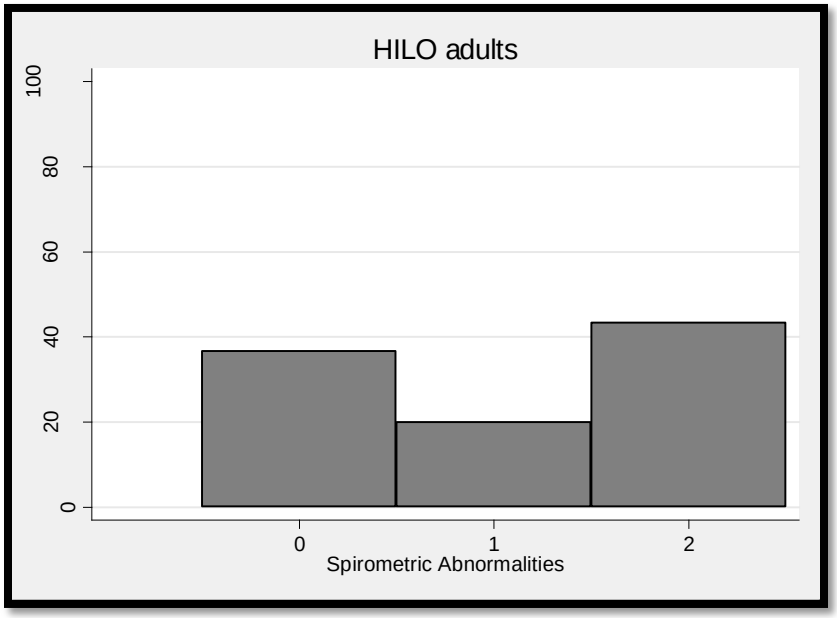
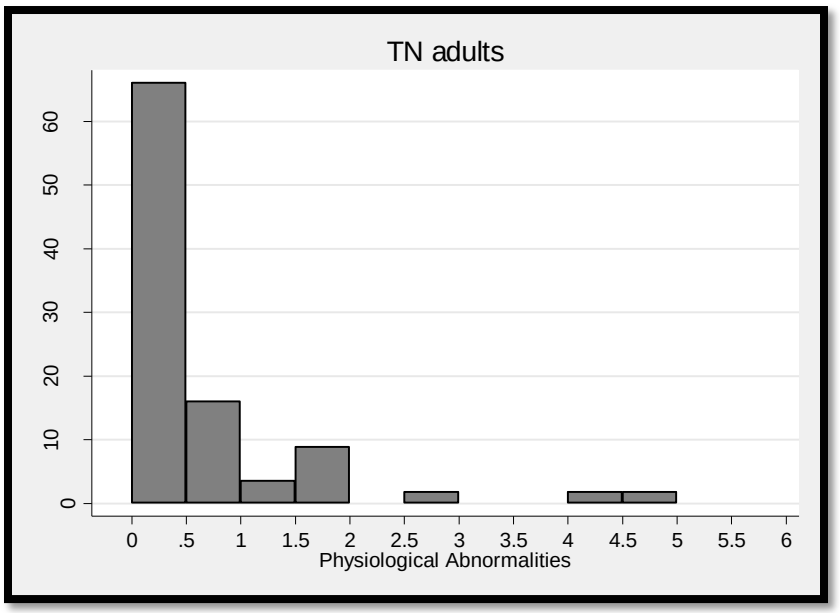
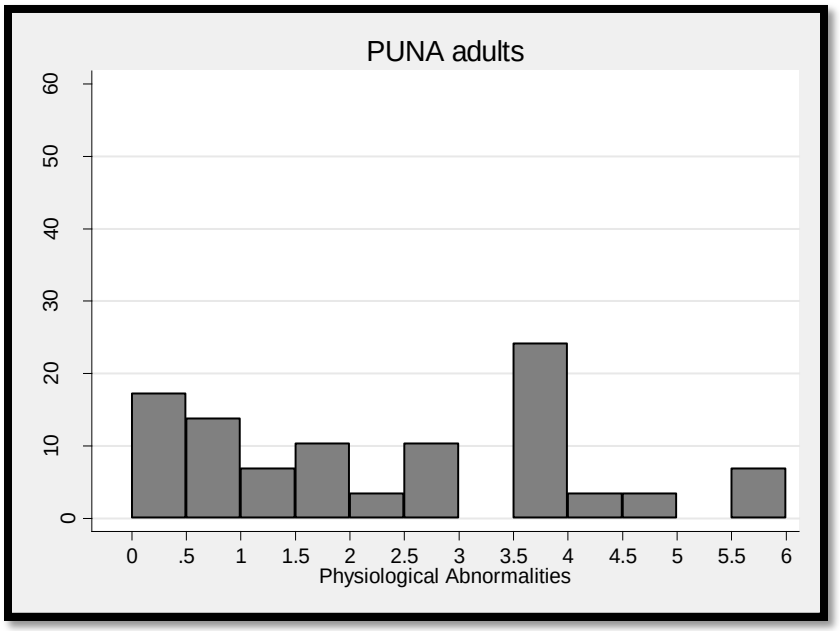


Figure Group 2





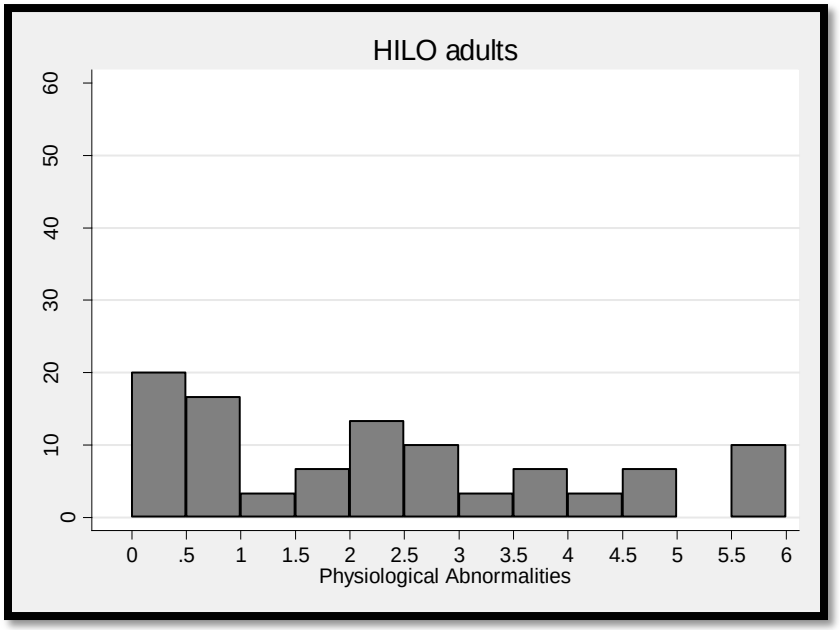


Figure Group 3