

## TRAINING FOR THE HEALTH SECTOR

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# CHILDREN AND CANCER



## Children's Health and the Environment

WHO Training Package for the Health Sector

World Health Organization

[www.who.int/ceh](http://www.who.int/ceh)

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**CHILDHOOD CANCER**

**OBJECTIVES**

- ❖ **To discuss childhood cancer**
- ❖ **To address the links between childhood environments and adult onset of cancer**
- ❖ **To present current knowledge of causation and environmental risk factors**
- ❖ **To discuss cancer clusters**
- ❖ **To present educational and preventive measures**

<<READ SLIDE>>

**OVERVIEW**

- 1. INCIDENCE AND TYPES OF CHILDHOOD CANCER**
- 2. CAUSES, RISK FACTORS AND HYPOTHESES**
- 3. BIOLOGICAL PROCESSES LEADING TO CANCER DEVELOPMENT**
- 4. EXPOSURE ASSESSMENT AND ITS CHALLENGES**
- 5. INVESTIGATING POTENTIAL CANCER CLUSTERS**
- 6. QUESTIONS FROM PARENTS**

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## Children and Cancer

### TEN LEADING CAUSES OF DEATH (Children aged under 15 years) U.S. 2006

	CAUSE OF DEATH	NO. OF DEATHS	% OF TOTAL DEATHS	DEATH RATE*
<b>RANK ALL CAUSES</b>		<b>10780</b>	<b>100.0</b>	<b>19.0</b>
1	Accidents (unintentional injuries)	3868	35.9	6.8
2	Cancer	1284	11.9	2.3
3	Congenital anomalies	859	8.0	1.5
4	Assault (homicide)	756	7.0	1.3
5	Heart diseases	414	3.8	0.7
6	Intentional self-harm (suicide)	219	2.0	0.4
7	Influenza & pneumonia	193	1.8	0.3
8	Septicemia	172	1.6	0.3
9	Chronic lower respiratory diseases	158	1.5	0.3
10	Cerebrovascular disease	149	1.4	0.3
	All other causes	2708	25.1	-

\* Rates are per 100,000 population and age adjusted to the 2000 US standard population.

Based on US Mortality Data, 2006, National Center for Health Statistics, Centers for Disease Control and Prevention, 2009

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In the United States, cancer is the second most common cause of death among children between the ages of 1 and 14 years, surpassed only by accidents.

*Reference:*

•US Mortality Data, 2006. National Center for Health Statistics. Centers for Disease Control and Prevention, 2009.

## Children and Cancer

### INCIDENCE CHILDHOOD CANCER (Globally)

#### ❖ Childhood

160,000 new cases/year < 15 years of age

90,000 deaths/year < 15 years of age

Ferlay J, IARC Cancer Base N°5, 2004

### INCIDENCE CHILDHOOD CANCER (U.S. 2006)

#### ❖ Childhood

14.9 per 100,000 < 15 years of age

16.4 per 100,000 < 20 years of age

#### ❖ Adult

470.1 per 100,000

Ries LAG, SEER U.S. 2000-2004

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Malignancies in childhood are relative rare and prognosis has been improving in the last three decades as a result of more accurate diagnoses and improved treatment strategies. Adult malignancies occurring after 20 years of age are 20-30 times more common in general.

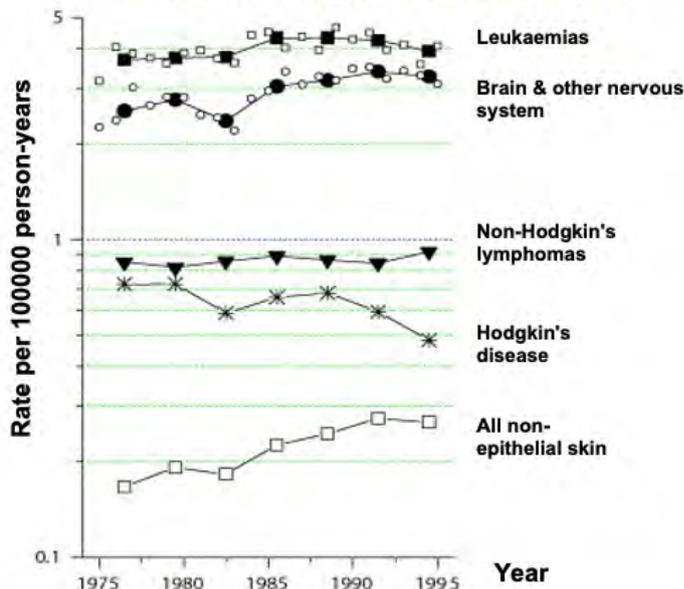
#### References:

- Ferlay J et al. GLOBOCAN 2002: Cancer incidence, mortality and prevalence worldwide. *IARC Cancer Base N°5* Version 2.0. Lyon, IARC Press. 2004.
- SEER Cancer Statistics Review 1975-2004. Ries LAG et al. (eds). *National Cancer Institute. Bethesda, MD*, based

on November 2006 SEER data submission, posted to the SEER web site, 2007.

## Children and Cancer

### INCIDENCE CHILDHOOD CANCER (Children aged under 15 years)



Based on Linet MS et al.  
*J Natl Cancer Inst* 1999;91(12):10520

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Overall, in children less than 15 years of age, in the industrialized world, childhood cancer is listed as the 4<sup>th</sup> most common cause of death.

Incidence trend patterns of common childhood cancers have recently been evaluated because of concerns that they may be on the rise:

-For childhood leukaemia there was an abrupt increase in incidence between 1983 and 1984, however, rates have been declining between 1989 and 1995.

-For brain and CNS cancers there was a modest increase in incidence from 1983 to 1986 and rates then stabilized between 1986 and 1995.

The statistically significant increases that were reported in the mid 80's are now thought to be a result of diagnostic improvement or changes in reporting patterns.

-For rare skin cancers such as dermatofibrosarcoms, there has been a 40% increase between 1975 and 1995.

Data from the United States (US) shows that the incidence rate of cutaneous malignant melanoma (CMM) in 15-19 year olds increased 2.6% per year between 1973 and 1995, for a total increase of 85%.

#### References:

- American Academy of Pediatrics Committee on Environmental Health. In: Etzel RA, ed. *Pediatric Environmental Health*, 2nd ed., 2003.
- Hamre MR, et al. Cutaneous melanoma in childhood and adolescence. *Pediatric Hematology & Oncology*, 2002;19(5):306-17.
- Linet MS et al. Cancer Surveillance Series: recent trends in childhood cancer incidence and mortality in the United States. *J Natl Cancer Inst*, 1999;91(12):1052

#### Graph

•Linet MS et al. *Cancer Surveillance Series: recent trends in childhood cancer incidence and mortality in the United States. J Natl Cancer Inst*, 1999;91(12):1052. Oxford University Press. Used with

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