



Diagnosis to Survival : Role of Oncology in Comprehensive Cancer Management

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Global Cancer Burden

- In 2022, there were nearly 20 million new cancer cases worldwide, with 9.7 million deaths attributed to cancer.
- Low- and middle-income countries (LMICs) bear a disproportionate share—70% of global cancer deaths occur in these regions.
- By 2050, LMICs are projected to see a 142% increase in cancer cases, exceeding 2 million new cases annually, threatening to overwhelm fragile healthcare systems.

Cancer Burden in Bangladesh

01 Feb, 2025 BMU published results of Extensive Research on the cancer situation in Bangladesh based on population data:

- The number of cancer patients is 106 per 100,000 people in the country , with 53 new cases every year.
- Bangladesh recorded 167,256 new cancer cases and 116,598 cancer deaths, with a population of ~168 million.
- The mortality rate is 74.7 per 100,000.
- Among 38 types of cancer, highest found in ---
 - Breast
 - Esophagus
 - Lip and oral cavity
 - Cervix uteri
 - Lung,Liver etc.
- **Cancer accounts for 12% of all deaths in Bangladesh.**

Cancer & Bangladesh :

- The country faces challenges due to
 - Limited Early Detection
 - Treatment Access
 - Proper Referral System
 - Diagnostic Facility & Treatment Cost
 - Lack of Cancer Dedicated Govt. & Private Hospitals
 - Absence of a Robust Population-based Cancer Registry

Case Scenario 01:

Patient Profile

- **Name:** Mrs. R, 48-year-old postmenopausal female
- **Presentation:** Painless lump in the right breast for 2 months
- **Clinical Findings:**
 - Palpable mass in the upper outer quadrant of the right breast (~2.5 cm)
 - Right-sided axillary lymphadenopathy on USG (firm, mobile nodes ~1.2 cm)
 - No skin changes, nipple discharge, or systemic symptoms

Case Scenario 01 (Cont.):

- **Diagnostic Workup**
 - **Mammogram:** BIRADS 5 lesion in right breast
 - **Ultrasound:** Confirmed mass and axillary nodes
 - **Core needle biopsy:** Invasive ductal carcinoma
 - **Immunohistochemistry:** **ER/PR:** Positive; **HER2:** Negative; **Ki-67:** ~20%
- **Additional Workup:** Chest X-ray, abdominal ultrasound, bone scan—no distant metastasis.
- Hemodynamic Status is stable.

Case Scenario 01 (Cont.):

- **AJCC (American Joint Committee on Cancer) Staging**

Clinical Stage: cT2N1M0 (Stage IIB)

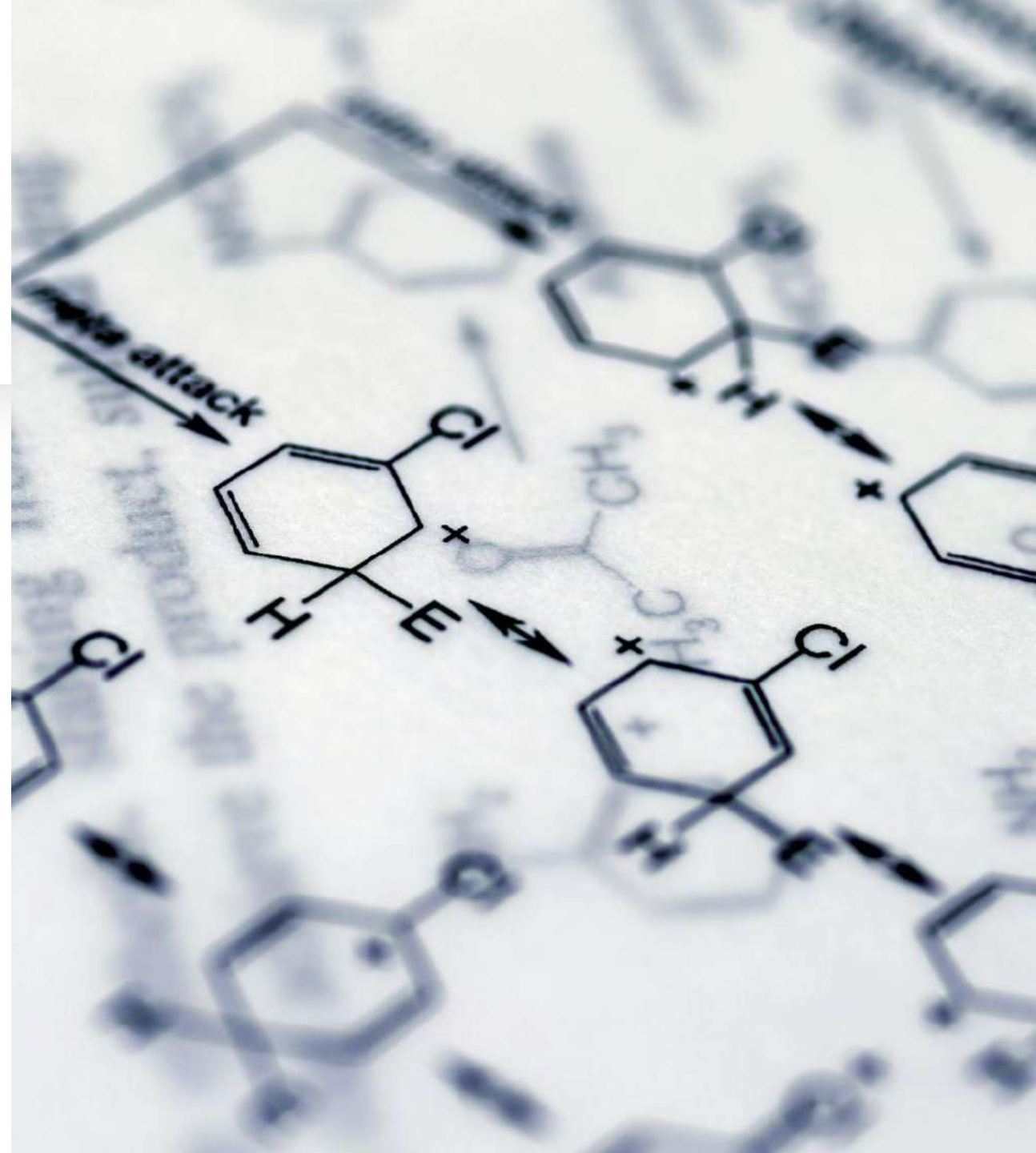
Molecular Stage : Luminal A



What is the next protocol of treatment to follow?

What will be next plan of treatment? And why?

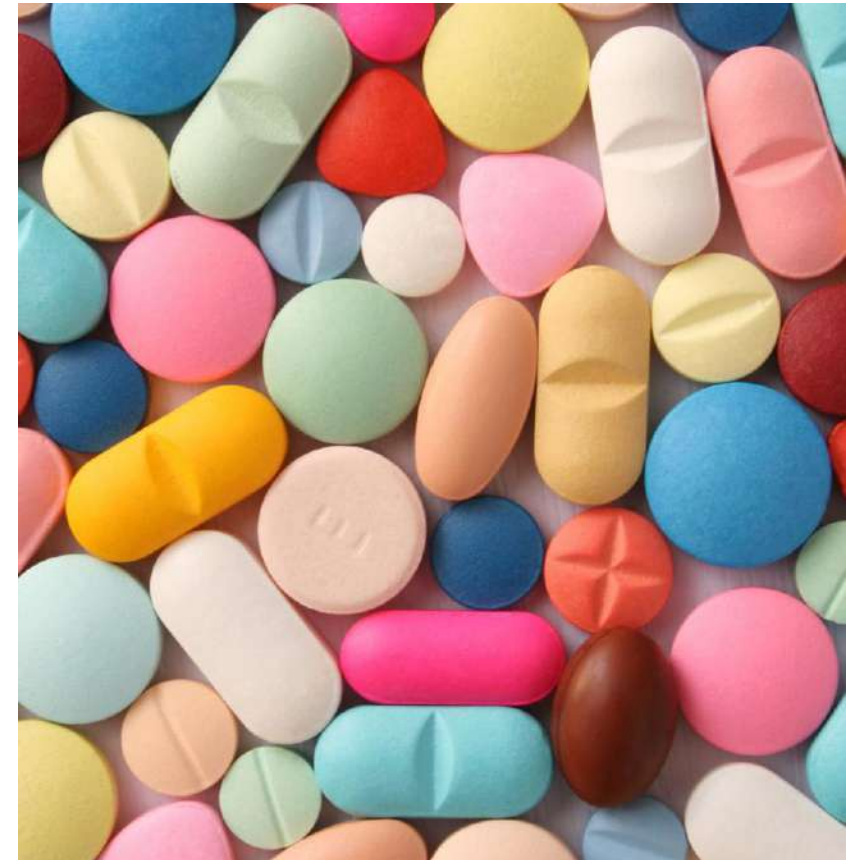
- **Upfront Surgery** : BCS with SLND / MRM with AC
- **Chemotherapy** : Neoadjuvant / Adjuvant setting
- **Endocrine therapy** : premenopausal/postmenopausal
- **Radiotherapy** : need or not
- **Immunotherapy**
- **Targeted Therapy**
- Additional Prophylactic kinase inhibitor in High-Risk cases.



Evidence Based Medicine & Guideline (NCCN,ESMO) Recommended:

Carcinoma Breast Treatment Depends upon : --

- Age (premenopausal / post menopausal)
- Tumor Biology /Hormone Receptor status (ER,PR,HER-2 ,Ki-67,P-53)
- AJCC TNM staging
- Family History
- High Risk Factor to recurrence(Surgical Margin, Lymphnode +ve,LVSI,PNI)
- Molecular Analysis
- Fertility issue/Pregnancy



Oncologist's Role :

Final decision :

- **Upfront Surgery** : BCS with SLND /MRM followed by Detailed Histopathology.
- **Minimum Chemotherapy protocol**
- **If BCS with SLND** : Locoregional Radiotherapy
- **Endocrine /Hormone therapy** : 5 to 10 years.

Another Decisions in Breast Cancer Treatment by Textbook, NCCN, ESMO guideline

- Neoadjuvant Chemotherapy (HER-2 receptor positive, T->2cm)
- Neoadjuvant Immunotherapy with combination of Chemotherapy (Tripple negative Breast cancer)
- Only Surgery & endocrine therapy (DCIS, Stage 1 tumor size<1cm)
- Only surgery & Loco-regional Radiotherapy (age >65yrs, low gade ,T2,No,Mo)
- MRM/BCS must be discussed with Radiation facility or Cosmesis & psycho-social status.
- Palliative chemotherapy

Oncologist's Role :

Follow-Up & Survivorship

- Hormonal therapy for 5–10 years.
- Regular imaging and clinical examination----3 to 4 monthly ,
- Trained & educate about Self Breast Examination & Danger Signs of recurrence.
- Psychosocial support and lifestyle counselling.

Case Scenario-2: Carcinoma Rectum

- **Name:** Mr. H, 45-year-old male
- **Presentation:** Altered bowel habits and occasional rectal bleeding for 3 months

Clinical Examination:

- o **Digital rectal exam:** Mass palpable ~10 cm from anal verge
- o **No palpable lymphadenopathy**
- o General condition stable, **ECOG performance status 1**
- **Diagnostic Workup`**
- **Colonoscopy:** Ulceroproliferative lesion at 10 cm from anal verge
- **Biopsy:** Moderately differentiated adenocarcinoma
- **MRI Pelvis:** Confirms localized rectal mass, no mesorectal or pelvic lymphadenopathy
- **CT Chest/Abdomen:** No distant metastasis
- **CEA Level:** Mildly elevated—5.4ng/mL

Case Scenario-2: Carcinoma Rectum

Staging

- **Clinical Stage:** cT2N0M0 (Stage I)
- Tumor confined to muscularis propria, no nodal or distant spread.

Case Scenario-2: Carcinoma Rectum

Specialty	Role
Surgical Oncologist	Plans low anterior resection (LAR) with total mesorectal excision (TME)
Medical Oncologist	Evaluates need for adjuvant chemotherapy based on final pathology
Radiation Oncologist	Not indicated preoperatively in Stage I; may be considered if margins are close or pathology upgrades
Pathologist	Confirms grade, margins, lymphovascular invasion
Nutritionist & Rehab	Prehabilitation and post-op bowel function support
Palliative Care	Not required at this stage, but available for long-term support

Case Scenario-2: Carcinoma Rectum

Postoperative Plan :

- Histopathology reveals adenocarcinoma, grade 1, pT2NoMx, 0/10 lymphnode, no LVSI, PNI.
- Pathology confirms **Stage I with clear margins and no high-risk features → No adjuvant therapy**
- Regular follow-up with CEA, colonoscopy, and imaging.

Case Scenario-3 : Carcinoma Rectum

- **Patient Profile**
- **Name:** Mr. A, 30-year-old male
- **Presentation:** Rectal bleeding, tenesmus, and altered bowel habits for 2 months
- **Clinical Examination:**
 - Digital rectal exam: Mass palpable ~4 cm from anal verge
 - No distant symptoms (e.g., weight loss, fatigue)
 - ECOG performance status: 1

Case Scenario-3 : Carcinoma Rectum

- **Diagnostic Workup**
- **Colonoscopy:** Ulceroproliferative lesion at 4 cm from anal verge, another sessile polyp at 25cm.
- **Biopsy:** Moderately differentiated adenocarcinoma
- **MRI Pelvis:**
 - Tumor involving muscularis propria and mesorectal fat
 - **MRF (Mesorectal Fascia) positive** → threatened circumferential resection margin
 - Enlarged mesorectal lymph nodes (cN1)
- **CT Chest/Abdomen:** No distant metastasis
- **CEA Level:** 36 ng/mL (Elevated)

Case Scenario-3 : Carcinoma Rectum

Clinical Stage

- **cT3N1M0 → Stage IIIB**
- Locally advanced rectal cancer with high-risk features

Multidisciplinary Management Plan

Specialty	Role
Medical Oncologist	Initiates neoadjuvant chemoradiotherapy (CRT) with capecitabine or 5-FU
Radiation Multidisciplinary Management Plan	Delivers pelvic radiation (45–50.4 Gy) targeting tumor and nodes
Surgical Oncologist	Plans Total Mesorectal Excision (TME) after downstaging; likely Low Anterior Resection (LAR) or Abdominoperineal Resection (APR) depending on response and sphincter involvement
Pathologist	Reviews post-op specimen for ypT/ypN staging, margins, lymphovascular invasion
Palliative Care	Supports symptom control and psychosocial needs during CRT
Rehab & Nutrition	Prehabilitation, stoma counseling (if APR), and bowel function recovery

Case Scenario-3 : Carcinoma Rectum

Post-Treatment Plan

- **Restaging MRI** after 6–8 weeks of CRT
- If good response: proceed with surgery
- If complete clinical response: consider watch-and-wait.
- **Adjuvant chemotherapy:** Based on final pathology (e.g., FOLFOX for residual disease)

Case Scenario-3 : Carcinoma Rectum

Oncology's Role Highlighted:

- **Risk Stratification:** MRF+ status guides neoadjuvant therapy
- **Treatment Coordination:** Oncology leads CRT planning and surgical timing
- **Survivorship Planning:** Long-term follow-up, bowel rehab, and psychosocial support
- **Education & Advocacy:** Informs patient about fertility, stoma care, and lifestyle changes



In Cancer Treatment: Coordination Matters

Why Oncology Is Central to Cancer Care :

1. Diagnosis & Staging Leadership

- Oncologists interpret pathology, imaging, and molecular data to define cancer type, grade, and stage.
- They guide biopsy decisions, genetic testing, and risk stratification.

2. Treatment Planning & Protocol Design

- Oncology drives the choice of surgery, chemotherapy, radiotherapy, immunotherapy, or combinations.
- They tailor regimens based on tumor biology, patient comorbidities, and resource availability.

3. Multidisciplinary Team (MDT) Coordination

- Oncologists lead tumor boards, integrating input from surgeons, radiologists, pathologists, palliative care, and nursing.
- They ensure continuity and coherence across departments and treatment phases.

Why Oncology Is Central to Cancer Care :

4. Patient-Centered Navigation

- Oncology bridges clinical care with empathy—addressing fears, side effects, survivorship, and quality of life.
- They advocate for equitable access, psychosocial support, and culturally sensitive care.

5. Innovation & Research

- Oncologists pioneer clinical trials, precision medicine, and AI integration.
- They translate global advances into local protocols, adapting to Bangladesh's context.

6. Education & System Building

- Oncology trains future clinicians, sets standards, and helps design cancer centers and national strategies.
- They can contribute in policy, infrastructure, and funding models for sustainable care in cancer.

Standard MDT Board:



Core Members of a Cancer MDT Board

Role	Function
Medical Oncologist	Leads systemic therapy planning (chemotherapy, targeted, immunotherapy)
Surgical Oncologist	Evaluates operability and plans cancer-related surgeries
Radiation Oncologist	Designs and delivers radiotherapy protocols
Radiologist	Interprets imaging for staging, response, and surveillance
Pathologist	Confirms histology, grade, receptor status, and margins
Clinical Nurse Specialist / Oncology Nurse	Coordinates care, supports patient education and symptom management
Palliative Care Specialist	Manages pain, quality of life, and end-of-life care
Pharmacist	Ensures safe chemotherapy preparation and drug interactions
Dietitian	Advises on nutrition during and after treatment
Psychologist / Psychiatrist	Supports mental health and coping strategies
Social Worker	Assists with financial, family, and logistical challenges
MDT Coordinator / Case Manager	Organizes meetings, records decisions, and tracks follow-up

Optional or Contextual Members :

- **Genetic Counselor:** For hereditary cancer syndromes
- **Rehabilitation Specialist:** Post-treatment recovery
- **Primary Care Physician:** For long-term follow-up and comorbidity management
- **Spiritual Care Provider:** For holistic support in culturally sensitive settings

Reference :

- *Cancer science MDT guideline.*
- *Royal Colleges of Radiologists MDT guidelines*

Tumor Board in Bangladesh : Practical Perspective



**NATIONAL INSTITUTE OF CANCER
RESEARCH & HOSPITAL:**



**MDT OCCURRED DAILY BASIS EVERY
PATIENT FROM EVERY DEPARTMENT.**

How are we growing in cancer sector in Bangladesh?



Community-Based Screening

- **Breast & Cervical Cancer Screening Programs:** Rolled out in selective districts with NGO support.
- Mainly they are in Dhaka & Divisional Based.

Modern Diagnostic Facilities in Bangladesh

[Advanced Imaging]:

Digital
Mammography &
Tomosynthesis

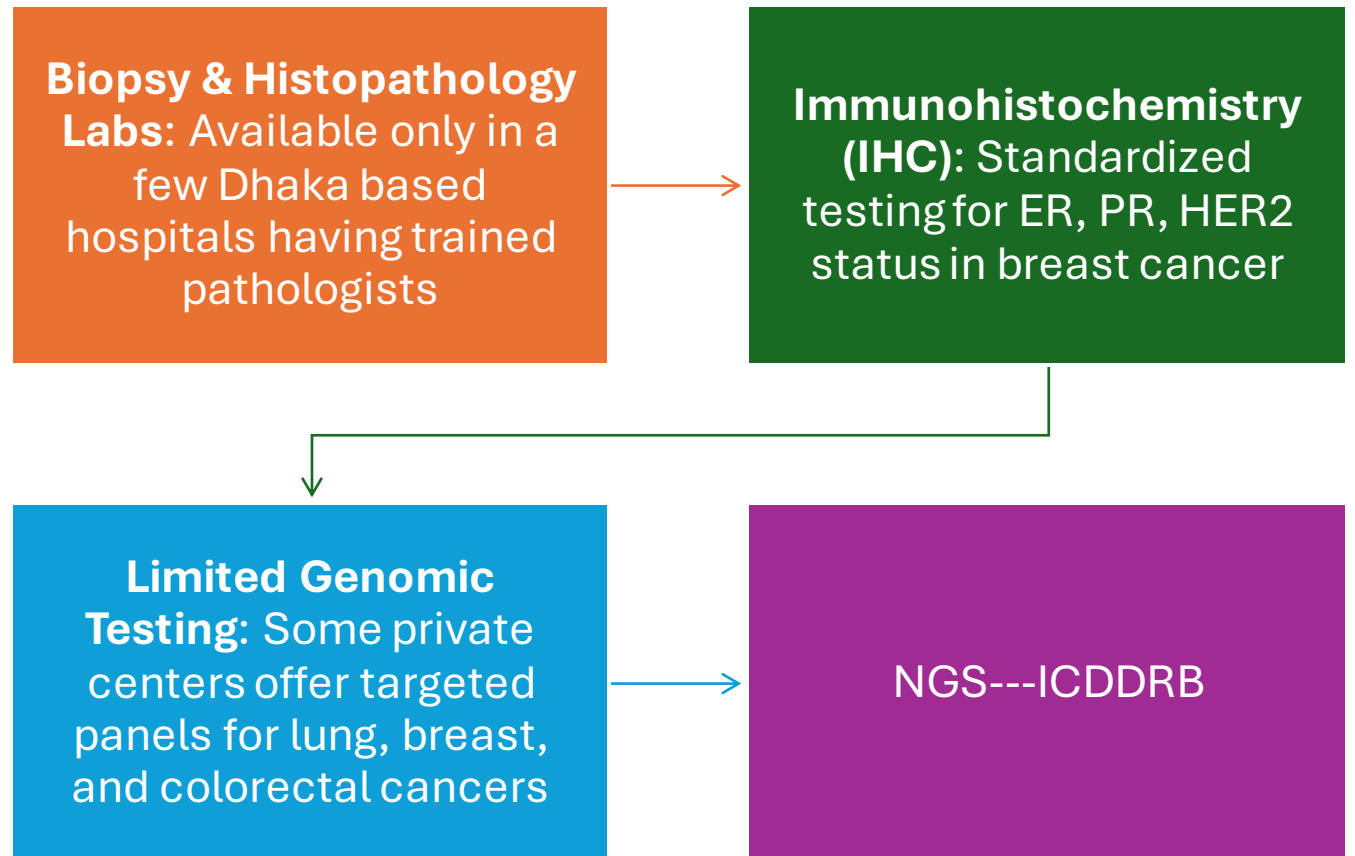
MRI & CT Scan

Bone Scan

Whole Body
Isotope PET Scan

Cancer Marker

Histopathology & molecular Diagnosis [Pathology & Molecular Testing]:



Modern Treatment Facilities in Bangladesh

[Medical Oncology] :

- **Chemotherapy Drugs** : Found in major secondary,Tertiary hospitals with oncology nurses,standard evidence based practice less available in rural area.
- **Targeted Therapy & Immunotherapy**: Available in private centers,exceptionally without 2/3 drugs, but very expensive to bear for all.
- **Hormonal Therapy**: Widely used for breast and prostate cancers,readily available in Bangladesh in affordable prices.

Modern Treatment Facilities in Bangladesh

[Radiotherapy]:

- **Linear Accelerators (LINAC):** Installed in NICRH, Ahsania Mission Cancer Hospital, Delta, Labaid Cancer & superspeciality centre, square, Evercare, and United Hospital
- **Brachytherapy Units:** Available for cervical cancer.
- **Transition from Cobalt-60:** Government hospitals are phasing out outdated machines
- **SRS** alternative to gamma knife /Cyber knife
- Proton therapy----not available
- Prostate Brachytherapy-----not available.



Radiotherapy Machines

Palliative Care:

- Palliative care service is still at very early stage in Bangladesh.
- Most services are concentrated in urban areas like Dhaka.
- Limited awareness, trained professionals, and funding remain major barriers.

Primary Surgical Modalities in Cancer Treatment

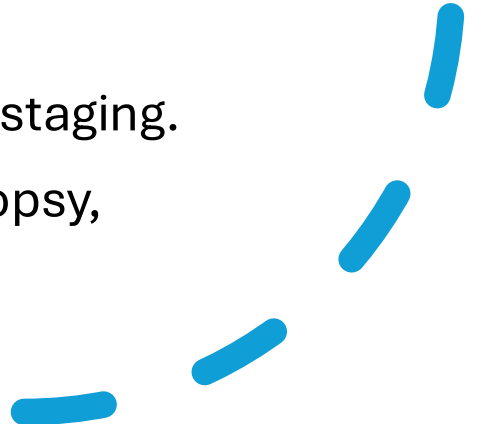
1. Curative Surgery

- Goal: Remove all cancerous tissue when localized.
- Examples: Mastectomy for breast cancer, colectomy for colon cancer.

2. Preventive (Prophylactic) Surgery

- Goal: Remove tissue or organs before cancer develops.
- Example: Prophylactic mastectomy in BRCA mutation carriers.

3. Diagnostic Surgery

- Goal: Obtain tissue samples for biopsy and staging.
 - Techniques: Incisional biopsy, excisional biopsy, laparoscopy.
- 

Primary Surgical Modalities in Cancer Treatment

4. Staging Surgery

- Goal: Determine the extent of cancer spread.
- Often involves lymph node dissection or exploratory laparotomy.

5. Debulking Surgery

- Goal: Remove as much of the tumor as possible when full removal isn't feasible.
- Common in ovarian cancer to enhance effectiveness of chemotherapy.



Primary Surgical Modalities in Cancer Treatment

6. Palliative Surgery

- Goal: Relieve symptoms and improve quality of life.
- Examples: Bowel resection for obstruction, stent placement.

7. Reconstructive Surgery

- Goal: Restore appearance or function post-tumor removal.
- Examples: Breast reconstruction, facial reconstruction after head and neck cancer.



Modern Treatment Facilities in Bangladesh

Surgical Oncology : advanced & minimally invasive

- **Oncoplastic & Minimally Invasive Surgery:** Practiced in urban centers
- **Dedicated Surgical Oncology Departments:** Emerging in divisional hospitals
- **Robotic assisted Surgery** ---not available.
- **Laser Surgery**
- **Cryo-surgery**
- **Electrosurgery**
- **RFA (Radio-frequency Ablation)**

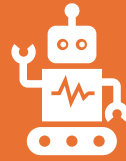
New National Initiatives

Divisional Cancer Hospitals :

- Government-funded, 100-bed facilities under construction
- Equipped with LINACs, PET scanners, brachytherapy, and multidisciplinary teams



Emerging Technologies we need to improve:



AI Integration: Early adoption in diagnostics and workflow optimization.



Tele-oncology & Mobile Screening Units: Expanding access to rural areas.



Cancer Registry & Surveillance Systems: In development to improve data-driven care.

Take Home Message :

- **Diagnosis & Risk Stratification:** Guided biopsy and receptor testing
- **Treatment Planning :** Tailors therapy based on tumor biology, stage, molecular diagnosis.
- **Coordination :** Leads MDT for seamless care.
- **Survivorship :** Ensures long-term follow-up and quality of life.
- **Education & Advocacy:** Informs patient about fertility, stoma care, and lifestyle changes

Whether it's a rural patient with late-stage disease or a high-tech urban center deploying molecular diagnostics-----Oncologist provides the compass—ensuring care is timely, evidence-based, coordinated, and compassionate.

“Cancer care is not a solo act—it’s a symphony. Oncology conducts the orchestra.”





Thank you



Any Question?

