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## Evaluation of health consequences in children living in Eastern countries contaminated with caesium 137 as a result of Chernobyl accident: EPICE, a pilot study

*JR Jourdain\**, *V Dorochenko\*\**, *V Stepanenko\*\*\**, *N Rutschkowsky\**, *A Proshin\*\**

\*[IRSN], BP 17, 92262 Fontenay-aux-Roses Cedex, France

\*\*Bryansk Regional Clinical Centre N°1, 2 Bezhitskaya Street, 241007 Bryansk, Russia

\*\*\*Medical Radiological Research Centre, 4 Korolev Street, 249034 Obninsk, Russia

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### Abstract:

In October 2005, IRSN launched a study entitled EPICE (French acronym for "Assessment of the pathologies induced by chronic caesium contamination"). The objective of this study was to measure the distribution of caesium in children living in the Bryansk region, which is the most contaminated of Russia, but also to establish whether there is a link between the level of contamination by caesium and the pathologies observed in these children.

This study was in response to the questions raised by the work of Dr Y. Bandashevsky, which suggests that the children living in areas contaminated by Chernobyl nuclear power plant fallout would present unusual pathologies such as cataracts, gastroduodenal ulcers, and cardiac rhythm disorders.

The work initiated by IRSN was conducted with the collaboration of the physicians from the Bryansk Clinical Diagnosis Centre (BCDC) and the dosimetry specialists from the Medical Radiation Research Centre at Obninsk (MRRC). From the medical monitoring data of the Bryansk Oblast residents, a group of 49 children living in the contaminated areas was constituted. For each child, the IRSN, BCDC and MRRC teams then performed distribution measurements of caesium 137 in the whole body and in specific area (in particular, the heart, thyroid and liver), as well as a health check-up including an electrocardiogram and some ultrasonographies of thyroid, liver and heart.

The results of this preliminary study don't show any link between contamination with caesium 137 and the non-cancerous diseases in the children living in contaminated territories: thus, all studied pathologies are observed at any caesium 137 activity measured in the whole body (from 0 to 80 Bq/kg body weight); additionally, the results don't show differences in caesium 137 distribution in 42 of 49 children included in the study but suggest that higher concentrations are found in the thyroid area of 5 children having a cataract.

The future works will consist of undertaking an epidemiologic study of cataract and arrhythmia in children living in Russian contaminated territories versus non-contaminated territories.