Stem cell transplantation Sheikha Badryia Center - Kuwait

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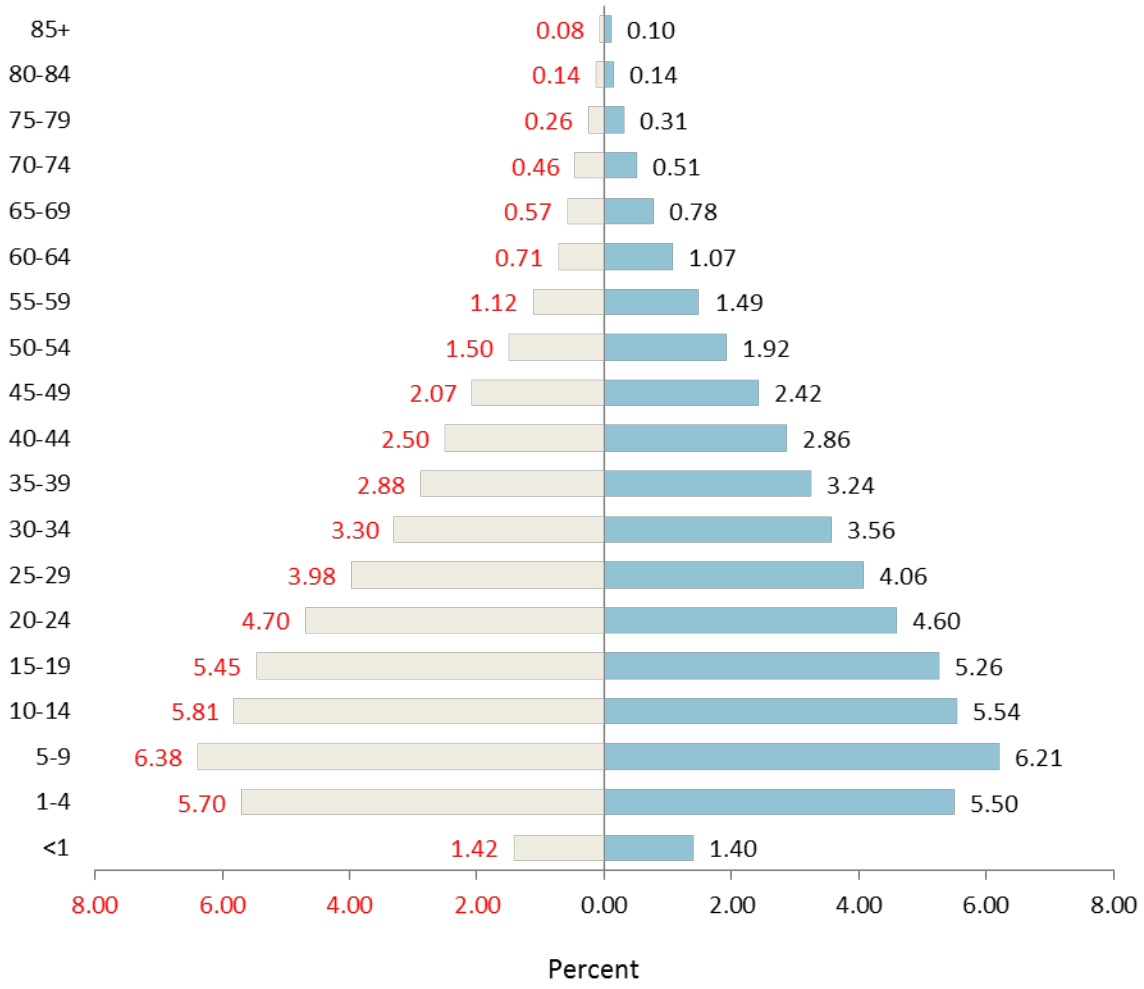
Population Pyramid (Kuwaiti) 2011



The mid-year population of Kuwait in 2011 reached 3,632,009 individuals.

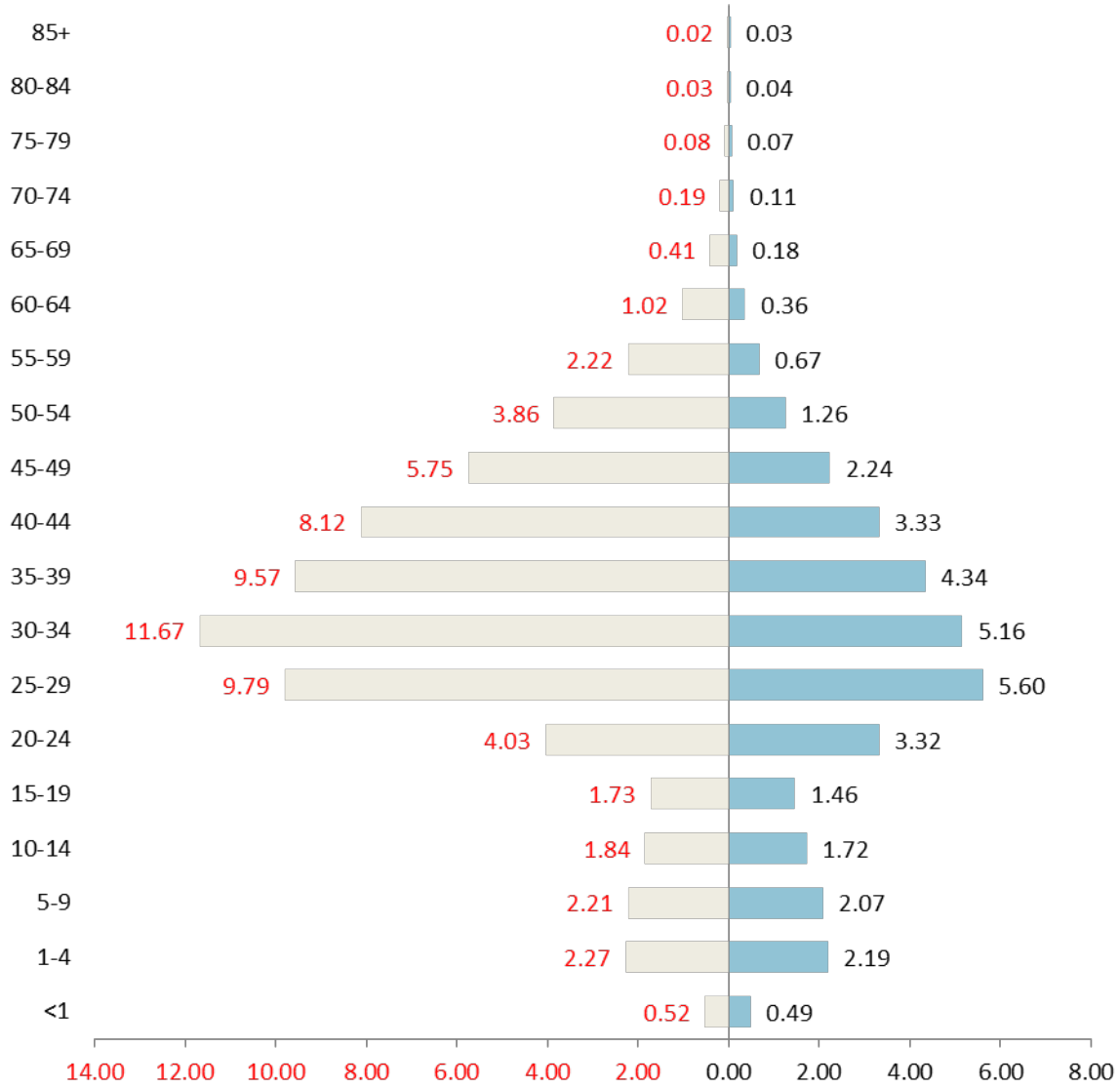
Males counted for 60.1% and females 39.9% with male to female ratio 1.5:1.

Kuwaiti population totaled 1,164,448 (32.1%). Males represented 571,079 (15.7%) while females represented 593,369 (16.3%).

Male to female ratio was 1:1

Cancer Registry data

Population Pyramid (Non-Kuwaiti) 2011



Non Kuwaitis represented 2,467,561 (67.9%) individuals

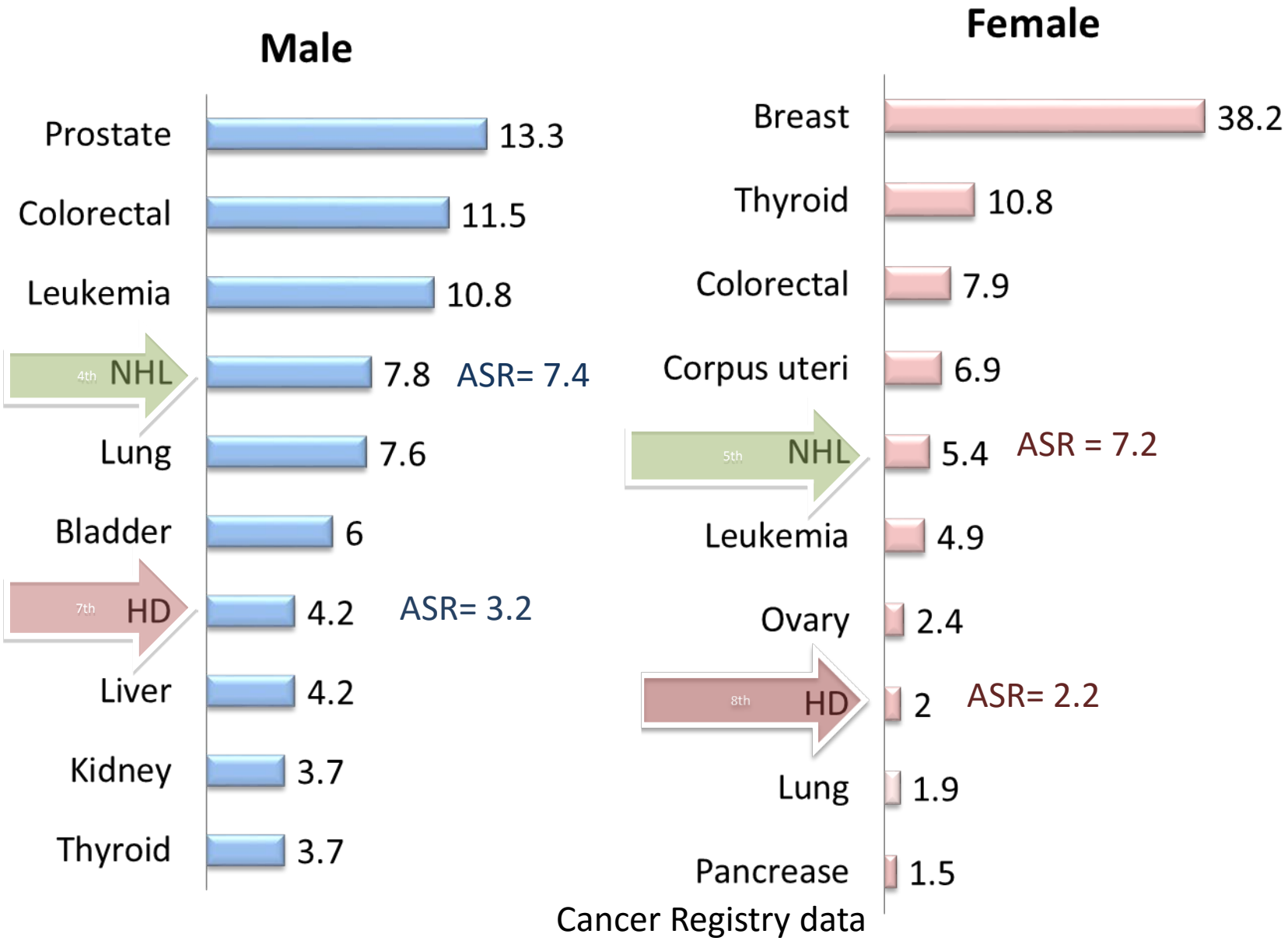
Males were 1,612,590 (44.5%) while females totaled 854,971 (23.5%).

Male to female ratio was 2: 1.

Cancer Registry data

The 10 most commonly diagnosed cancers, Kuwait, 2011 (Kuwaiti)

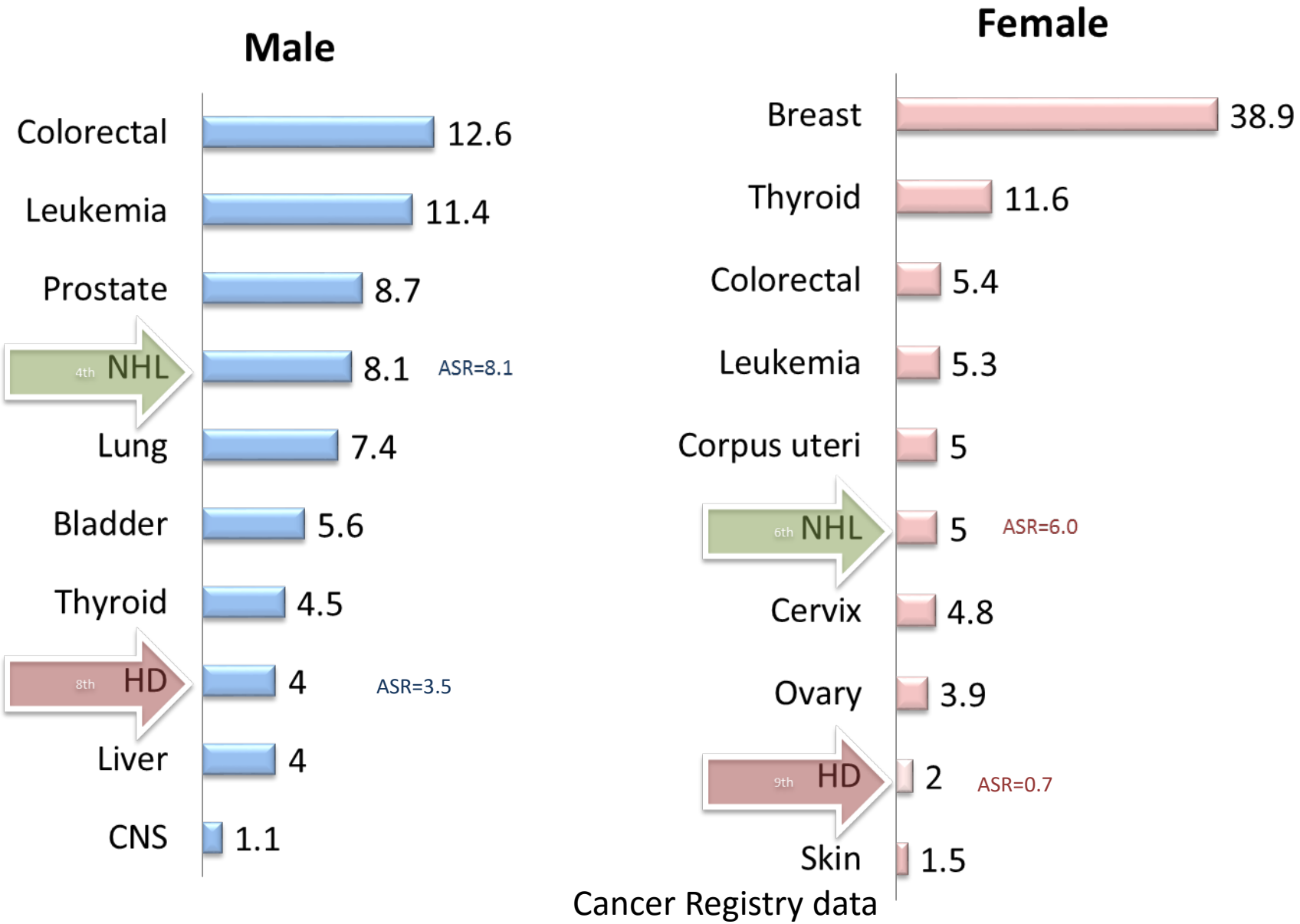
ASR = Age Standardized Incidence Rate / 100,000



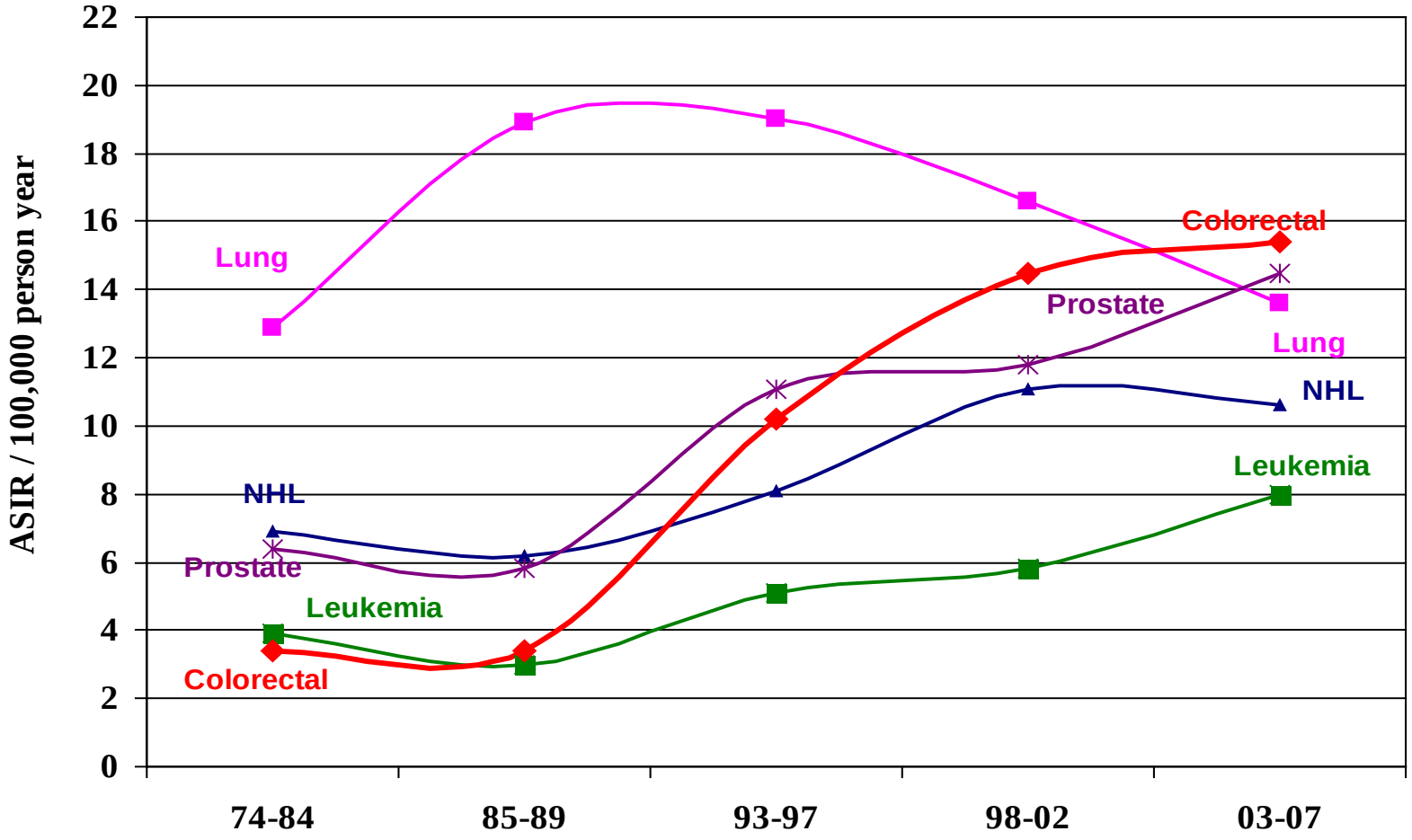
Cancer Registry data

Table 5: The 10 most commonly diagnosed cancers, Kuwait, 2011 (Non-Kuwaiti)

ASR = Age Standardized Incidence Rate / 100,000

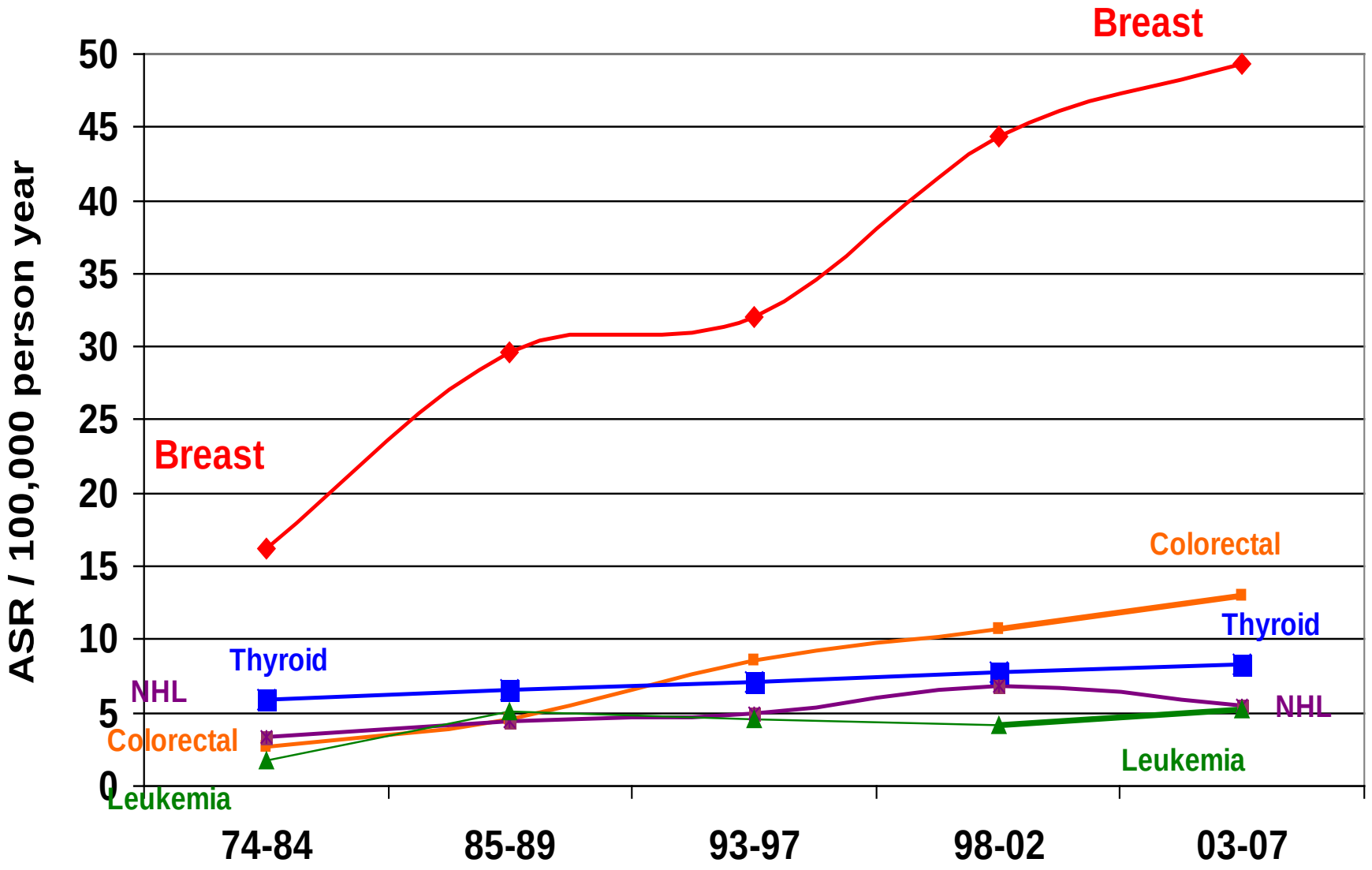


Cancer Registry data



Time Trend of Age Standardized Incidence Rates For the Five Most Common Cancer Sites - Kuwaiti Males, 1974-2007

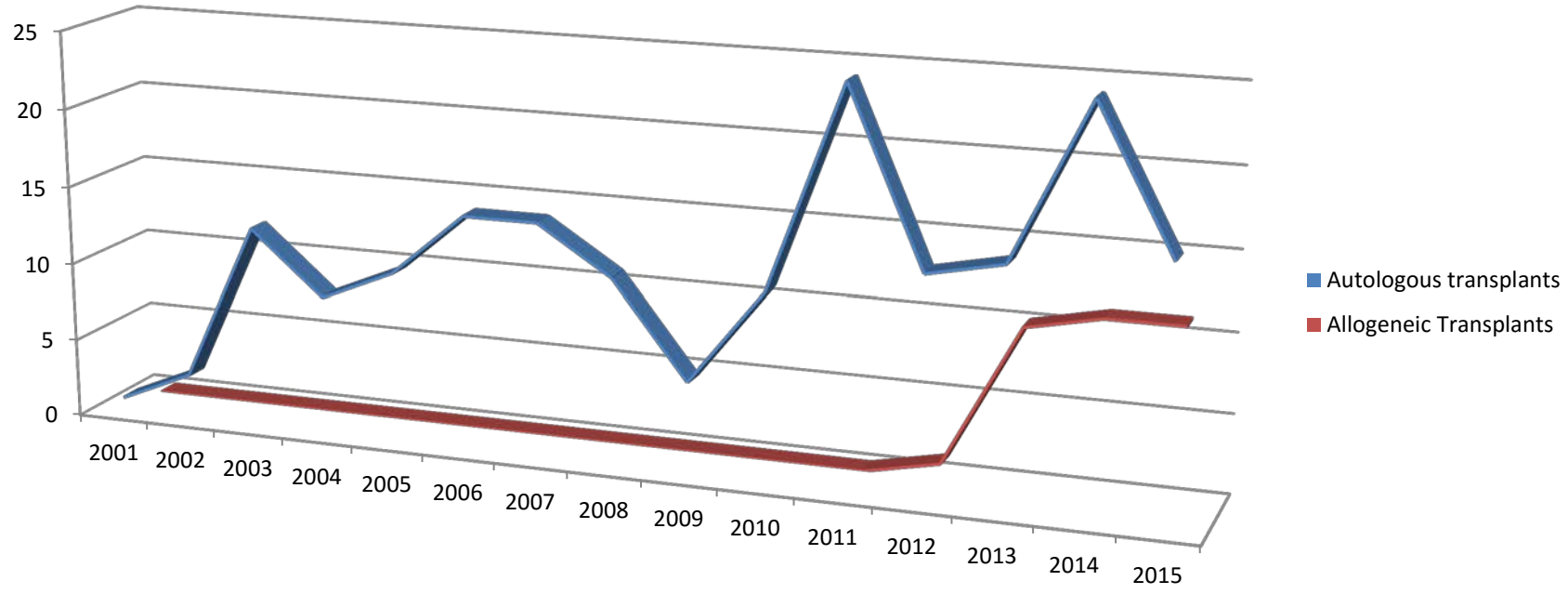
Cancer Registry data



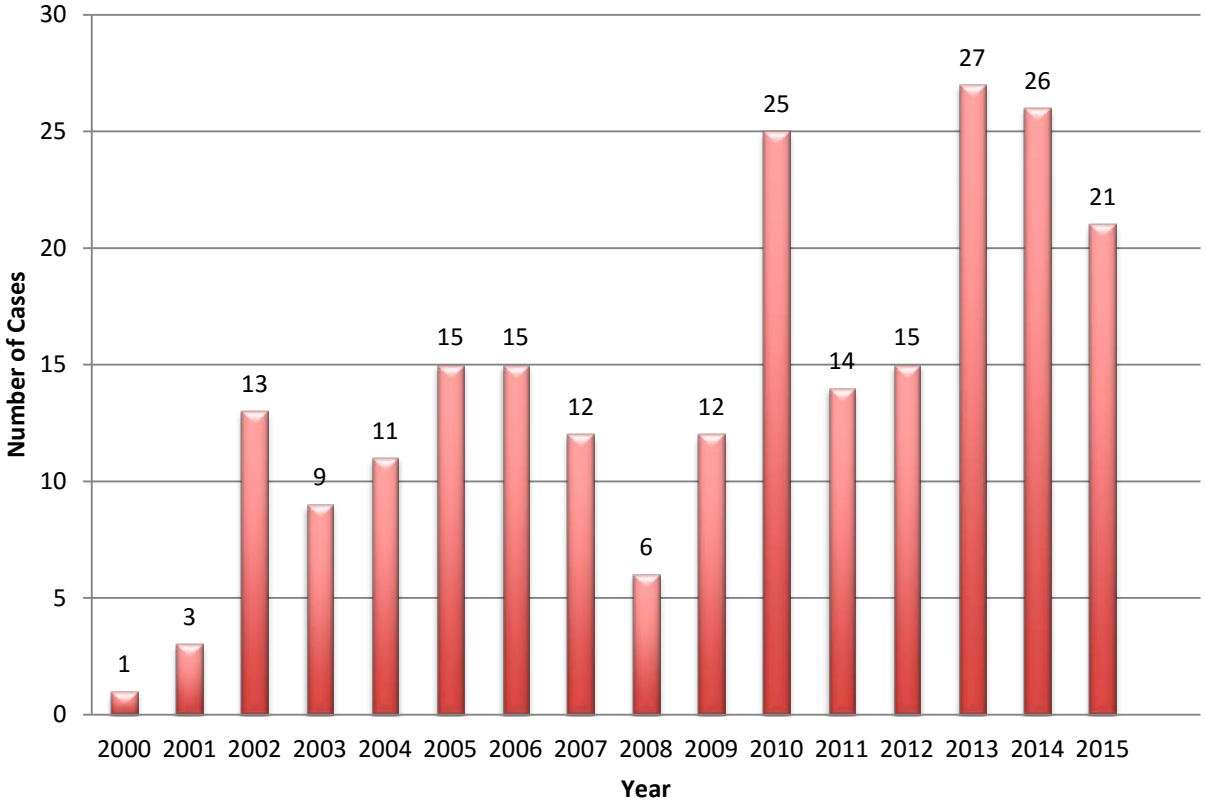
Time Trend of Age Standardized Incidence Rates for the Five Most Common Cancer Sites - Kuwaiti Females, 1974-2007

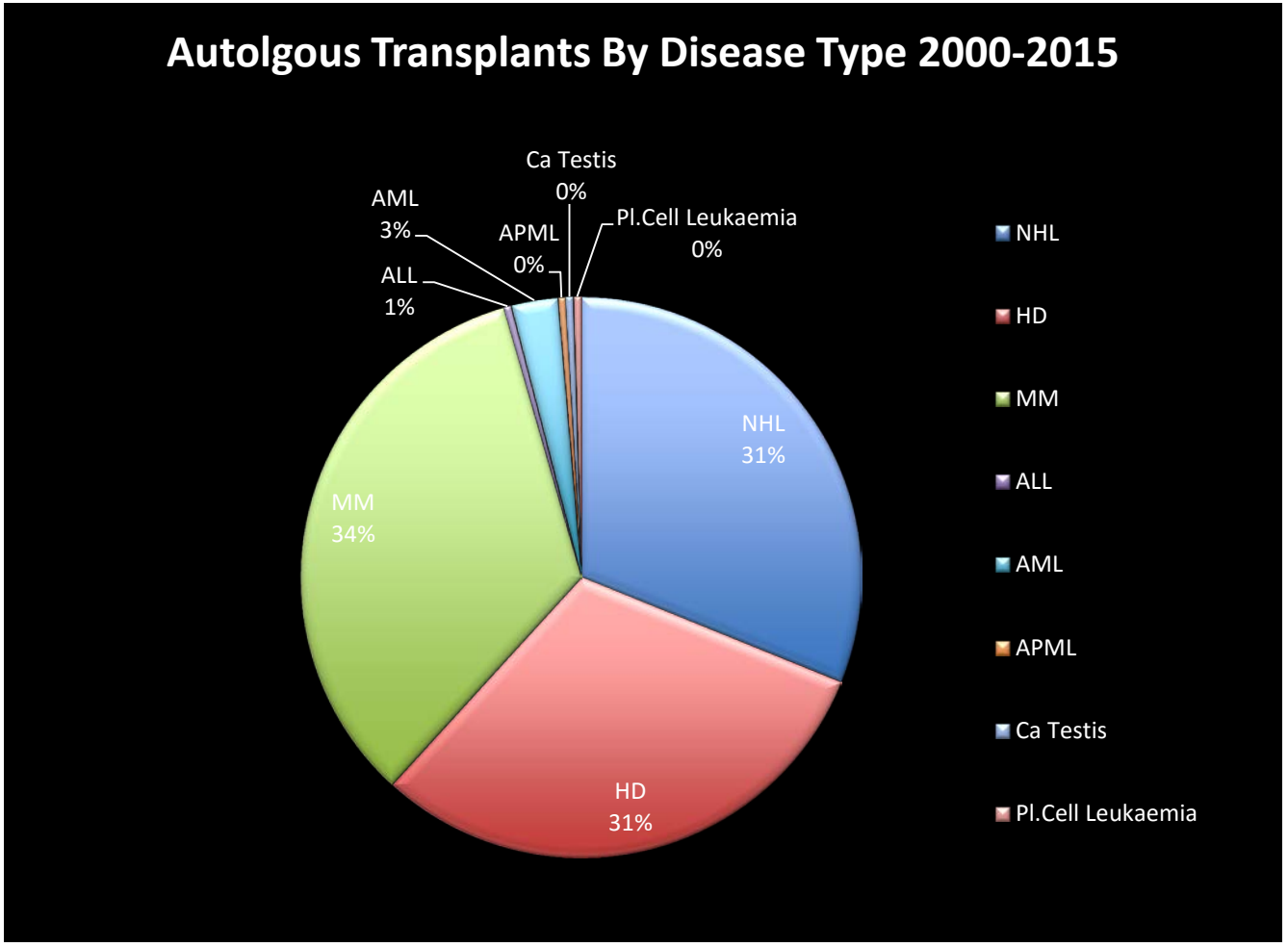
Cancer Registry data

Transplant activity at SBH

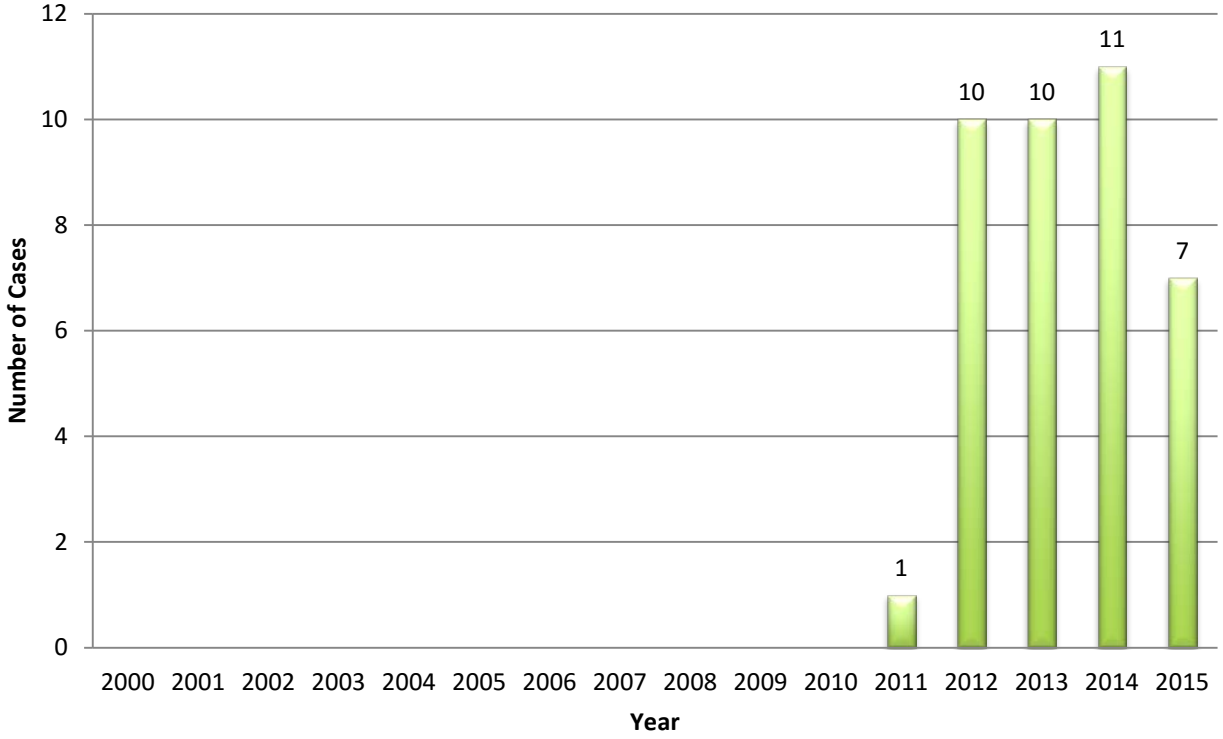


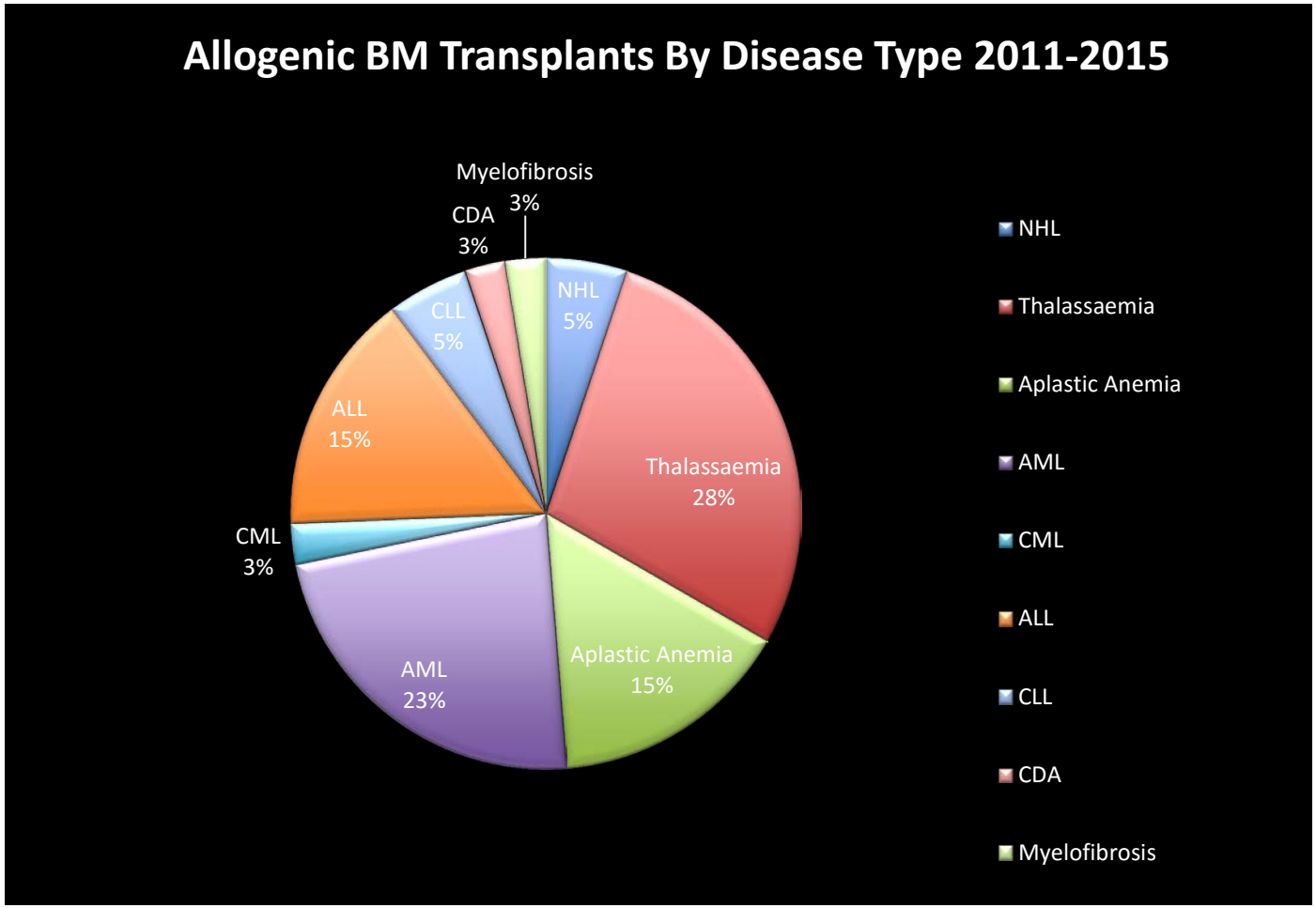
Autologous Haematopoietic Stem Cell Transplants Per Year 2000-2015



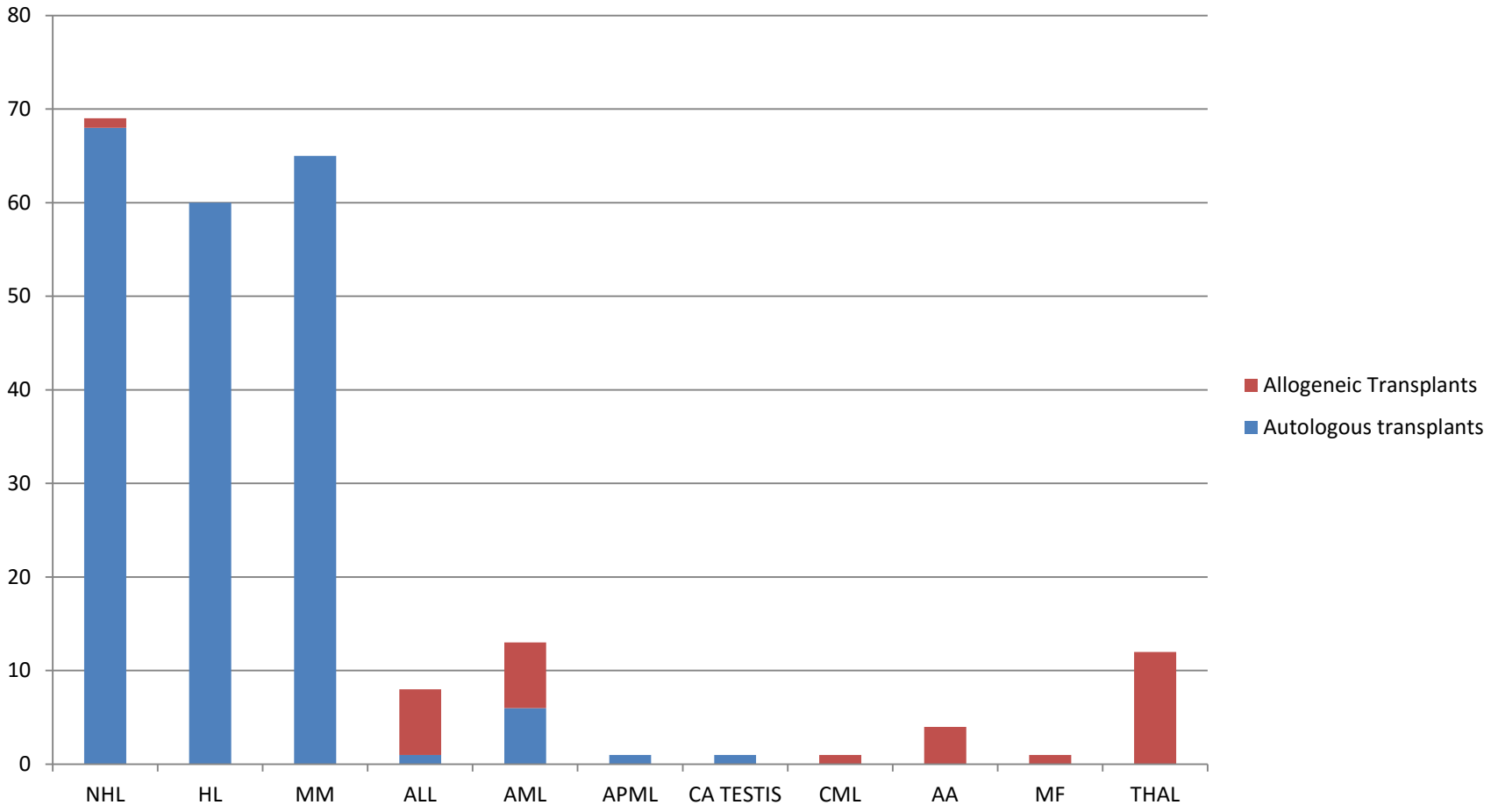

Autolgous Transplants By Disease Type 2000-2015
Ca Testis 0%
AML 3%
APML 0%
Pl.Cell Leukaemia 0%
ALL 1%
NHL 31%
MM 34%
HD 31%
NHL
HD
MM
ALL
AML
APML
Ca Testis
Pl.Cell Leukaemia

Allogenic Bone Marrow Transplants Per Year 2000-2015




Allogenic BM Transplants By Disease Type 2011-2015
Myelofibrosis 3%
CDA 3%
NHL 5%
CLL 5%
ALL 15%
Thalassaemia 28%
CML 3%
AML 23%
Aplastic Anemia 15%
NHL
Thalassaemia
Aplastic Anemia
AML
CML
ALL
CLL
CDA
Myelofibrosis

Indications for Hematopiotic stem cell transplants in SBH



Characteristics of patients undergoing autologous stem cell transplantation

No.	202
Median age (range) years	42 (12-61)
Sex	
Male	81 (67.5%)
Female	39 (32.5%)
Nationality	
Kuwaiti	22 (18.3%)
Non-Kuwaiti	98 (81.7%)
Non-Hodgkin's lymphoma	**68 (33.7%)**
Low-grade non-Hodgkin's lymphoma	39 (57.4%)
Diffuse large B-cell lymphoma	29 (42.6%)
Hodgkin's disease	**60 (30.7%)**
Multiple myeloma	**65 (32.2%)**

Stem Cell Mobilization and collection

- The source of Stem Cell in all autologous transplant cases was peripheral blood.
- The source of Stem cell is bone marrow for patients with benign hematological disorders, and peripheral blood in patients with hematological malignancy.

Conditioning Regimens in autologous transplants

- BEAM
- BEAC
- CEAM
- Zevalin – BEAM (one patient)
- Recently LACE
- Melphalan

Conditioning regimens in allogeneic ransplants

- Hematologic malignancies : Bu/Cy
- Aplastic anemia : Flu/Cy/ATG
- Thalassemia : Bu/Cy ± thiotepa

Stem Cell dose

- Stem cell viability after thawing ranged average 72%
- The cells infused were:

- TNC $10.47 \pm 7.31 \times 10^8$ /kg
- MNC $4.87 \pm 6.30 \times 10^8$/kg
- CD34+ $3.92 \pm 3.64 \times 10^6$/kg
- CFU $1328.77 \pm 1094 \times 10^4$/kg

Engraftment

- The mean time for engraftment was 12 days (range 9-14) in Non-Hodgkin's Lymphomas, 11 days (range 9-15 days) in Hodgkin' Lymphomas, 12 days (range 9-14 days) in Multiple Myeloma
- The mean time for platelet transfusion independence was 11 days.
- Transfusion support: a mean of 2 units packed red blood cells and 4 units of platelets concentrates

Allogeneic stem cell transplantation

- 48 consecutive patients with malignant and non-malignant hematological disorders**.**
- Unmanipulated bone marrow / peripheral blood stem cells from an HLA-identical sibling donor**, one patient was haploidentical brother.**
- The age limit for β-thalassemia major was 20 years, for aplastic anemia was 40 years, and for myelodysplastic syndrome (MDS), acute leukemias, chronic myeloid leukemia (CML), and lymphomas, was 55 years.
- Patients with β-thalassemia major are categorized into risk classes I, II, and III on the basis of Pesaro group risk classification.

Patient, disease, donor, and transplantation characteristics

Characteristic	Median N	(range) %
Age, y	34	(3 – 52)
Male	20	60.6
Positive CMV IgG	32	96.9
Underlying diagnosis		
Non-malignancies§	16	78.8
Acute leukemia†	14	42.4
Chronic myeloid leukemia*	1	3
Other malignancies‡	2	6

TRANSPLANTAION

Transplantation		
GVHD prophylaxis		
Cyclosporin + methotrexate + MMP	10	47.6
Cyclosporin + methotrexate	22	47.6
Cyclosporin + methotrexate + MP	1	4.67
Conditioning		
Bu + Cy	10	47.6
Bu + Cy + Thiotepa	8	38.1
Bu + Cy + ATG	2	9.5
Cy + Fludarabin + ATG	1	4.67
Cell dose		
NC, 10^8/kg	3.52	(0.651 – 7.56)
CD34, 10^6/kg	4.45	(1.47 – 11.9)
Neutrophil engraftment	D+13	(D+13 – D+27
Platelet engraftment	D+18	(D+12 – D+45)
Acute GVHD		
Grade I – II	13	39.4
Grade III – IV	4	12.1
Chronic GVHD	9	27.3

Research Interest

- Outcome studies
- Immune reconstitution
- Collaboration with NMDP
- Infectious complications

Conclusions

- The autologous bone marrow transplant program is well established.
- The allogeneic bone marrow transplant program is in the evolutionary stages.
- Haplo BMT looks very promising and preclude the need CB Banks