



FGI - Programme 3: HEALTH

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> Purpose

The main purpose of the health programme is to **validate** the existing database in the most highly contaminated regions of Ukraine, Russia and Belarus concerning health and dosimetry, to **harmonise** the methods used and to **ensure communication** of the results of the completed analysis within the scientific community and the public.

> Tasks

- **solid cancer incidence** - including thyroid cancer - before and after the Chernobyl accident in the most highly contaminated regions
- **incidence of leukaemia**, especially of childhood leukaemia, before and after the Chernobyl accident in the most highly contaminated regions
- **infant morbidity and mortality** in the most highly contaminated regions
- **mental and somatic health** of children exposed in utero in Russia and the Ukraine
- **congenital anomalies** in Belarus
- **nutritional status of the population** living in contaminated areas of the Ukraine
- study of the **doses received by the liquidators** in the Ukraine
- **radiological situation** in the most contaminated settlements in Belarus

> Thyroid Cancer

The major health effect directly due to the radiation from the Chernobyl reactor accident was a **dramatic increase in thyroid carcinomas**, especially in those who were **children** at the time of the accident. The presently observed increase in adolescents and young adults needs to be further investigated (screening effect, histopathology verification...).

> Childhood Leukaemia

An important question is the possibility of an increase in childhood leukaemia in the most affected areas. The rates before and after the accident show no evidence of any increase when considering data from several oblasts in Belarus over the period 1982 - 1998.

(Radiat Environ Biophys 40 (4) 2001)

> Potential effects of prenatal irradiation on the brain in the Ukraine

In this project children born between April 26th in 1986 and February 26th in 1987 to women who were evacuated mainly from Pripjat were investigated for their intellectual ability. This was assessed by the adapted and normalized version for the Ukrainian population of the Wechsler Intelligence Scale for children. The performance of a child was summarized in three scores: the verbal, the performance and the full scale Intelligence Quotient (IQ). The following table indicates the 3 scores in relation to in-utero exposure expressed here in terms of thyroid fetal dose.

Thyroid fetal dose (Sv)	Full scale IQ M±SD	Verbal IQ M±SD	Performance IQ M±SD
0.04-0.3 (n=76, control children)	119.6±10.8	116.6±12.3	118.0±9.5
0.31-0.6 (n=31)	113.3±15.2	106.9±12.1	118.0±17.9
0.61-1.0 (n=33)	113.2±14.9	105.5±12.7	119.3±19.2
1.0+ (n=14)	108.4±18.9	102.3±15.2	112.9±20.7

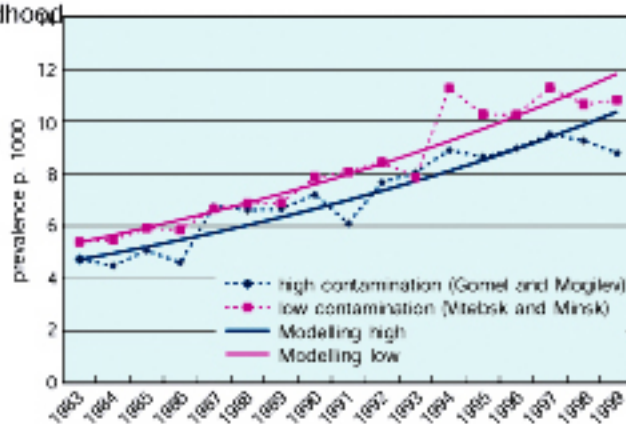
Preliminary results:

A tendency to lower IQ values was reported with increasing radiation dose to the fetal thyroid. Verbal IQ appeared to be the mainly affected score. Future work is going on.

> Congenital malformation

The quality of ascertainment of the Belarus National Register was evaluated during a survey performed in 21 maternity facilities situated in contaminated and less contaminated areas. After the Chernobyl accident, the quality of ascertainment appeared slightly deteriorated, but at the same level in both contaminated and less contaminated oblasts.

The prevalence at birth of 9 obligatory congenital anomalies (anencephaly, spina bifida, polydactyly, Down syndrome, oesophageal atresia, anal atresia, reduction of limbs defects, clefts of lip and/or of palate and multiple congenital anomalies) was reported to be less in the contaminated areas compared to the less contaminated areas.



Prevalence at birth of 9 obligatory registered congenital anomalies in 4 oblasts of Belarus (Belarus National Register)