



Jet Engine Manufacturing Workers Study: Phase 2 - Malignant Central Nervous System Cancer Results

Investigators	<p>The primary researchers are:</p> <ul style="list-style-type: none"> • Gary M. Marsh, Ph.D. - University of Pittsburgh • Nurtan A. Esmen, Ph.D. - University of Illinois at Chicago
What are the goals of this part of the study?	<ul style="list-style-type: none"> • To identify incident cases of malignant central nervous system (CNS) cancer among workers • To compare cancer incidence rates in P&W workers with those in the general population • To examine whether specific types of CNS cancer, including glioblastoma, may be related to workplace factors in the jet engine manufacturing setting
Who is included in this part of the study?	<p>212,513 men and women who worked in one of eight Connecticut P&W manufacturing facilities from 1952 to 2001 and who were alive between 1976 and 2004</p>
What information did the researchers use?	<p>The researchers looked at:</p> <ul style="list-style-type: none"> • Plant records of when and where people worked and their age, race and sex • Matches from 19 state cancer registries to get information on whether and when an employee was diagnosed with CNS cancer and what specific type <p>The researchers compared:</p> <ul style="list-style-type: none"> • Number of CNS cancer cases among workers to the number expected in the general population of the US and of CT for specific types of malignant CNS cancers, including: <ul style="list-style-type: none"> ○ Glioblastoma ○ Astrocytoma ○ Other malignant CNS cancers <ul style="list-style-type: none"> • Oligodendroglioma, malignant glioma, lymphoma and unspecified <p>The researchers conducted statistical tests to determine:</p> <ul style="list-style-type: none"> • If there was an excess number of CNS cases among P&W workers • If the results were due to chance • If the results were related to work or non-work factors, such as plant group, payroll type, age group, year of hire or the length of time worked
Are there any limitations to this study?	<p>This study was very large and looked at many comparisons:</p> <ul style="list-style-type: none"> • Some findings may have suggested increased risk even though there may be no real risk (a chance finding) • Looking at patterns with job and exposure information in the third phase of analyses may help the researchers determine if any suggested risks are real <p>The results from this phase of the study:</p> <ul style="list-style-type: none"> • Looked at some important workplace information, such as plant group, payroll type and length of employment, but did not consider detailed work history and exposure data • Detailed work histories and exposures will be examined in the third phase of the study



What have the researchers found and what do the results mean?

Overall

- The researchers identified 489 cases of malignant CNS tumors among the workers
 - 275 were glioblastoma
- When compared to the general population of the US and CT, the malignant cancer rates in workers were the same as or lower than US and CT for:
 - All types of malignant CNS cancers
 - Glioblastoma
 - No more cases of malignant CNS cancer, including glioblastoma, among workers than would be found in the general population

Glioblastoma

- Slight, not statistically significant excess among workers only at NH
 - Salary NH workers had a statistically significant 2-fold excess compared to hourly NH workers
 - No consistent patterns or trends typically suggestive of a workplace relationship
- No excesses found in other plant groups
- Currently, the findings suggest that these excesses may be due to non-work factors, to work outside the P&W plants or to chance
- The excesses may also be due to workplace factors not included in the current phase of the study (like workplace exposure, which will be looked at in Phase 3)

Other types of malignant CNS cancers

- Nothing unusual or significant for the other 6 types of malignant CNS cancers studied

Results of the malignant CNS analysis are consistent with the results of the mortality (Phase 1) findings

What comes next?

Phase 3 (later in 2010) will:

- Re-evaluate total and cause-specific mortality in relation to detailed work history and workplace exposure information
- Re-evaluate brain cancer incidence in relation to detailed work history and workplace exposure information
- Compare work factors in the brain cancer cases and their matched controls

Who can I go to with questions or for more information?

- Gary M. Marsh, Ph.D., Principal Investigator for the University of Pittsburgh Epidemiology component can be reached at gmarsh@pitt.edu
- Nurtan A. Esmen, Ph.D., Principal Investigator for the University of Illinois at Chicago Exposure Reconstruction component can be reached at nesmen@uic.edu
- Frank S. Lieberman, M.D., Co-Investigator and neuro-oncologist can be reached at liebermanf@msx.upmc.edu
- The researchers can also be reached:
 - by calling toll-free 1-866-621-1172
 - from their website (<http://cobe.biostat.pitt.edu/>)
- Information and updates on the study are also available on the CTDPH website:
 - <http://www.ct.gov/dph/cwp/view.asp?a=3140&q=387474>