



Childhood Cancer in Thailand

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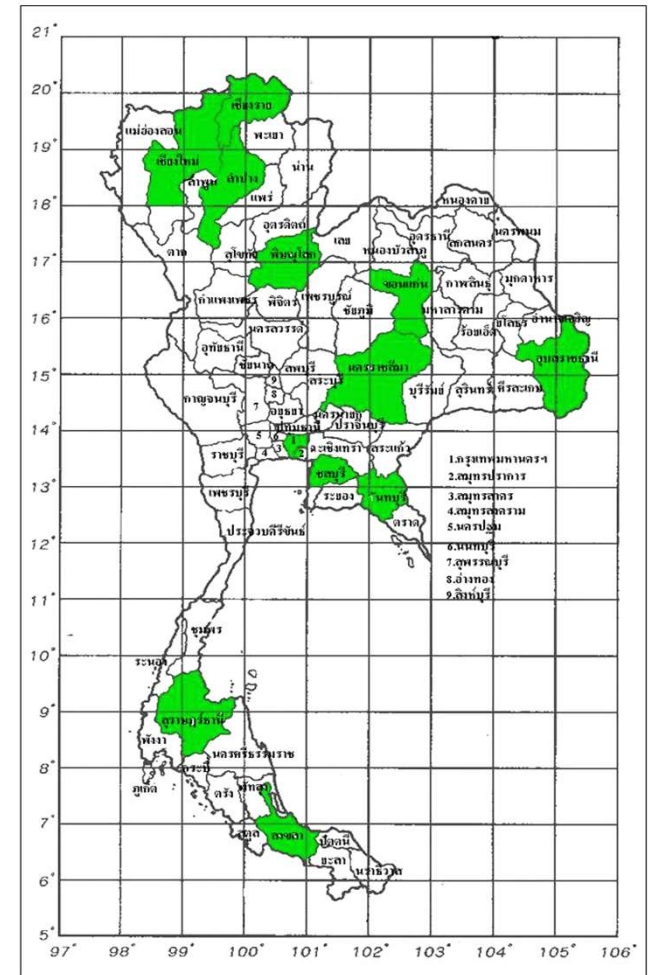
Childhood cancer registration

2543 ThaiPOG founded

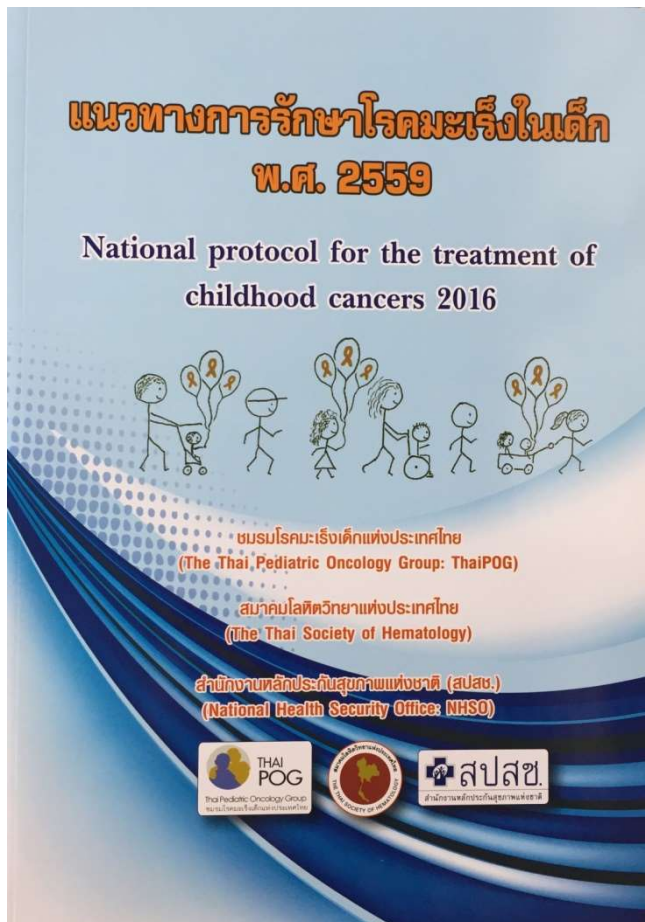
2546 First report on cancer burden

2559 Second report

- 100 Pediatric hemato-oncologists
(132, 14 ภาคเอกชน)
- 30 registries (49)
- Web-based registration



“Development” milestones

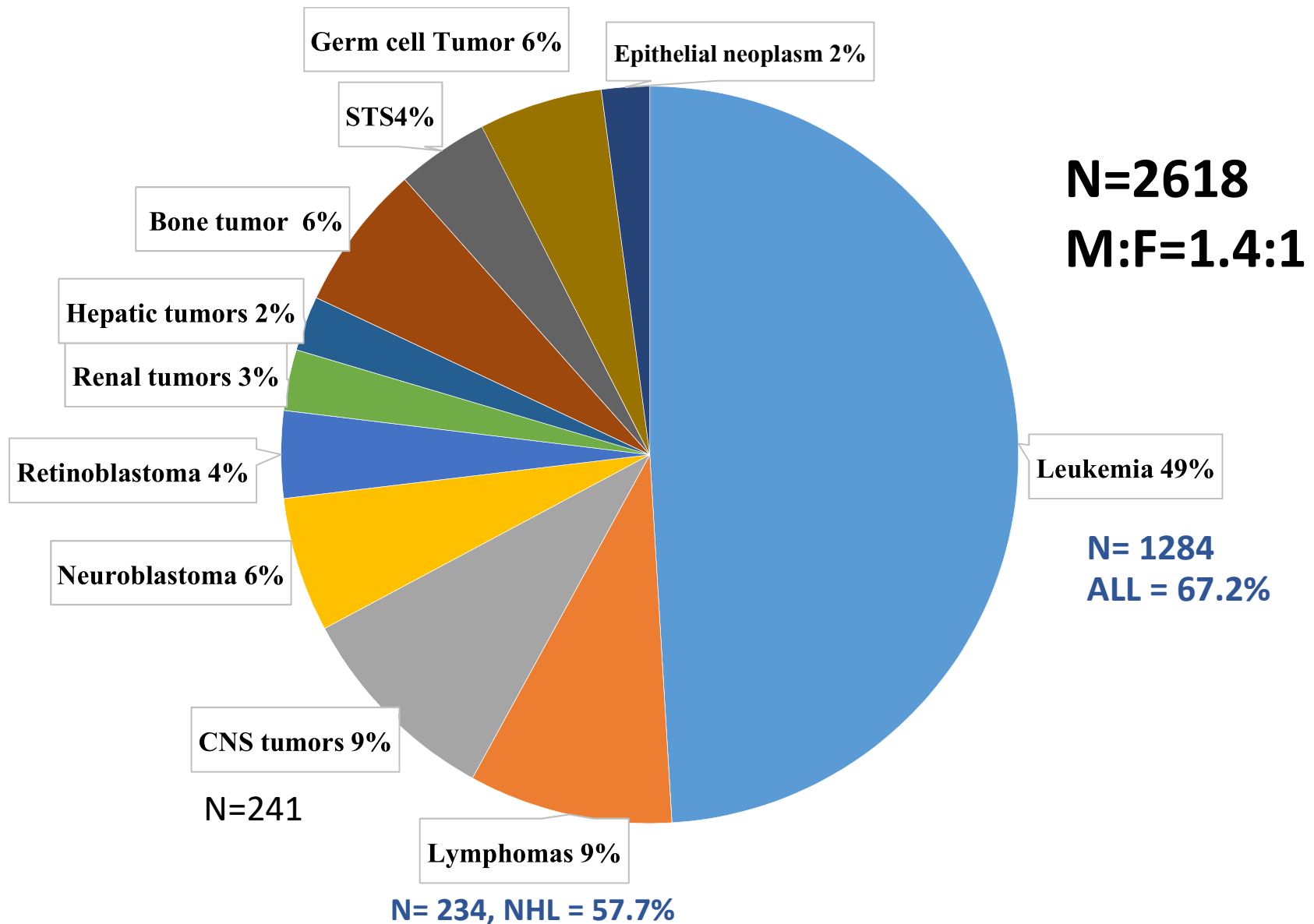


2545 Universal Coverage by National Health Security Office (NHSO)

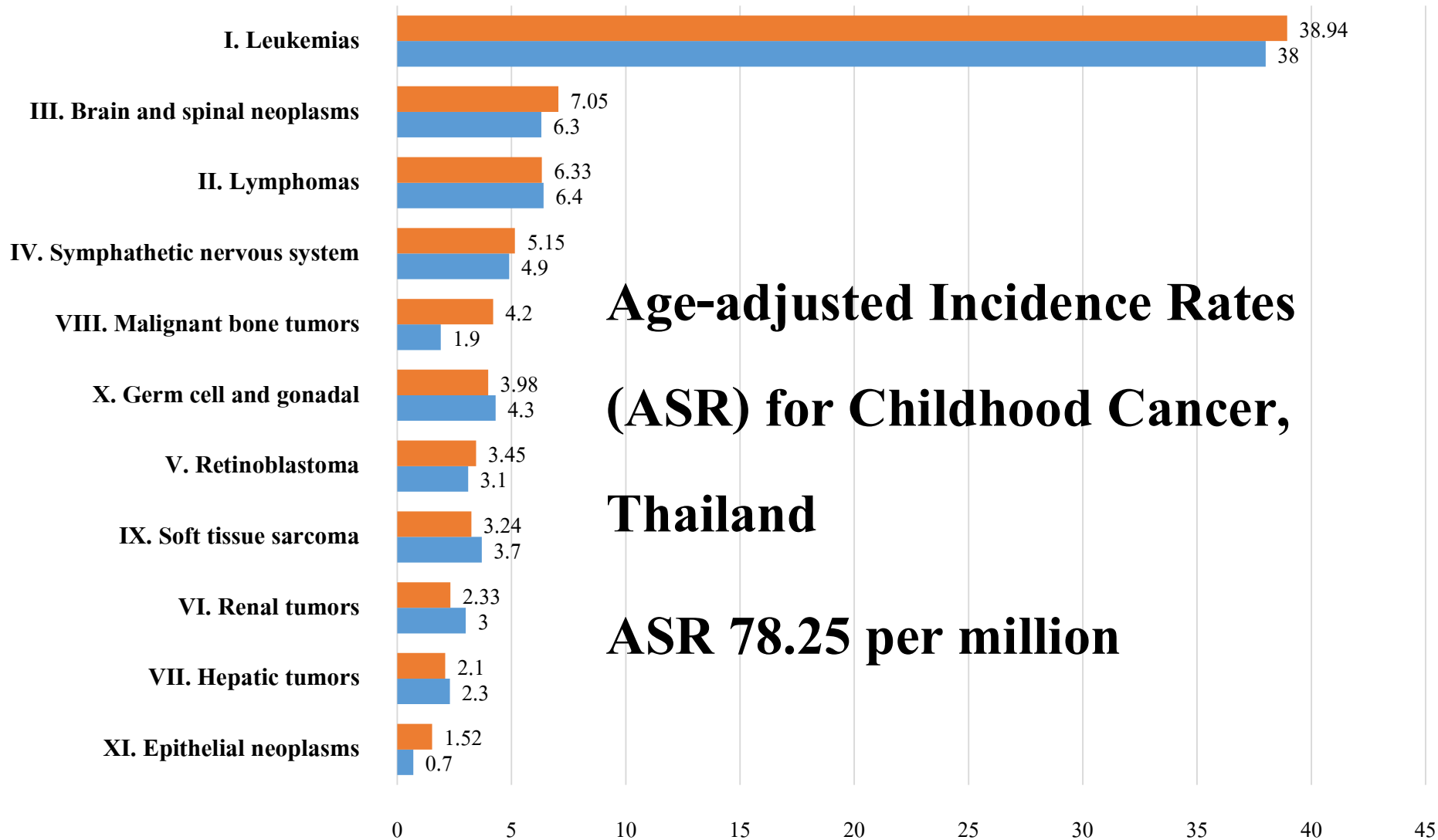
2549 Disease management for leukemia/lymphoma
: **Risk stratification, National protocol**

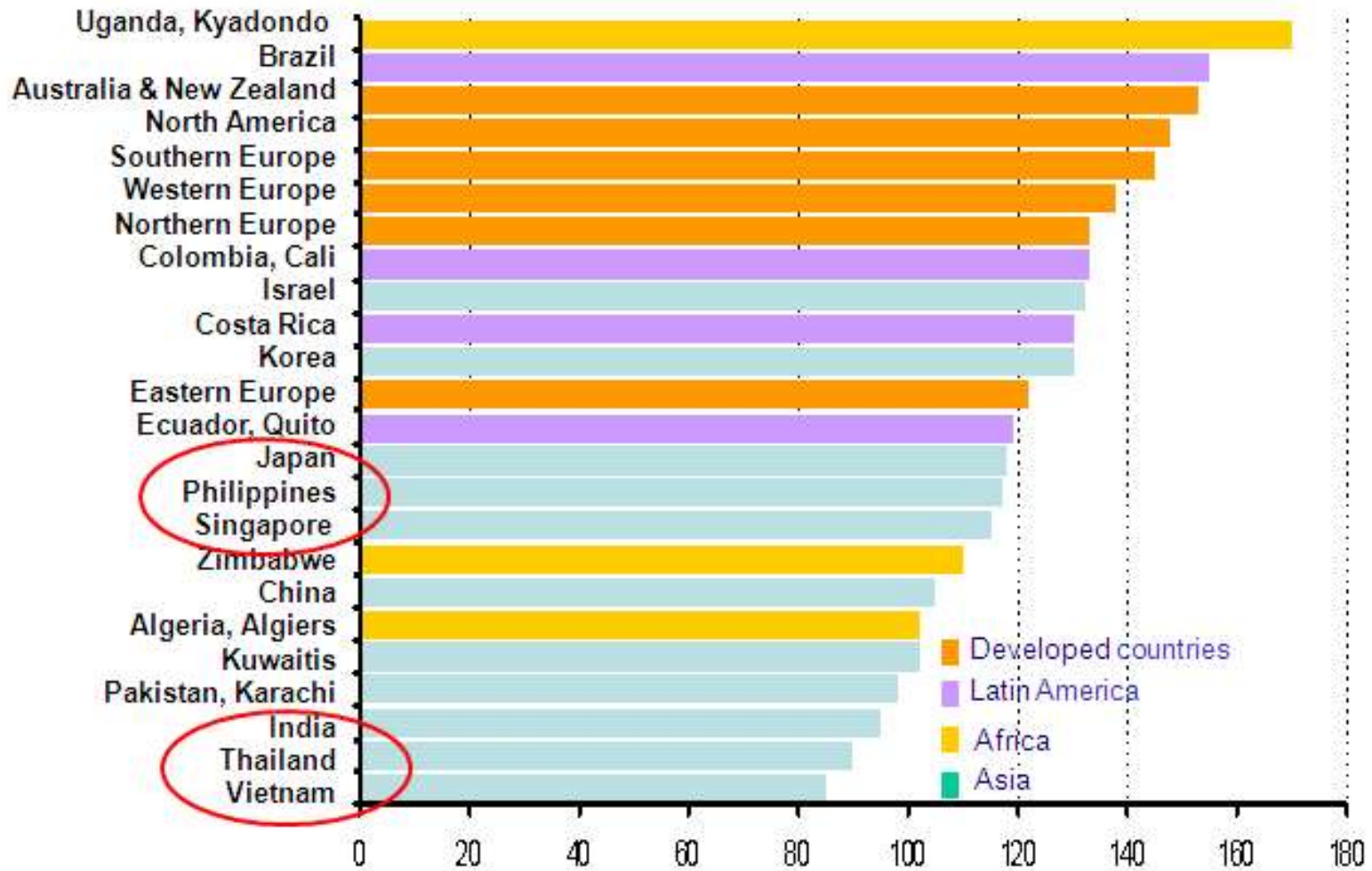
2559 National Protocol for all childhood cancers including histiocytosis

Percentage of Childhood Cancer, Age < 18, 2014-6, ThaiPOG



2014-2016 2003-2005

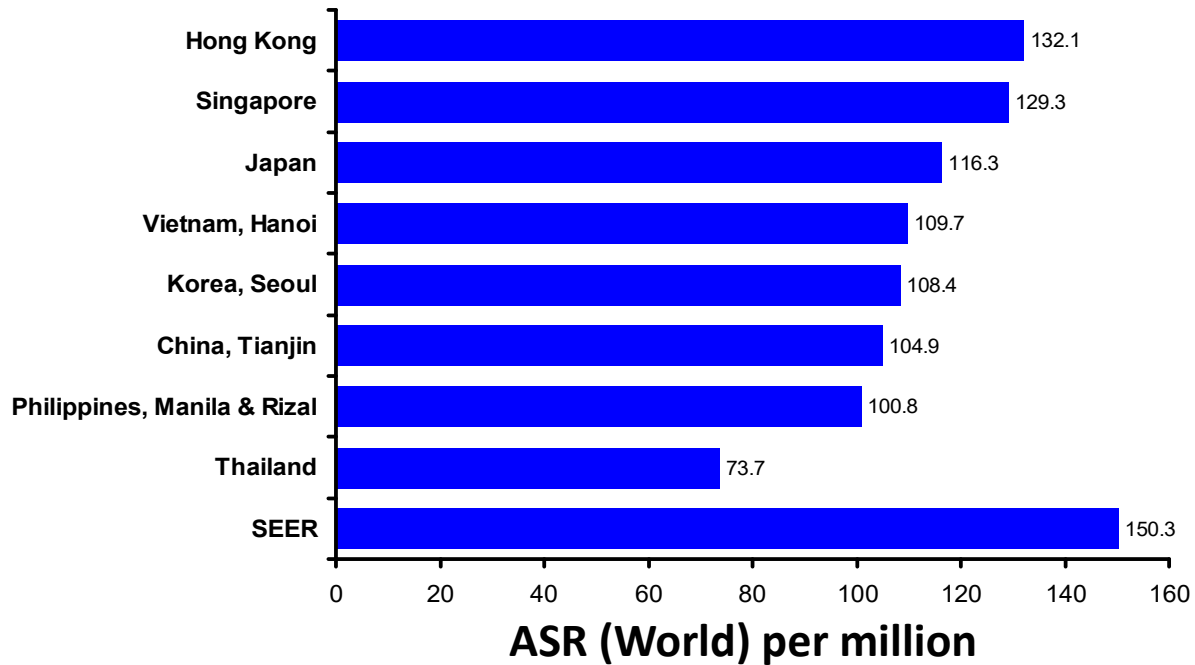




Average annual incidence rates of all cancers per million children aged 0-14 years recorded by cancer registry (CIFIC)

All cancers (0-14)

Regions



Data source: International Incidence of Childhood Cancer, IARC 1998

Number of OPD visits, 2010

Wiangnon, J Med Assoc Thai 2012

Primary diagnosis	Age group (Year)				
	Total	0-1	1-5	6-12	13-18
	Count	Count	Count	Count	Count
Total	127,597	7,846	35,604	46,725	37,422
D10-D36 Benign neoplasms	34,172	3,478	8,227	10,745	11,722
C81-C96 malignant neoplasms of lymphoid haematopoietic	23,102	337	5,387	11,049	6,329
D00-D09 In situ neoplasms	16,565	1,095	5,492	5,802	4,176
C00-C14 Lip, oral cavity and pharynx	12,525	656	4,604	4,852	2,413
D37-D48 Neoplasms of uncertain or unknown behaviour	9,903	536	2,026	3,480	3,861
C30-C39 Respiratory organs	7,970	660	3,568	2,688	1,054
C69-C72 Eye, brain and central nervous system	6,872	379	2,033	2,374	2,086
C76-C80 malignant neoplasms of ill-defined, and unspecified sites	4,319	141	1,070	1,874	1,234

Number of admissions by primary diagnosis and hospital level

Wiangnon J Med Assoc Thai 2012

Primary diagnosis	Hospital level				
	Total N	Primary N	Secondary N	Tertiary N	Private N
Total	19,159	817	1,633	16,504	205
C81-C96 malignant neoplasms of lymphoid haematopoietic	9,167	307	463	8,368	29
D10-D36 Benign neoplasms	2,743	172	531	1,944	96
C69-C72 Eye, brain and central nervous system	1,484	51	81	1,343	9
D37-D48 Neoplasms of uncertain or unknown behaviour	1,300	113	298	860	29
C40-C41 Bone and articular cartilage	1,106	39	41	1,014	12
C73-C75 Thyroid and other endocrine glands	927	18	37	870	2
C45-C49 Mesothelial and soft tissue	559	12	37	509	1
C51-C58 Female genital organs	400	10	15	363	12
C15-C26 Digestive organs	360	29	30	296	5
C64-C68 Urinary tract	359	10	32	317	0
C30-C39 Respiratory and intrathoracic organs	229	10	7	212	0

Payment schema

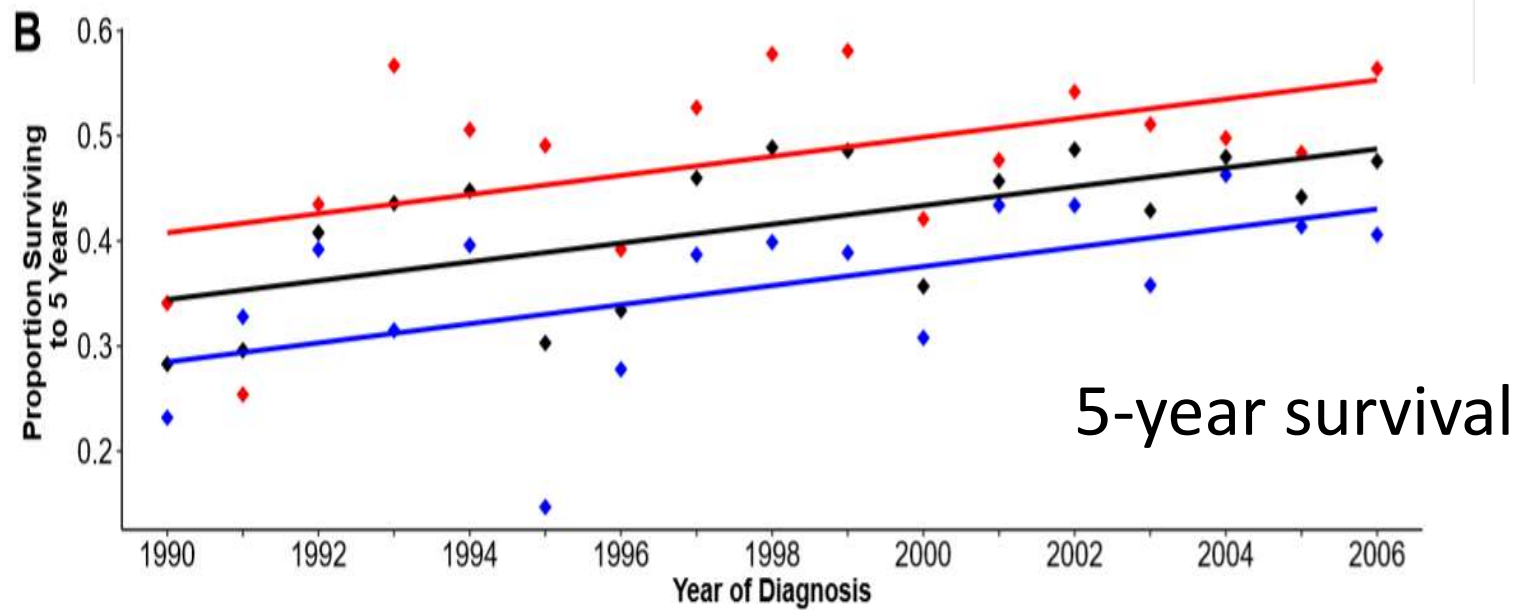
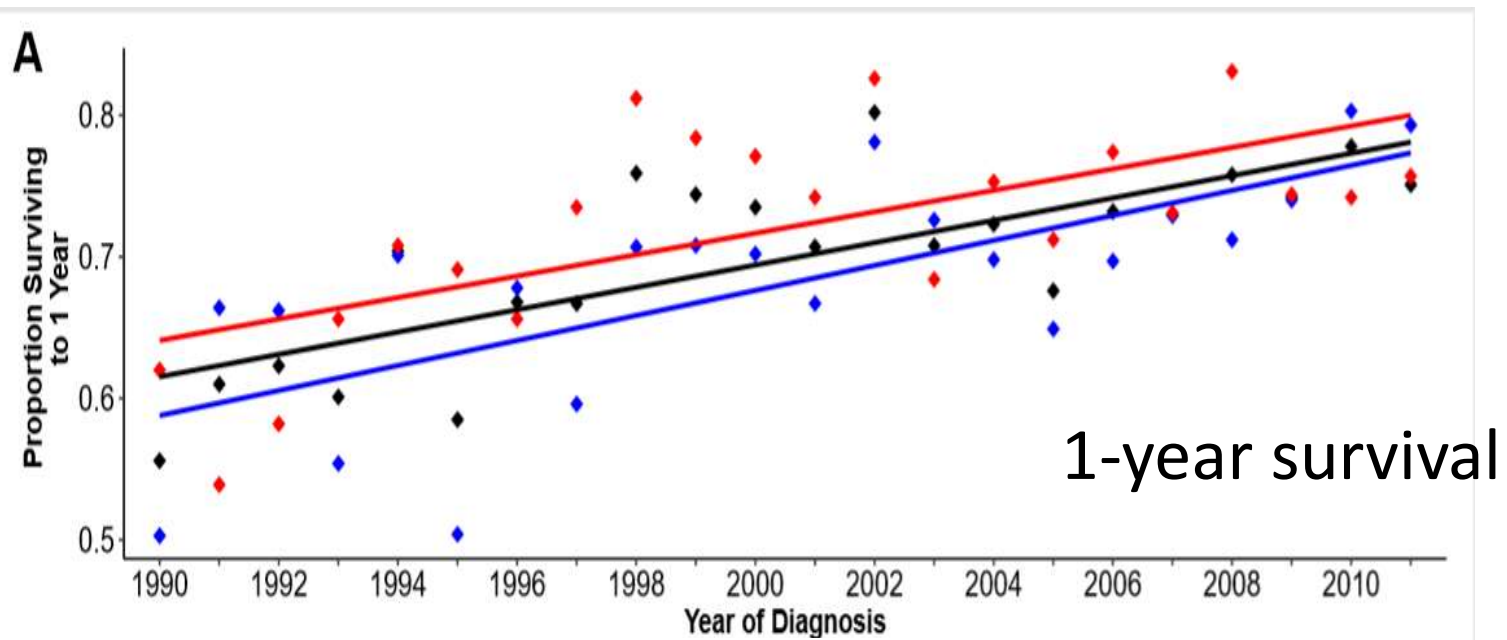
Payment scheme	Percent
Universal (30-baht policy)	92
Official service	6
Self payment	2

Registry data quality by descriptive factors

	Cases	(%)	%MV	%DCO
Registry				
Chiang Mai	1,080	30.2	87.1	2.7
Khon Kaen	970	27.1	84.4	3.8
Lampang	435	12.2	86.2	4.6
Songkhla	845	23.6	89.9	3.9
Surat Thani	244	6.8	75.4	12.7
Decade of Diagnosis				
1990-2000	1,645	46.0	85.5	4.8
2001-2011	1,929	54.0	86.7	3.7
ICCC Group				
Leukemias	1,245	34.8	98.6	1.4
Lymphomas	402	11.2	99.8	0.2
Brain and Spinal Neoplasms	440	12.3	58.0	6.8
Neuroblastomas	96	2.7	99.0	0.0
Retinoblastomas	76	2.1	98.7	0.0
Renal Tumors	94	2.6	81.9	1.1
Hepatic Tumors	78	2.2	48.7	9.0
Malignant Bone Tumors	190	5.3	91.6	3.7
Soft Tissue Sarcomas	178	5.0	100.0	0.0
Gonadal and Germ Cell Neoplasms	248	6.9	93.1	0.0
Malignant Epithelial Neoplasms	307	8.6	99.7	0.0
Other and Unspecified Neoplasms	220	6.1	0.1	39.1
All Registries, 1990-2011	3,574	100.0	86.1	4.2

Annual Percent Change (CPS) in Incidence by ICCC Group and Sex

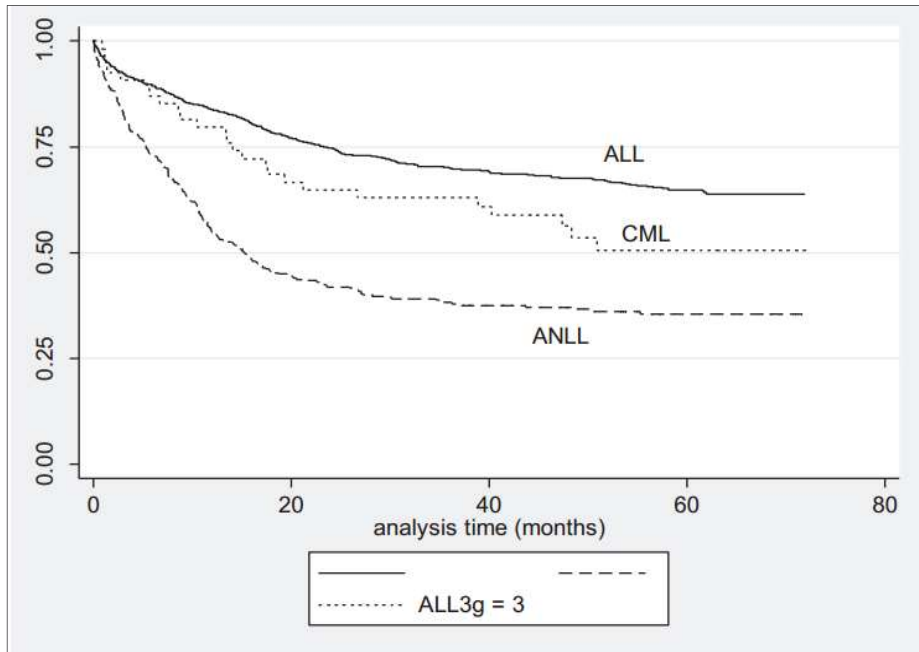
ICCC Group	Overall	By Sex	
		Males	Females
I. LEUKEMIA	1.5* (0.5, 2.5)	1.6* (0.3, 3.0)	1.4* (0.1, 2.7)
II. LYMPHOMA	1.4 (-0.1, 2.9)	1.5 (-0.3, 3.3)	1.1 (-1.4, 3.7)
III. BRAIN & SPINAL NEOPLASMS	0.6 (-1.1, 2.3)	1.2 (-0.7, 3.4)	0.2 (-2.5, 3.0)
IV. NEUROBLASTOMA	0.1 (-2.8, 3.0)	-1.8 (-6.9, 3.5)	0.4 (-2.2, 3.1)
V. RETINOBLASTOMA	0.5 (-2.9, 4.0)	4.4 (-1.1, 10.2)	-2.2 (-6.5, 2.3)
VI. RENAL TUMORS	2.5 (-2.0, 7.2)	2.0 (-2.7, 6.9)	2.8 (-2.3, 8.1)
VII. HEPATIC TUMORS	-1.6 (-5.2, 2.0)	0.4 (-4.4, 5.5)	-2.4 (-7.6, 3.1)
VIII. MALIGNANT BONE TUMORS	0.7 (-1.7, 3.1)	-0.5 (-4.0, 3.2)	1.4 (-2.6, 5.7)
IX. SOFT TISSUE SARCOMAS	1.2 (-0.7, 3.1)	-0.2 (-3.4, 3.2)	1.6 (-2.3, 5.7)
X. GONADAL & GERM CELL NEOPLASMS	2.4* (0.1, 4.9)	5.3* (1.3, 9.6)	1.1 (-1.3, 3.7)
XI. CARCINOMAS & EPITHELIAL NEOPLASMS	1.9 (-0.1, 3.9)	1.8 (-1.6, 5.3)	1.8 (-0.9, 4.5)
XII. OTHER & UNSPECIFIED NEOPLASMS	0.6 (-1.9, 3.2)	0.8 (-2.7, 4.4)	-0.8 (-3.8, 2.3)
All Cancer Groups * p < 0.05	1.2 (0.8, 1.7)	1990-1999: -1.0 (-2.9, 0.9) 1999-2003: 6.0 (-3.8, 16.7) 2003-2007: -2.1 (-10.6, 7.3) 2007-2011: 8.0* (0.6, 15.9)	1.0 (0.3, 1.7)



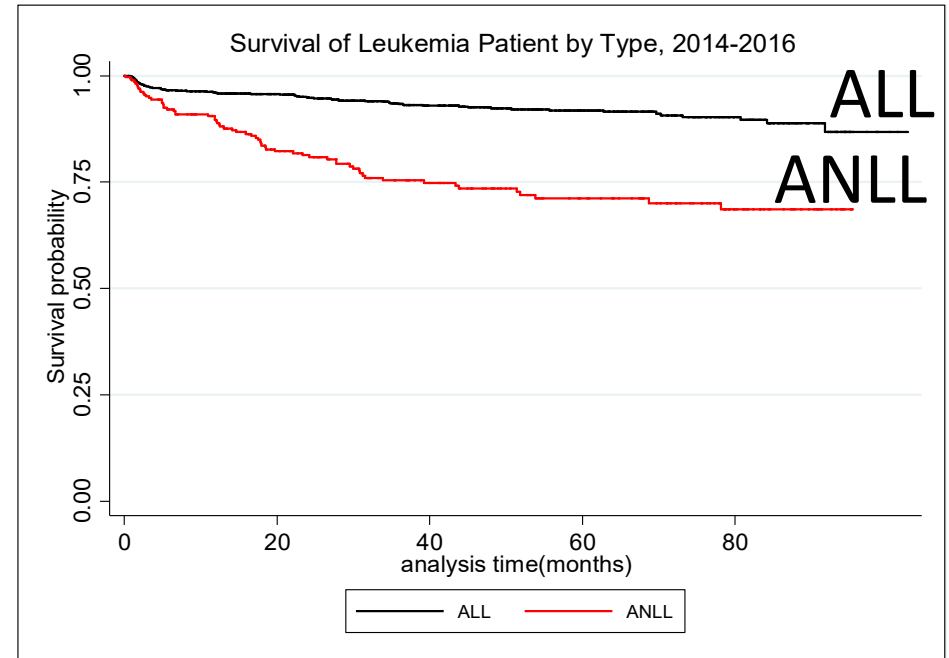
◆ All 1990–2006 Beta=0.0092 ◆ Male 1990–2006 Beta=0.0107 * ◆ Female 1990–2006 Beta=0.0089 *

Overall survival for children with leukemia, Thailand

2003-5 vs. 2014-6

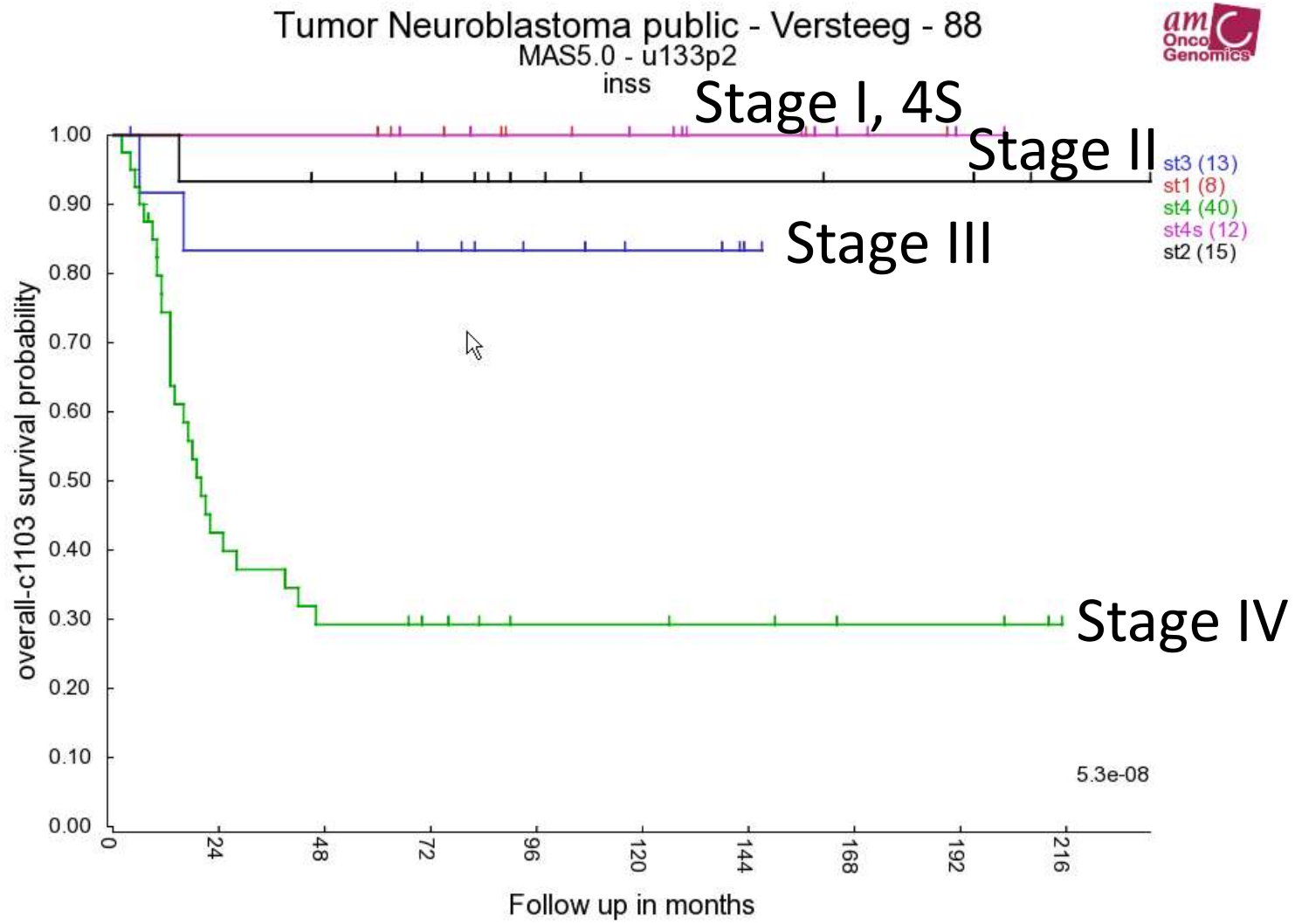


2003-5



2014-2016

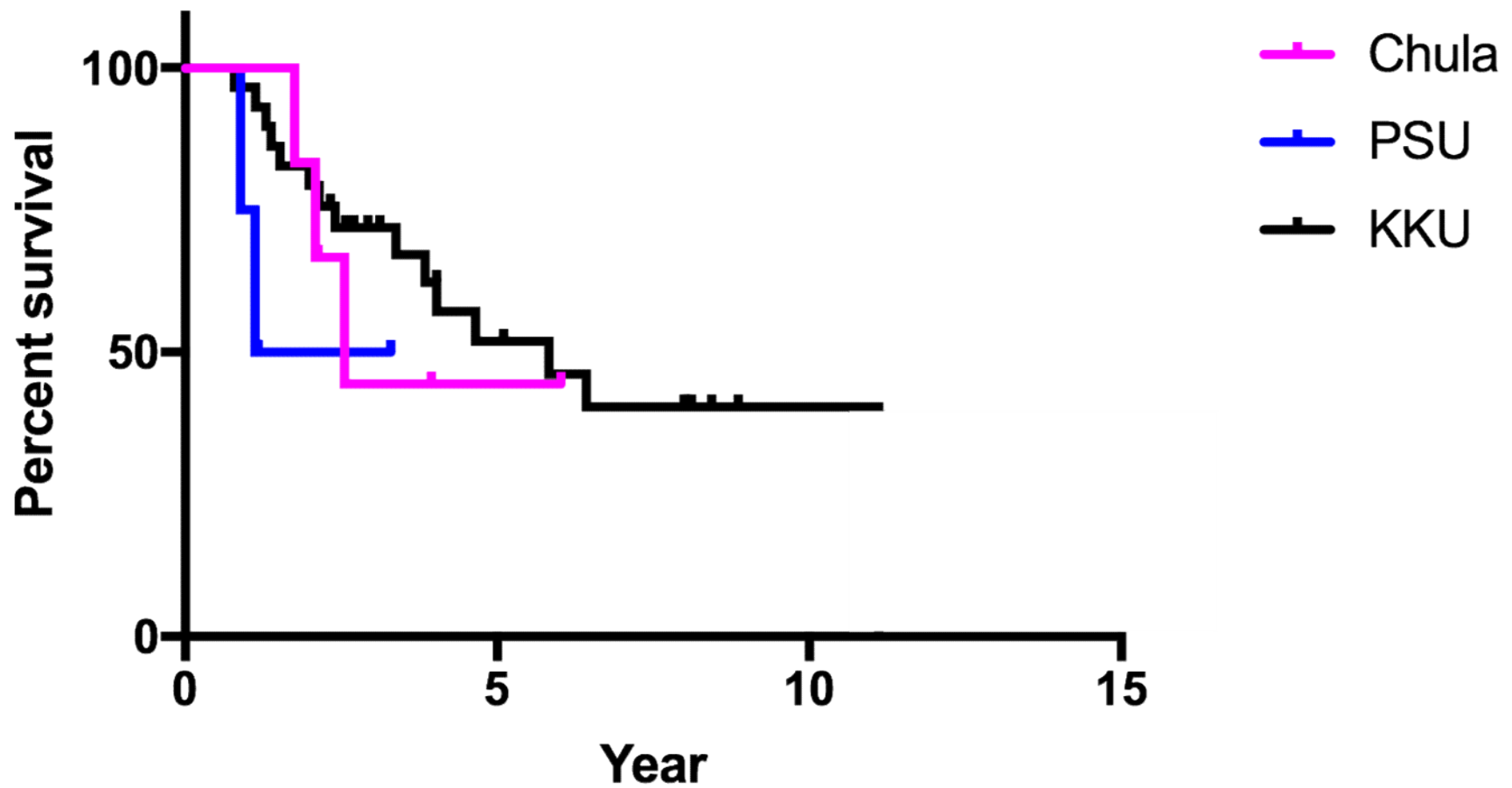
Neuroblastoma survival



chi=39.58 df=4 p=5.3e-08
Logrank test as described in Bewick et al Critical Care Vol8 No5 2004, pp.389-94.

High risk Neuroblastoma

HR-NB with AutoBMT



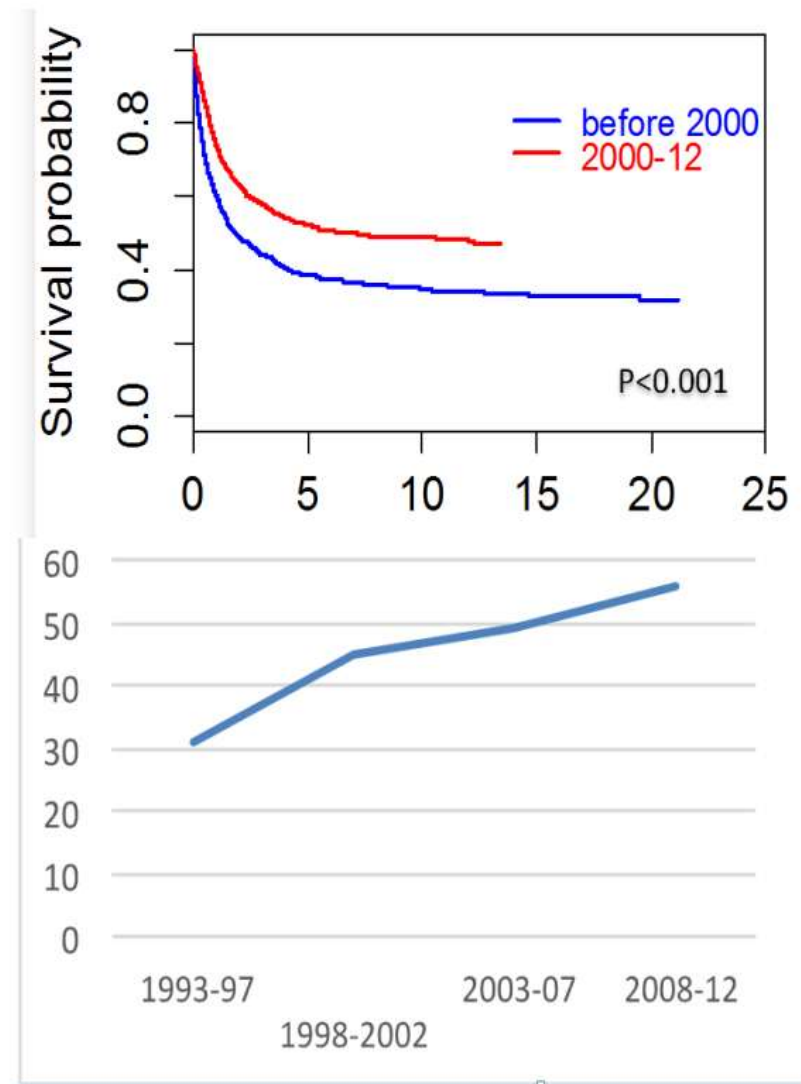
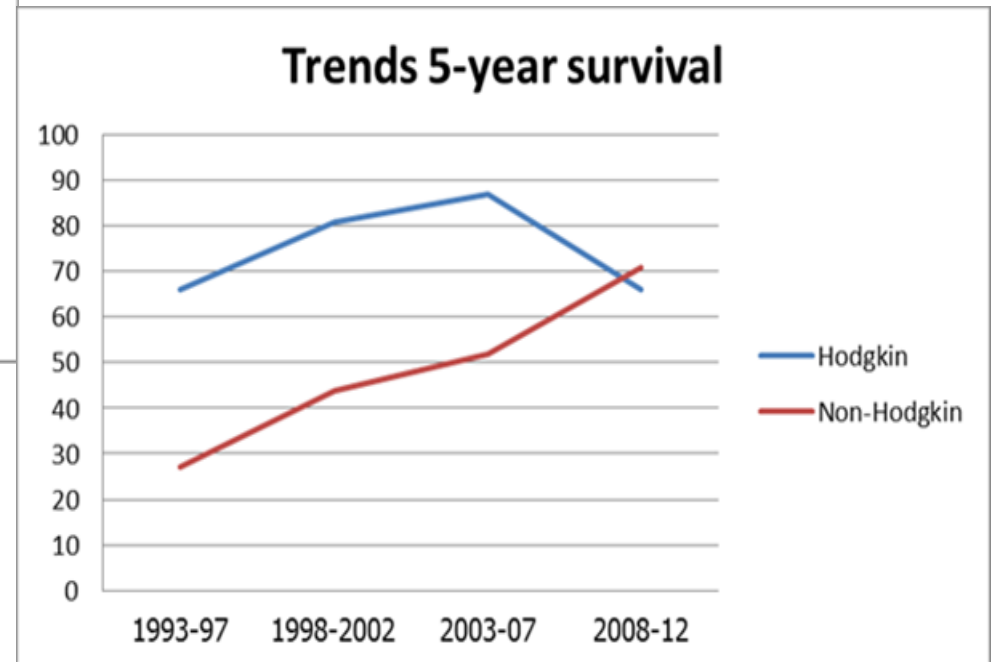
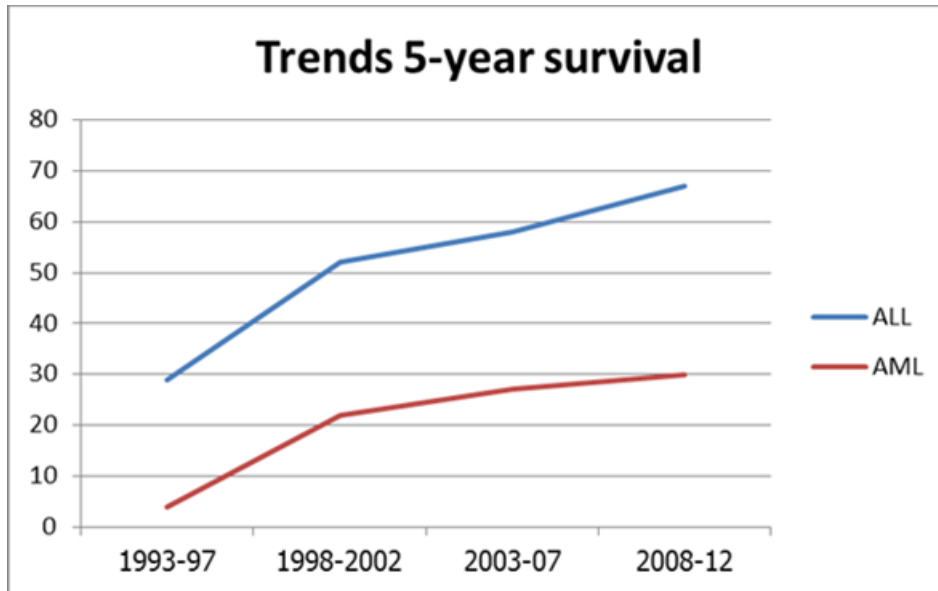


Figure 1. Survival and Trend of Childhood Cancers for Both Sexes between 1993 and 2012, Srinagarind Hospital, Khon Kaen, Thailand

Trends of survival in leukemia and lymphoma in Srinagarind Hospital, 1993-2012



Wongmeerit APJCP 2016

Phunnipit Wongmeerit et al

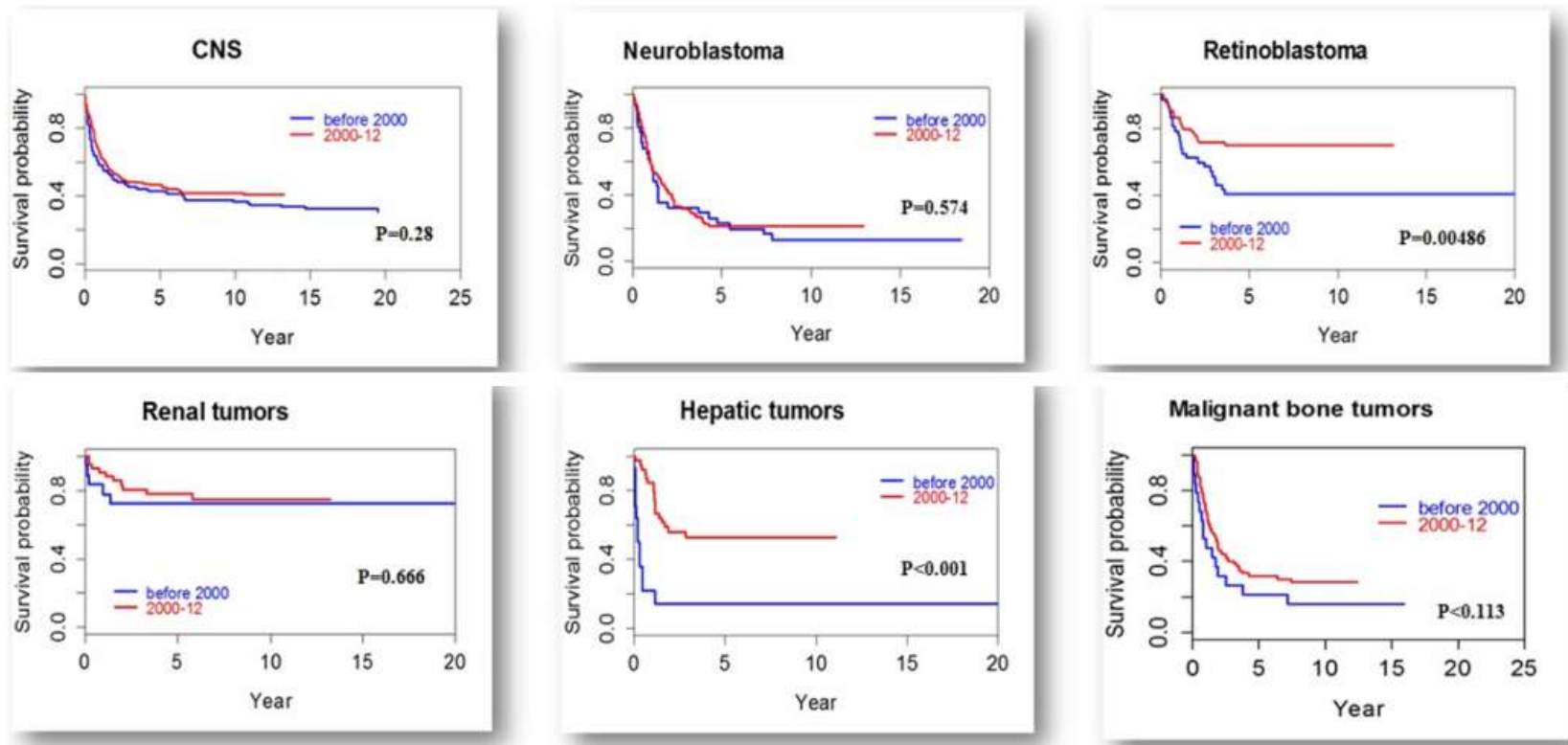


Figure 4. Survival of Children with solid tumors before and after 2000, Srinagarind Hospital, Khon Kaen, Thailand

Acknowledgements



