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Description Notes Includes a few handwritten notes as well.

AIR FORCE HEALTH STUDY

- ° WHITE HOUSE DIRECTED
- ° STUDY DESIGN EXTENSIVELY PEER REVIEWED
- ° UNIQUE STUDY POPULATION
- ° STUDY DESIGN
 - MORTALITY
 - MORBIDITY: QUESTIONNAIRES, PHYSICAL EXAMS
(KEYED TO KNOWN AND REPORTED EFFECTS)
 - FOLLOW-UP

STUDY RESULTS

- No Soft Tissue Sarcoma (STS), Porphyria Cutanea Tarda (PCT), or Chloracne Diagnosed in RANCH HANDERS

FERTILITY/REPRODUCTIVE

- ° NO SIGNIFICANT RANCH HAND OR OFFSPRING FINDINGS IN:
 - SPERM COUNT, OR DEFECTIVE SPERM
 - FIVE FERTILITY/INFERTILITY MEASURES
 - MISCARRIAGE, STILLBIRTH, LIVE BIRTH
 - SEVERE BIRTH DEFECTS
 - MODERATE BIRTH DEFECTS

NEONATAL DEATHS

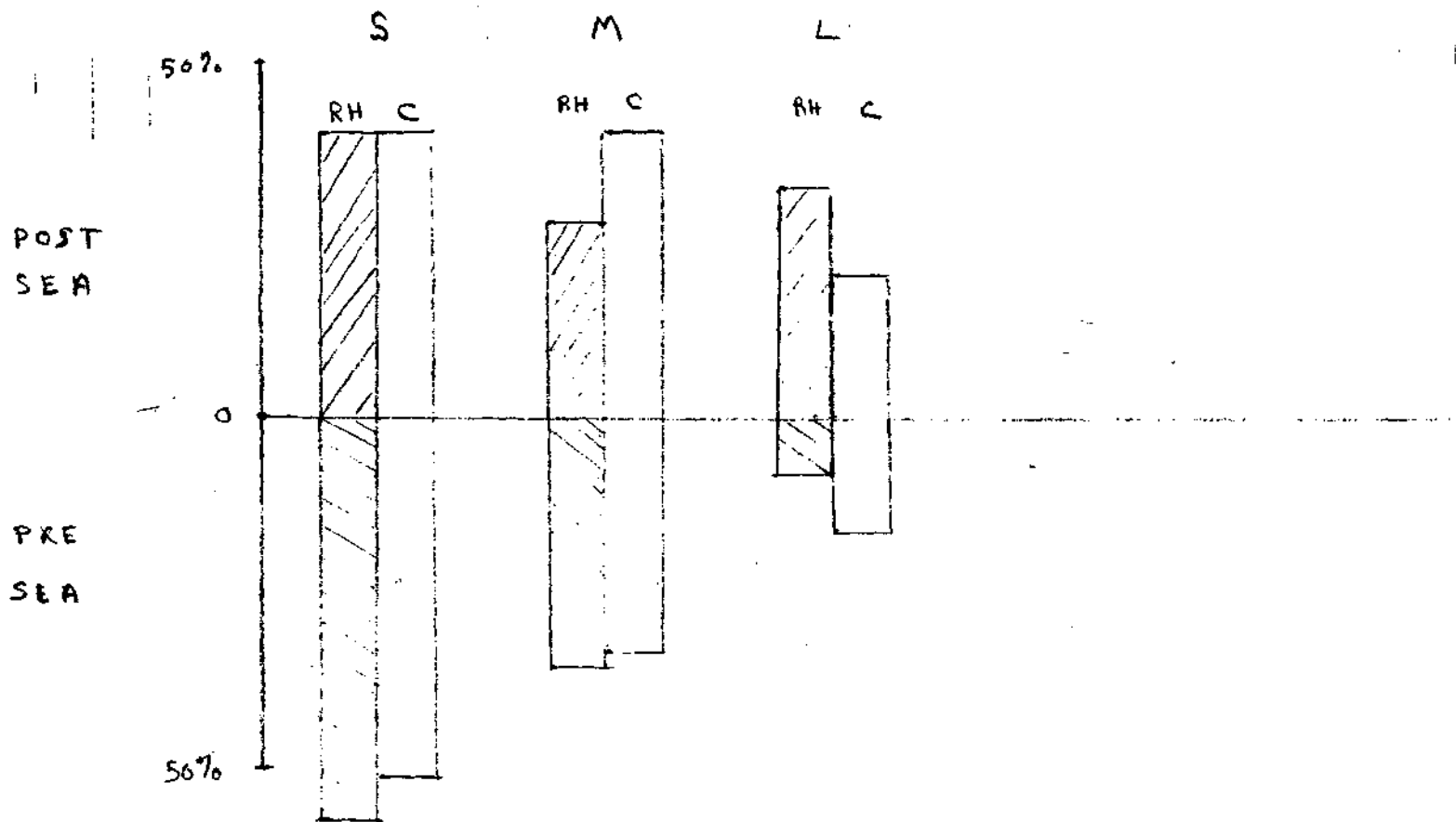
(UNVERIFIED SELF REPORTS; MEDICAL RECORDS, DEATH CERTIFICATES PENDING)

RATE/1000

	RANCH HAND	COMPARISON
BEFORE RVN	13.4	16.0
AFTER RVN	16.8	3.4

Note: The table contains handwritten annotations. A large oval encircles the top row (BEFORE RVN). The bottom row (AFTER RVN) is heavily scribbled over with multiple overlapping circles and lines. Arrows point from the 'AFTER RVN' row to the 'RANCH HAND' and 'COMPARISON' columns.

PERCENT DISTRIBUTION OF REPORTED BIRTH DEFECTS BY SEVERITY AND TIME



CANCER

- No Difference In The Occurrence Of "Systemic" Cancer
- No Soft Tissue Sarcoma Found In RANCH HANDERS
- More Verified Skin Cancer In RANCH HAND Group
 - Not Adjusted For Sun Exposure

- Nature of the Cancer
- Mortality
- Frequency at altitude

LIVER

- ° RANCH HANDERS Self Reported More Liver And PCT-like Symptoms
 - Not Verified As Yet By Medical Records
 - Not Confirmed At Physical Exam (No PCT)
 - Not Substantiated By Lab Tests
- ° Several Minor Lab Test Differences, But Most Tests Were Similar Between Groups
- ° More Verified Miscellaneous Disorders In RANCH HANDERS; Significance Unknown

OTHER OBSERVATIONS

- ° POORER SELF PERCEPTION OF HEALTH IN RANCH HANDERS
- ° TWO LEG PULSES DIMINISHED IN RANCH HANDERS; SIGNIFICANCE UNCLEAR
- ° NERVOUS, KIDNEY, IMMUNE AND BLOOD SYSTEMS WERE ESSENTIALLY NEGATIVE
- ° NO MEANINGFUL RELATIONSHIPS BETWEEN EXPOSURE AND STUDY FINDINGS
- ° EFFECTS OF CLASSICAL RISK FACTORS (AGE, SMOKING, ALCOHOL, EDUCATION, ETC.) OBSERVED THROUGHOUT STUDY

CONCLUSIONS

- ° STUDY MEASURED TRUE HEALTH STATUS TO MAXIMUM EXTENT POSSIBLE
- ° ALL IMPORTANT FINDINGS ARE BEING FOLLOWED UP
- ° INSUFFICIENT EVIDENCE TO SUPPORT HERBICIDE CAUSALITY
- ° FINDINGS TO DATE SHOULD BE REASSURING TO RANCH HANDERS
 - NO CHLORACNE MEANS LOW EXPOSURE VERSUS CHEMICAL WORKER POPULATIONS
 - NO MAJOR CLINICAL HEALTH PROBLEMS
 - OVERALL GOOD GENERAL HEALTH FOR AGE

STUDY COMPLEXITIES

- Enormous Data Base (4 million items)
- Validity of Self Reporting in Absence
of Complete Medical Record Verification
- Effects of Multiple Risk Factors
(age, smoking, etc.)
- Potential Biases
- Study Schedule

INTERPRETIVE COMPLEXITIES

- Statistical Associations Do Not Mean Causation
- No Analogous Human Studies
- Many Statistically Significant RANCH HAND-Comparison
Group Differences Are Not Of Clinical Relevance
- Exposure Index Analyses Are Unrefined
- Positive And Negative Findings Require Follow-up

CATEGORIZED BIRTH DEFECTS BEFORE AND AFTER VIETNAM

Before Vietnam

<u>Birth Defect</u>	<u>RANCH HAND</u>		<u>All Comparisons</u>	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Severe	51	56.5	62	51
Moderate	32	35.5	40	33
Limited	7	8	20	16

After Vietnam

Severe	32	40	34	40
Moderate	22	27.5	34	40
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Limited	26	32.5	18	20

VERIFIED SKIN AND SYSTEMIC CANCER

	<u>RANCH HAND</u>	<u>Original</u> <u>Comparisons</u>	<u>All</u> <u>Comparisons</u>
	Number (%)	Number (%)	Number (%)
<u>Skin Cancer</u>	35 (3.3)	11 (1.4)	25 (2.1)
 <u>Systemic Site</u>			
Lip, Mouth, Throat	4	2	2
Digestive System	0	4	5
Respiratory	3	1	2
Genitourinary	6	2	3
Blood, Lymph	0	0	1
Other	1	1	1
Total	14 (1.3)	10 (1.3)	14 (1.2)