

## Reviewer's report

**Title:** Exposure from the Chernobyl accident had adverse effects on erythrocytes, leukocytes, and, platelets in children in the Narodichesky region, Ukraine. A 6-year follow-up study.

**Version:** 1 **Date:** 7 December 2007

**Reviewer:** Ruth R Etzel

### Reviewer's report:

This is a well written manuscript about a very important problem. the question posed by the authors is new and well defined. The methods are appropriate and well described. The data appear sound. The manuscript appears to adhere to the relevant standards for reporting and data deposition. The discussion and conclusions are well balanced and adequately supported by the data. The title and abstract accurately conveys what has been found. The writing is acceptable, although needs a careful spell check and review by a native speaker of English.

I have the following suggestions for the authors:

Major Compulsory Revisions: None

Minor Essential Revisions:

1. Please clarify the methods for obtaining the soil exposure estimates. Was this the average of several soil measurements in each town or only one soil measurement? Please clarify whether the dates of the soil measurements were the same as the dates of the hematologic measurements (1993-1998).
2. I would suggest that the authors consider including some information about the prevalence of anemia in the Narodichesky region before the Chernobyl accident. This will help the reader to evaluate the findings.
3. The map shown in Figure 1 was difficult for me to evaluate. It seemed to show a combination of actual measured values in towns and modeled values for large areas. If so, this should be clearly explained. Also, perhaps it was because I was not using a color printer, but the shades used for the different levels of pollution seemed very similar. The shade for 10-20 kBk/m<sup>2</sup> looked like the shade for 555-1480 kBk/m<sup>2</sup>. I would suggest several improvements to the map:
  - a. Please show the location of Chernobyl.
  - b. Please clarify whether the larger shaded areas are depicted that way because of actual measurements or because of modeling.
  - c. There are only 35 towns listed but the text indicates that there were 38. Please show those 3 towns on the map. I could not find N. Dorogin or Hristinovka on the map.

d. The spelling of the towns on the map differed from the spelling of the towns on Table 1. For example, Selec is Selets, Narodichi is Narodichy, Basar is Bazar, and Rossohy is Rozsohivske. Please try to be consistent.

4. Page 5 refers to Figure 1 but this figure is missing.

5. In Table 1, the header notes that there were 1210 children but the numbers add to only 1209. Please clarify.

6. In Table 2, the number of children is noted to be 1251. Please clarify why it is different from Table 1.

7. On page 10, the authors state that 53% of all red blood cell counts were below the critical clinical age-specific reference. The authors may want to refrain from using the word "critical" in this context because it could be misinterpreted by readers. These are reference ranges but values outside the reference range may or may not be of critical importance depending on the clinical context.

8. On page 2, the abstract states that all children were "obliged" to participate in the yearly medical examination, but page 11 states that approximately 75% participated. Please explain why 25% did not participate if it was obligatory. Alternatively, please consider using a word other than obligatory.

Discretionary Revisions:

9. In the Discussion section of the manuscript, I suggest that the authors consider extrapolating backwards from the values that were observed in 1993 to 1998 to estimate red and white blood cell counts, platelet counts, and hemoglobin values in 1986. Also, consider providing estimates of the dose of radiation based on the hematologic parameters.

10. I would also suggest that the authors consider including additional discussion that compares these hematologic findings with other hematologic findings, such as those reported by Dr. Akleyev and colleagues (Akleyev AV, Kossenko MM, Silkina LA, Degteva MO, Yachmenyov VA, Awa A et al. Health effects of radiation incidents in the southern Urals. Stem Cells 1995; 13 Suppl 1:58-68.)

**What next?:** Accept after minor essential revisions

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.