# The organisation of DBCG (Danish Breast Cancer Cooperative Group) as a model to facilitate translational research in breast cancer

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# Breast cancer. General information

- **Breast cancer most common malignant disease in women.**

- **World-wide incidence approximately 1 mill.**

- **With local therapy (surgery +/- radiotherapy) alone approximately 50% will recur within 20 years.**

- **Systemic adjuvant therapy (chemotherapy, endocrine therapy, trastuzumab) reduces risk of recurrence by approximately 50%.**

Johansen H, Acta Oncol 1990;29:709

# Breast cancer. Selection of patients for adjuvant systemic therapy

According to
- **Prognostic factors**
  - age
  - nodal status
  - size
  - grade
  - vascular invasion
  - ER status
  - HER2 status
  - TOP2A status

- **Predictive factors**
  - ER status (endocrine therapy)
  - HER2 status (trastuzumab)

# Breast cancer. Definition of risk group.

| Sct. Gallen 2007 | | | DBCG 2007 | | |
|---|---|---|---|---|---|
| Group | Risk | Definition | Group | Risk | Definition |
| Low | < 10% | - node neg., and | Low | < 10% | - node neg., and |
| | | - size ≤ 20mm, and | | | - size ≤ 20mm, and |
| | | - grade I, and | | | - grade I, and |
| | | - no vasc.invasion, and | | | - ER or PgR pos., and |
| | | - ER or PgR pos., and | | | - HER2 neg. and |
| | | - HER2 neg. and | | | - TOP2A normal, and |
| | | - age ≥ 35 years | | | - age ≥ 35 years |
| Inter-mediate | 10 – 30% | } All other | High | 10 ≥ 30% | All other |
| High | > 30 % | | | | |

# Definition of risk categories

| Risk Category | St. Gallen 2007 | DBCG 2007 |
|---|---|---|
| Low Risk<br>< 10 % | Node negative AND all the following features:<br>• size ≤ 20 mm, AND<br>• grade I, AND<br>• no vasc. invasion, AND<br>• ER or PgR positive, AND<br>• HER2 negative, AND<br>• age ≥ 35 years | Node negative AND all the following features:<br>• size ≤ 20 mm, AND<br>• grade I, AND<br>•ER or PgR positive, AND<br>• HER2 negative, AND<br>• age ≥ 35 years |
| Intermediate<br>10 – 30 % | Node negative AND one of the above<br>Node positive AND<br>• ER and PgR negative, OR<br>• HER2 positive | All other |
| High Risk<br>> 30 % | Node positive (1-3 nodes) AND<br>• ER and PgR negative, OR<br>• HER2 positive<br>Node positive (4 or more nodes) | |

# Systemic treatment strategies according to risk groups

- **Low risk: Generally (and in DBCG) untreated**

- **Intermediate and high risk: Treated according to predictive factors**

  **- ER and PgR neg.:**         **CT**

  **- ER or PgR pos.:**   **ET (and most < 60 – 70 years generally + CT)**

  **- HER2 pos.:**         **Trastuzumab in addition to CT, to CT + ET, and to ET only in selected patients**

# Consequences of present treatment strategies

With

- risk of recurrence < 10% in low risk and 10 - > 30% in intermediate/high risk patients, and
- risk of recurrence reduced by 50% with systemic therapy

then

- a small proportion of low risk patients are undertreated, and
- a larger proportion of intermediate/high risk patients are overtreated

Thus we need better prognostic and predictive factors

# Translational studies to develop new prognostic and predictive factors

**Retrospective:**   Requires access to archival tissue and historical data of treatment and follow-up in low risk and high risk patients as well

**Prospective:**   Requires long term data of clinical follow-up in adjuvant trials. A preoperative (neoadjuvant) model may compensate for this, but requires that preoperative data can be translated to the adjuvant setting

# Partners in translational studies
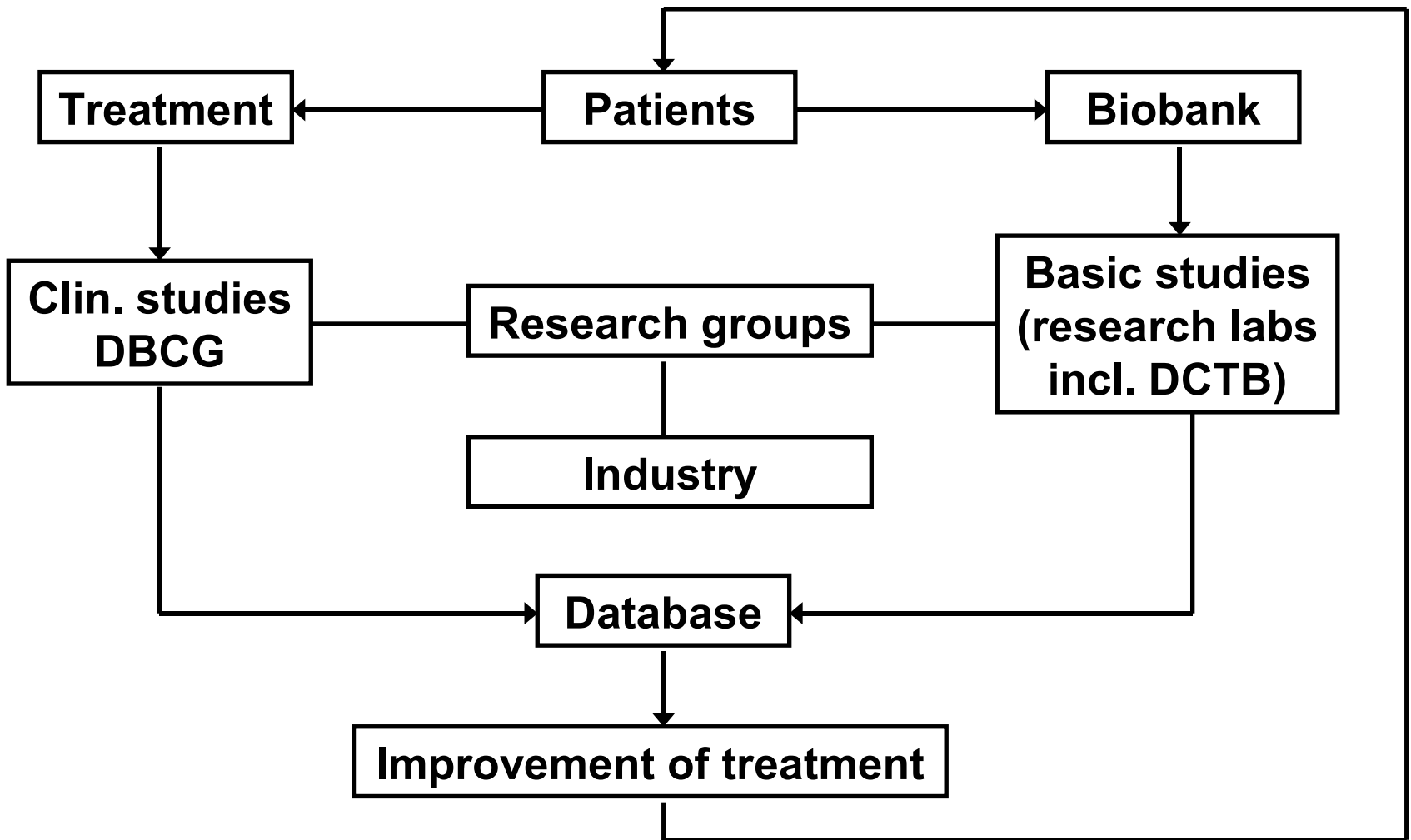
# Patients as partners in translational studies – DBCG

**Prospective studies:**

- **Willingness to participate in randomized trials**
- **Willingness to accept tumor tissue to be used for basic studies**

**Retrospective studies:**

- **Basic studies on archival tissue. According to Danish law informed consent is given by the ethical committees on behalf of the patients (provided no interaction with patients, and no record made in the Civic Registry).**

# Clinical and basic research as partners in translational studies - DBCG
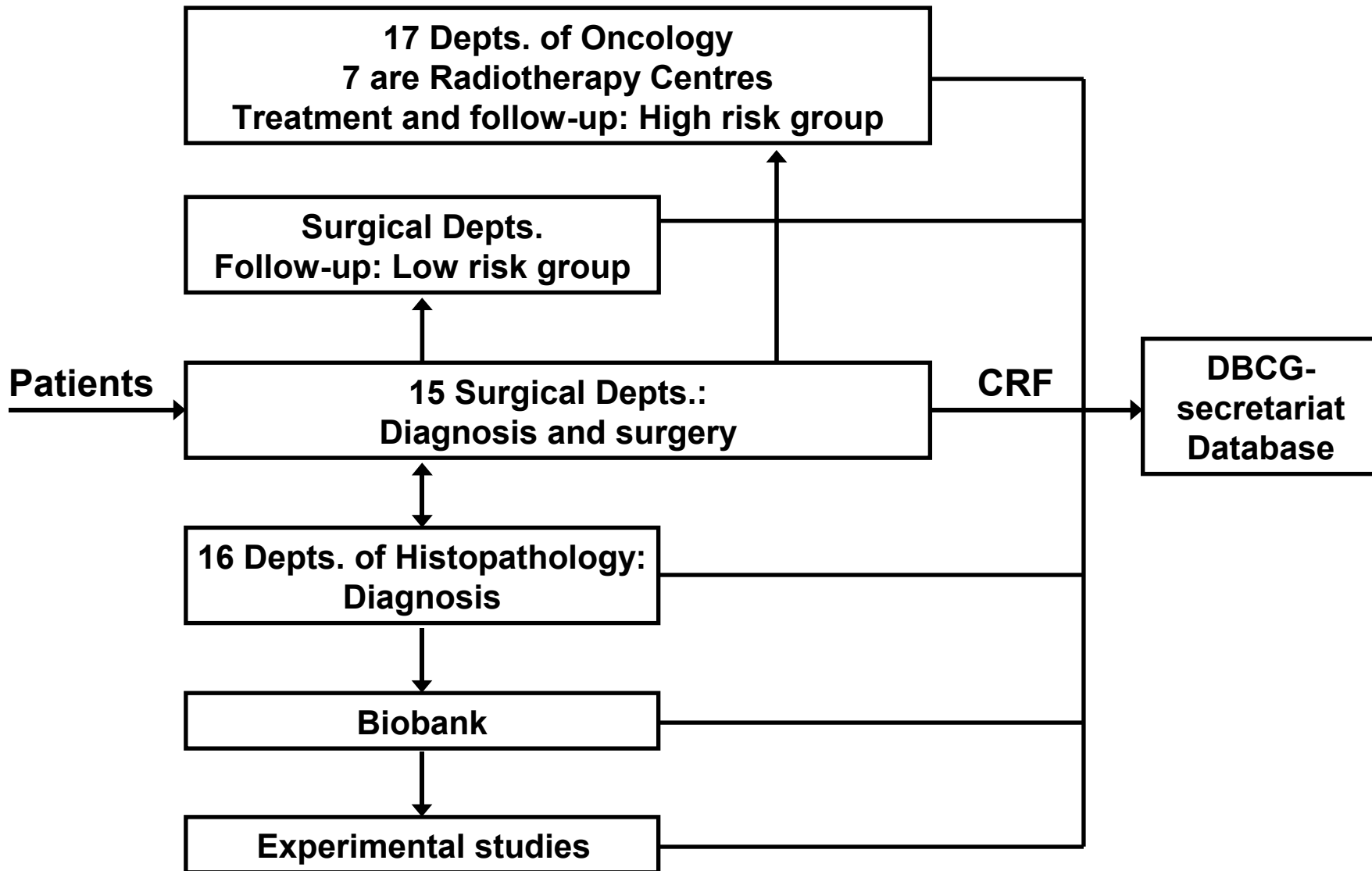
# Organisation of DBCG established 1977

- **Nation-wide updated evidence-based guidelines for primary diagnosis, histopathology, primary surgery, radiotherapy, systemic therapy and follow-up**

- **Quality control of the guidelines**

- **Since 1977 all data of histopathology, treatment and follow-up have been collected in a central database. (At present data from 90,000 patients)**

- **International collaboration**

# Clinical and basic research as partners in translational studies

- **Clinical studies organized by the DBCG scientific committees for surgery, radiotherapy and systemic therapy respectively representing all involved departments**

- **Pathology studies organized by the DBCG scientific committee for pathology representing all departments of pathology**

- **Basic research studies organized by the DBCG scientific committee for translational research with representatives from the departments involved in basic research in breast cancer**
        - **Universities**
        - **Danish Cancer Society**
        - **DBCG**

# Translational studies in breast cancer

- **Numerous technical methodologies available today to genetically characterize the tumor**

- **Quality of the clinical data remains the major critical issue to develop new valid prognostic and predicative factors**

- **We believe the DBCG model offers a unique possibility to run translational studies in non selected patients on a nation-wide basis**