Reviewer's report

Title: A Case-Control Study of Occupational Magnetic Field Exposure and Alzheimer's Disease: Results from the California ADDTC

Version: 1 Date: 23 May 2006

Reviewer: Joseph Bowman

Reviewer's report:

General

This article adds credible data on a public health question, which if correct, would have widespread implications. Magnetic fields are found in all workplaces, and if they are in fact a risk factor for Alzheimer's disease, the design of electrical equipment and work practices around electricity would have to be extensively modified.

In addition, this paper reviews the other papers written on this topic and offers a synthesis of their findings. While the paper's conclusions will be debated, it is an important contribution that should get attention.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. Title - The abbreviation "ADDTC" should be used in the title only if its full meaning is included.

2. p. 4, 2nd para., line 2 - The extremely low frequency (ELF) band is officially defined as 3-3000 Hz. If the authors want to focus on 50/60 Hz, an alternative descriptor is "power-frequency."

3. p. 7, line 17 - Microtesla is not just the European unit for magnetic fields, but the SI unit (Système International d'Unités).

4. p. 11, para. 2, line 1 - "M/F" should be "MF."

5. P. 24-25 - This section should discuss the absence of an association between AD and smoking in the present study in light of the authors' hypothesis.

6. p. 25, line 5 - Re-write this sentence. The double use of "result," first as a noun and then a verb is confusing.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

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Discretionary Revisions (which the author can choose to ignore)

1. p. 19, lines 11-13 - Hansen et al. only measured the magnetic field exposures of 5 sewing machine operators, and their selection process was not representative of the entire workforce. An Italian paper (Gobba et al. [Levels of occupational exposure to extremely low frequency magnetic fields among workers in different jobs]. G. Ital. Med. Lav. Ergon. 25 Suppl:214-215, 2003) reported measurements on over 80 sewing machine operators, whose mean time-weighted average exposure of 9.1 mG is much closer to the 7.8 mG estimated by Qiu et al than the 30 mG reported by Hansen et al.

2. P. 25, item #3 - The two adverbs in this sentence should be re-thought. A proposition cannot be both "certain" and "likely." Make up your minds.

3. Table 2 - Why would some pilots have high exposures and others have medium? The classification as high exposure is supported by the 17 mG average for airline pilots reported by Nicholas et al. (Cosmic radiation and magnetic field exposure to airline flight crews. Am. J. Ind. Med. 34:574-580, 1998).
What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests.