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1. "Children who live near overhead power lines do not have an increased risk of developing leukaemia, a study has said." – this came from the BBC:
http://www.bbc.co.uk/news/health-26068363
but it is quite wrong! That's NOT what the study said, it is what the press release said, which is a serious error in the press release and an error by the BBC to report it as the study instead of as the press release.

2. The BBC should know by now that press releases can depart from what the study actually says. You don't have to be a scientist to be able to read the actual paper abstract and conclusions and compare them with the press release. Sometimes the abstract is tampered with politically, as was made evident in the BSE-CJD affair. In this case the abstract was reasonable, though it's always worth also checking the conclusions section in the body of a paper. It should be clear to any lay reader that even the abstract did not say what the press release claimed. At the very least the BBC should have headlined it as "*a press release said*" and not as "*a study said*". The BBC ought to change their standard future practice in that respect.

3. It should be good journalistic practice to quote exactly, using inverted commas, and to state the source. So here goes. The Press Release was headlined "**OVERHEAD POWER LINES DON'T RAISE LEUKAEMIA RISK IN CHILDREN**". Worse followed in the body of the Press Release. The paper's abstract said "*Increased risk does not extend beyond 600 m, but may be present, albeit less strongly, for 132 kV lines*" (under Results) and "*A risk declining over time is unlikely to arise from any physical effect of the powerlines and is more likely to be the result of changing population characteristics among those living near powerlines*" (as its Conclusion).

4. The study in question is Bunch et al (2014, doi: 10.1038/bjc.2014.15, British Journal of Cancer). It is a well-written and helpful study with a large data set and interesting results. Most especially, the study concludes "*Risk appears to have declined over the period from 1962 to 2008 in Britain*". That decline is principally in the data within 200 m of powerlines, but not in the risks from magnetic fields. This decline is an interesting new finding which we discuss further at point 9 below.

5. The study acknowledges increased risk within 600 metres (though the new data do not detect risk beyond 200 metres). Childhood leukaemia risk is doubled at magnetic fields above 0.4 microtesla, typically within 60 m of transmission lines. That is an established and consistent association. Since most transmission powerlines do generate these magnetic fields, this risk still exists close to them.

6. The Press Release came from the British Journal of Cancer (BJC), which is owned by the campaigning charity Cancer Research UK (CRUK). The lead author is quoted in the Press Release along the lines of the false headline. But a quote from an individual does not have the same status as a statement from the peer-reviewed multi-author paper. The BBC should know that. The BBC's error might be somewhat understandable, but the BBC should correct its future practice.

7. The Press Release claims that the BJC has editorial independence, but clearly the very Press Release itself demonstrates that campaigning over-enthusiasm has infiltrated the BJC press office. The CRUK, as well as the BJC, have been seen by some as staunchly against the evidence-based EMF risk for many years. Sadly, it is not unusual for academic journals to be partisan, and again the BBC should have been more aware.

8. Part of the problem is that when a study does not reveal an increased risk, people sometimes (wrongly) say it proves there isn't one. Risk from magnetic fields from powerlines is masked by magnetic fields from other sources, and also from other risk factors. Childhood leukaemia is rare (1 case per year in 24,000 children) and only a small proportion of homes are close to high voltage powerlines (about 0.2 % within 100 m of National grid lines). That makes even a doubling of risk very hard to detect. Lower magnetic fields, well below 0.4 microtesla, are masked even more, but that does not mean there is no risk from them.

9. The study suggests the observed decline in risk close to powerlines may be due to "*changing population characteristics*" rather than a change in physical effects. But it would be a mistake to think, as the authors seem to suggest, that this implies physical effects are absent. The changing population characteristics could plausibly interact with a physical effect. Populations can over time become more mobile, more aware and more risk-averse. That could result in parents moving away earlier from the birth address of their child if it is near powerlines. The study was based entirely on birth address, not on the address where the children grew up. It might be interesting to look at trends in the proportion of homes near powerlines with children.

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