

# ELF & Cancer

Some interesting results: dose/response relationship & possibly anti-oncogene effects at very high magnetic field exposure.

# Dose-Response Relationship

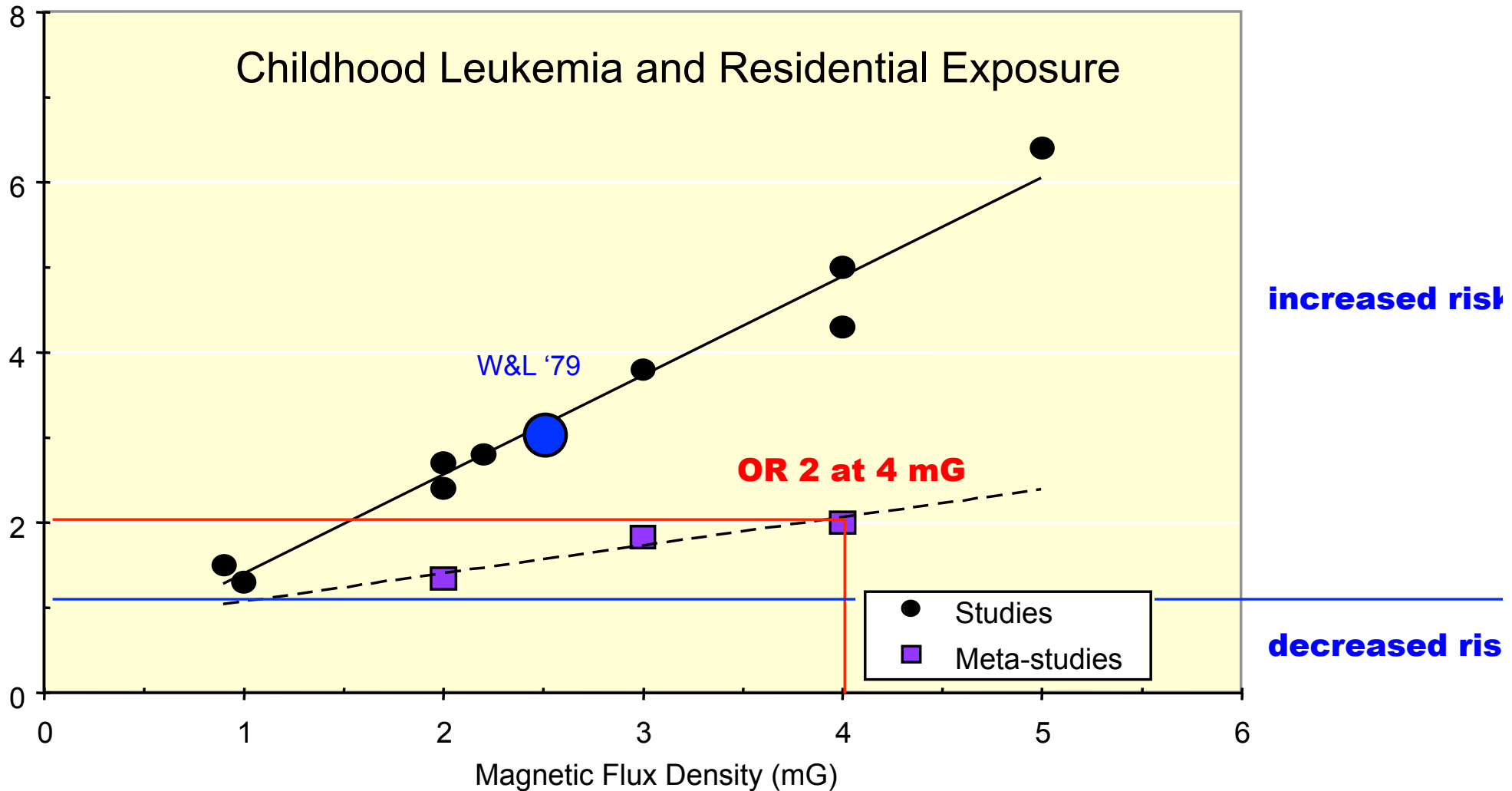


FIGURE 1. Epidemiological studies of childhood leukemia and residential magnetic field exposure indicate a dose-response relationship. **Epidemiological studies** include: Wertheimer and Leeper 1979; Savitz et al. 1988; Olsen 1992; Feychting and Ahlbom 1993; Linet et al. 1997; Schulz et al. 2001; and for **meta-studies** Ahlbom et al. 2000; Greenland et al. 2000; Wartenberg et al. 2001. **Source:** Havas 2007. Expert Testimony, AltaLink, Alberta.

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**Case-only study of interactions between DNA repair genes (*hMLH1*, *APEX1*, *MGMT*, *XRCC1* and *XPB*) and low-frequency electromagnetic fields in childhood acute leukemia**

*You Yang<sup>1</sup>, Xingming Jin<sup>2</sup>, Chonghuai Yan<sup>1</sup>, Ying Tian<sup>1,3</sup>, Jingyan Tang<sup>2</sup> and Xiaoming Shen<sup>1\*</sup>*

A case-only study was conducted in 123 patients with sporadic acute leukemia (AL). The locations of electric transformers and power lines were noted in each area, and their distances from the houses of the study patients were measured. The intensities of magnetic fields (*B*) were measured in 66 cases. Unconditional logistic regression analysis was performed adjusting for age, gender, parental education and occupation, indoor and outdoor pesticides use, presence of television sets, refrigerators and microwave ovens in children's rooms and the presence of chemical factories or telecommunication transmitters within 500 m of the houses. The results of the gene–environment analyses revealed that an interaction existed between the *XRCC1* Ex9 + 16 A allele and the presence of electric transformers and power lines within 100 m (Mean *B* = 0.14  $\mu$ Teslas,  $\mu$ T) of the houses (interaction odds ratio, COR = 4.31, 95%CI: 1.54–12.08). The COR for the interaction of *XRCC1* Ex9 + 16A and the presence of these installations within 50 m (Mean *B* = 0.18  $\mu$ T) of the houses was 4.39 (95%CI: 1.42–13.54). Our results suggest a possible association between electric transformers and power lines and the *XRCC1* Ex9 + 16A allele in patients with childhood AL.

