

# DISTRIBUTION OF LYMPHOMAS IN KENYA

What Can We Learn from Africa  
**New insight to lymphoma classification,  
epidemiology, biology and research.**

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# BACKGROUND



- 40 million population
- Cervix and Breast most common cancers in females.
- Younger patients , advanced disease.
- 50% of population below poverty line.
- 1:700,000 pathologist-patient ratio.

# BACKGROUND

- ◆ **Nairobi Cancer Registry published by Kenya Medical Research Institute.( 2000-2002)**
- ◆ **Caters for diagnosed cancers within Nairobi city and its environs**
- ◆ **3310 malignant tumours (45.6% male ,54.3% female 6-4% Children)**
- ◆ **Data unreliable , under reporting, incomplete.**  
**e.g. 25 casesHL,63 NHL over 3 year period c/f to AKU-N)**

## **Males**

Head and Neck (14.8%- 159 cases)

Ca esophagus (10.0 %- 151 cases)

Ca prostate (9.4%),

Stomach (7.1%),

Kaposi's sarcoma (6.9%),

Liver (5.7%).

**.Non-Hodgkin's Lymphoma (4.2%)**

## **Females**

Breast (23.3%- 429 cases)

Uterine cervix (20.0%- 352 cases),

Esophagus (4.4%)

Stomach (3.8%).

**Non-Hodgkin's Lymphoma (2.4%)**

## **Children**

Retinoblastoma (34 cases)

**NHL( Burkitt) (19cases)**

Leukemia

# BACKGROUND

- Lymphoma diagnosis in Kenya in major hospitals and private labs
- IHC services limited to AKU, KNH and Moi and one private lab.
- Wide AKU network with 10 satellite centres
- Currently 8-12 lymphomas per month
- IHC lymphoma panel of 13

# Disease Classification

	No	%	Range age	EBV +	HIV +
Non Hodgkins Lymphomas					
PCL-Lymphoblastic	6	3.7	6-20	0	0
CLL/SLL	14	6.5	40-63	0	0
Mantle Cell Lymphoma	4	1.9	53-70	0	0
Follicular Lymphoma	10	4.7	37-71	0	0
Marginal Zone Lymphoma	12	5.6	30-78	0	0
<b>DLBCL</b>	<b>92</b>	<b>43.1</b>	<b>8-75</b>	<b>11</b>	<b>21</b>
Plasmacitoma	5	2.3	36-70	0	0
<b>Burkitt Lymphoma</b>	<b>39</b>	<b>18.3</b>	<b>2-56</b>	<b>33</b>	<b>17</b>
PT-NC Aggressive NK	2	0.9	3-35	1	1
PTCL	16	7.5	16-79	0	0
ALCL	11	5.5	11-72	3	2
<b>TOTAL NHL</b>	<b>213</b>	<b>100</b>	<b>3-79</b>		
<b>Hodgkin Lymphoma</b>	<b>46</b>	<b>17.7</b>	<b>7-70</b>	<b>36</b>	<b>0</b>
<b>TOTAL NHL+HL</b>	<b>259</b>	<b>100</b>	<b>3-79</b>		

# Review

- **Cool et al in (1997) described DLBCL as constituting 18% of all lymphomas diagnosed at a central histopathology laboratory serving 40 mission hospitals in Kenya (1).**
- **12% lymphoma cases of all surgical specimens**
- **Total 73 cases over 21 months ( median age 35 years)**
- **NHL-82% - 87% of these were B cell.**

# Review

- **Tumwine et al (2009) in Ugandan patients, reports DLBCL to constitute 16% of all NHL investigated.**
- **Median age of study population was 9 years with a mean of 15 years. As expected, BL cases in this study constituted 79.8% of all NHL (2).**

# Objectives

- 1) Classify 103 consecutive lymphomas diagnosed at (AKUHN) Laboratory based on the WHO system from Jan 1<sup>st</sup> 2007-Dec 31<sup>st</sup> 2008
- 2) Describe the demographic and clinical characteristics of the patients.



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# Age

- 88 cases were adults representing 85.4% of the study population.
- The age range was 3 – 105 years with the mean age of 39.5 years and the median age was 36 years.
- The age bracket between 31 to 40 years had the highest proportion of cases representing 30.1% of the study population



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# Gender and HIV status

- The male: female ratio was 1.64: 1.
- HIV status information in 7 cases
- Cervical node most commonly biopsied.



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# Lymphoma subtypes

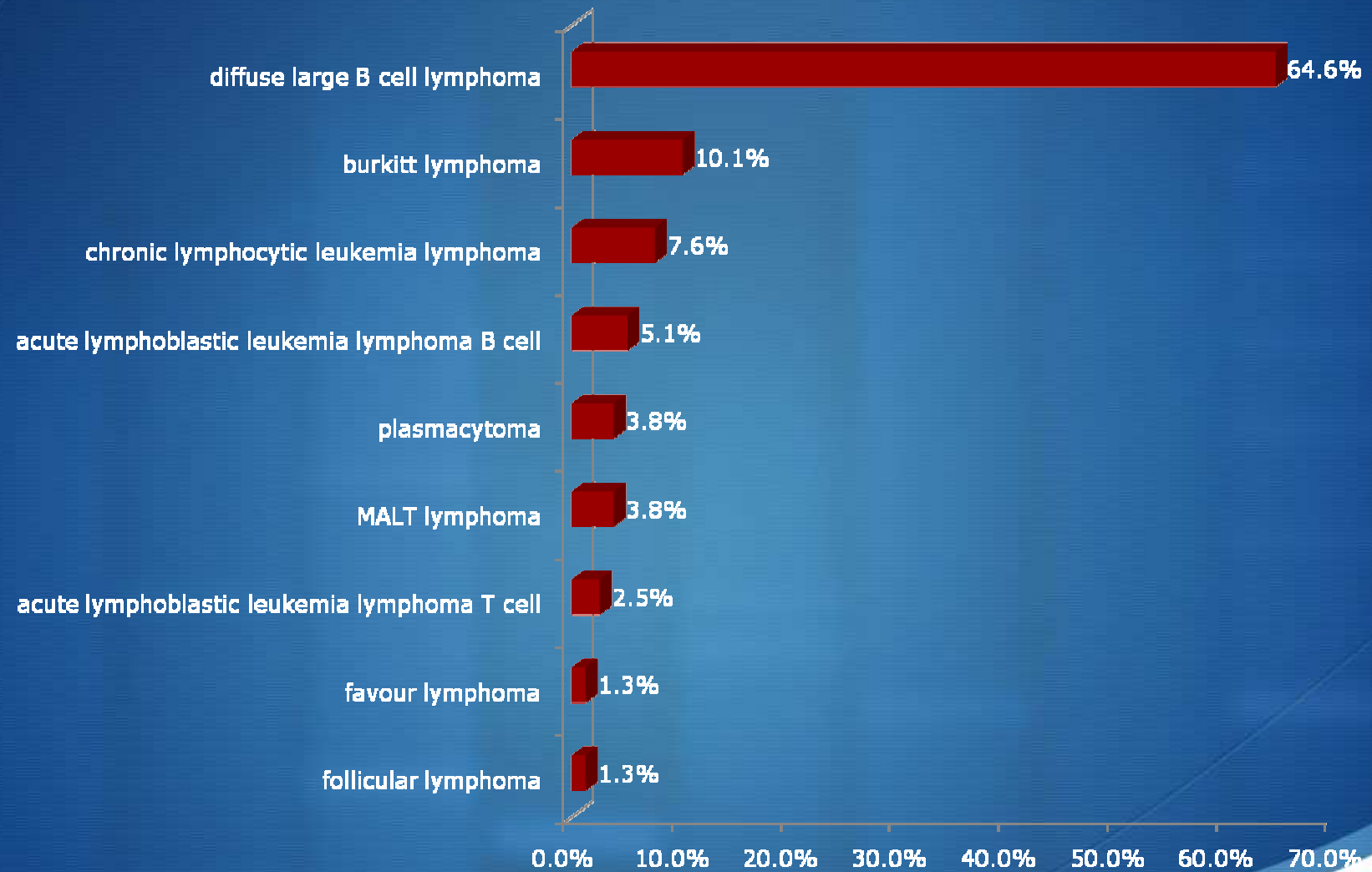
- 79 cases representing 76.7% of the studied population were Non Hodgkin lymphoma
- 22 cases representing 21.4% of the study population were diagnosed as Hodgkin lymphoma.
- 51 cases (63% of all NHL) were Diffuse large B cell lymphoma (DLBCL)
- Burkitt lymphoma ( 8 cases) representing 10.1% of all NHL cases.



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# CD 10 AND BCL 2 REACTIVITY IN DLBCL

- Of the 51 cases seen, majority (82.4%) tested positive for CD10 while 15.7% were negative for the antibody. indicating most of the DLBCL cases seen in this study were of germinal centre origin.
- Majority (80.4%) of the cases tested negative for BCL 2 protein while 17.6% of the cases tested positive for the oncoprotein.



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# Hodgkin Lymphoma

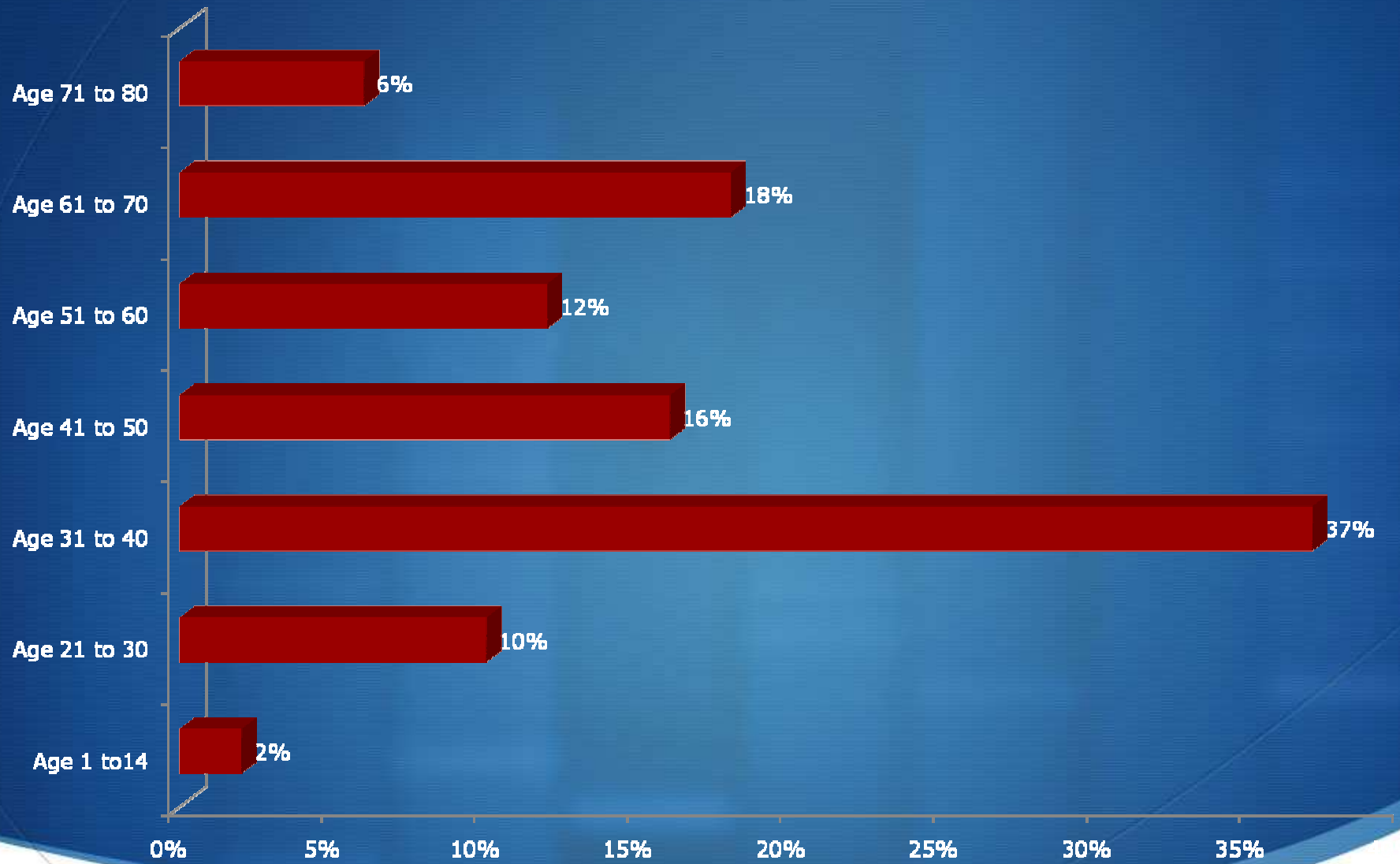
- 18.2% of the HL cases were pediatric population while 81.8% were adults.
- Of the adults, maximum number of cases (27.3%) was seen in the third decade (age group 21 – 30 years) followed by 18.2% in the sixth decade (age group 51 – 60 years).



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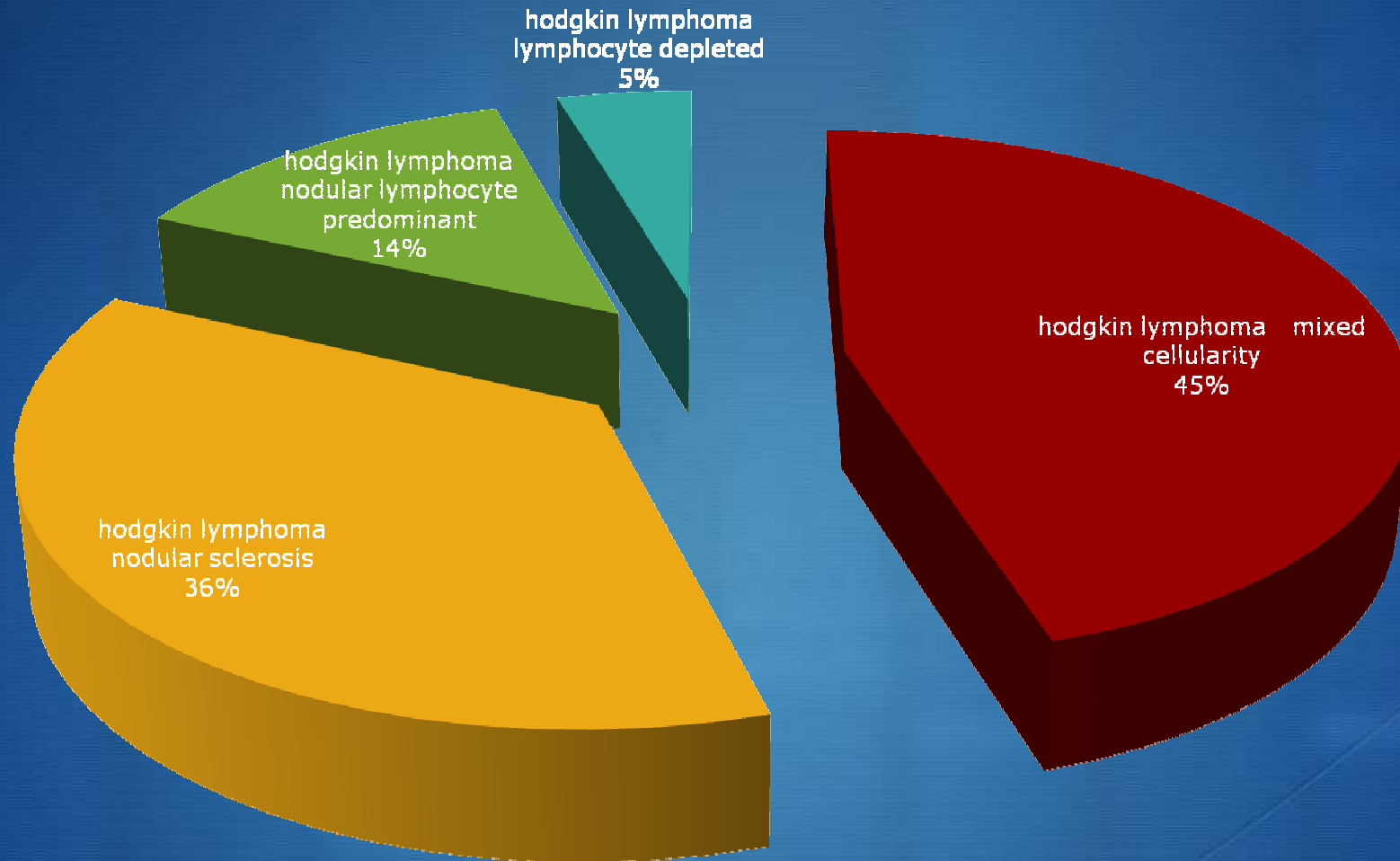


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# HL SUBTYPES



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# HL and LMP 1 expression

- Of the 22 cases of HL, 19 cases (86.4%) were classical subtypes while 3 (13.6%) were HLNLP subtype.
- All the 19 cases of classical subtype (100%) showed positivity for LMP1 Protein indicating EBV infection, while none of the 3 cases of HLNLP showed reactivity for LMP1 protein.



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# Discussion

- In this study, independent of HIV status, DLBCL was the most common lymphoma subtype accounting for 64.6% of all NHL cases and 50.5% of all lymphomas (51 cases).
- In contrast to western countries, DLBCL occurred most commonly in the fourth decade (age category 31 – 40 years) with 37% of the cases coming from this age group..



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# Discussion

- Only 8 cases were diagnosed as BL in this study. This represented 10.1 % of NHL.
- Cool et al in his study of lymphomas in Kenya in 1992 found that BL accounted for 35% of all NHL.<sup>(8)</sup>
- Mwanda et al has described BL as constituting 37-45% of all pediatric malignancies and 96% of all NHL pediatric age group in Kenya.<sup>(11)</sup>
- The main reason for such a difference is the fact that BL cases are readily diagnosed by Fine needle aspiration cytology (FNAC)



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# Discussion

- Tumwine et al in their study showed that of the 119 cases of lymphomas they investigated 95 were BL (79.8%). Of the BL cases, 97.3% were EBER positive.<sup>(9)</sup>
- While 100% of classical HL tested positive for EBV, none of HLNLP tested positive.
- Statistical difference in EBV expression was found between HL from Kenya and HL from Italy.
- EBV-positive neoplastic cells were detected in 92% of Kenyan cases, whereas only 48% of Italian cases showed EBER1/2 positivity in the neoplastic cells.



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# Conclusions

- Fragmented data, small series , selection bias, most retrospective in nature.- time for bringing together.
- Capacity Building \_ Time for another Review ??
- (?Telepathology)
- Multicentre , mutidisciplinay prospective studies with follow up data ( funding through granting agencies-write protocols together, workshops , accurate data possible)
- National Lymphoma Registry and tissue repository



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