

HIV and cancer in children

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National Study of HIV in Pregnancy and Childhood (UK)

Cancer	Observed	Expected
Kaposi's sarcoma	2	<0.00002
NHL	7	0.003
Ewing's sarcoma	1	0.0004
Rhabdoid	1	0.01

AIDS-Cancer Match Study (USA)

Cancer	Observed	Expected
Kaposi's sarcoma	4	0.01
NHL		
Burkitt's	9	0.01
Immunoblastic	6	0.01
Cerebral	5	<0.01
Hodgkin's	1	0.02
Leiomyosarcoma	2	<0.01

HIV and Kaposi's sarcoma among children in Africa

% HIV seropositive			
	case	control	OR
Uganda	81% (29/36)	6% (11/190)	94.9 (28.5 -315.3)
Malawi	77% (24/31)	4% (6/164)	93.5 (26.9 – 324.4)
RSA	100% (10/10)	1% (8/740)	∞

HIV and Non-Hodgkin (non-Burkitt) lymphoma among children in Africa

% HIV seropositive

	case	control	OR
Uganda	0% (0/3)	6% (11/190)	-
Malawi	15% (5/36)	4% (6/164)	4.4 (1.1 – 17.9)
RSA	5% (2/39)	1% (8/740)	5.0 (0.9 – 27.0)

HIV and Acute Lymphoblastic Leukaemia

% HIV seropositive

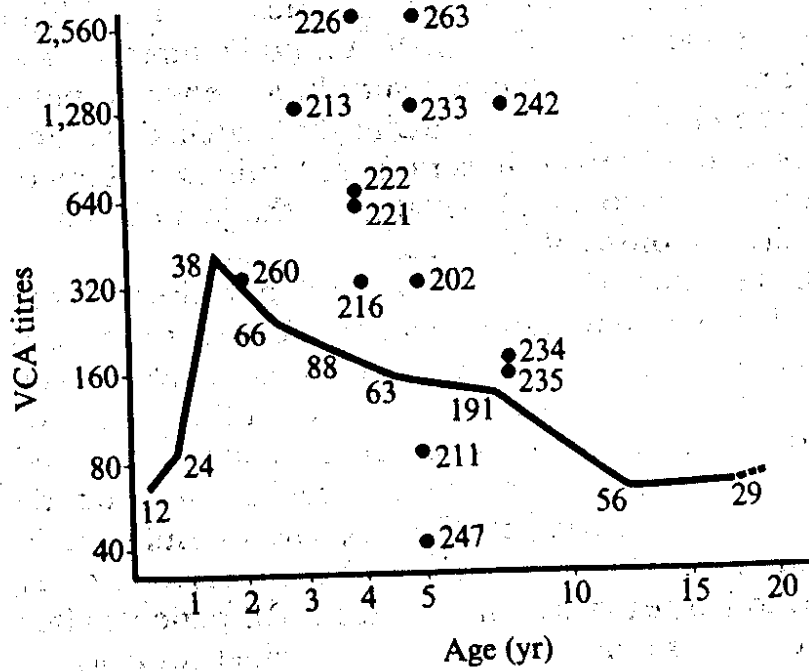
	case	Control	OR
Uganda	15% (2/13)	6% (11/190)	3.5 (0.6 - 19.6)
Malawi	0% (0/2)	3% (4/139)	-
RSA	0.6% (1/172)	1% (8/740)	0.4 (0.04 – 2.9)

## HIV and Burkitt lymphoma

% HIV seropositive

	case	Control	OR
Uganda	30% (10/33)	6% (11/190)	7.5 (2.8 – 20.1)
Malawi	7% (17/244)	3% (4/139)	2.5 (0.8 – 8.1)
RSA	39% (13/33)	1% (8/740)	46.2 (16.4 – 130.3)

**Fig. 4** VCA antibody titres in sera collected from BL cases (●) before tumour manifestation compared with antibody titres in a random sample of the population of the study area (—). Numbers against solid line indicate number of sera tested at these ages in the random sample.



Source: de-Thé et al, Nature 1978



John L Zeigler

Albert Lasker

Award for Clinical Medical Research, 1972

For his outstanding contribution in increasing the cure rate of Burkitt's tumor by chemotherapy

Associations with serological test results for Epstein-Barr virus and malaria antibodies: Uganda

	<b>Cases/Controls</b>	<b>Adjusted OR (95% CI)</b> $\chi^2$ for difference
<b><i>Epstein-Barr virus antibodies:</i></b>		
Low	33/49	1.0
Medium	85/40	3.6 (2.3 to 5.6)
High	55/13	4.5 (2.3 to 8.7)
		$\chi^2$ for trend = 15.7, P<0.0001
<b><i>Malaria antibodies:</i></b>		
Negative	12/16	1.0
Low	72/38	2.5 (1.6 to 3.6)
High	42/16	3.4 (1.7 to 6.7)
		$\chi^2$ for trend = 3.9, P=0.05

Joint effects of EBV and malaria serology on odds of Burkitt lymphoma: Uganda

<b>Level of EBV</b>	<b>Level of Malaria</b>	<b>Cases/Controls</b>	<b>Adjusted OR (95% CI)</b>
Low	Negative or very low	12/17	1.0 (0.4 to 2.4)
	Positive	15/16	1.1 (0.5 to 2.4)
Medium/High	Negative or very low	22/19	1.0 (0.5 to 2.2)
	Positive	77/18	5.0 (2.8 to 8.9)

Prevention of Burkitt lymphoma

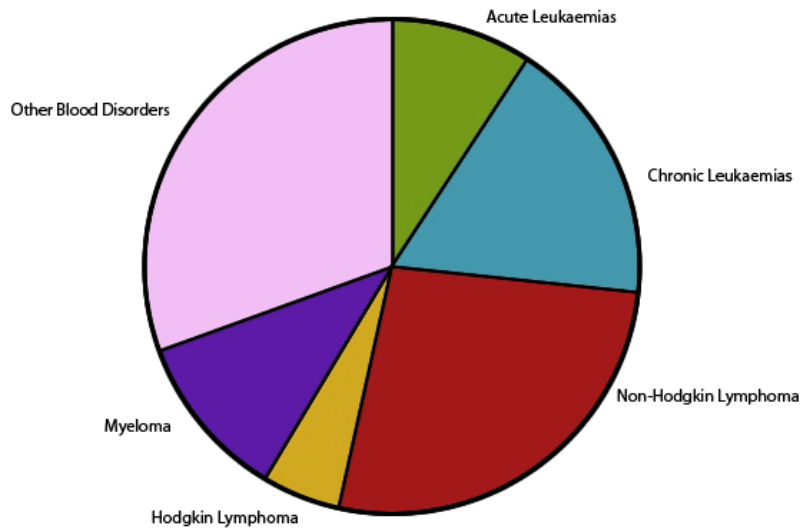
Use of insecticides in the home (Uganda)

OR=0.2 (0.1-0.3)                      p<0.0001

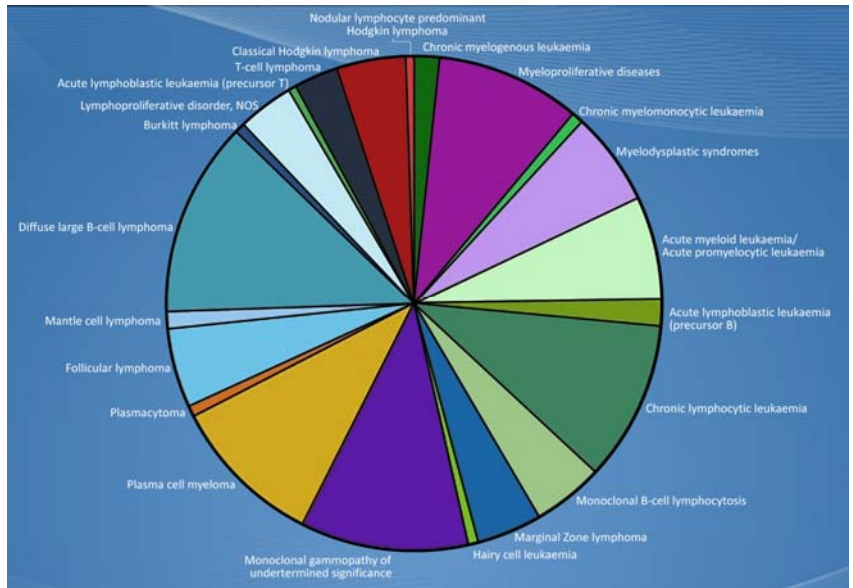
Use of bed nets (Malawi)

OR=0.2 (0.03-0.9)                      p=0.04

Traditional Disease Classification



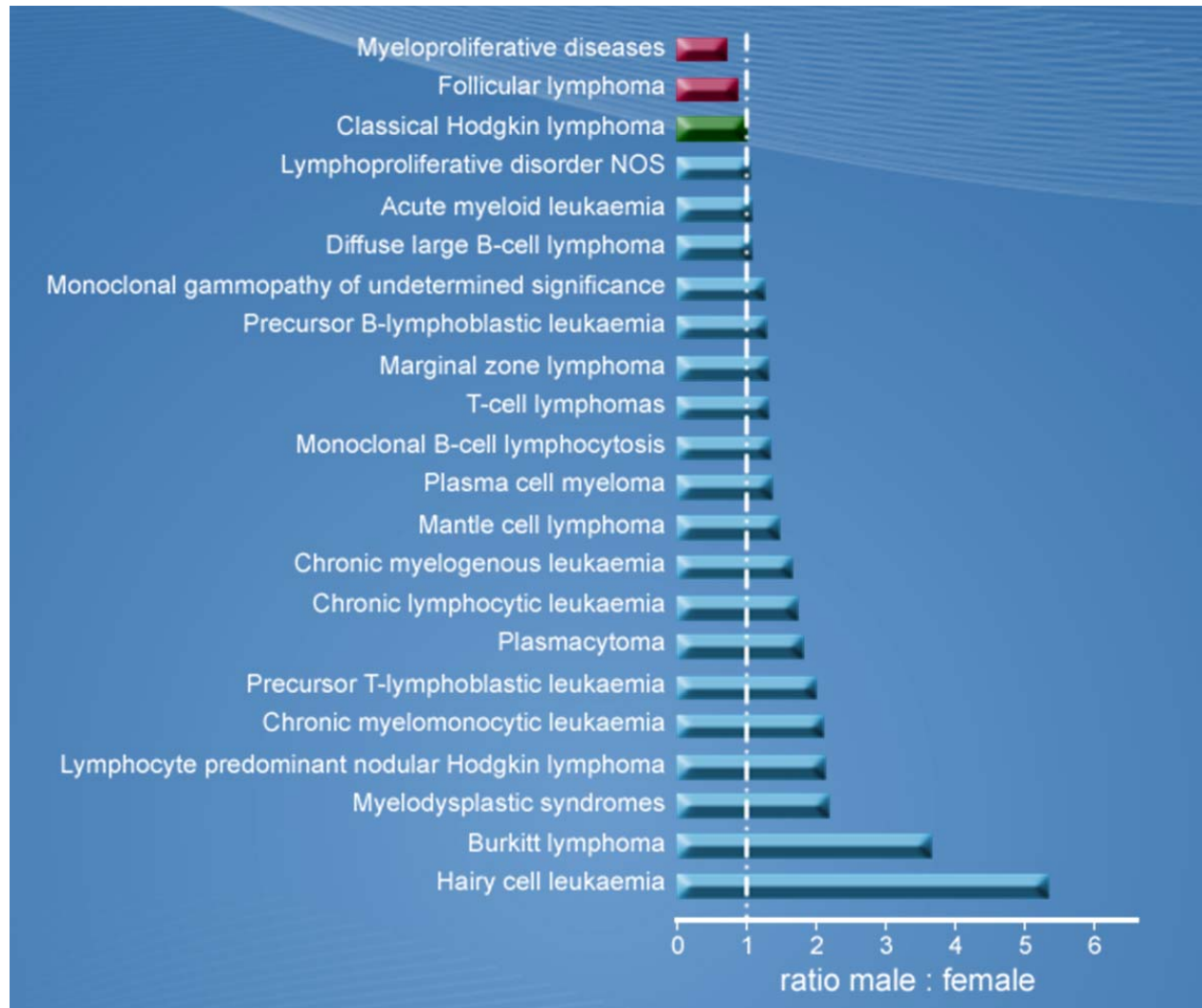
HMRN: 1st September, 2004 to 31st August 2007 (n=5957)



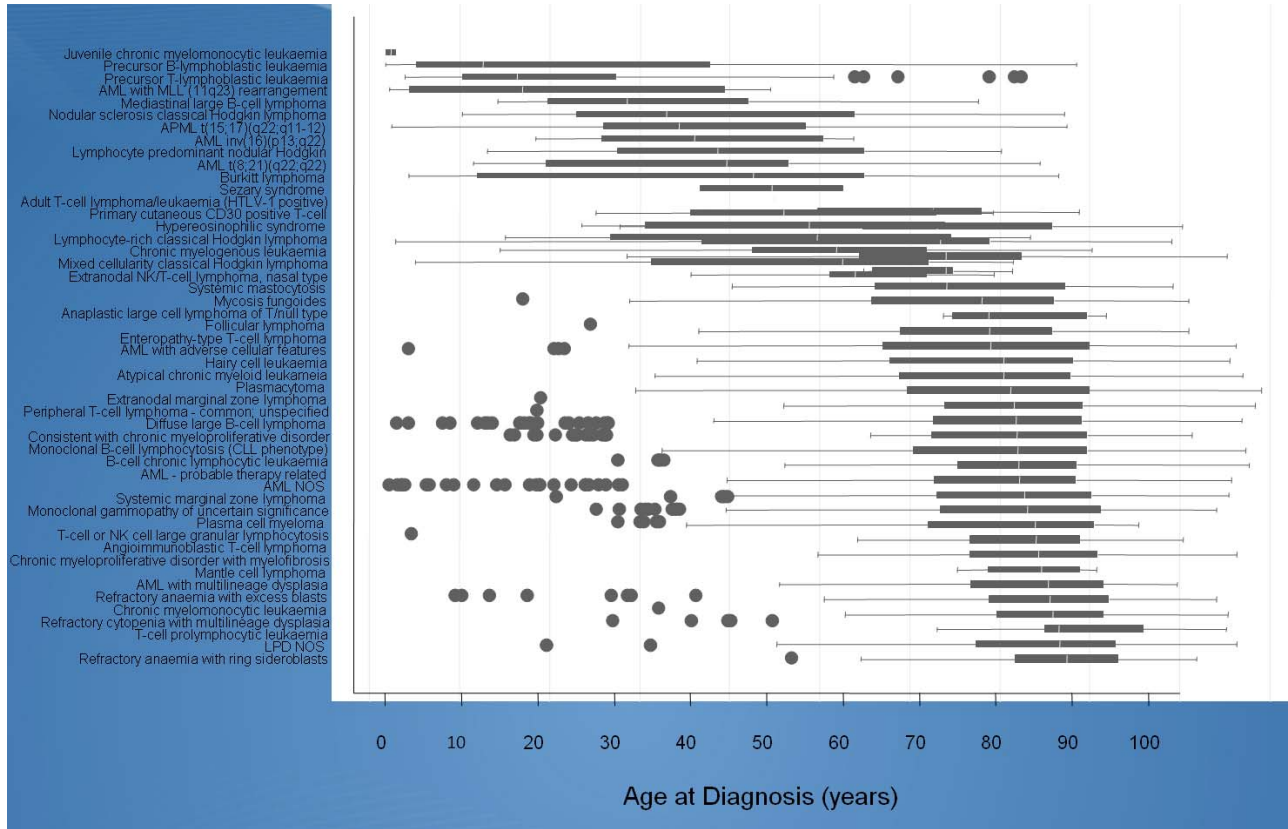
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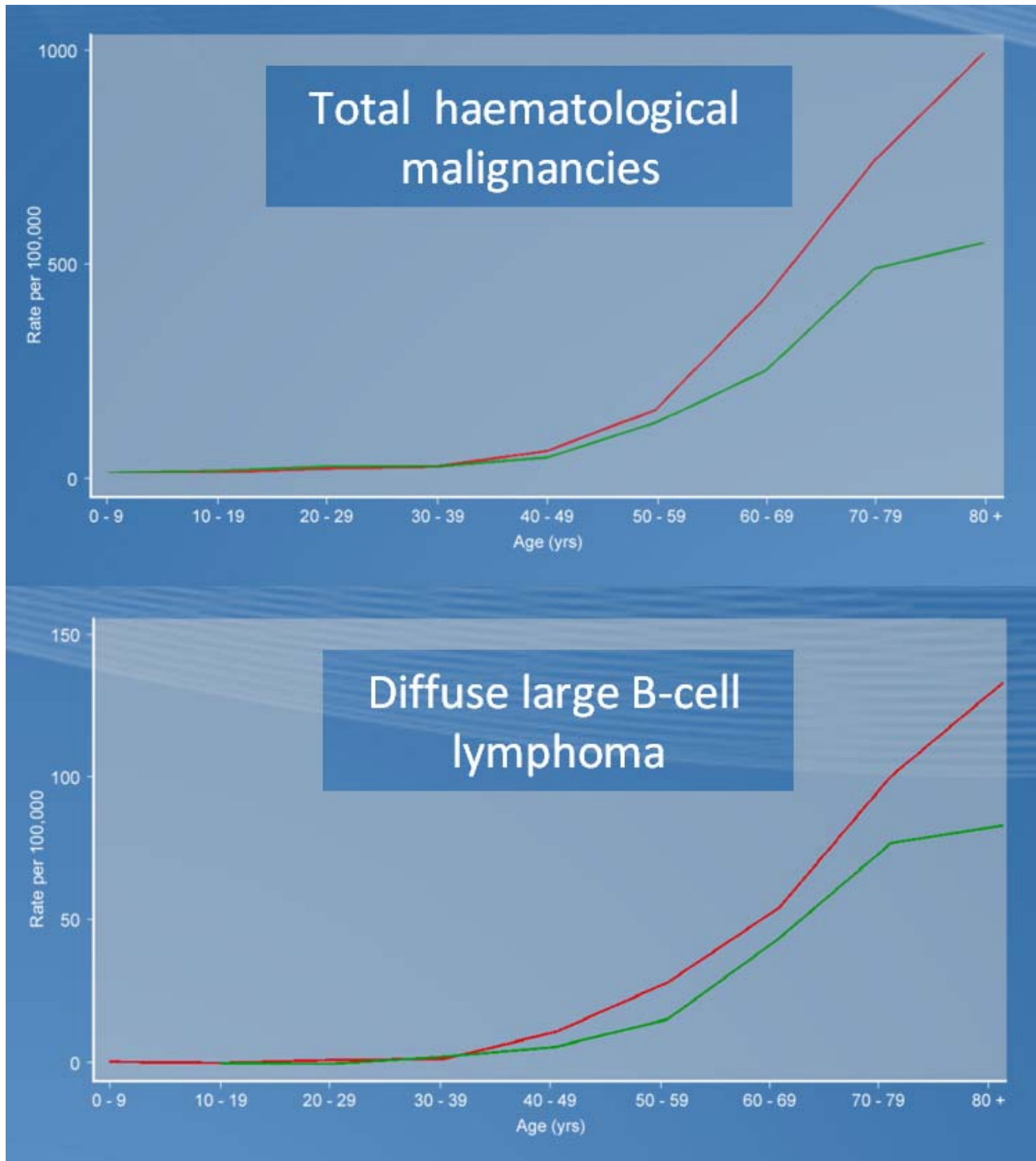
## Sex Rate Ratios

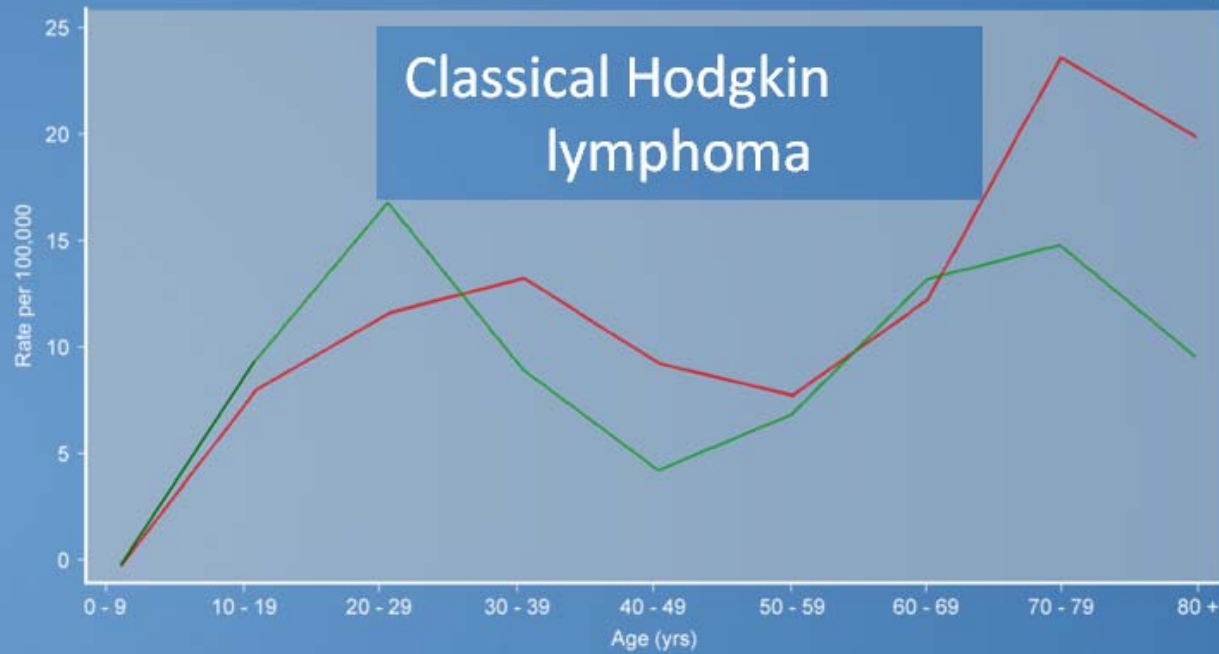
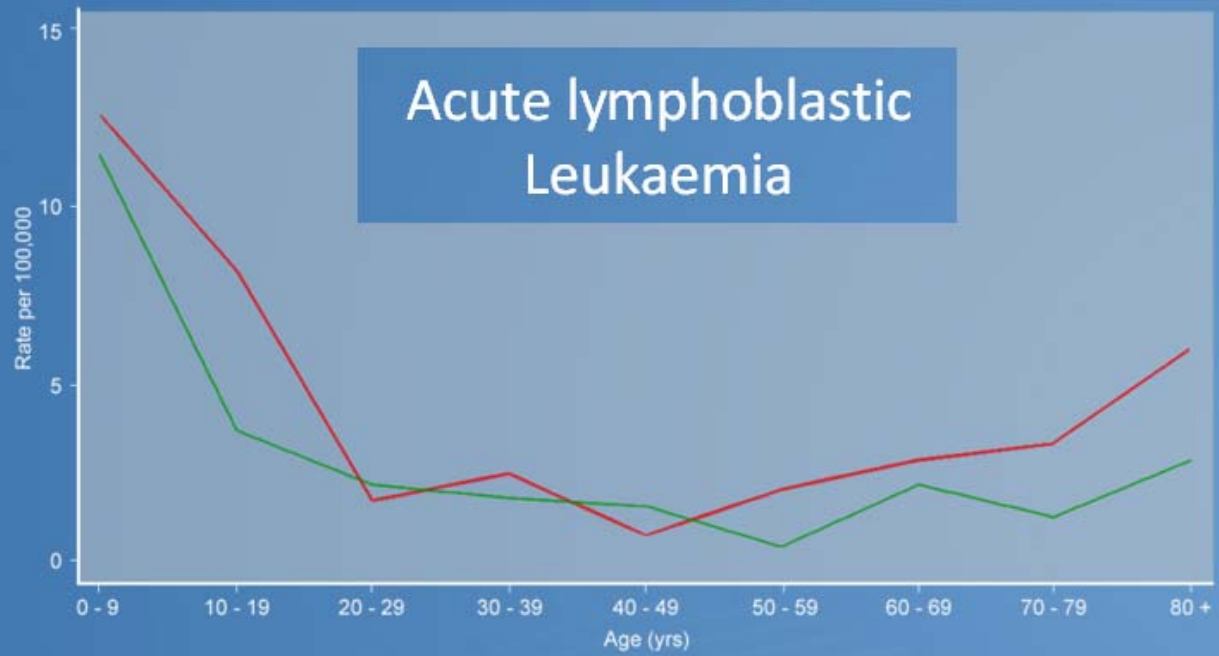


# Age at Diagnosis (years)



Hypotheses should fit descriptive patterns





Infections recorded in GP notes, birth to diagnosis – control

Age	
3 days	conjunctivitis
9 months	URTI, ?otitis media
12 months	Cold
13 months	Cough
15 months	Cough
16 months	Conjunctivitis
19 months	Chesty cough
2 years 7 months	Pharyngitis
2 years 8 months	Chesty, wheeze

Infections recalled by mother, birth to diagnosis – control

Age	
3 days	conjunctivitis
9 months	URTI, otitis media
12 months	Cold
13 months	Cough
15 months	Cough
16 months	Conjunctivitis
19 months	Chesty cough
2 years 7 months	Pharyngitis
2 years 8 months	Chesty, wheeze

Infections recorded in GP notes, birth to diagnosis

Age	
2 weeks	Severe oral thrush
3 weeks	URTI, oral thrush, thrush nappy rash
6 weeks	Severe oral thrush
7 weeks	Conjunctivitis
8 weeks	Conjunctivitis persists
7 months	Cold
9 months	Otitis media
10 months	Viral infection
11 months	Conjunctivitis
15 months	Ringworm
16 months	Diarrhoea
18 months	Viral encephalitis ◊ hospitalised
19 months	Cough
20 months	Nasal congestion, ?chronic tonsillitis
21 months	Smelly nasal discharge, ?sinusitis
2 years	URTI, conjunctivitis, otitis media
2 years 1 month	Otitis media
2 years 6 months	Otitis media
2 years 8 months	Unwell for 10 days, yellow tinge, blue lips, loose motions, leg pains, won't walk - ALL

Infections recalled by mother, birth to diagnosis

Age	
2 weeks	Severe oral thrush*
3 weeks	URTI, oral thrush, thrush nappy rash
6 weeks	Severe oral thrush
7 weeks	Conjunctivitis
8 weeks	Conjunctivitis persists
7 months	Cold
9 months	Otitis media
10 months	Viral infection Cold
11 months	Conjunctivitis
15 months	Ringworm
16 months	Diarrhoea
18 months	Viral encephalitis - hospitalised

19 months	Cough
20 months	Nasal congestion, ?chronic tonsillitis
21 months	Smelly nasal discharge, ?sinusitis
2 years	URTI, conjunctivitis, <b>otitis media</b>
2 years 1 month	Otitis media
2 years 6 months	Otitis media
2 years 8 months	Unwell for 10 days, yellow tinge, blue lips, loose motions, leg pains, won't walk - ALL

\*mother's recall: one month infection that lasted 5 days

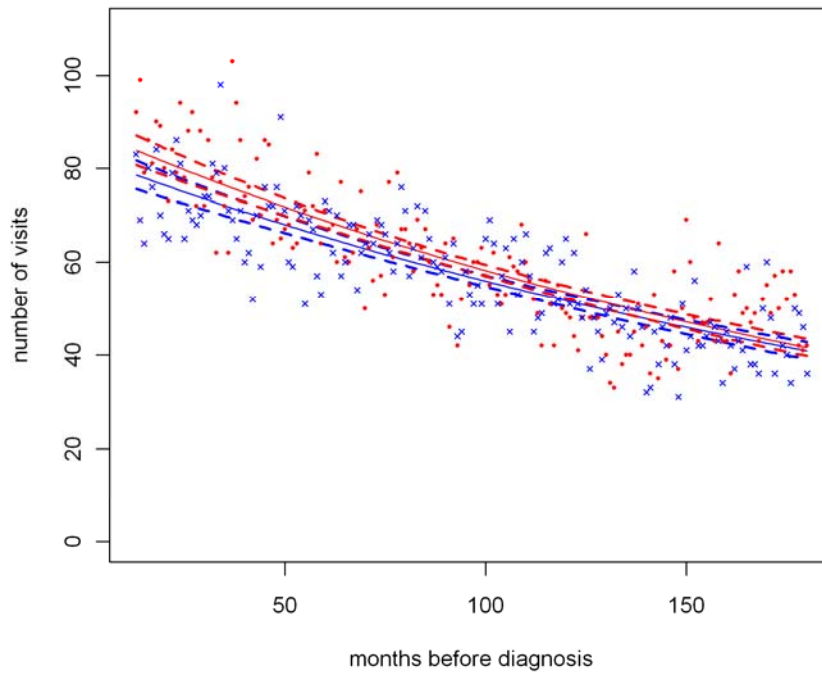
Mother also recalled:-

Otitis media x1, <3 months

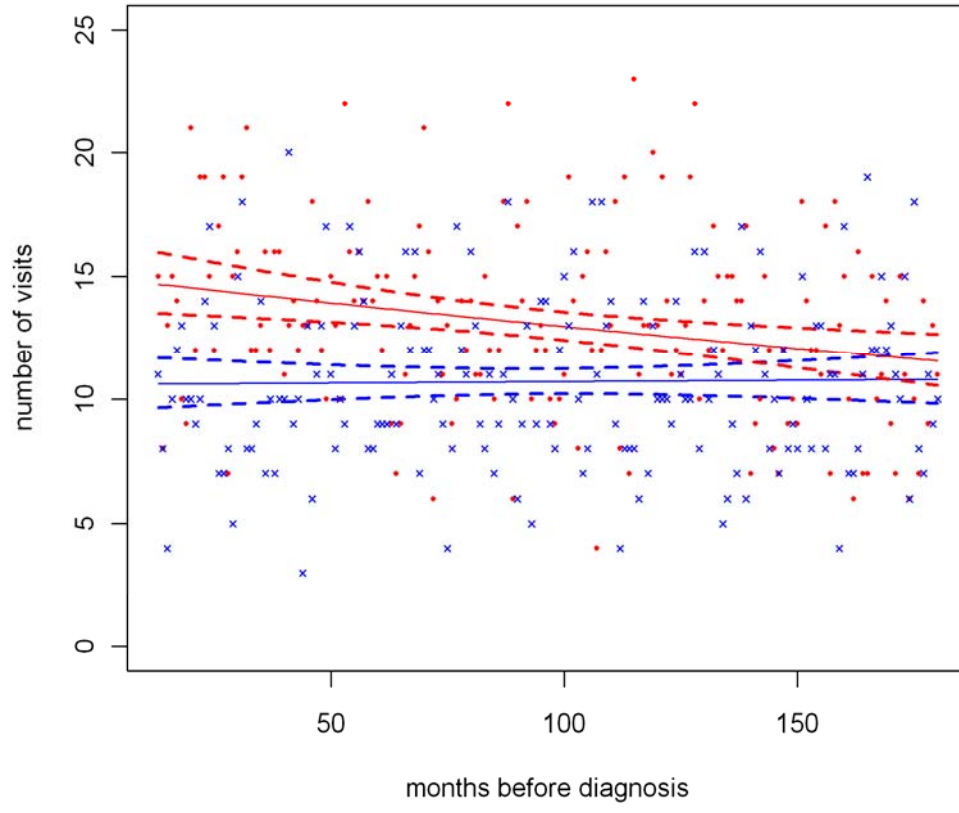
Otitis media x1, 3-5 months

Chest infection x1, 2 years 7 months

Hodgkin lymphoma: non-infections



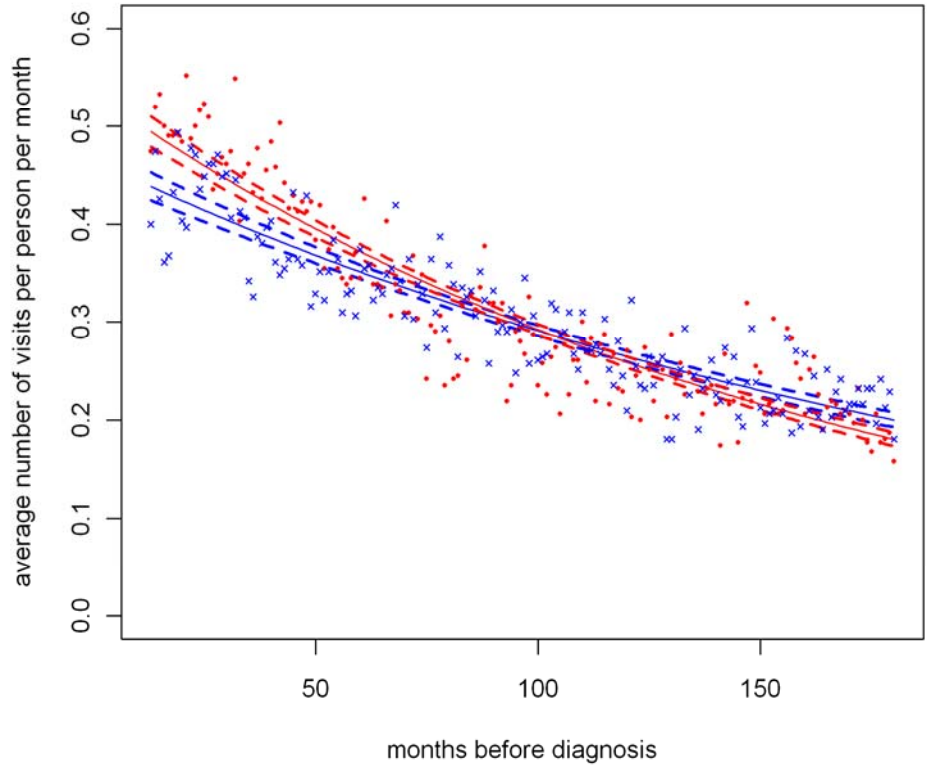
Hodgkin lymphoma: infections





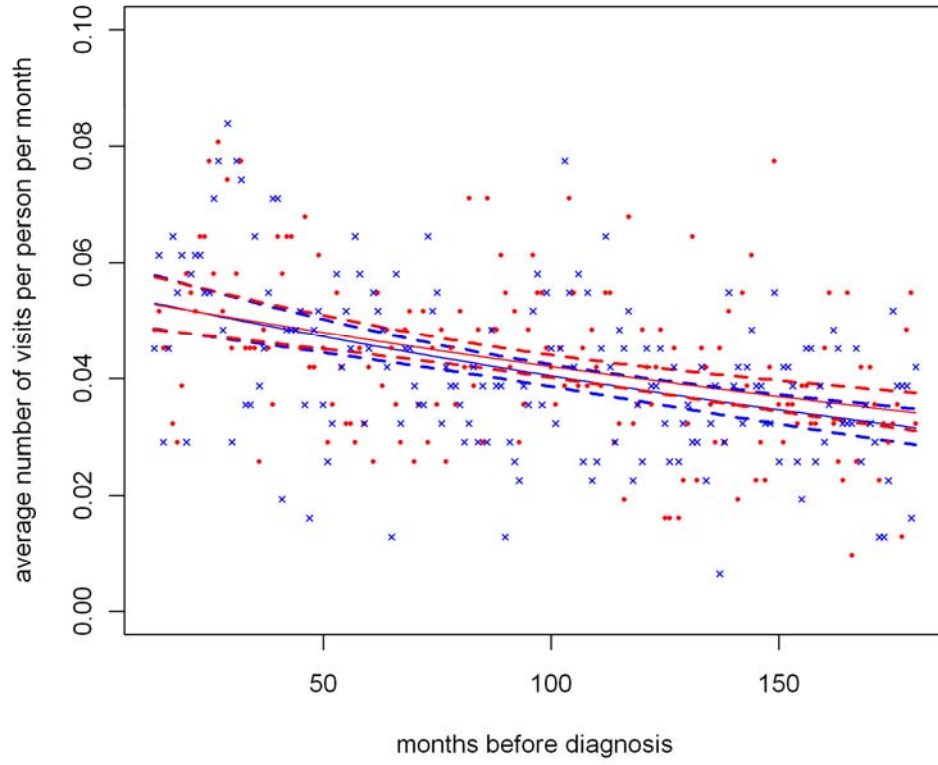
Diffuse large B cell lymphoma: non-infections

### Fitted Model



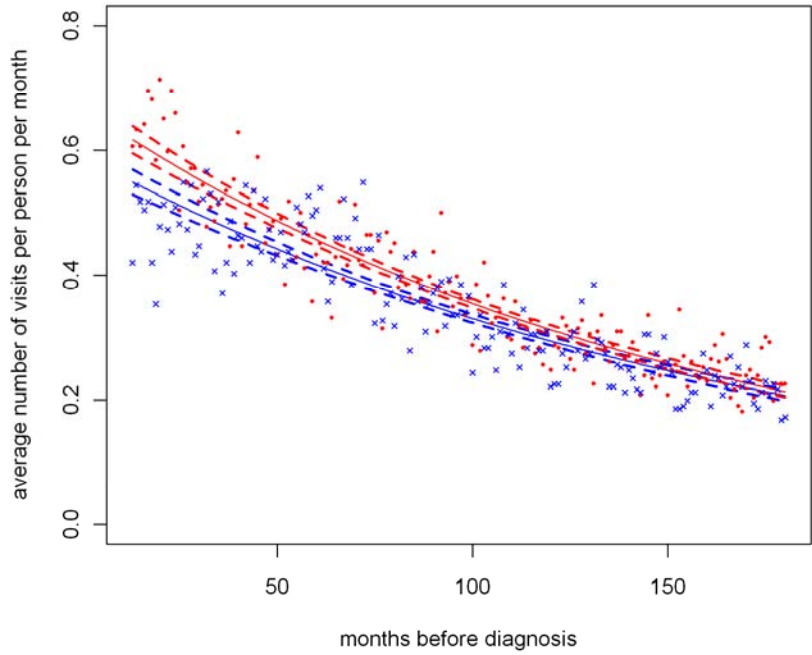
Diffuse large B cell lymphoma: infections

Fitted Model

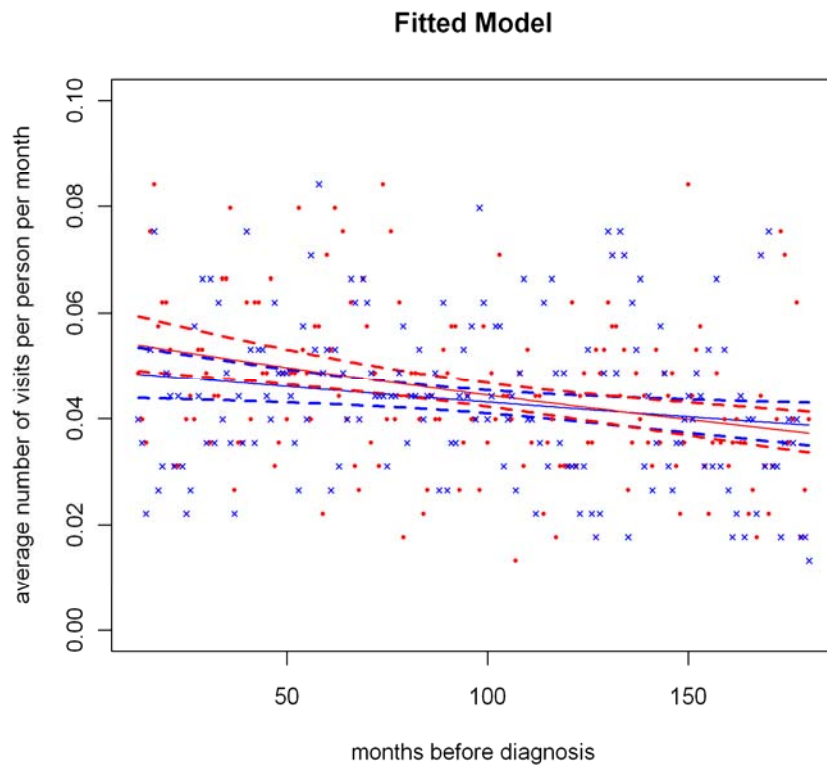


Follicular centre cell lymphoma: non-infections

Fitted Model



Follicular centre cell lymphoma: infections



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