OVERVIEW OF PAEDIATRIC SURGICAL ONCOLOGY SERVICES IN KENYA

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KENYA PAEDIATRIC ASSOCIATION ANNUAL SCIENTIFIC CONFERENCE ELDORET - APRIL 2016

Kenyan Population

- 2009 – 38,610,097 (Census)
- 2015 – 46,445,079
  - 42.2 %: < 15 years
  - 55.1%: 16-64 years
  - 2.7%: ≥ 65 years
- Doctors
- Consultants
- Consultant Surgeons
- Paediatric Surgeons- 12

  (Nairobi-7, Eldoret-2, Coast -1, Kijabe-1 , Kisumu-1)

Kenya Healthcare Delivery System

NB – Public – 60-70%

- Private – 30-40%

Level 1 – Community
Level 2 – Dispensaries
Level 3 – Health centers
Level 4 – County Hospital & Sub-County Hospitals
Level 5 – County Referral Hospitals
Level 6 – National Referral Hospitals

Bed availability
Government 48% private sector 35% FBO 15% NGO 2%

Kenya Health Sector Financing

- 2014-2015 budget
  Health – 47.4 billion (4.5 % of national budget)
- Per-capita allocation to health is < 33 USD
- Abuja Declaration (2001) – 15 % of budget
  (2011) - NOT on track
- NHIF- Primary provider of health insurance
  - 35 % population covered
- Underfunded and relies heavily on out pocket payments
- 50 % of the population live below the poverty line (< 1.25 USD / day)

Organized Treatment Sites for childhood cancer

- Kenyatta National Hospital (KNH)
- Moi Teaching and Referral Hospital (MTRH)
- Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH)

Cancer Epidemiology in children

- World wide with incidence of 1-2.5 per 1000 children
- Relatively constant though the world particularly the developing is experiencing epidemic proportions
- Childhood cancer may present a diffuse spectrum
- Most patients present with late incurable disease

Childhood Cancers

- Haematological
  - Leukaemia
    - Acute: AML, ALL
    - Chronic: CML
  - Lymphoma
    - Hodgkins
    - NHL

- Non – haematological (Solid tumor):

cancer of various organs

  - Brain
  - Eye (Retina)
  - PNS
  - Muscles
  - Kidneys
  - Adrenal Glands
  - Bone
  - Skin
  - etc

Childhood Cancers

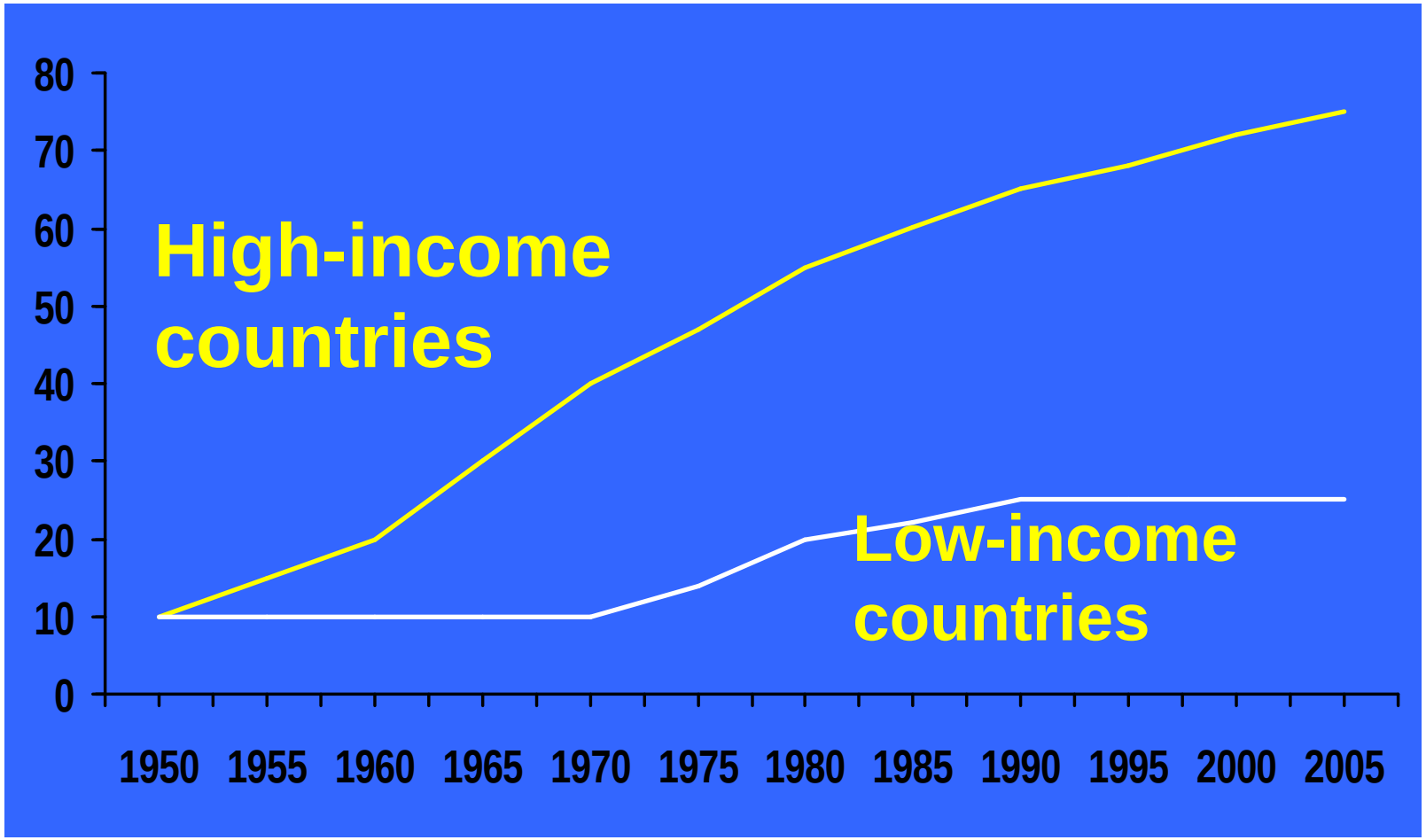
- Both Haematological and Non- Haematolgical
- High potential for cure
- Effective Management is crucial
- Diagnostic ,staging and treatment services

Diagnostic	Staging	Treatment Preparation
FNAC Biopsy for histology IHC	X-ray Ultrasonography CT scan LP	FBC LFT RFT

- Turn around time should be optimum
- Supportive care back up should be adequate
- Team work is recommended

Pediatric cancer survival: high vs low-income countries

G. Masera, Haematologica 2000; 85:785



What does it mean to children?

	Children treated per year	Children who survive	Children who die	Survival rate
HIC	53,000	42,000	11,000	80%
LIC	211,000	53,000	158,000	25%

LIC account for 80% of children with cancer and 92% of children who die of cancer

Pattern in Kijabe

- Burkitt's lymphoma 16.6%
- Non-Hodgkin's lymphoma 8.5%
- Hodgkin's lymphoma 7.6%
- Kaposi's sarcoma 7.6%
- Osteosarcoma 7.3%
- Gonadol germ cell 5.8%
- Rhabdomyosarcoma 3.5%
- Nephroblastoma 3.4%
- Epithelial sarcoma 2.8%
- Fibrosarcoma 1.9%

  (Paediatric Surgery Int. 2010)

Burden of Childhood Cancers in Western Kenya

Period	Jan (2006) – Dec (2010)	Jan (2007) – Dec (2010)
Age	0-19 Years	0-14 years
Total Number	436	
Gender	Male – 59% Female – 41%	Male – 61.3% Female – 38.7%
Haematological	NHL - 34 % HL - 15 % ALL - 8 % (57 %)	NHL – 22.8% ALL – 13.1% HL – 4.7% AML – 2.9% (43.5%)
Non-Haematological	KS - 5% Nephroblas – 8% Rhabdomyo – 5% Retinoblastoma - 5% Brain - 1 % (24%) Others - (19%)	KS – 7.6% Nephroblastoma – 7.3% Rhabdomyo – 5.8% Retinoblastoma – 5.5% Brain – 3.9% Neuro – 2.1% (32.2%) Others - (24.3)

Pattern in Western Kenya (1979)

- Burkitt's 33.5%
- Non-Hodgkin's 21.8%
- Retinoblastoma 11.5%
- Kaposi's sarchoma 6.1%
- Nephroblastoma 4.5%
- Hodgkins 4.1%
- Fubrosarcoma 3.2%
- Epthelial 2.6%
- Osteosarcoma 2.3%
- Rhabdomyosarcoma 1%

BURDEN OF CHILDHOOD MALIGNANCY AT MTRH

- Total cases: 4088; childhood- 382 (9.3%)
- Incid: 54.57/million, mean 94.5 R: 82-108

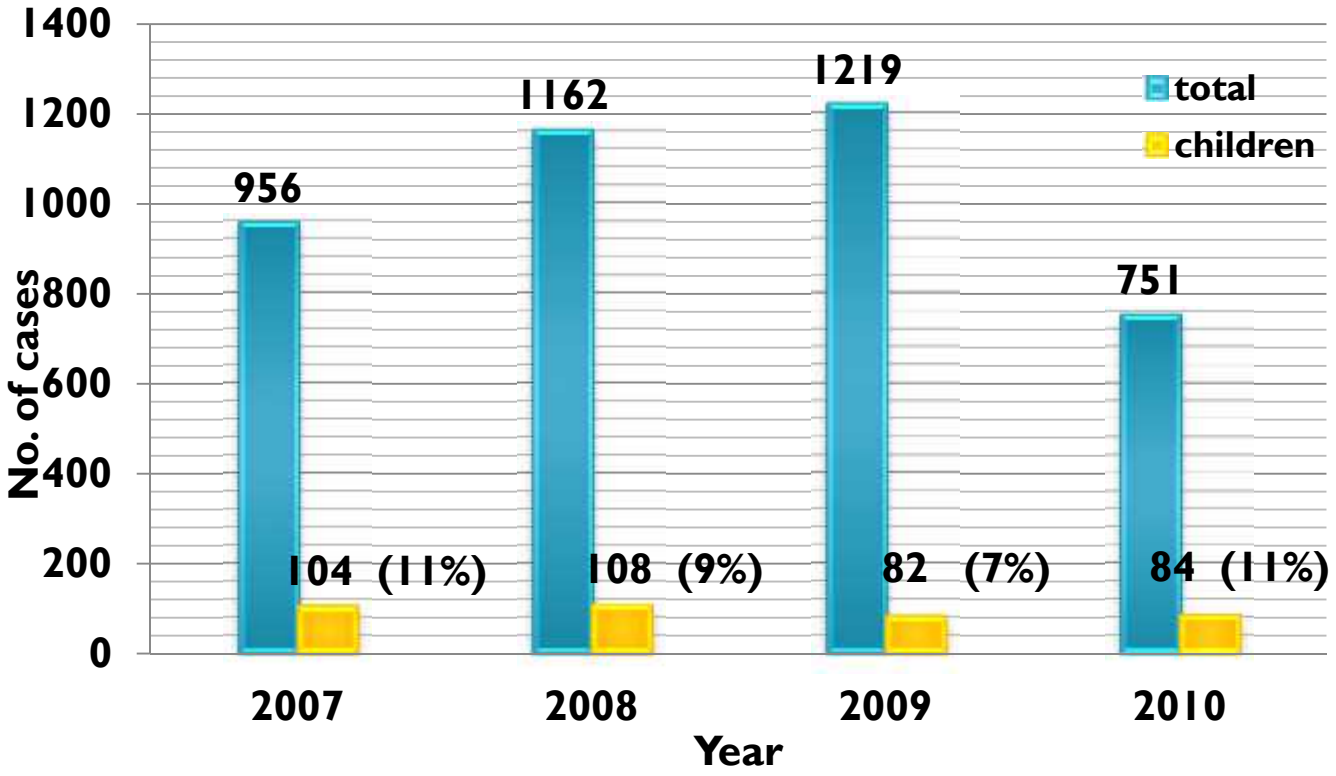


Figure 1: Yearly distribution of childhood cancers

MAJOR CHILDHOOD CANCERS AT MTRH

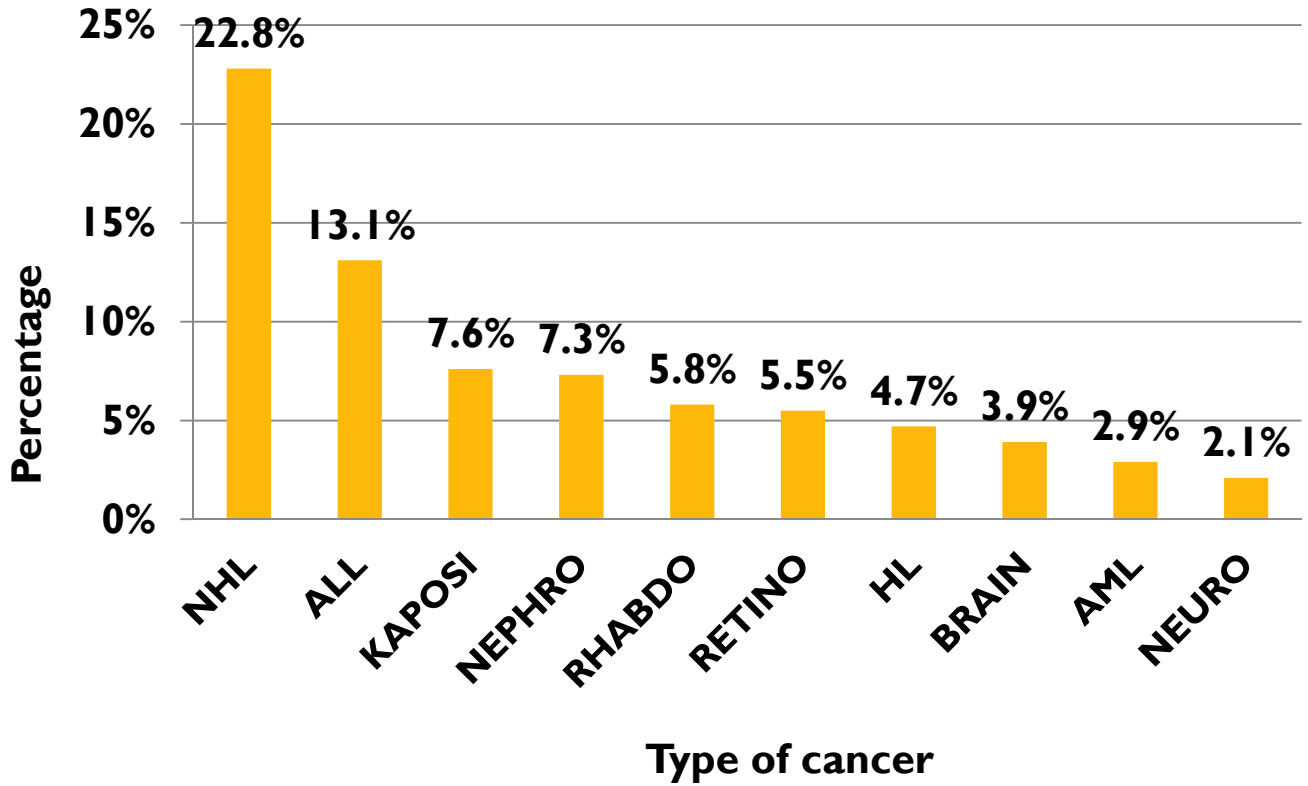


Figure 2: Top 10 childhood cancers at MTRH(n=382)

DISTRIBUTION BY AGE-AT MTRH

- Bimodal peak: 4 yrs and 10 yrs, median: 7yrs, mean: 7.2yrs
- Age group 1-5yrs: 40.8%; 6-10yrs: 34.1%; 11-14yrs: 25.1% (n=382)

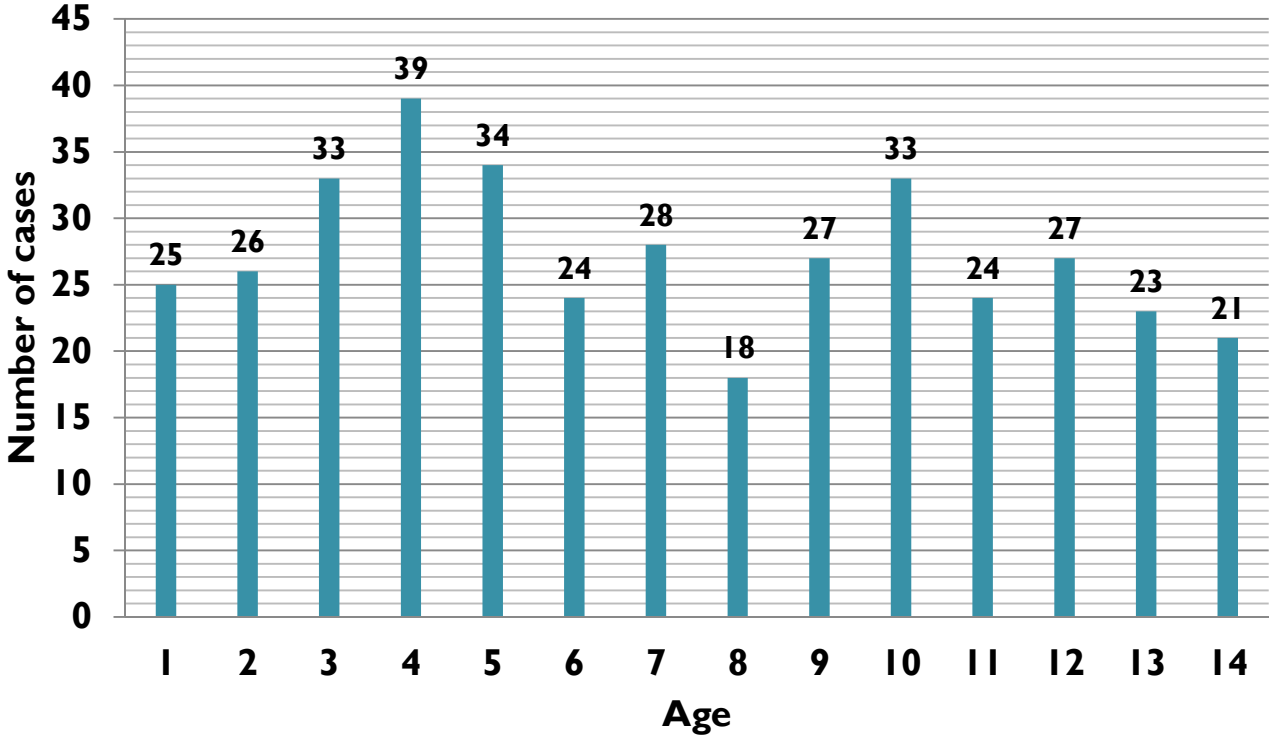


Figure 3: Distribution of childhood cancers by age

DISTRIBUTION BY GENDER

- Male: 61.3% (n=382), Female: 38.7%. M:F= 1.6:1

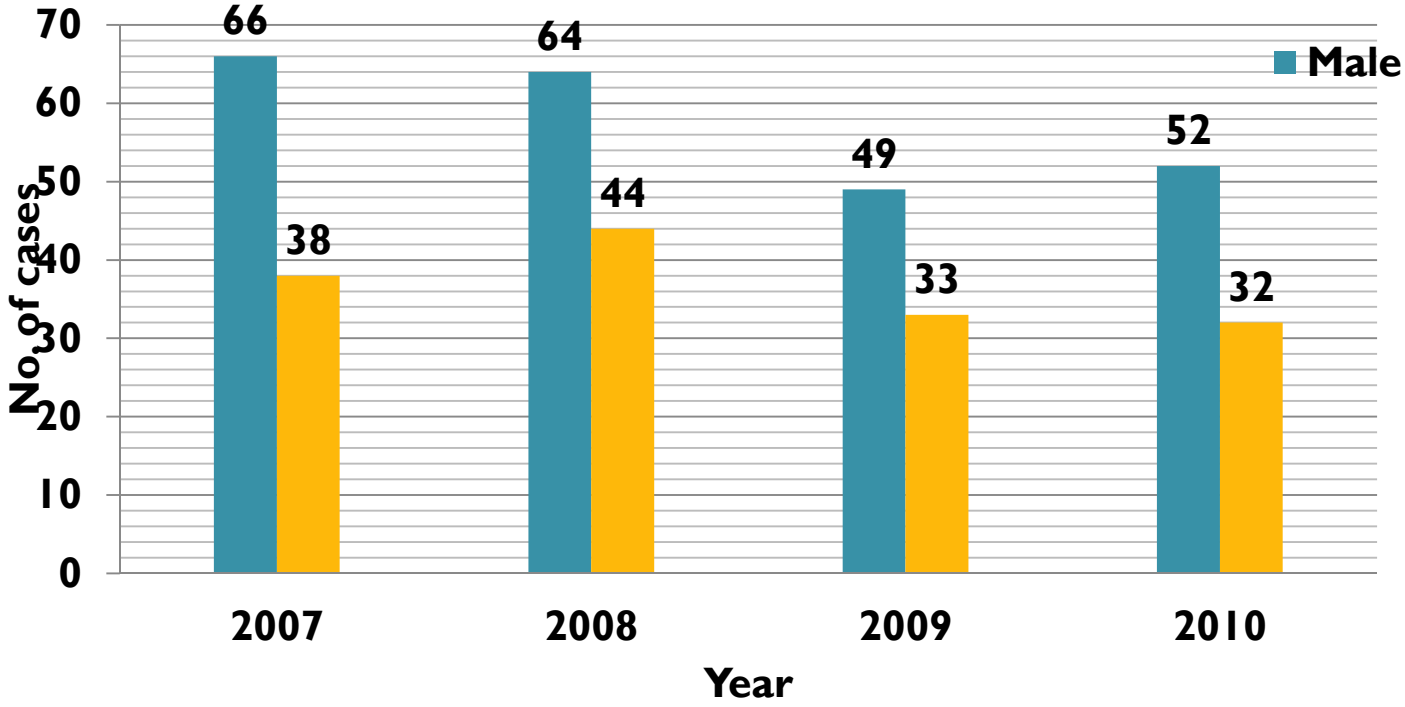


Figure 4: Distribution of childhood cancers by gender

Challenges

- **Significant morbidity and mortality despite the fact that most childhood cancers are potentially curable**
  - Poor Availability, Accessibility and Affordability of the specific treatment
  - Significant burden of co- morbidities
  - Weak supportive care backup
- **Weak referral system**
  - Limited access to health care
  - Late presentation
- **Little consensus on the appropriate regimen at various stages**
  - Inadequate information on cancer outcome for the various protocols
- **Available Data is incomplete**
  - Cancer registries not comprehensive
  - Response to treatment and survival rates
  - Relapse rates
- **Weak follow up mechanisms**
  - Irregular follow up
  - High rate of loss to follow up/ Treatment Abandonment

Availability of resources

- **Health Facilities**
  - Diagnostic , Staging and Treatment Services
  - Level 4, 5 and 6 facilities
- **Personnel**
  - Oncology Team
  - Paediatric Surgeons - Crucial
  - Paediatrician/ Physician
- **Specific Treatment**
  - support groups and philanthropists
  - Donations
  - Out of pocket purchase
  - Research support (Grants, Clinical Trials)
- **Supportive care**
- **nutritional support**
  - Medical supplies
- **Hospital bills**
  - Medical insurance
  - NHIF (Hope for Cancer Kids)

The CDM/Cancer Treatment Centre

Shoe for Africa - Children's Hospital

Oncology team to drive the agenda of cancer management; roles -Education

ROLES OF HEALTH PROVIDERS IN ADVANCING CANCER CONTROL AGENDA

- CARE
  - Ensure the patients receive appropriate care
  - Coordination of activities –
  - Strengthen the referral systems
  - Appropriate management protocols
- EDUCATION
  - Health care providers
  - Patients
  - Care givers/relatives
  - Training institutions (Universities, MTC)
- RESEARCH
  - Issues to do with cancer
  - Paediatric cancer registry
  - Several research activities going on- various disciplines.

Way Forward

- Activities directed towards reducing the morbidity and mortality
- Strengthen the referral system and empower level 4&5 hospitals to manage cancers
- Build consensus on appropriate treatment protocols
- Strengthen the cancer registries
- Enhance research in the area of Childhood Cancers


THANK
YOU