

APPENDIX IV

OUTLINE OF DATA ANALYSIS

Outline of Plan for Data Analysis

For the purpose of data analysis we will be grouping the data in the following manner:

Risk Factors

Ambient Temperature

1. Average for period worked
2. Maximum for period worked
3. Average for the 1 hour immediately preceding testing
4. Maximum for the 1 hour immediately preceding testing

Skin Temperature

1. Average for period worked
2. Maximum for period worked
3. Average for the 1 hour immediately preceding testing
4. Maximum for the 1 hour immediately preceding testing

Ear Temperature

1. Average for period worked
2. Maximum for period worked
3. Average for the 1 hour immediately preceding testing
4. Maximum for the 1 hour immediately preceding testing

Oral Temperature

Difference between pre and mid; and pre and post shift temperature

Work Load

Time weighted averages measured in calories will be calculated from observations of work recorded every 15 minutes.

Protective Equipment

Wearing impermeable clothing - yes versus no
Wearing respirator - yes versus no

Outcomes

1. Differences in scoring on behavioral tests performed pre and mid shift, and pre and post shift on hot work days versus control days.
2. Differences in urine osmolarity and ph done pre and mid shift; and pre and post shift on hot work days versus control days.
3. Differences in average pulse and maximum pulse on hot work days versus control days.
4. Differences in average and maximum systolic blood pressure on hot work days versus control days.
5. Differences in average and maximum diastolic blood pressure on hot work days versus control days.

6. Outcomes from questionnaires

- A. Differences between pre and mid; and pre and post shift on hot work days versus control days for the following questions:

How do you feel
 Skin rash
 problems remembering
 problems concentrating
 problems thinking

- B. Differences on mid-shift between hot work days and control days

Number of symptoms indicated severe
 Number of symptoms indicated quite a bit
 Number of symptoms indicated moderate
 Number of symptoms indicated somewhat
 Number of symptoms indicated slight

- C. Differences on post-shift between hot work days and control days

Number of symptoms indicated severe
 Number of symptoms indicated quite a bit
 Number of symptoms indicated moderate
 Number of symptoms indicated somewhat
 Number of symptoms indicated slight

Confounders

Obesity - Body Mass Index > 30 versus ≤ 30

Physical fitness - 3 categories: Above average-excellent versus average versus very poor-below average

Base Line Questionnaire:

1. Current Cigarette Smoker
Question 4a yes versus no
2. History of Problems Working in Heat
Question 5 yes, or 6a,b,c,d,e
regularly or all the time versus
Question 5 no or 6a,b,c,d,e
never or sometimes
3. Tolerate Heat
Question 7 - c or d versus a or b
4. Knowledgeable about Heat
Question 8 - c or d versus a or b
5. Chronic Disease
yes on Question 9a or b or c or d or e or f or g or h
or i or j or Question 10 or Question 11
or Questions 13
6. Drink Alcohol
Question 16 yes and 16 a 3 or more, versus
Question 16 yes and 16 1-3 versus
Question 16 no

- 7. Job Experience
Question 18 - \leq 1 year, versus 1-5
years versus $>$ 5 years
- 8. Overall Health
Question 21 yes versus no

Pre-Shift Questionnaire

- 9. Drink Alcohol Yesterday
Question 1 yes versus no
- 10. Cold
Question 3 yes versus no
- 11. Diarrhea
Question 4 yes versus no
- 12. Overall Health
Question 5 yes versus no
- 13. Sleep
Question 8 less than usual versus
usual or more than usual

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18 July 1996

Dear Ken:

The attached is our protocol for this summer's pilot project. Please let me know if there are areas which need further clarification.

I sent you some e-mail re: the human subjects issue. The UW IRB will most likely only require a supplement to your MSU human subjects application. I will draft a separate consent form for the UBC as you requested. Please send a copy of your HS application and protocol so we can coordinate this effort. My Seattle address is attached.

The weather here in Richland is nice and cool the past two days. No doubt the summer has more hot days ahead. We are looking forward to working with you.

Regards,

Tim Takao

Tim

cc: Buck Cameron