Breast Cancer Treatment: New Developments and New Decisions

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Treatment Issues

- Types of breast cancer
- Staging and biology
- Basics of therapy
  - Surgical oncology
  - Radiation oncology
  - Medical oncology
- The “team” approach

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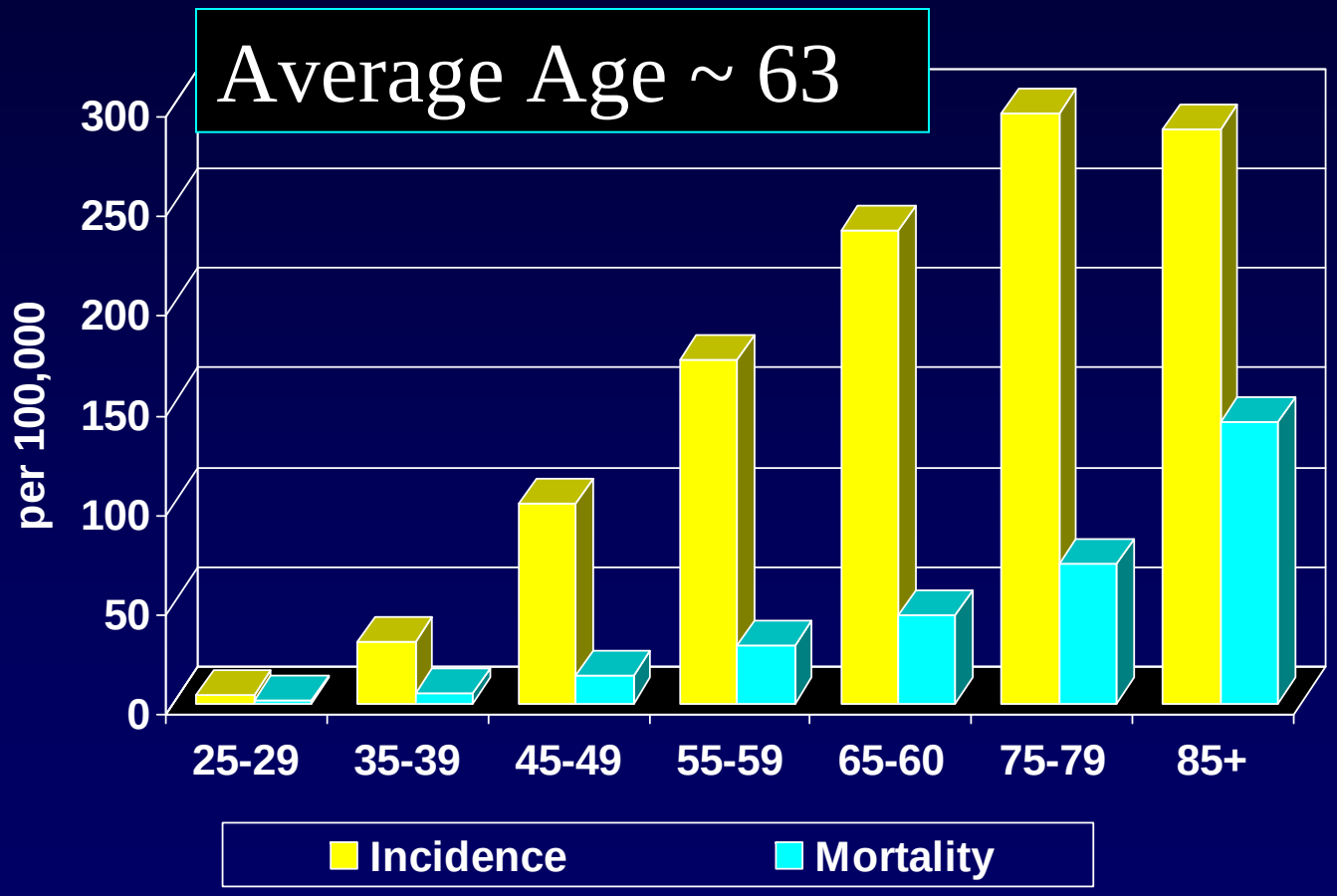
Breast Cancer and Age

United States SEER 1997-2001



Types of Breast Cancer

- Ductal carcinoma *in situ* (DCIS)
  - Noninvasive breast cancer
  - Rarely spreads (1-2%)
- Invasive breast cancer
  - Risk of spread varies by stage/biology

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Tumor Stage: the Basics

- Based on size, node status and spread
  - The TNM system
- Stages I, II, III – non-metastatic (local or regional) and curable
  - e.g. – breast, axillary lymph node.
- Stage IV – metastatic
  - growth anywhere else
  - e.g. - bone, lymph node, local area, lung or pleura, liver, brain, ovary.

Tumor Staging/Biology = Prognosis

- Distant metastases (M) – trump all else if present, otherwise:
- Tumor size (T)
- Axillary node involvement (N)
- Histology
- Tumor Grade
- Hormone Receptors: Estrogen Progesterone
- HER-2 (human epidermal growth factor receptor) status: gene amplified or not

10 Year Survival by Stage Surgery Only

Stage	%	Definition	10 yr Survival
0	20	In situ	98%
1	50	No nodes	60-95%
2	20	Positive nodes	10-60%
3	5	Large tumor	5-60%
4	5	Metastatic	5-10%

Treatment: Surgery

- Modified radical mastectomy
  - **Breast, pectoral fascia, lower axillary lymph nodes**

OR

- Breast conservation
  - **Lumpectomy with nodal assessment**
  - **Radiation therapy**

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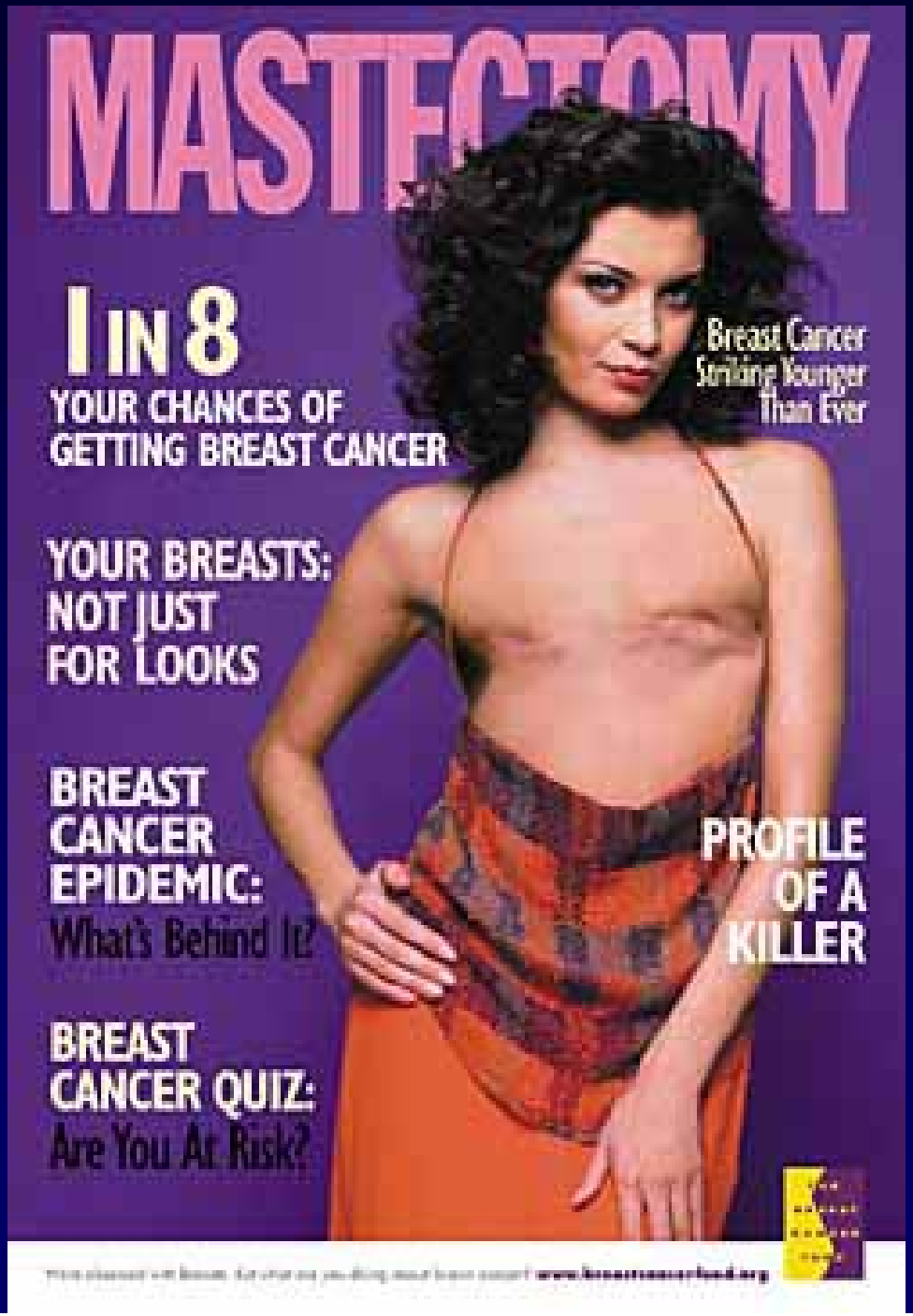
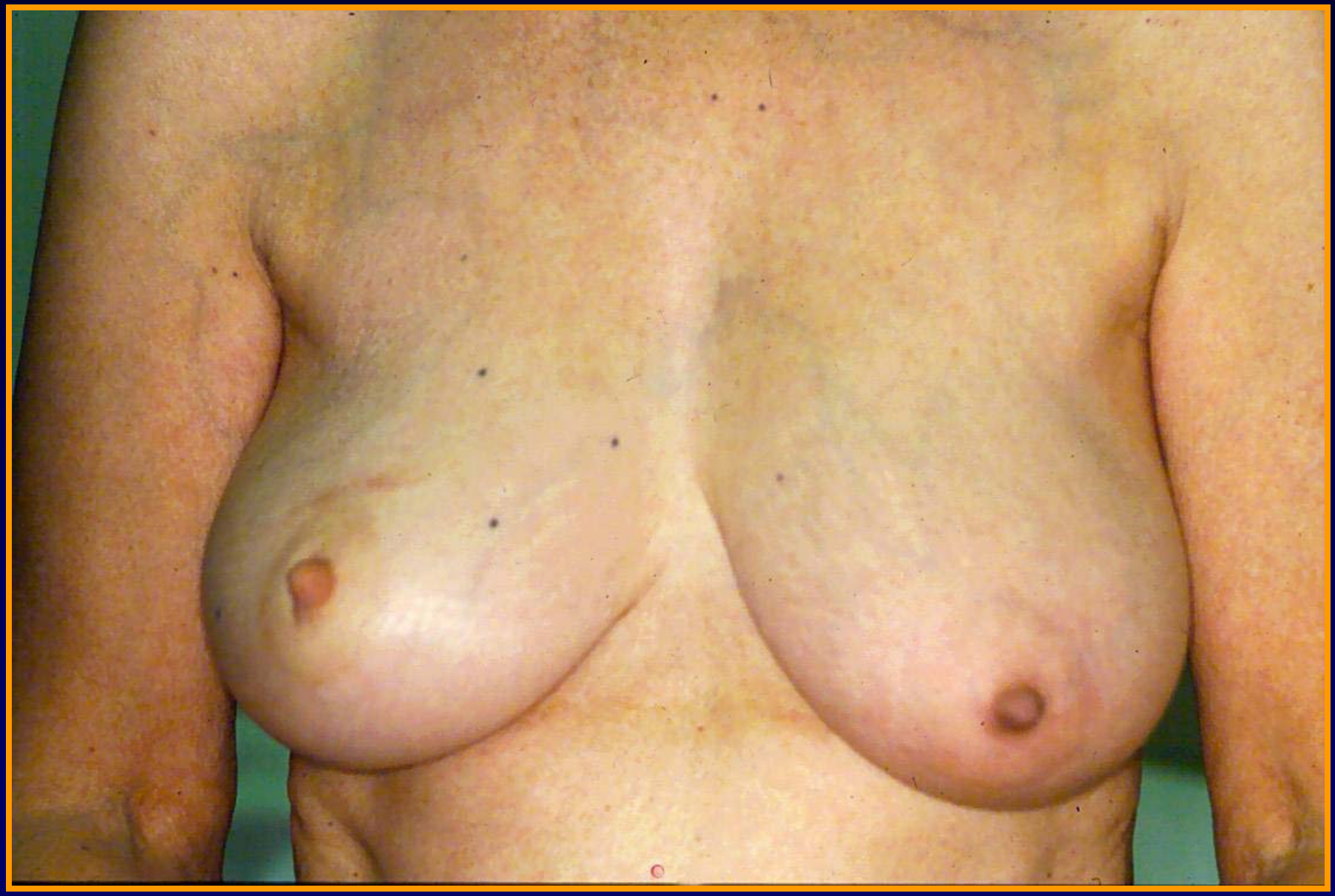
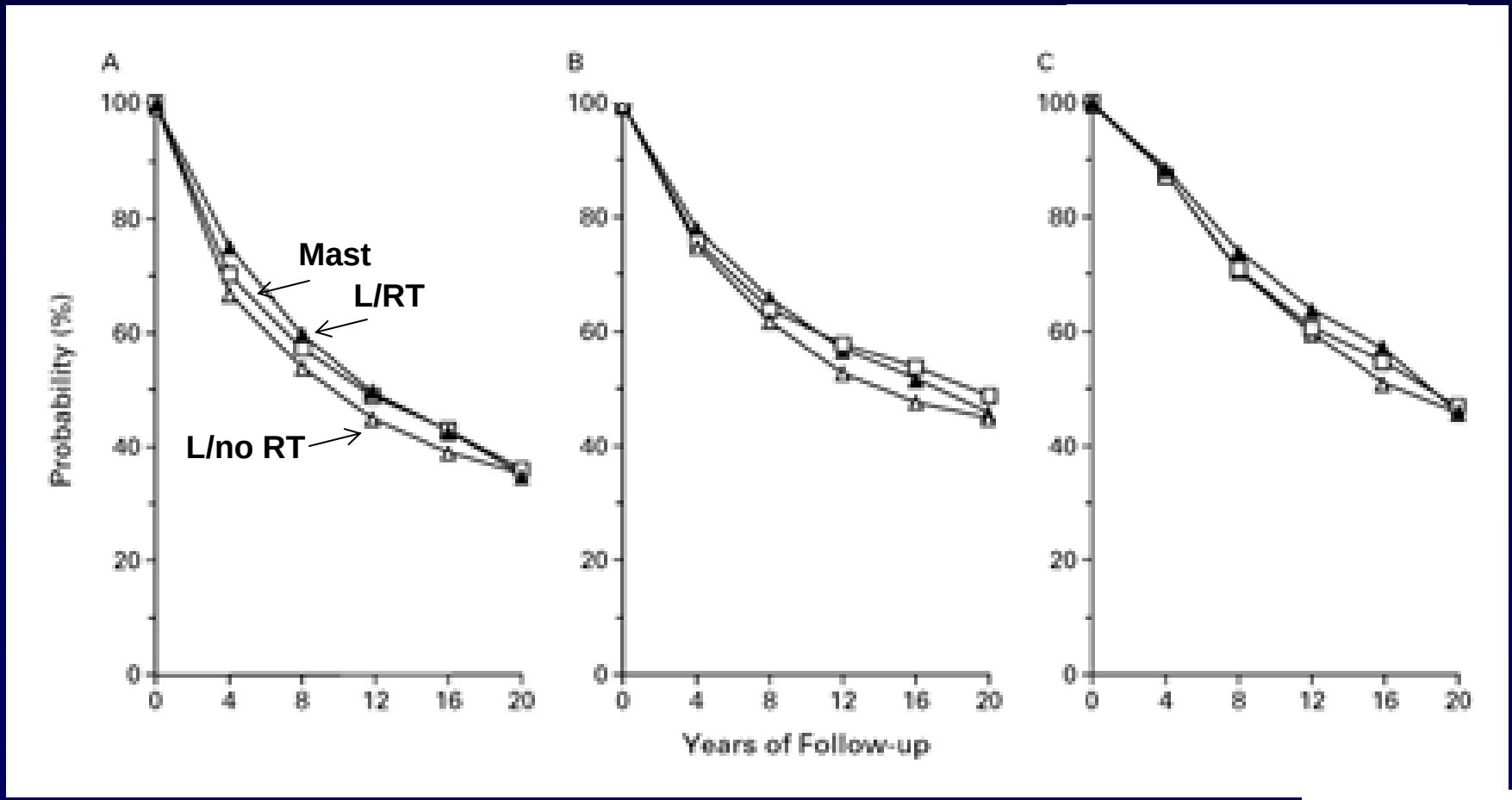

MASTECTOMY
1 IN 8
YOUR CHANCES OF GETTING BREAST CANCER
Breast Cancer Striking Younger Than Ever
YOUR BREASTS: NOT JUST FOR LOOKS
BREAST CANCER EPIDEMIC: What's Behind It?
PROFILE OF A KILLER
BREAST CANCER QUIZ: Are You At Risk?



Breast Conservation = Mastectomy (conservation is lumpectomy/radiation (L/RT))

% Disease-free % Without Mets % Alive



Squares = mast., triangles=L/no RT, dark triangles = L/RT

Fisher B et al. NEJM 2002

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Radiation Therapy

- Lumpectomy
  - alone - 30% recur, most same area
  - Radiation standard of care
    - Less than 10% recur in breast
- Mastectomy – controversial role
  - large tumors, many + lymph nodes
- Palliation
  - Bone, CNS, some other mets

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Systemic Therapy

- Chemotherapy (numerous)
- Hormone therapy (block, lower estrogen)
  - Tamoxifen, oophorectomy, aromatase inhibitors, etc.
- Bisphosphonates for bone mets
- Biologic therapy
  - Trastuzumab (Herceptin) – anti HER-2 antibody
  - Lapatinib (Tykerb) – anti HER-2 small molecule
  - Bevacizumab (Avastin**) –** anti VEGF antibody

Adjuvant Therapy

The use of chemotherapy, hormone therapy and/or radiation therapy either before or after surgery. The aim is to destroy microscopic metastases that may be present and if left untreated will eventually lead to relapse.

Systemic Therapy: Adjuvant

- **At diagnosis – reduces recurrence (25-50%) and improves survival**
- **Known options:**
  - **Chemotherapy**
  - **Hormone therapy (if ER or PR +)**
  - **Anti HER2 drug trastuzumab (if HER2 +)**
  - **Combinations of these**
- **Considered in all but smallest Stage I tumors**

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Adjuvant Therapy: Proportional Reduction Assume 100 pts, “Cure” 30%, 10 yr follow

Primary Tumor (Mo)	10 yr Survival No Rx	10 yr Surivival Rx	Lives saved
1 cm, N-	90%	93%	3
2 cm, 10+ LN	20%	44%	24

Math: 90% cure without Rx means 10% will not survive. 30% of 10% is 3% or three lives saved of 100 pts treated.

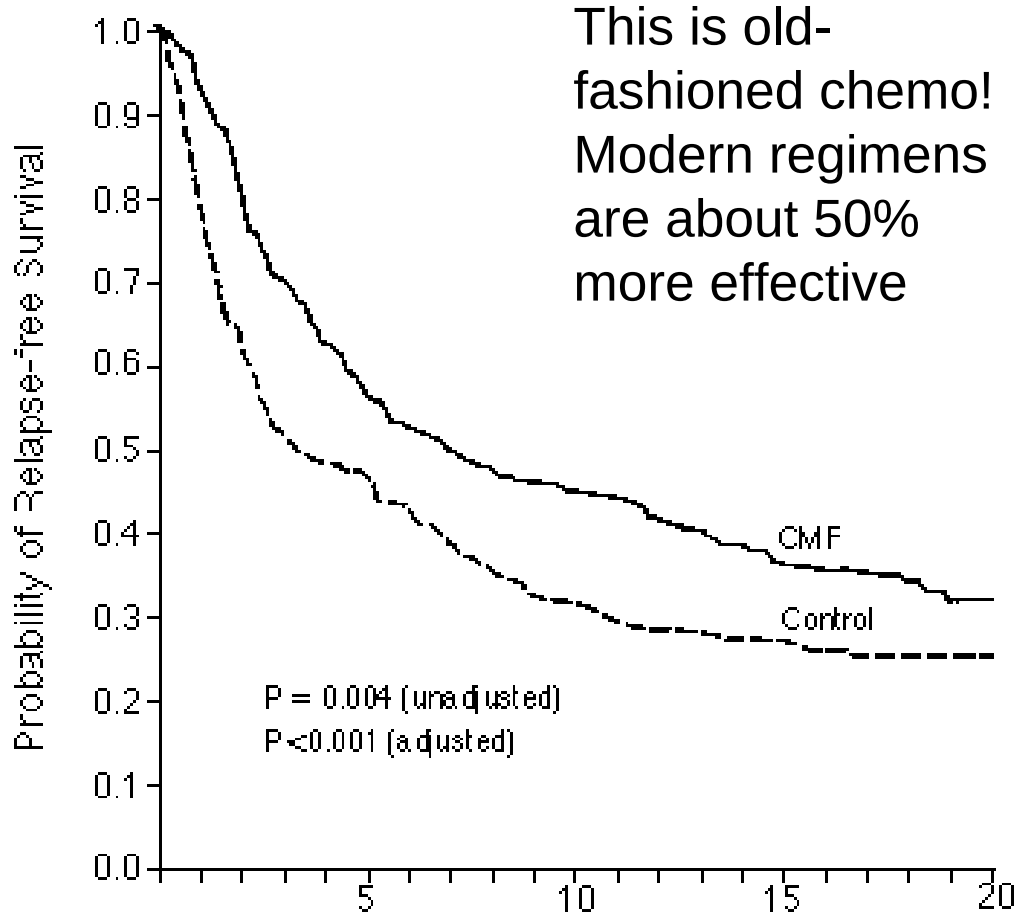
Selecting Adjuvant Therapy

- Size, grade and lymph node status
- Hormone Receptors
  - Estrogen and Progesterone Receptors
  - Positive in 60% of patients
  - If not present, hormone Rx does not work
- HER-2
  - Positive in 20% of patients
  - If negative Herceptin does not work

Long Term Impact of Adjuvant Chemo

34% reduction in relapse risk

26% reduction in risk of death



This is old-fashioned chemo! Modern regimens are about 50% more effective

Bonadonna G et al. NEJM 1995

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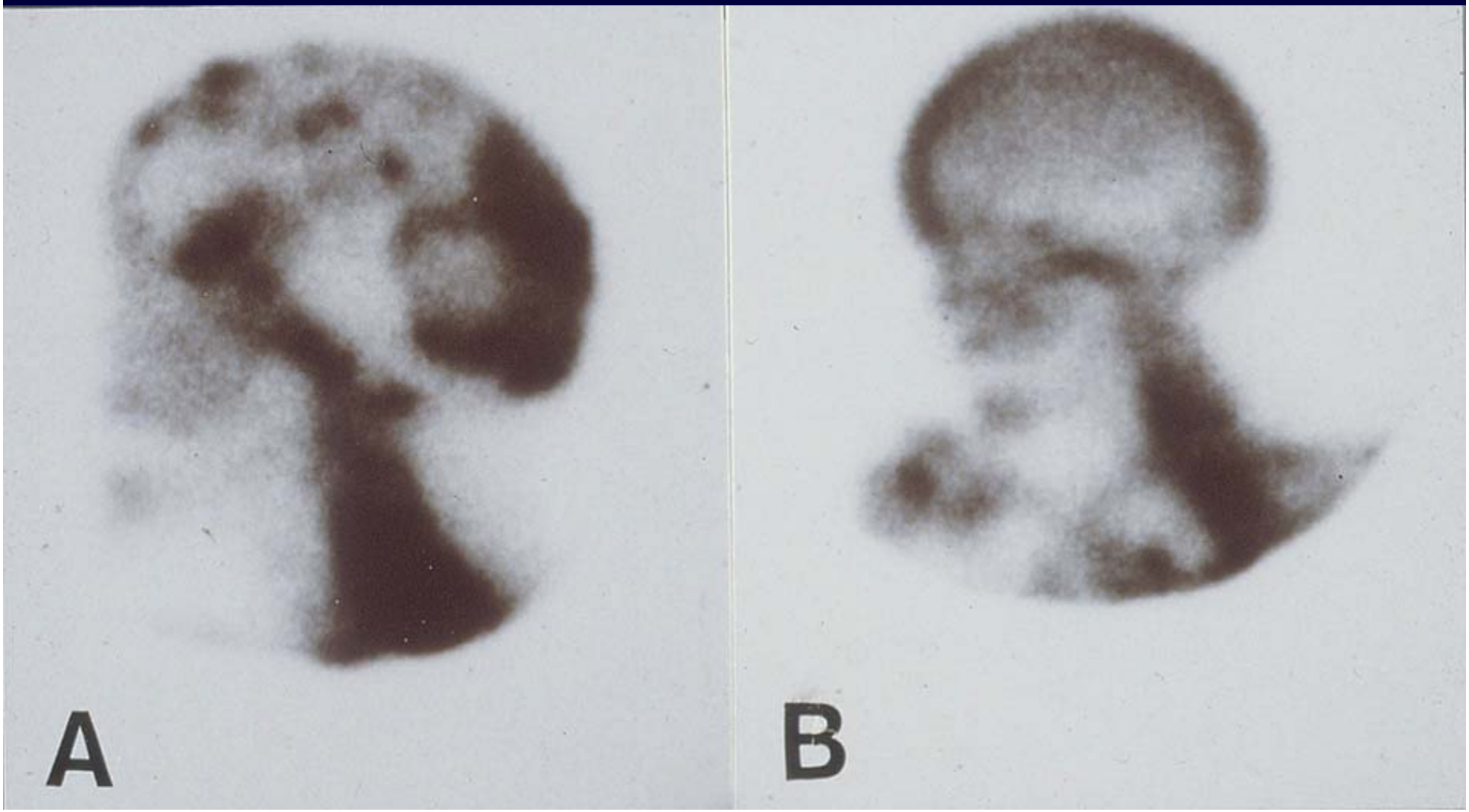
Metastatic Disease

- All therapy is palliative
- Median survival depends on tempo not Rx
  - Median is 24 month for all patients
  - About 20% live 5 years and some 20 years
- Goal of Treatment
  - Control of disease and symptoms
  - Maximizing quality of life
- Endocrine Rx $\rightarrow$ Chemotherapy
  - Single sequential Rx best for most

Bone Metastases: Response



Rx Preference vs Added Survival

McQuellon et al, J Clin Oncol 13:858 '95

% of patients who would elect Rx for:

	1 mth	6 mth	1 yr	5 yr
std chemo	18	44	63	91
phase II	17	33	57	87
hormonal Rx	61	82	93	98
high-dose	9	34	64	100

“Team” Approach

- Multidisciplinary Clinic
  - Face to face, videoconference
- The Team – facilitated by “navigator”
  - Surgery
  - Radiation Oncology
  - Medical Oncology
  - Pathology
  - Genetics
  - Support Program

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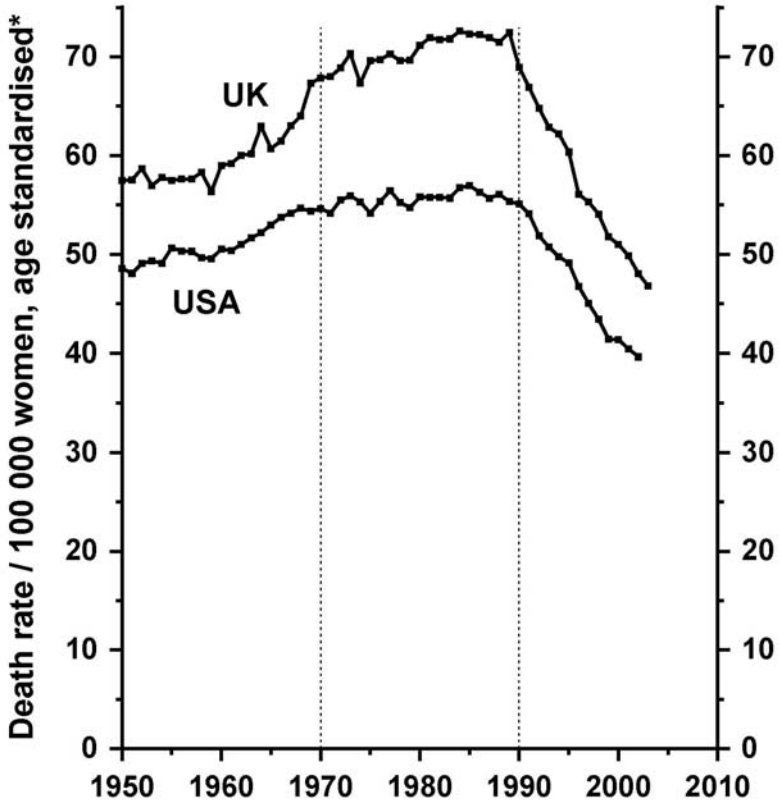
UK and USA 1950−2003/2: Females
Breast cancer mortality at ages 35−69



*Mean of annual rates in the seven component 5−year age groups

Source: WHO mortality & UN population estimates

Summary

- Treatment is complicated and costly
- Team approach best
- Many decisions along the way
  - Lumpectomy vs Mastectomy
  - Radiation
  - Systemic Therapy (Chemo, Endocrine)
- Follow-up essential
- Survivorship issues -lifelong management

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Thank You !