

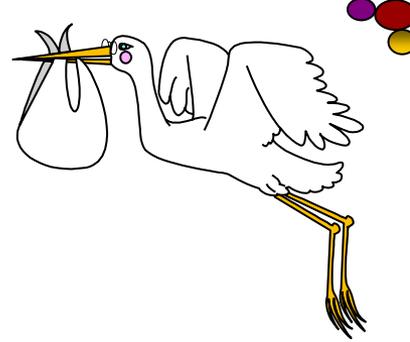
# The Jerusalem Perinatal Study (JPS) Contribution to I4C

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# JPS



- Research cohort established in 1964-76
- All births to residents of West Jerusalem (92,408 children; 42,956 mothers; 39,620 fathers)
- Active surveillance of infant mortality, birth defects and pregnancy complications



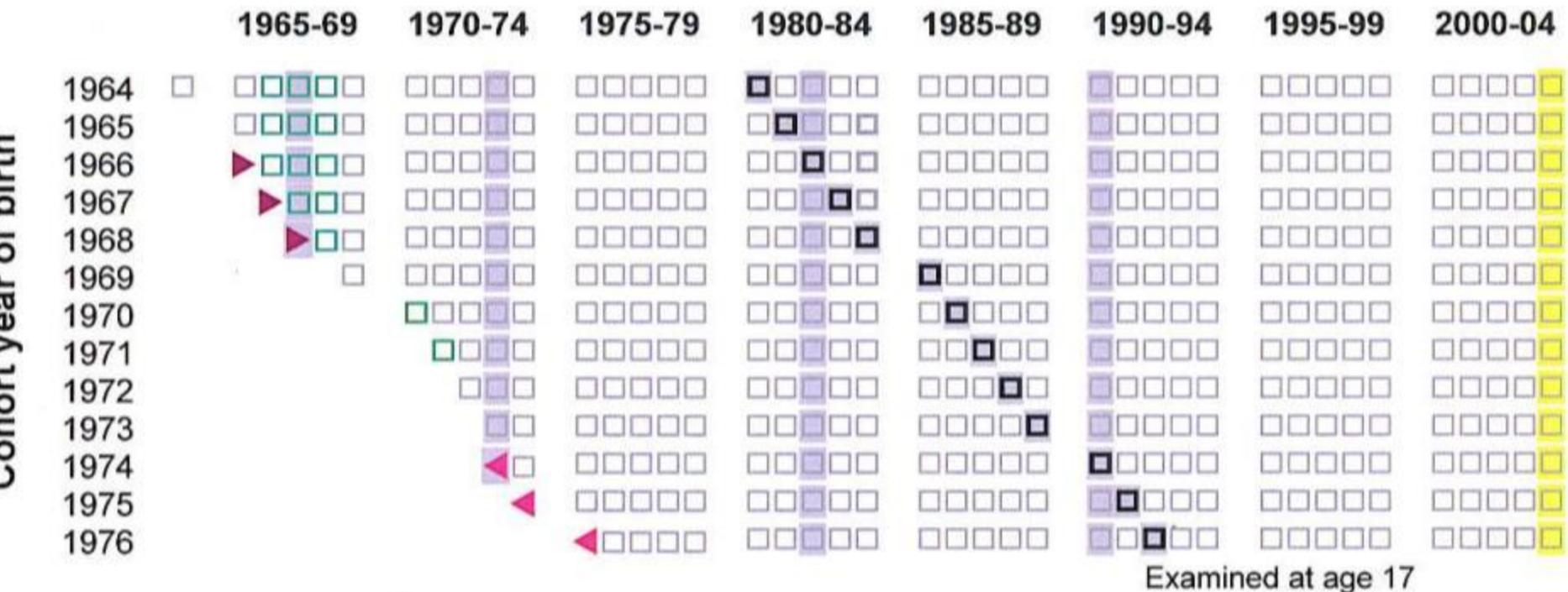


# Epidemiology research opportunities in Israel

- Single ID number used for administrative and health data
  - High quality cancer and population registries
  - Ability to link
- 

# Jerusalem Perinatal Study

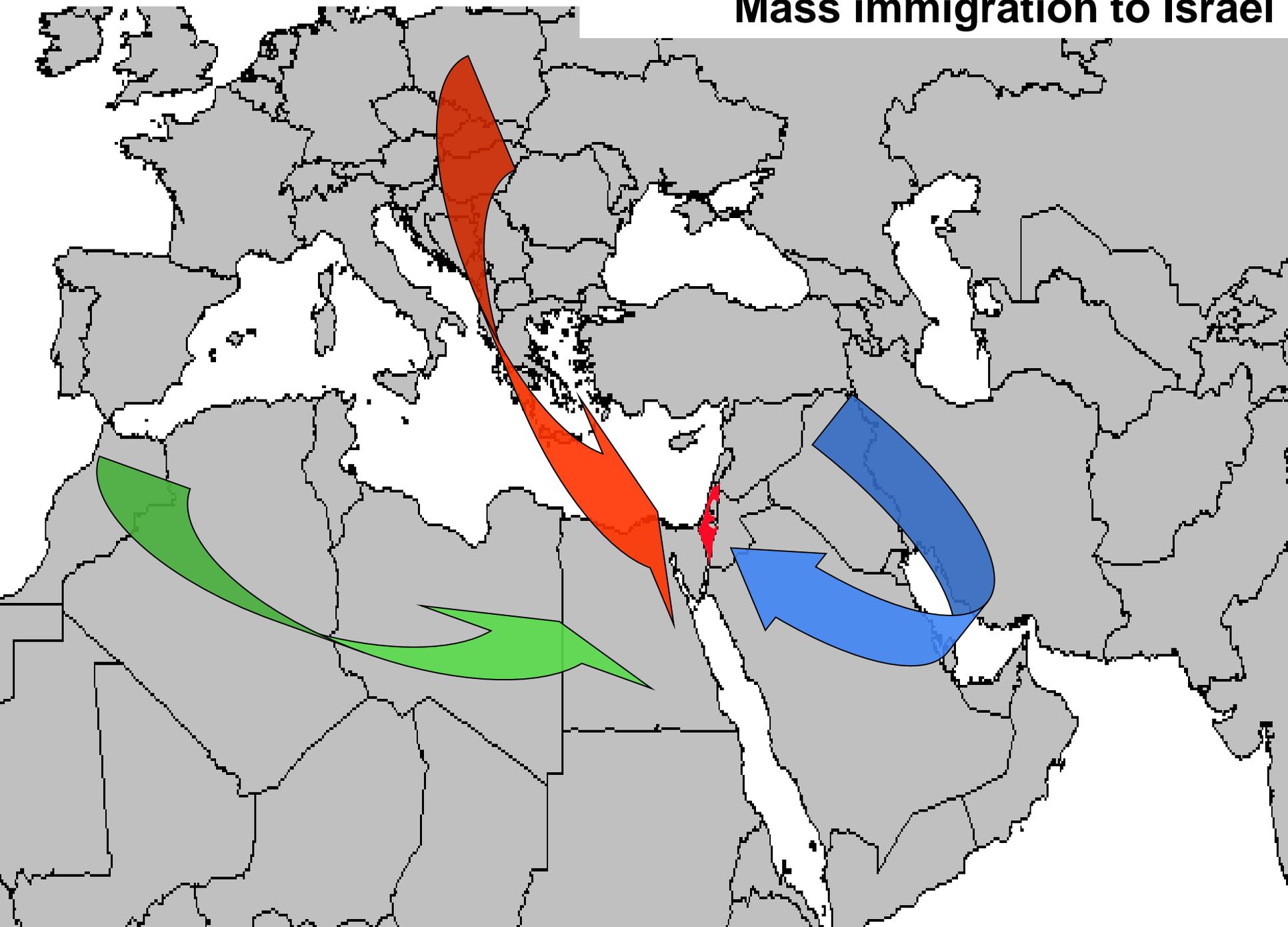
Y e a r



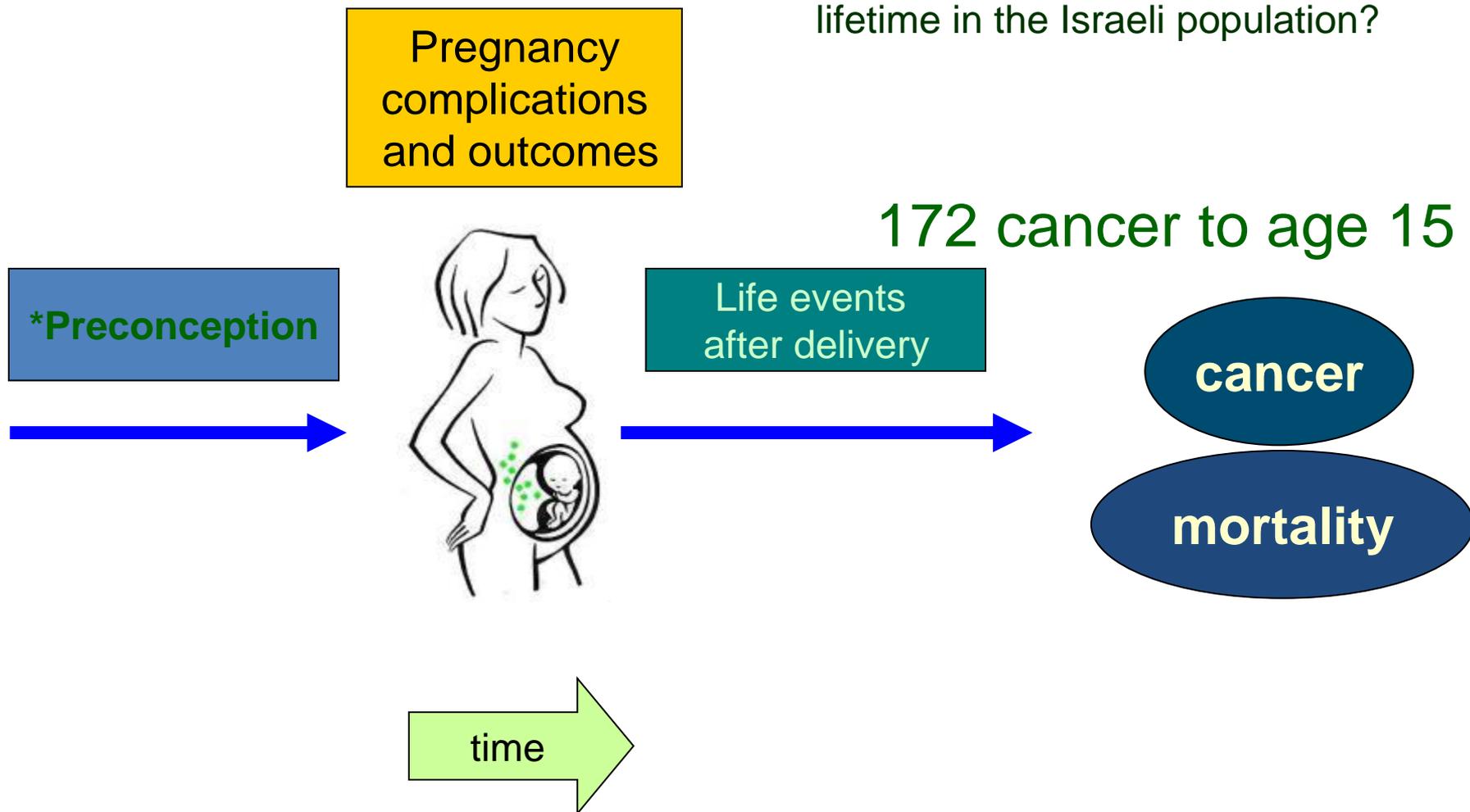
□□□   □□ Surveillance of pediatric hospital admissions  
▶▶▶ Antenatal-   ◀◀◀ Post-partum interviews to sub-cohorts

Age 17  
 Follow up cancer and mortality

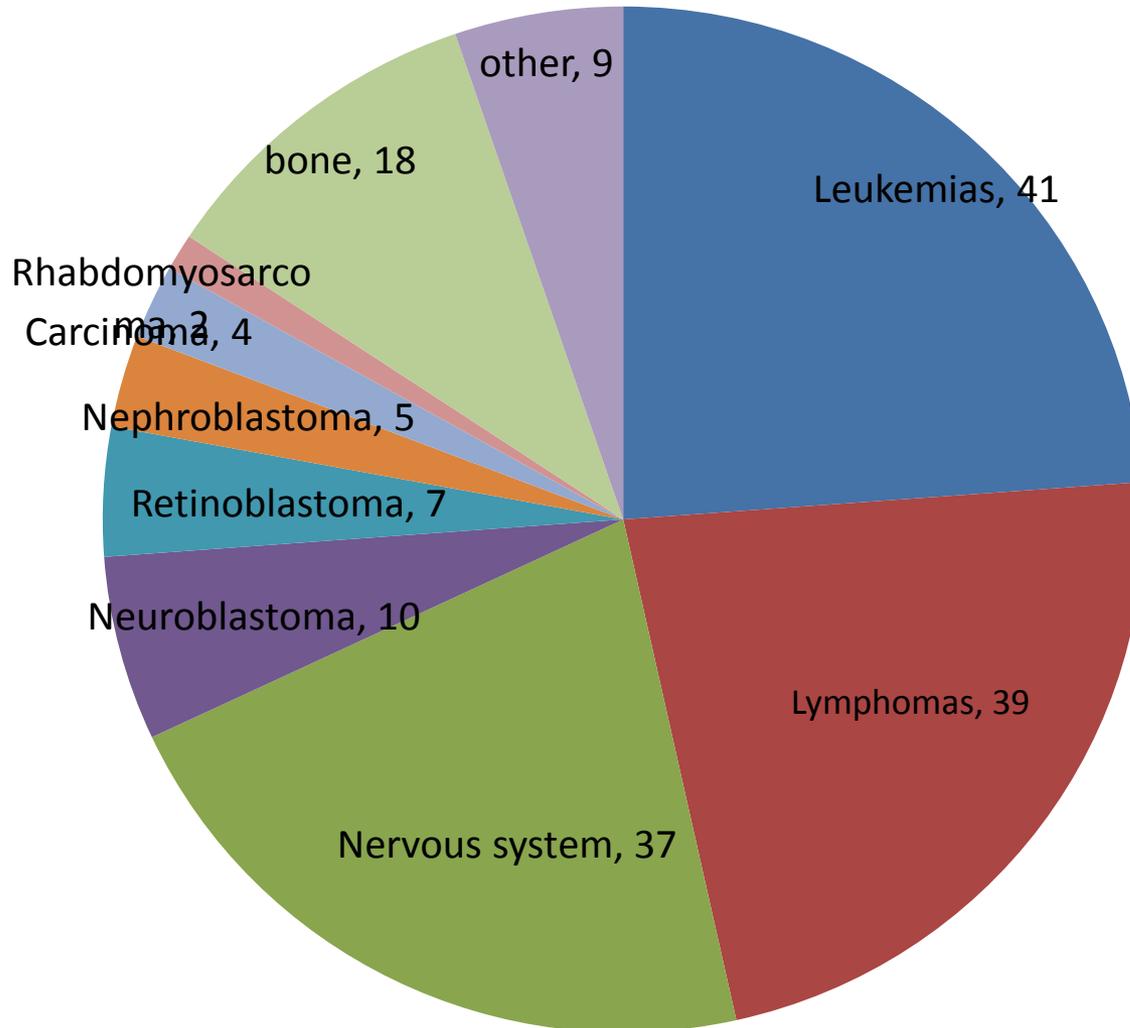
# Mass immigration to Israel



To what extent do events during early human development or peripartum affect cancer incidence and mortality over a lifetime in the Israeli population?



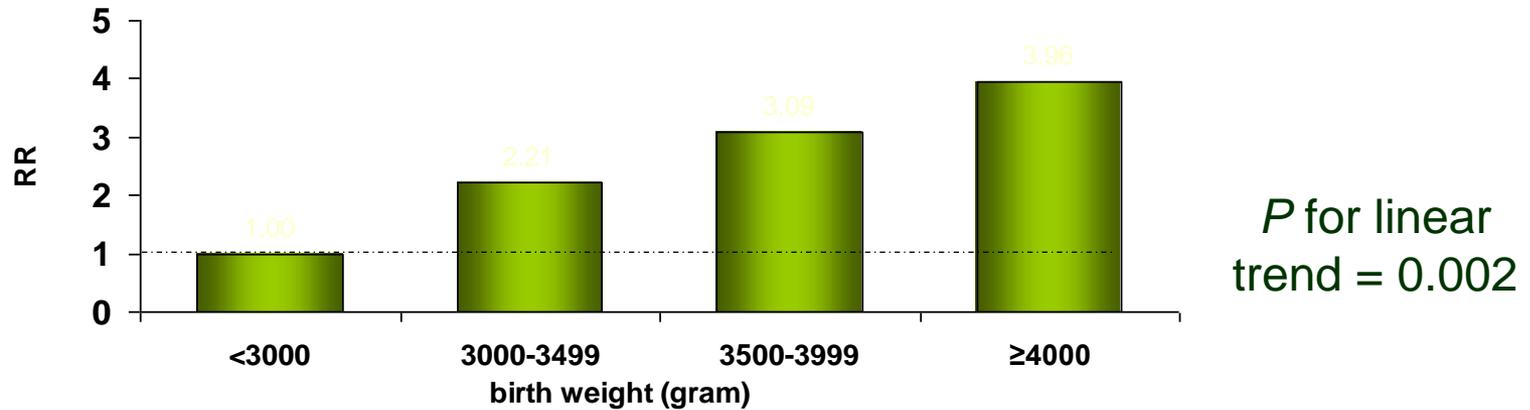
# JPS cancer types age <15



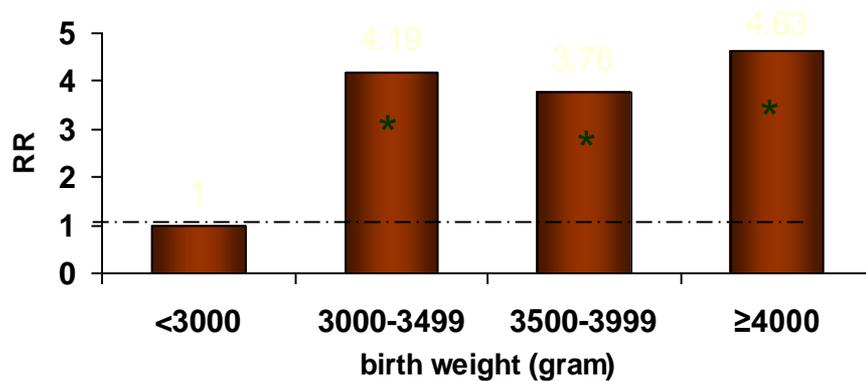
# Childhood cancer studies in JPS



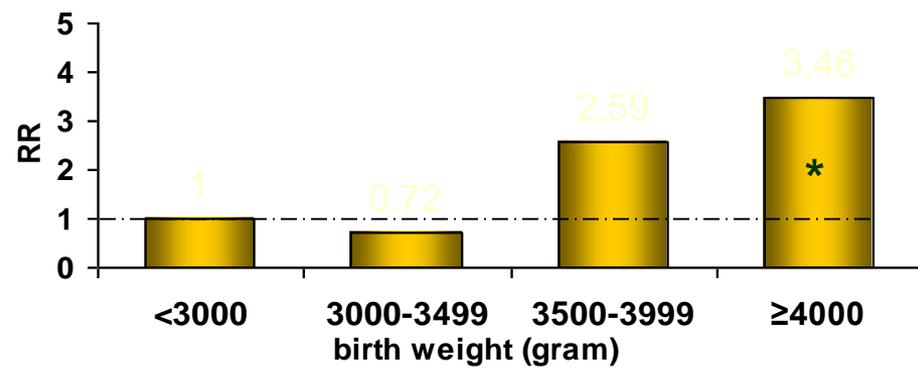
# RR for all leukemia n=65 by birth weight



## RR for ALL n=41



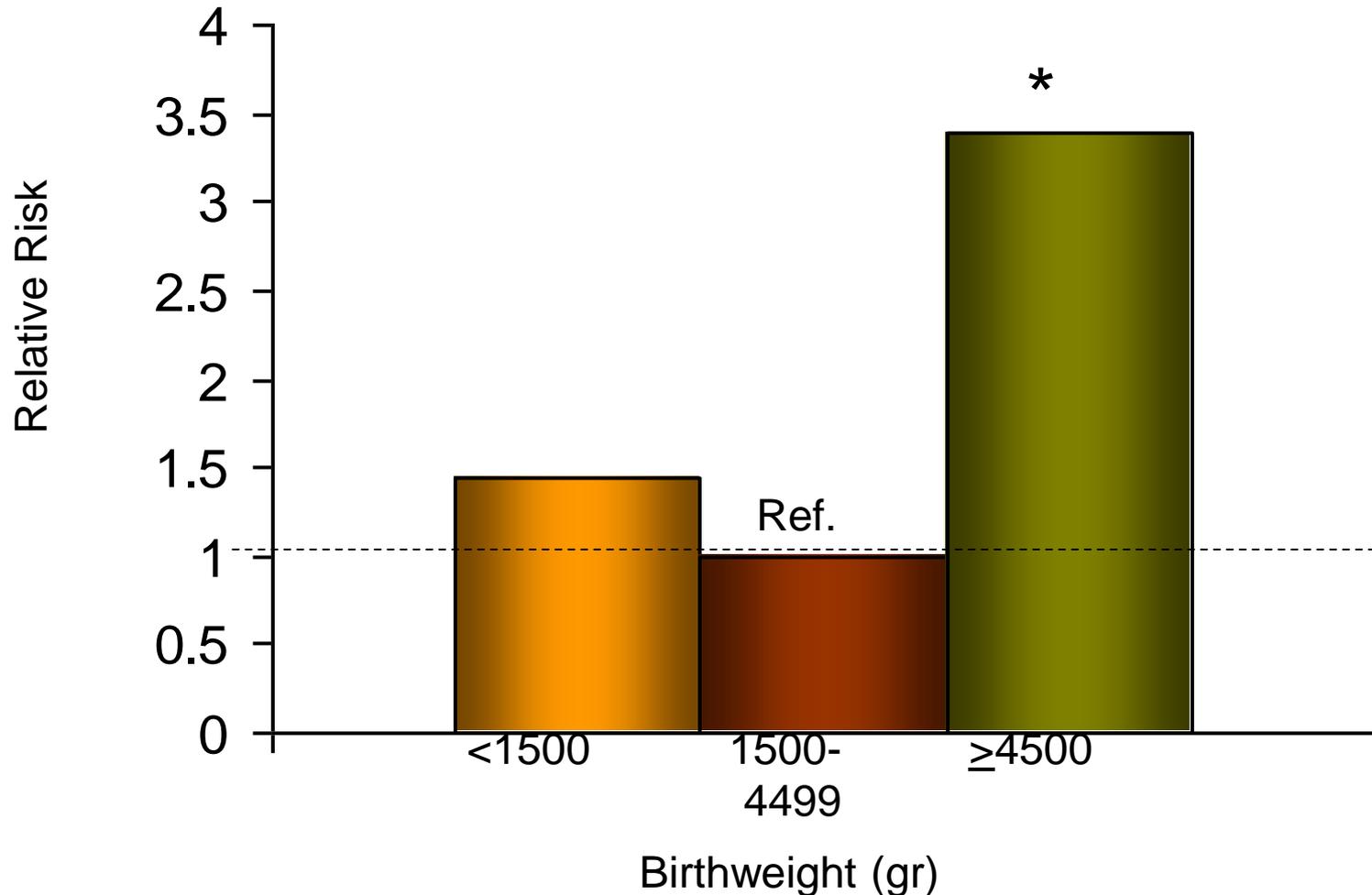
## RR for AML n=21

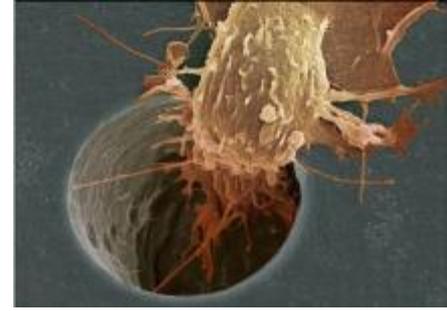


\* *P* < 0.05

Paltiel, Cancer Epidemiol Biomarkers Prev  
2004;13(6). June 2004

# Relative risk of leukemia of mothers by offspring birthweight





# Cancer in children with congenital malformations

Preliminary results from the JPS





# Demographic characteristics of children born with and without malformations

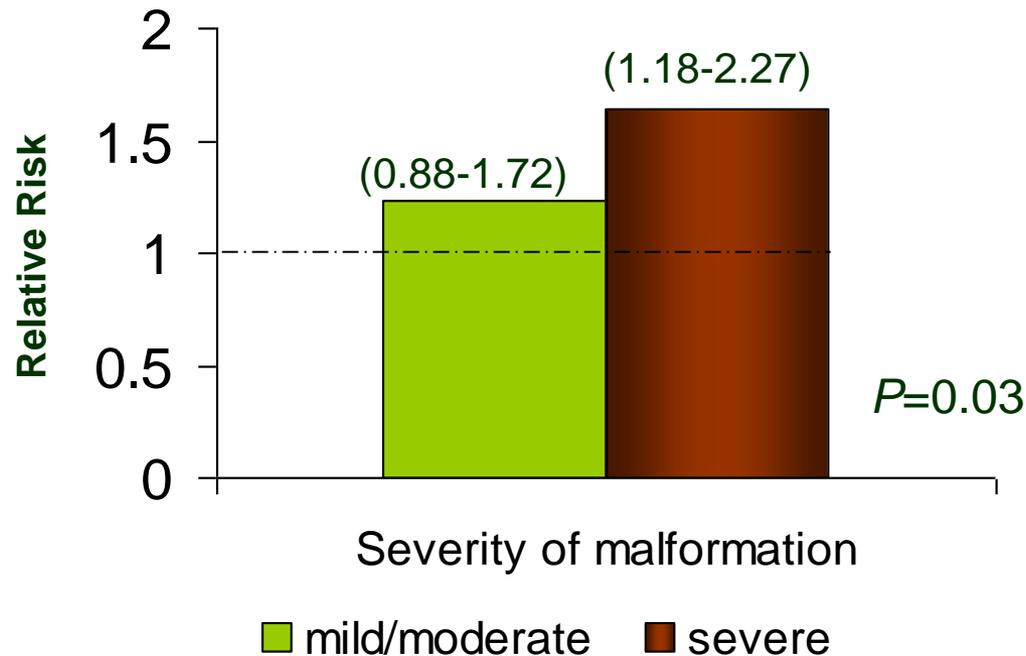
	<b>With</b>	<b>Without</b>
Male	64%	51%
Birthweight <2500 gm	10%	7%
Mother smoker	28%	23%
Mother's age at birth >35	13%	12%
Father's age at birth >35	27%	27%



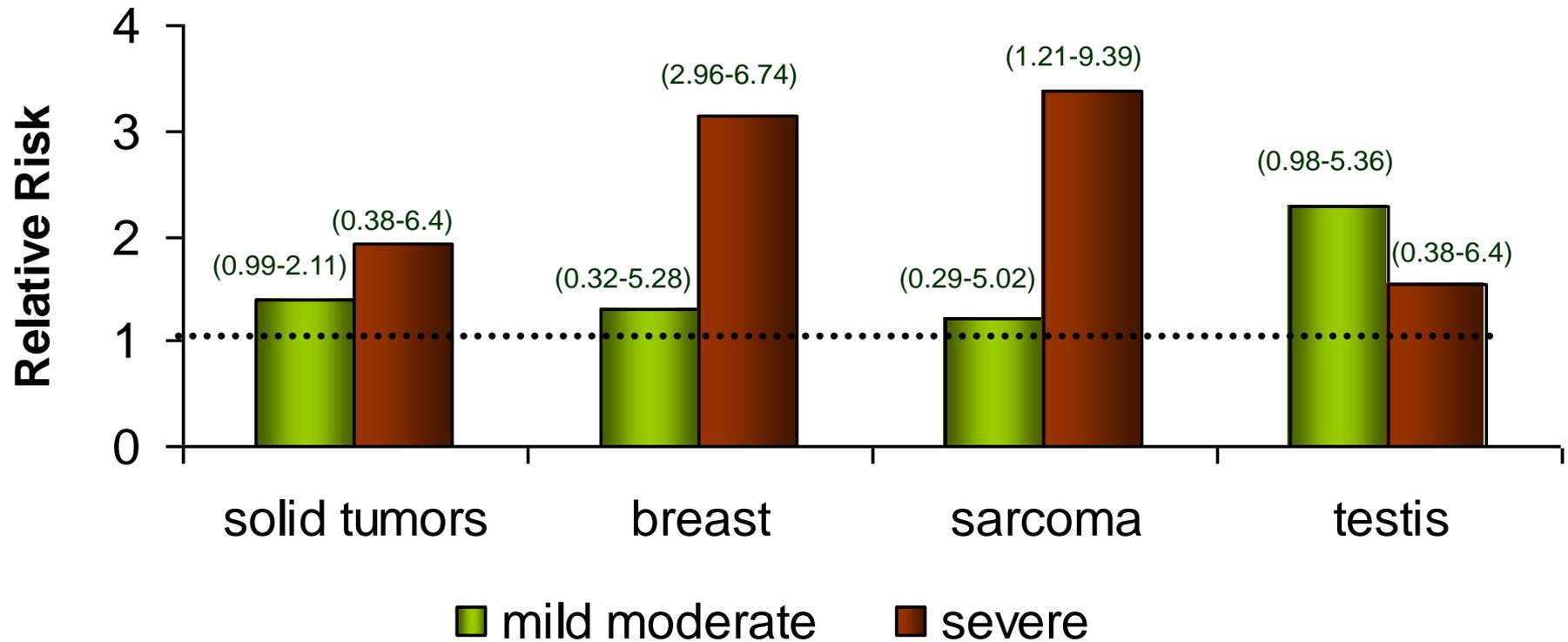
# Cancer in children with and without malformations

Relative Risk (95% CI)

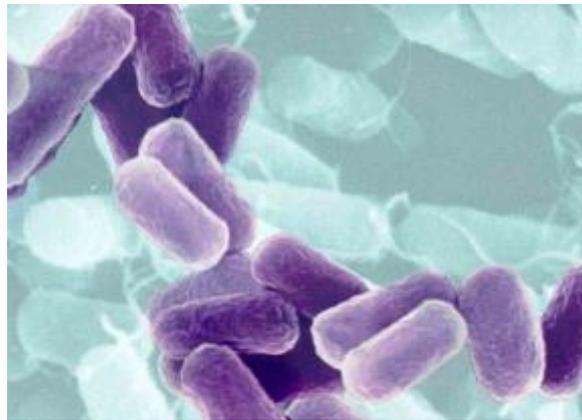
1.35 (1.06-1.71)  $p=0.01$



# Severity of malformations and risk of cancer (compared to those without malformations)



# The Risk of Cancer following Hospitalization for Infection in Infancy



**Objective:** to evaluate the relation between hospital admission in the 1st year of life due to infectious disease and the risk of developing malignancy in childhood and early adulthood.

# Methods:

27,401 offspring: Complete information on hospital admissions in the 1st year of life

**Exposed** - at least one hospital admission due to infectious disease in the 1st year of life.

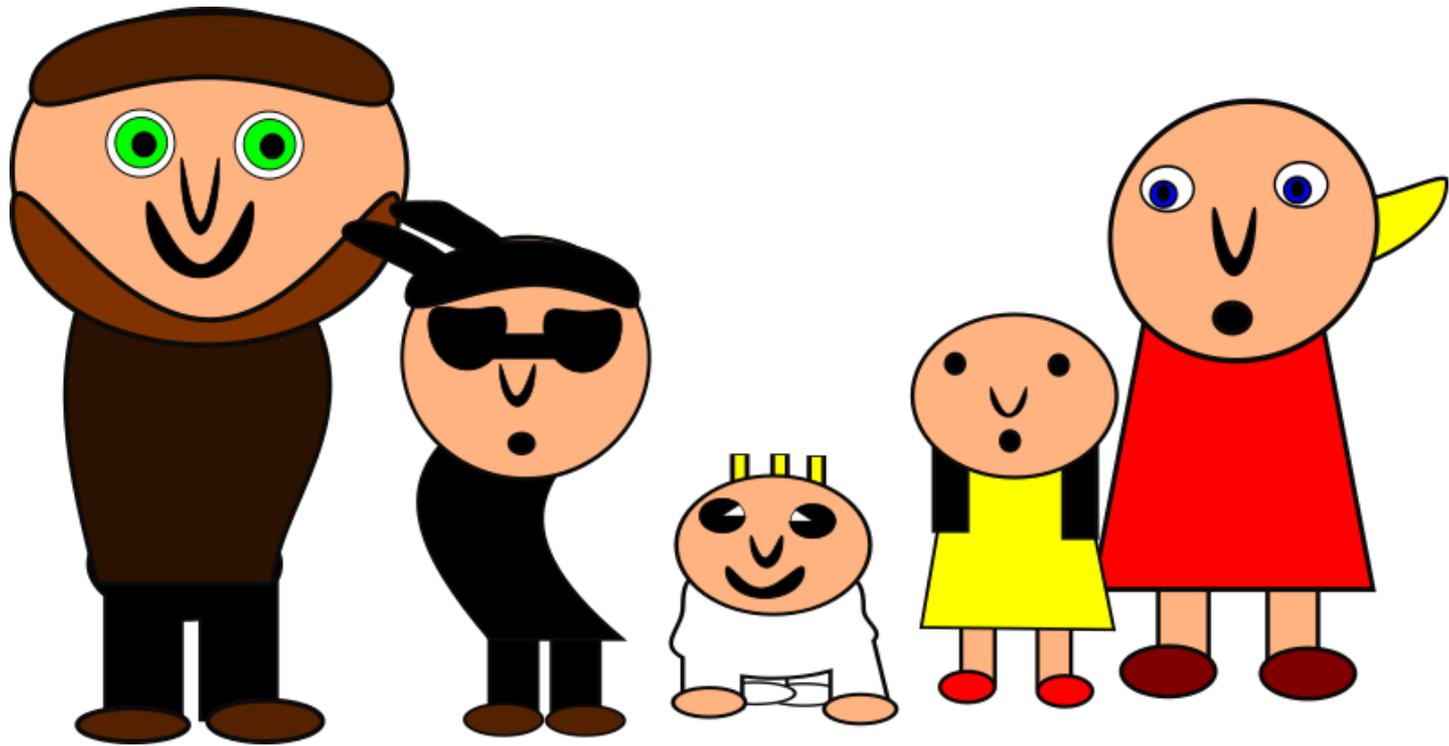
**Nonexposed** - no hospitalization for infection in the 1st year of life



	Hospitalized	Not Hospitalized		
	<i>n</i>	<i>n</i>	RR	<i>P</i>
Any malignancy	21	262	0.88	0.59
Leukemia	1	25	0.44	0.45
Non-Hodgkin's lymphoma	6	19	<b>3.46</b>	<b>0.019</b>

We found a 3-fold increased risk of non-Hodgkin's lymphoma after 1st year hospitalizations due to infectious diseases.

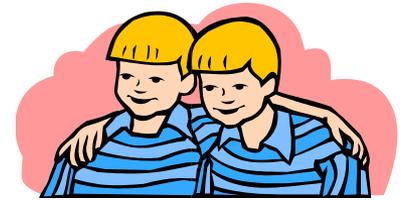
# Opportunities to explore familial cancer in the JPS



# Cancers among sib-ships



**N=16 families**



- 25% of mothers also had malignancy
- In 50% of families sites were concordant :

Lymphoma (N=3)

Breast (N=2)

Ovary (N=1)

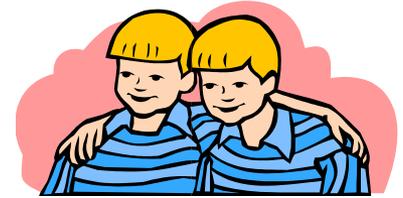
Testis (N=1)

Melanoma (N=1)

# Cancers among sib-ships



**N=16 families**



- 25% of mothers also had malignancy
- In 50% of families sites were concordant :

Lymphoma (N=3)

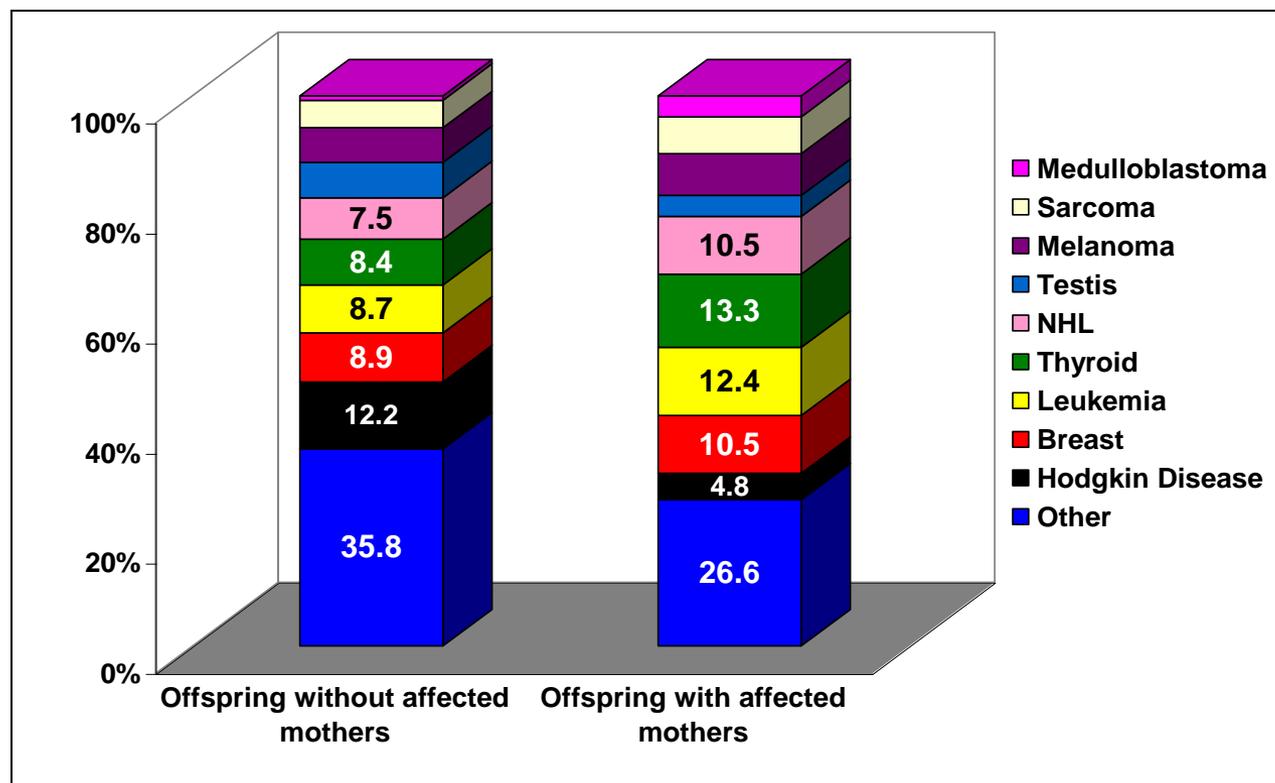
## **Family #1**

3 siblings diagnosed within 4  
years (1970-1974)

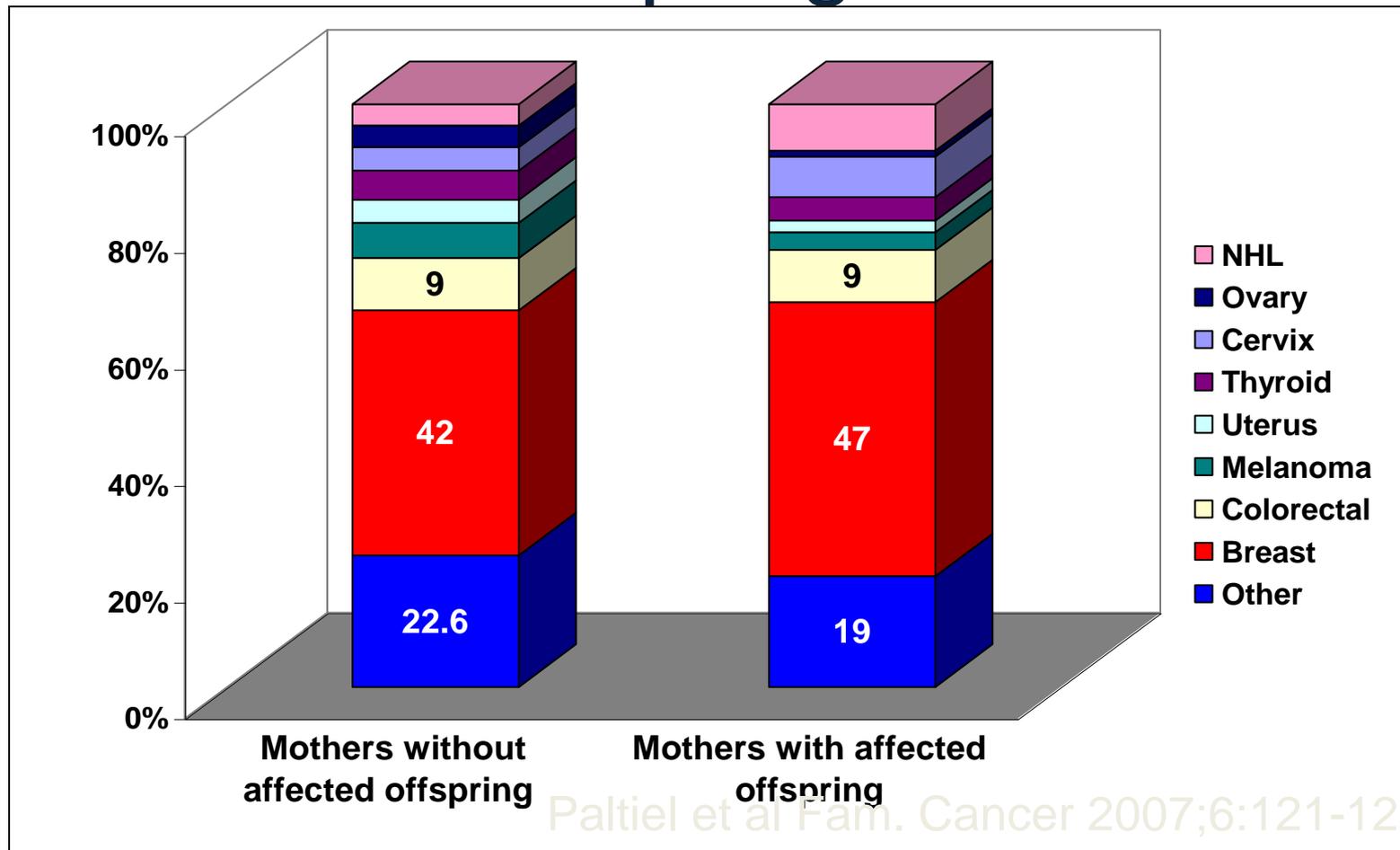
## **Family #2**

2 siblings diagnosed within 3  
years (1965-1968)

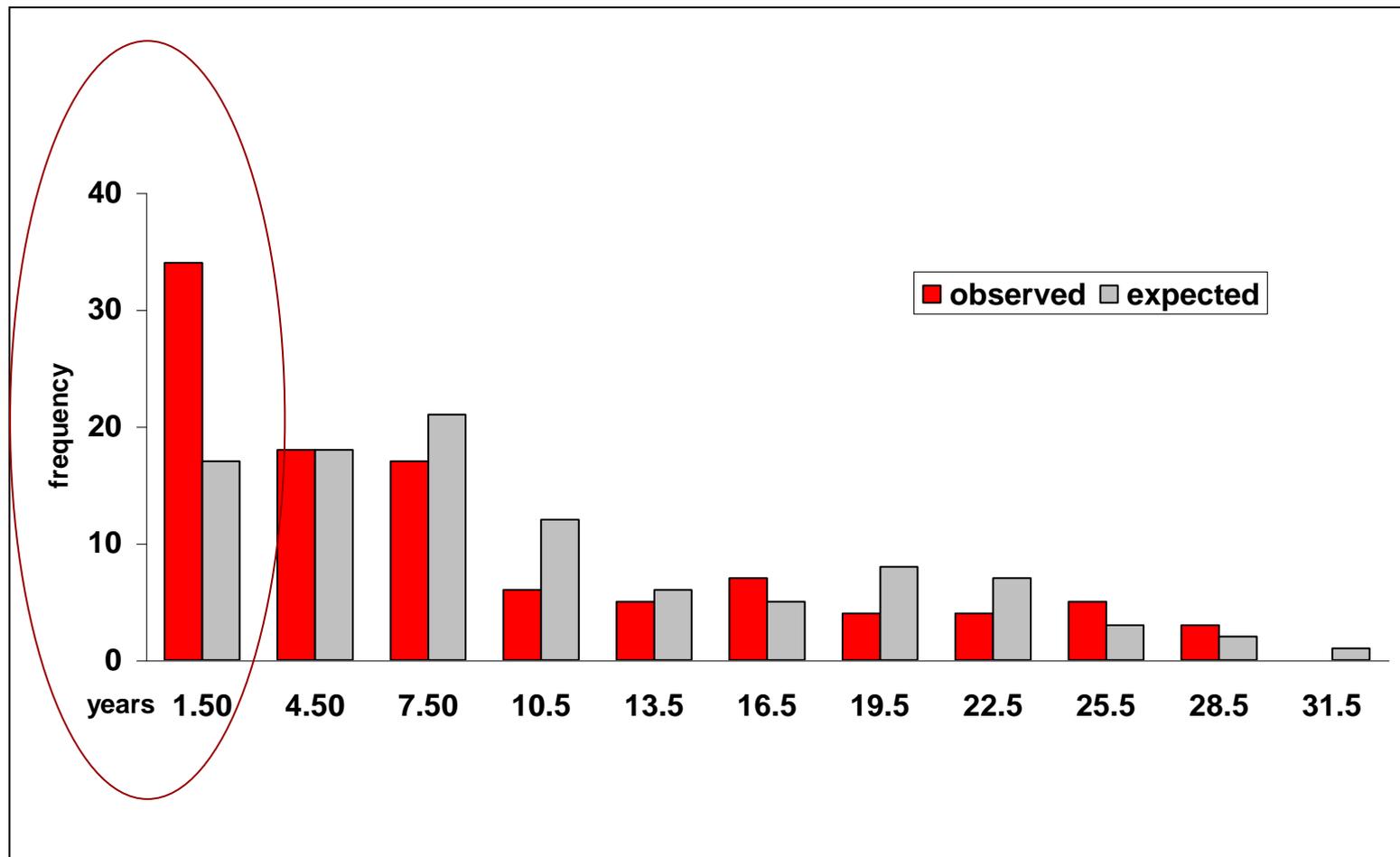
# Distribution of cancer sites for offspring with and without affected mothers



# Distribution (%) of cancer sites for mothers with and without affected offspring



# Distribution Of The Time Interval Between Diagnosis Of Mother-Child Pairs: Observed & Expected By Chance



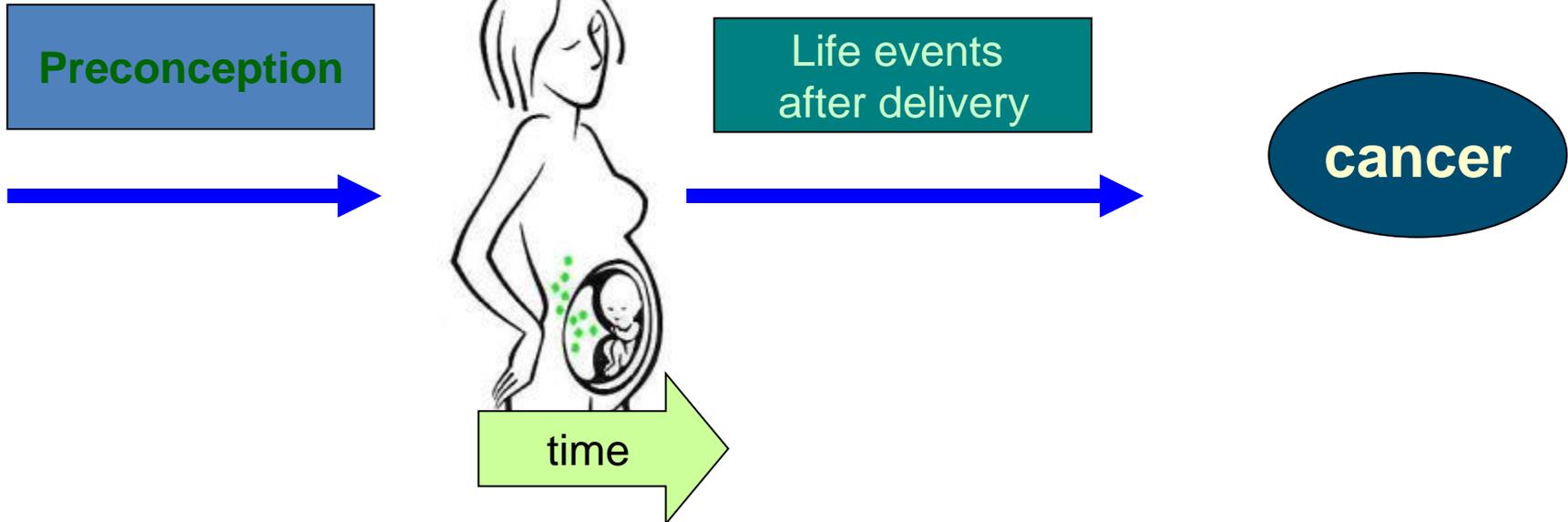
# Absolute interval (yrs) between diagnosis of mother and offspring

Interval	All pairs	Mother diagnosed first	Child diagnosed first	Mother with breast cancer	Mother other cancer	Mother <50 years of age at Dx	Mother >50 years of age at Dx	Child diagnosed <15yrs of age	Child diagnosed >15yrs of age	Child DOB <1970	Child DOB >1970
N	103	46	57	48	55	42	61	21	82	57	46
% ≤3 yrs	33	30	35	29	36	26	38	14	38	32	35
Mean	8.6	8.7	8.5	8.6	8.6	10.3	7.4	15.2	6.9	8.6	8.5
SD	8.2	8.3	8.2	7.4	8.9	8.7	7.7	9.1	7.1	8.3	8.2
Median	5.9	6.4	5.9	7.3	5.2	8.1	5.1	15.2	4.7	5.9	6.3
P value	0.03	0.0067	0.0015	>0.1	0.06	0.075	>0.1	>0.1	0.026	0.026	>0.1

# Summary:

- Unique population
- Unique opportunities
- Unique findings, requiring confirmation in other populations
- Potential for collaborations

Pregnancy complications and outcomes



Exposures during the pre, peri- and postnatal period, have an impact on parents' and offspring's cancer risk.

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- Current team:  
Investigators: *R. Calderon-Margalit, Y. Friedlander, O. Manor, V. Meiner, O. Paltiel*
- PhD candidates: *M Avgil, H Hochner, E. Tiram, Y Wolff*
- **Statisticians and Programmers:** *L. Deutsch, N. Sharon, R. Yanetz*
- Research collaborators for Israel: *U. Elchalal, D. Hochner, R. Pollock A. Samuelov, D. Varon, E. Hayam*



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- Ministry of Health- Cancer Registry
- Ministry of Justice
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