General Principles of Oncology

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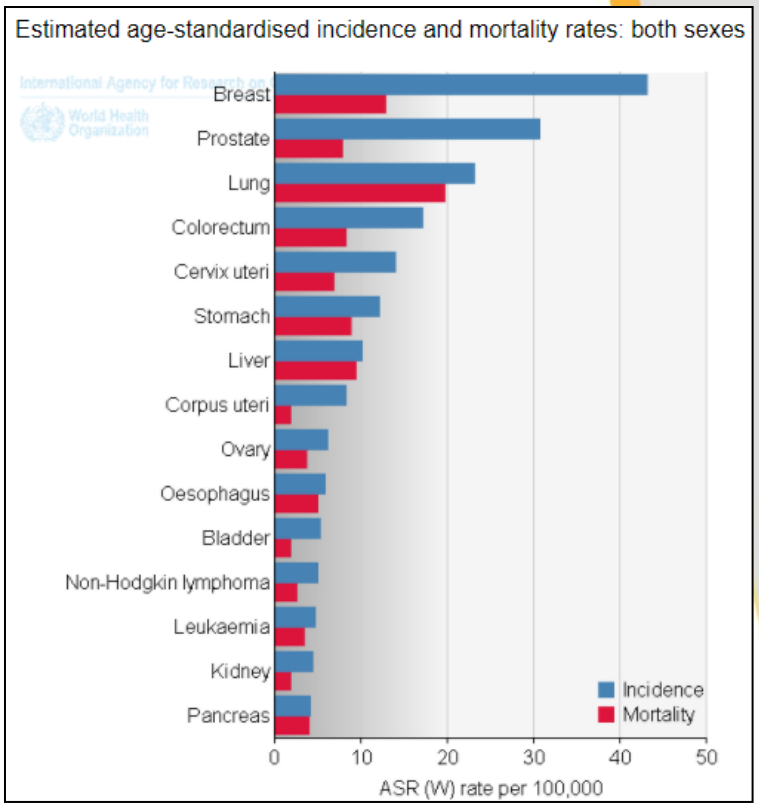
Oncology….

- Cancer: Emperor of all Maladies!!!!
  - Major cause of morbidity and mortality
  - Has huge financial and psychological implications
  - Comprehensive approach: From diagnosis, entire lifespan of the affected individual
  - Involves the patient ,the caregiver and the entire support service including the family
- Oncology: “Science and Art” dealing with cancer

Cancer: Global Perspective

- In 2015, 17.5 million new cancer cases diagnosed globally
- 8.7 million deaths (2nd highest after cardiovascular diseases)
- Causes 1 in 8 death worldwide
- 2005 – 2015: 33% increase in incident cases
  - 12.6% were due to population growth,
  - 16.4% due to an aging population, and
  - 4.1 % due to increasing age-specific incidence rates.
- Caused 208.3 million DALYs worldwide in 2015 for both sexes



Global, Regional, and National Cancer Incidence, Mortality, Years of Life Lost, Years Lived With Disability, and Disability-Adjusted Life-years for 32 Cancer Groups, 1990 to 2015
A Systematic Analysis for the Global Burden of Disease Study

Global Burden of Disease Cancer Collaboration

JAMA Oncology April 2017 Volume 3, Number 4

Cancer: The Indian Scenario

- Age adjusted incidence rate in India: 94 per 1,00,000(about half of the world average of 182)
- 1.1 million new cases every year in a population of 1.27 billion
- High Mortality : Incidence Ratio (0.68)
- 25% higher age adjusted incidence in men
- Incidence rising: 1.7 million new cases expected by 2015

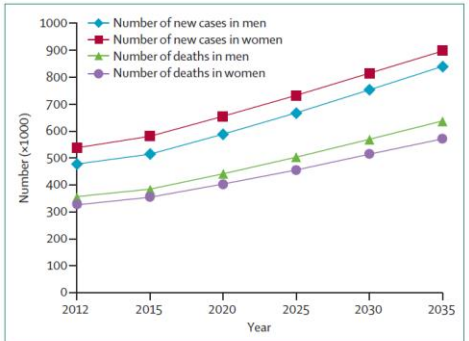


Figure 3: Estimated projected incidence and mortality burden of all cancers in Indian men and women to 2035
Data from GLOBOCAN 2012.[1]

	Illiterate	Primary school	Secondary school and above
Total cancer deaths in men (ASR)	106·6	93·4	45·7
Total cancer deaths in women (ASR)	106·7	64·2	43·4
Tobacco-related cancer in men (ASR)	39·3	37·5	18·2
Tobacco-related cancer in women (ASR)	19·5	10·1	7·2
Infection-related cancer in men (ASR)	24·3	17·8	7·6
Infection-related cancer in women (ASR)	41·2	21·7	10·3
Estimated burden of deaths in men in thousands	79·2	34·3	16·2
Estimated burden of deaths in women in thousands	140·2	15·3	5·4

Data from Dikshit and colleagues.[10] ASR=age-standardised rates per 100 000.

Table 3: Burden of cancer deaths in Indians by educational status in individuals aged 30–69 years

www.thelancet.com/oncology Vol 15 May 2014

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The Indian Scenario

- Our problems are unique
  - Large population…Vast area..Large variations
  - Illiteracy…(too conveniently cited as an excuse!!!)
  - Younger population…
  - Lack of Adequate Insurance schemes/ Funds..
  - Rapid urbanization and changes in lifestyle
  - Population ageing/increasing longevity

Most Common Cancers

	Worldwide			India			U.S.A		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
1	Lung	Breast	Lung	Lip,Oral cavity	Breast	Breast	Prostate	Breast	Prostate
2	Prostate	Colo rectum	Breast	Lung	Cervix uteri	Cervix Uteri	Lung	Lung	Breast
3	Colo rectum	Lung	Colo rectum	Stomach	Colo rectum	Lip, oral cavity	Colo rectum	Colo rectum	Lung
4	Stomach	Cervix uteri	Prostate	Colo rectum	Ovary	Lung	Bladder	Corpus uteri	Colorectum
5	Liver	Stomach	Stomach	Other pharynx	Lip, oral cavity	Colo rectum	Melanoma of skin	Thyroid	Melanoma of skin

Globocan2012

Risk Factors

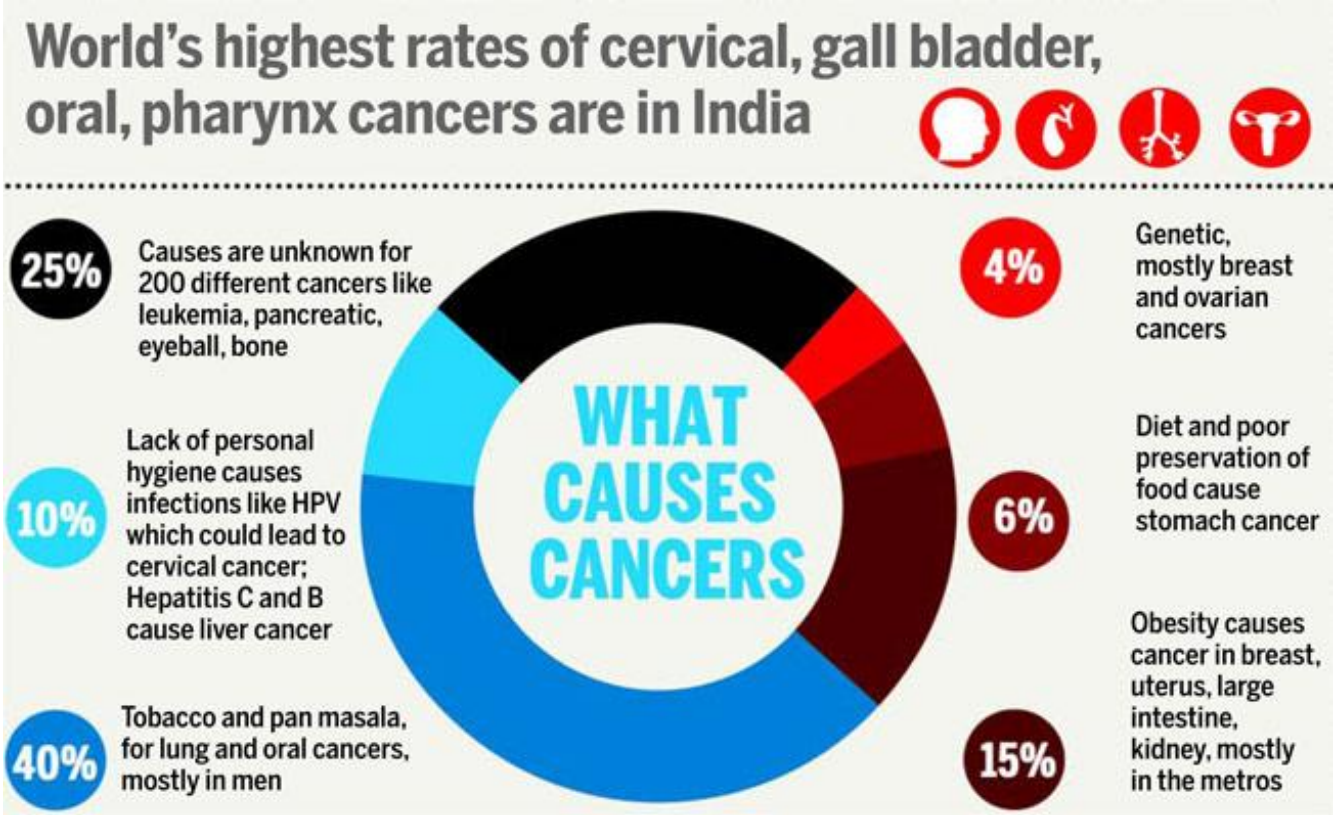
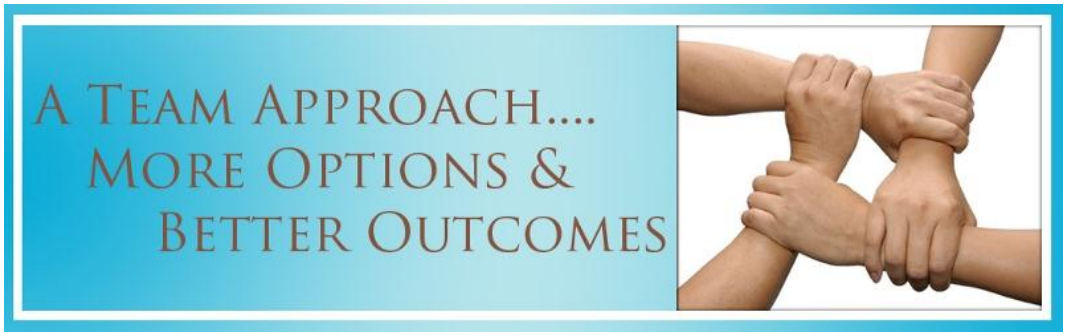


Photo source:Cancerbasics.org

Oncology: More art than science??
A multidisciplinary speciality

- Prevention
- Screening
- Diagnosis
- Treatment
- Rehabilitation
- Psychosocial support



Prevention

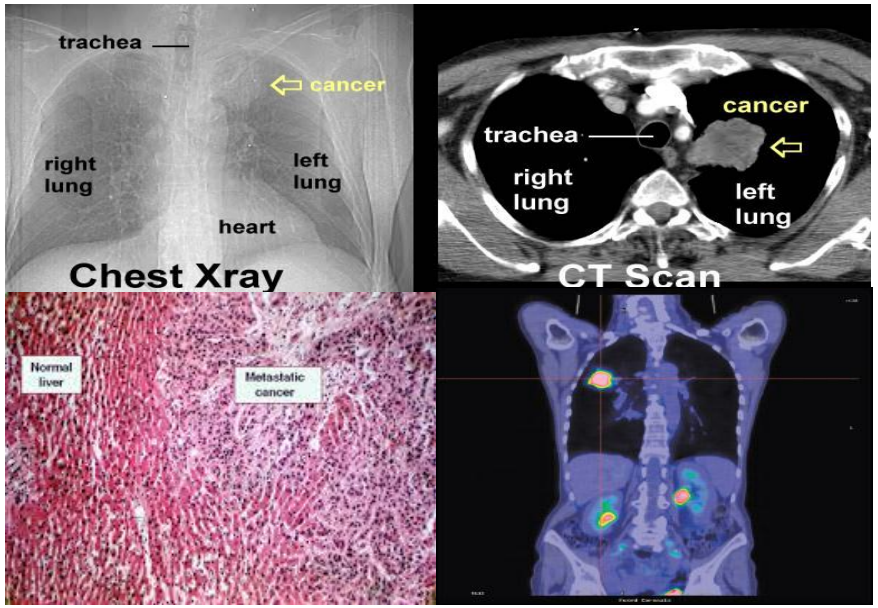
- Tobacco/Alcohol Cessation
- Lifestyle changes
- Nutritional counselling
- Genetic testing

Screening

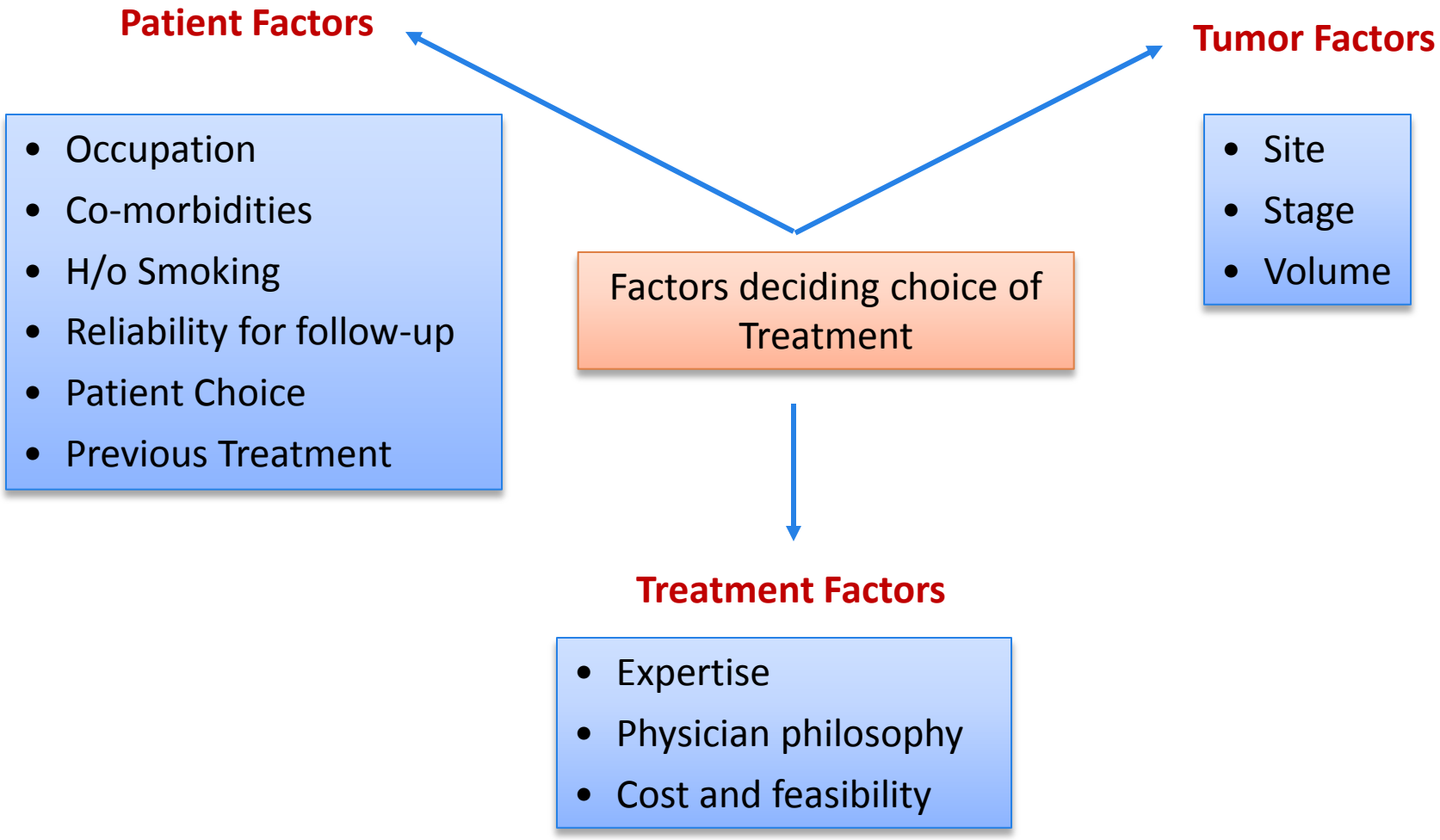
- Aims at diagnosis of cancer before clinical signs and symptoms appear
- Ultimate goal: To decrease Mortality
  - Mammography, Breast Self Examination (BSE): Breast Cancer
  - Visual Inspection with Acetic Acid (VIA), Pap Smear: Cervical cancer
  - Oral self examination
  - Low dose CT scan for Lung Cancer

Diagnosis ..... Staging

- Clinical Evaluation: Examination
- Directed endoscopy
- Radiodiagnosis:
  - Conventional X-rays
  - USG
  - CT scans
  - MRI
- Pathology
- Nuclear Medicine
- Functional assessments



Treatment Modalities



Treatment decision

Based on

- Stage
- General Condition
- Availability of effective treatment

- Early stage: Single modality treatment
- Advanced stage: Combined modality management

Radical	**Intent Radical**	**Palliative**
Intent to cure	Sustained symptom relief	Only address symptom relief

Endpoints of Interest

Local control
Ultimate Local control
Cause specific survival
Overall survival

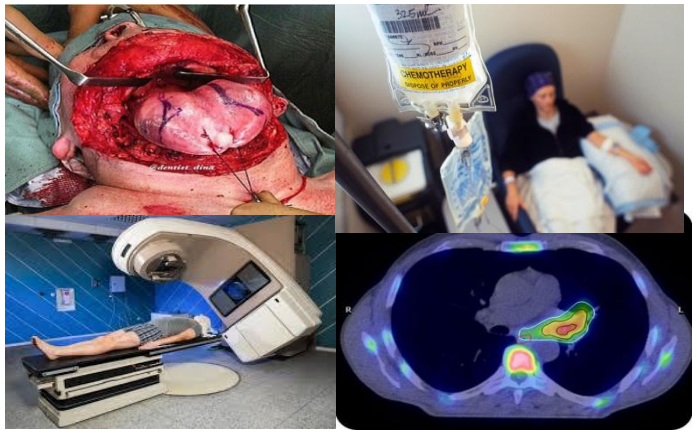
Good disease control

Voice preservation
Preservation of swallowing
Respiration preservation
Reduce chances of aspiration
Acceptable QOL

Preservation of organ and function

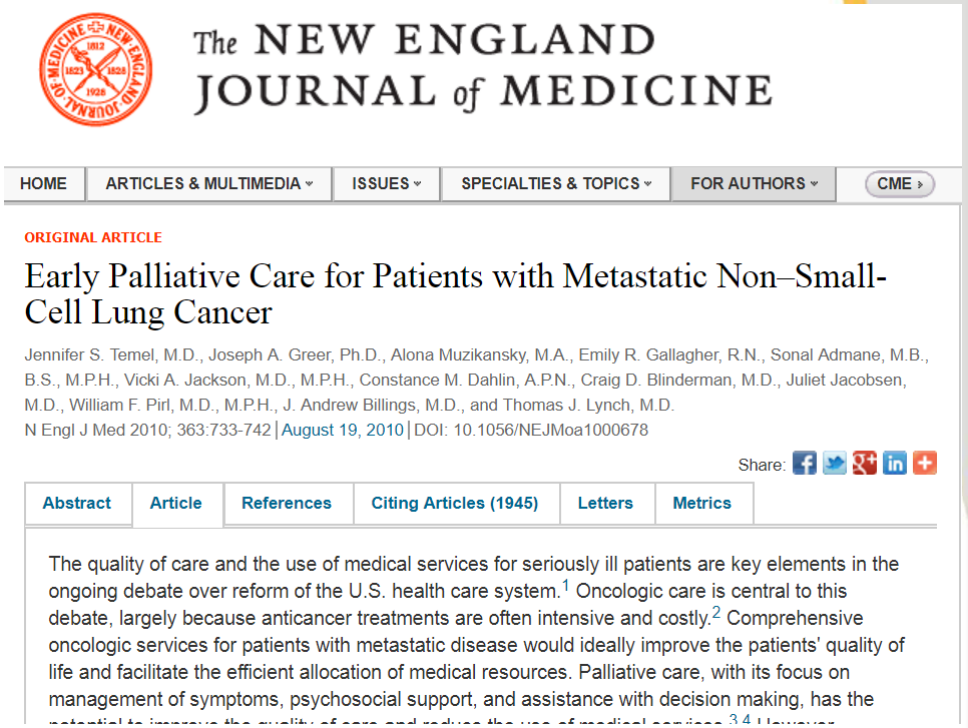
Treatment

- Surgery
- Radiotherapy
- Chemotherapy
- Others: Radiofrequency ablation/ Lasers etc.
- Palliative Care: Essential component of oncology to provide holistic end of life care to patients unfit for radical treatments.



Interventions

- Counselling and discussions
- Support group meetings
- Distress screening
- Early palliative care referral
- Involves
  - Psychologist
  - Social workers
  - Nursing staff
  - Counsellors
  - Palliative care specialist



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ORIGINAL ARTICLE

Early Palliative Care for Patients with Metastatic Non–Small-Cell Lung Cancer

Jennifer S. Temel, M.D., Joseph A. Greer, Ph.D., Alona Muzikansky, M.A., Emily R. Gallagher, R.N., Sonal Admane, M.B., B.S., M.P.H., Vicki A. Jackson, M.D., M.P.H., Constance M. Dahlin, A.P.N., Craig D. Blinderman, M.D., Juliet Jacobsen, M.D., William F. Pirl, M.D., M.P.H., J. Andrew Billings, M.D., and Thomas J. Lynch, M.D.

N Engl J Med 2010; 363:733-742 | August 19, 2010 | DOI: 10.1056/NEJMoa1000678

Share:

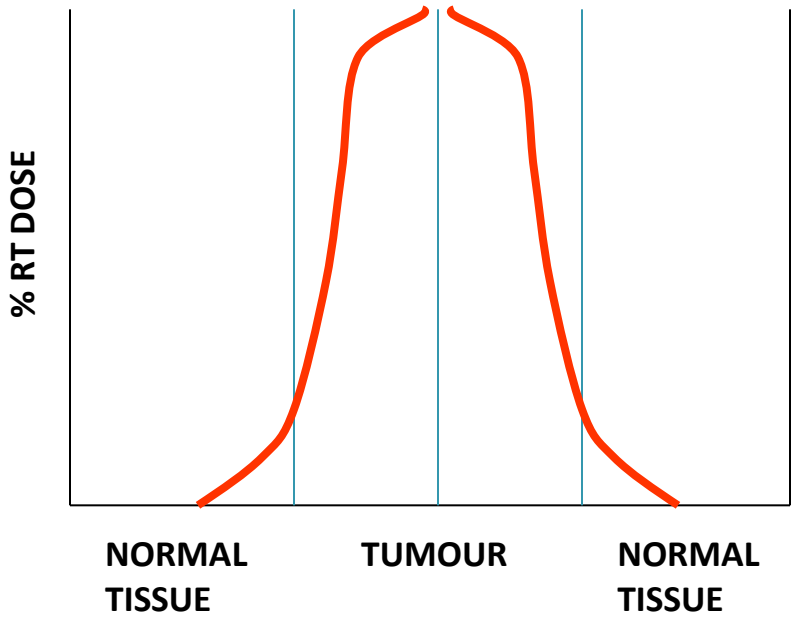
Abstract | Article | References | Citing Articles (1945) | Letters | Metrics

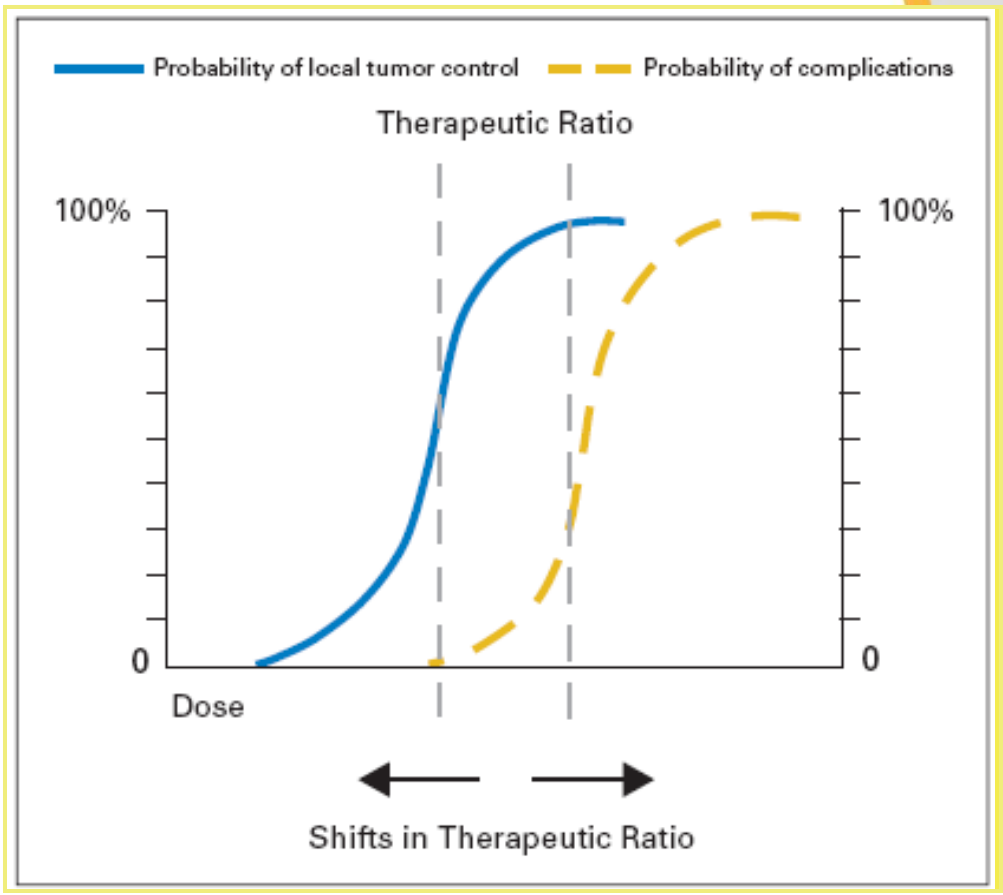
The quality of care and the use of medical services for seriously ill patients are key elements in the ongoing debate over reform of the U.S. health care system.[1] Oncologic care is central to this debate, largely because anticancer treatments are often intensive and costly.[2] Comprehensive oncologic services for patients with metastatic disease would ideally improve the patients' quality of life and facilitate the efficient allocation of medical resources. Palliative care, with its focus on management of symptoms, psychosocial support, and assistance with decision making, has the

Role Of Radiotherapy

Radical	Palliative
Early cancers: External Beam RT alone	Advanced locoregional disease: Symptom Relief - Pain - Bleeding - Fungation
Advanced Cancers: - Concurrent chemoradiotherapy - Altered Fractionation RT - Adjuvant after Radical Surgery	Metastatic disease : - Pain relief: Bone metastasis

Goal Of Radiation Therapy



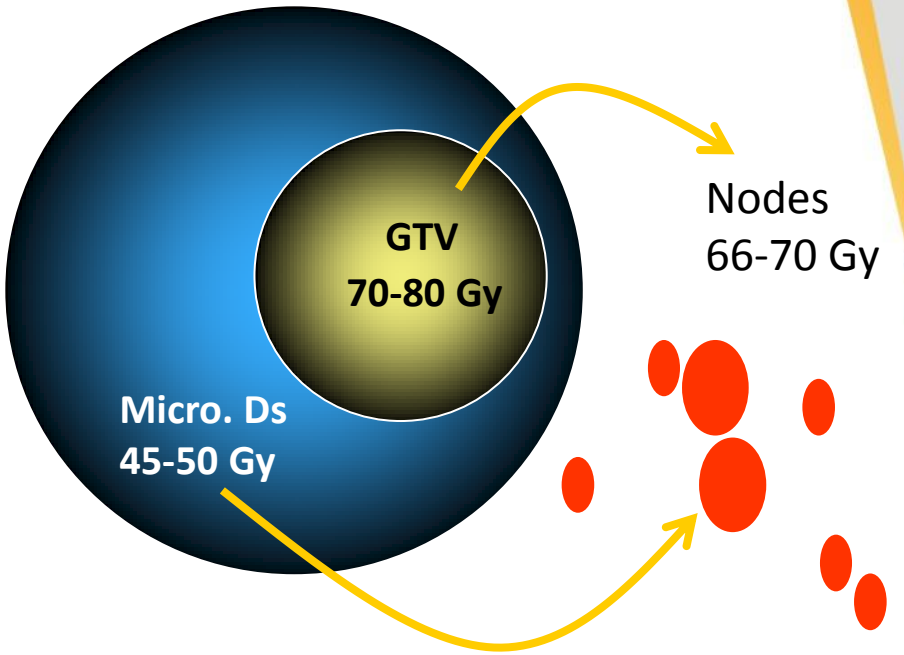


Factors affecting RT

- Type of radiation
- Dose per fraction
- Time between fractions
- Total dose delivered
- Irradiated volume
- Anatomic structures exposed

RT Volumes & Doses

Dose	Sq Cell Ca
50 Gy	>90% Microfoci 50% 2-3 cm nodes
60 Gy	80-90% T1 pharynx + larynx
70 Gy	90% 1-3 cm nodes 70% 3-5 cm nodes 80% T3-T4 tonsil

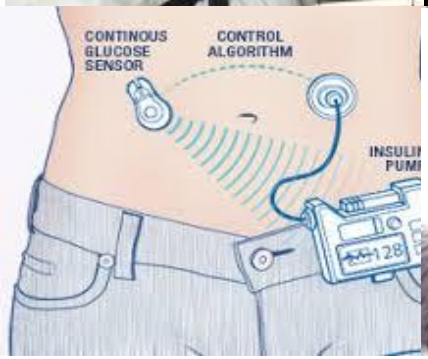


Fletcher et al Int J Radiat Oncol Biol Phys.9:1073-82 (1983).

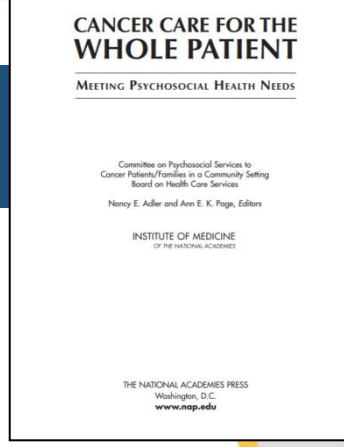
Doses as per conventional fractionation

Rehabilitation

- Increasing survival and treatment options mandates stronger rehabilitation services, QOL issues
- Includes
  - Physiotherapy/Yoga etc.
  - Speech and Swallowing
  - Occupational
  - Dental and prosthetics
  - Limb Prosthesis
  - Vocational



Psychosocial support



- Traditionally the most neglected aspect of oncology
- Most cancer patients in developing countries are completely deprived
- Caregivers and family members have equal if not more requirement
- Integrated and active component of palliative care now
- Robust data: Adequate psychosocial counselling and support improves the quality of life and may even improve survival

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Return to work

Survey of return to work of head and neck cancer survivors: A report from a tertiary cancer center in India

Jaiprakash Agarwal, MD,[1]* Rahul Krishnatry, MD,[1] Pankaj Chaturvedi, MS,[2] Sarbani Ghosh–Laskar, MD,[1] Tejpal Gupta, MD,[1] Ashwani Budrukkar, MD,[1] Vedang Murthy, MD,[1] Joyita Deodhar, MD,[3] Deepa Nair, MS,[2] Sudhir Nair, MS,[2] Rajesh Dikshit, MD,[4] Anil K. D'Cruz, MS[2]

[1]Department of Radiation Oncology, Tata Memorial Hospital, Mumbai, Maharashtra, India, [2]Department of Surgical Oncology, Tata Memorial Hospital, Mumbai, Maharashtra, India, [3]Department of Psychiatry, Tata Memorial Hospital, Mumbai, Maharashtra, India, [4]Department of Biostatistics, Tata Memorial Hospital, Mumbai, Maharashtra, India.

ABSTRACT: *Background.* The rates and factors associated with the return to work of head and neck cancer survivors from low- and middle-income countries, such as India, are largely unknown.

Methods. We conducted a preliminary cross-sectional survey of 250 consecutive eligible head and neck cancer survivors (age <60; ≥6 months posttreatment) to identify return to work rates and sociodemographic, clinical, and quality of life (QOL; European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-Core 30-questions [EORTC-QLQ-C30] and European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 Head and Neck 35-questions [EORTC-QLQ–H&N35]) correlates.

Results. In our cohort, 92.4% of the patients were employed pretreatment, 65.6% and 81.2% returned to work at 6 months posttreatment and by the time of the survey (median follow-up 19 months), respectively. Family structure (<2 male children, $p = .008$; eldest child age <20 years, $p = .04$), a higher level of education (vocational or professional training, $p = .013$) and female sex ($p = .001$) were associated with higher return to work. Head and neck cancer survivors who returned to work had better global quality of life (QOL; $p = .014$) and less coughing ($p = .001$) but more problems related to sticky saliva ($p = .004$).

Conclusion. Further studies are needed to address the large unmet needs regarding identification and amelioration of barriers to return to work for head and neck cancer survivors in low- and middle-income countries, such as India. *Head Neck* **39:** 893–899, 2017

KEY WORDS: return to work, head and neck cancer, survivors, low and middle-income countries, employment

Return to work

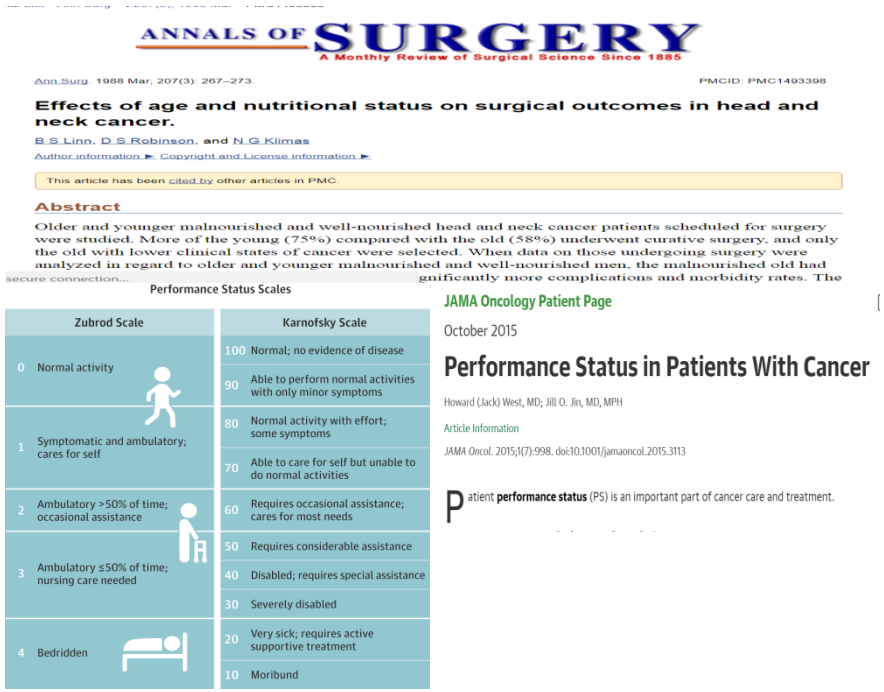
- Major issue concerning cancer survivors
- Most belong to lower socio economic group in a country like India
- Affects multiple facets of QoL lie emotional, social and financial
- Most series (western data) quote a rate of 70-80% return to employment (either the previous one or adapted) 2 years after successful treatment of head and neck cancer

Follow up

- Every 3 monthly for 2 years, then 6 monthly till 5 years and yearly thereafter.
- Aims at early detection of recurrence and management of side effects and toxicities of therapies
- Involves all the primary treating doctors as well as multitude of auxiliary services

Factors affecting outcomes

- Patient related:
  - Age
  - Nutritionalstatus
  - Performance status
  - Comorbidities
  - Pretreatment Distress
- Disease related:
  - Stage
  - Site
- Treatment related:
  - Completion of treatment
  - Modalities used



ANNALS OF SURGERY
A Monthly Review of Surgical Science Since 1885

Ann Surg. 1988 Mar; 207(3): 267–273. PMCID: PMC1493398

Effects of age and nutritional status on surgical outcomes in head and neck cancer.

B S Linn, D S Robinson, and N G Klimas

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This article has been cited by other articles in PMC.

Abstract

Older and younger malnourished and well-nourished head and neck cancer patients scheduled for surgery were studied. More of the young (75%) compared with the old (58%) underwent curative surgery, and only the old with lower clinical states of cancer were selected. When data on those undergoing surgery were analyzed in regard to older and younger malnourished and well-nourished men, the malnourished old had gnificantly more complications and morbidity rates. The

secure connection...

Performance Status Scales

Zubrod Scale		Karnofsky Scale	
0	Normal activity	100	Normal; no evidence of disease
		90	Able to perform normal activities with only minor symptoms
1	Symptomatic and ambulatory; cares for self	80	Normal activity with effort; some symptoms
		70	Able to care for self but unable to do normal activities
2	Ambulatory >50% of time; occasional assistance	60	Requires occasional assistance; cares for most needs
		50	Requires considerable assistance
3	Ambulatory ≤50% of time; nursing care needed	40	Disabled; requires special assistance
		30	Severely disabled
4	Bedridden	20	Very sick; requires active supportive treatment
		10	Moribund

JAMA Oncology Patient Page

October 2015

Performance Status in Patients With Cancer

Howard (Jack) West, MD; Jill O. Jin, MD, MPH

Article Information

JAMA Oncol. 2015;1(7):998. doi:10.1001/jamaoncol.2015.3113

Patient **performance status** (PS) is an important part of cancer care and treatment.

Head & Neck Cancers:
Typical Example Of Multidisciplinary Management

- > 95% of oral cavity cancers are caused by tobacco
- India has 200 million tobacco users
- Oral cancers: Most common cancer in men in India
- Smoking cessation:
  - Single most important step
  - Improving survival with a cost-benefit ratio > any form of radical treatment.
- Preventive Oncology:
  - Counselling,
  - Pharmacological interventions
  - Psycho-therapy, Rehabilitation

TOBACCO AND HEALTH

Year : 2010 | Volume : 47 | Issue : 5 | Page : 3-8

Tobacco and health in India

V Rao[1], P Chaturvedi[2]

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[2] Associate Professor and Assistant Surgeon, Department of Head and Neck Surgery, Tata Memorial Hospital, Dr Ernest Borges Road, Parel, Mumbai- 400 012, India

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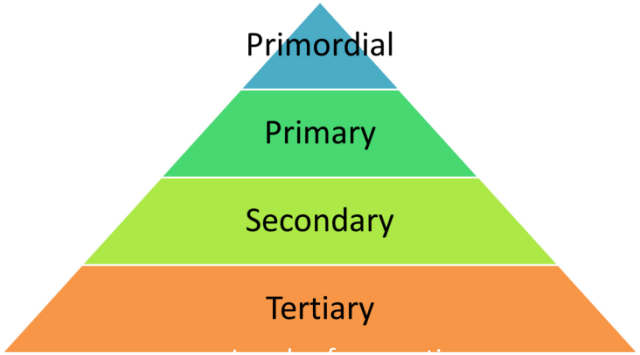
Source of Support: None, Conflict of Interest: None



Screening: Oral Cancers

- Known pre malignant lesions: Erythroplakia and Leukoplakia
- Early detection in high risk: May reduce mortality

Effect of screening on oral cancer mortality in Kerala, India: a cluster-randomised controlled trial

Rengaswamy Sankaranarayanan, Kunnambath Ramadas, Gigi Thomas, Richard Muwonge, Somanathan Thara, Babu Mathew, Balakrishnan Rajan, for the Trivandrum Oral Cancer Screening Study Group

Summary

Background Oral cancer is common in men from developing countries, and is increased by tobacco and alcohol use. We aimed to assess the effect of visual screening on oral cancer mortality in a cluster-randomised controlled trial in India.

Methods Of the 13 clusters chosen for the study, seven were randomised to three rounds of oral visual inspection by trained health workers at 3-year intervals and six to a control group during 1996–2004, in Trivandrum district, Kerala, India. Healthy participants aged 35 years and older were eligible for the study. Screen-positive people were referred for clinical examination by doctors, biopsy, and treatment. Outcome measures were survival, case fatality, and oral cancer mortality. Oral cancer mortality in the study groups was analysed and compared by use of cluster analysis. Analysis was by intention to treat.

Findings Of the 96 517 eligible participants in the intervention group, 87 655 (91%) were screened at least once, 53 312 (55%) twice, and 29 102 (30%) three times. Of the 5145 individuals who screened positive, 3218 (63%) complied with referral. 95 356 eligible participants in the control group received standard care. 205 oral cancer cases and 77 oral cancer deaths were recorded in the intervention group compared with 158 cases and 87 deaths in the control group (mortality rate ratio 0·79 [95% CI 0·51–1·22]). 70 oral cancer deaths took place in users of tobacco or alcohol, or both, in the intervention group, compared with 85 in controls (0·66 [0·45–0·95]). The mortality rate ratio was 0·57 (0·35–0·93) in male tobacco or alcohol users and 0·78 (0·43–1·42) in female users.

Interpretation: Oral visual screening can reduce mortality in high-risk individuals and has the potential of preventing at least 37 000 oral cancer deaths worldwide.

Lancet 2005; 365: 1927–33

See Comment page 1905

Screening Group, International Agency for Research on Cancer, Lyon, France (R Sankaranarayanan MD, R Muwonge MSc); and Division of Radiotherapy (K Ramadas MD), Division of Preventive Oncology (G Thomas MDS, B Mathew MDS), and Division of Cytopathology (S Thara MD), Regional Cancer Centre, Medical College Campus, Trivandrum, India (B Rajan MD)

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Head & Neck Cancers
Unique Characteristics

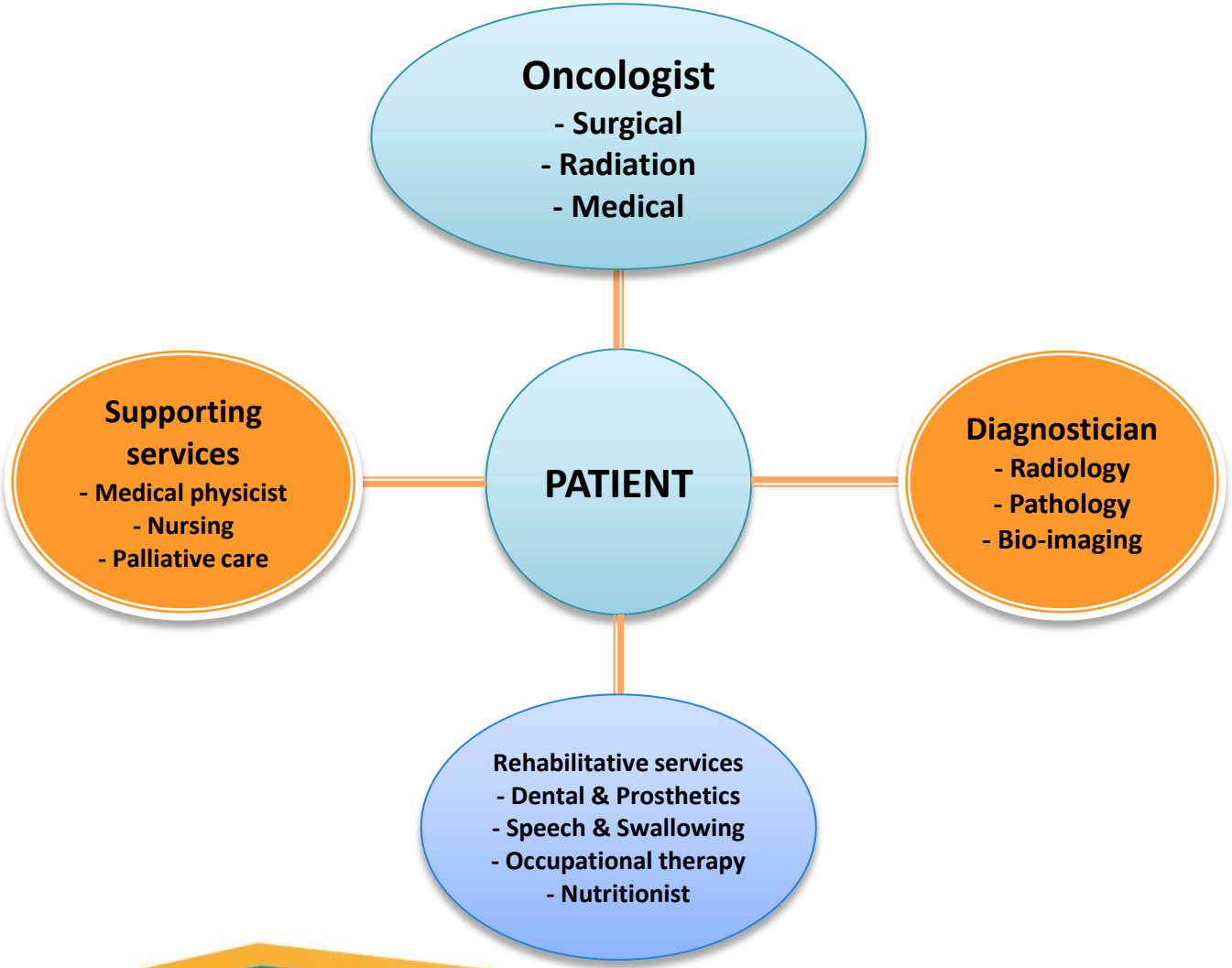
- Locoregional disease
- Cosmetically deforming
- Functionally and psychologically disturbing
- Rarely Disseminated

The Challenge

Early Cancers	Advanced Cancers
RT v/s Surgery	Single Modality: Ineffective
Equal Local Control	Chemotherapy: Disappointing results
Morbidity	Optimal Combination Therapy

Second Primary

Head & Neck Cancers
Team work for optimal management



Quality of life (QoL)

- Head and Neck: Probably the most morbid oncological site
- As cure rates plateau more and more emphasis on improving long term QoL with integration of modern technology(Robotic surgery/IMRT/Mabs)
- Long term side effects of therapy includes dry mouth, altered taste, decreased mouth opening, thyroid dysfunction, subcutaneous oedema and 2nd malignancy
- EORTC QLQC 30 HN 35 years questionnaire: Comprehensive assessment of various facets of QoL of head and neck cancer patients.

	Depression		
EORTC QLQ-H&N35	With (n = 20)	Without (n = 53)	P-value
Symptom scales	46.6 ± 22.5	16.3 ± 13.8	<0.001
Pain	27.5 ± 22.3	11.6 ± 14.0	0.003
Swallowing	60.0 ± 25.2	21.2 ± 21.3	<0.001
Senses problems	38.3 ± 26.5	15.7 ± 21.0	<0.001
Speech problems	51.7 ± 33.1	19.9 ± 21.0	<0.001
Trouble with social eating	60.8 ± 32.0	20.4 ± 24.9	<0.001
Trouble with social contact	41.0 ± 33.8	10.4 ± 18.9	<0.001
Less sexuality	44.2 ± 36.8	17.0 ± 22.5	0.002
Teeth	50 ± 36.7	35.8 ± 32.6	0.13
Opening mouth	78.3 ± 31.1	39.0 ± 39.6	<0.001
Dry mouth	80 ± 31.3	47.2 ± 35.5	<0.001
Sticky saliva	70 ± 35.7	29.6 ± 29.7	<0.001
Coughing	33.3 ± 28.6	18.2 ± 22.2	0.03
Felt ill	63.3 ± 28.4	13.8 ± 20.1	<0.001

MISSING LINK

Supportive Care

- Provision of nursing care
- Emotional support
- Monitoring/ Coordination
- Health education
- Follow up/ Referral system
- Promotion of quality of life

Multidisciplinary approach
Team effort
Judicious use of appropriate treatment modality
Attention to PRO and QOL

Thank You !