



Global Breast Cancer Clinical Trial Visualization

Course: BMI706

Group: Group 5

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Goal

- Provide a comprehensive visual overview of the breast cancer clinical trials landscape
- Support clinical researchers in generating new hypotheses and identifying gaps in current research



Dataset

AACT-CTTI Database
(Aggregate Content of ClinicalTrials.gov from
the Clinical Trials Transformation Initiative)

556,933 trials

Condition-based filtering:
Condition names containing “breast”

MeSH-term filtering :
Standardized Medical Subject Headings corresponding to “Breast Neoplasms”

16,170 distinct breast cancer trials

Data Type	Data
Geospatial	Country
Temporal	Trial start year
Categorical	Trial Identifier
	Study status (Active, Completed, Terminated)
	Source class (Fed, Individual, Industry, Network, NIH, Government, Others, Unknown)
	Intervention types (Drug, Behavioral, Procedure, Device, Biological)
Quantitative	Study duration (days)

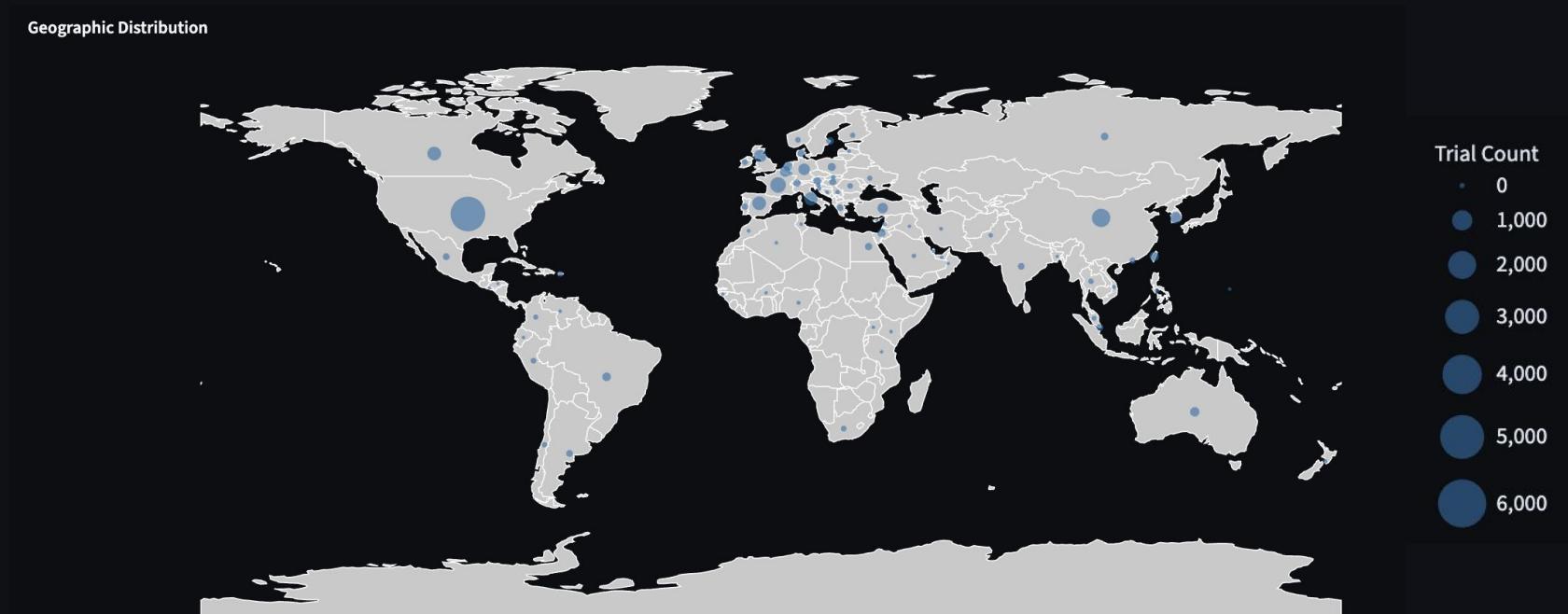
Task 1: Temporal trends in breast cancer clinical research activity

How has the volume of breast cancer clinical trials changed over time?



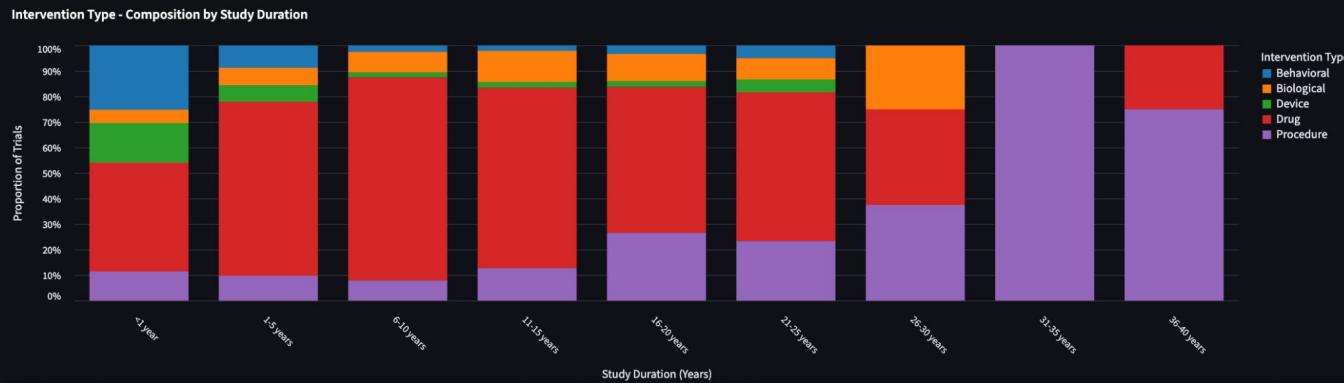
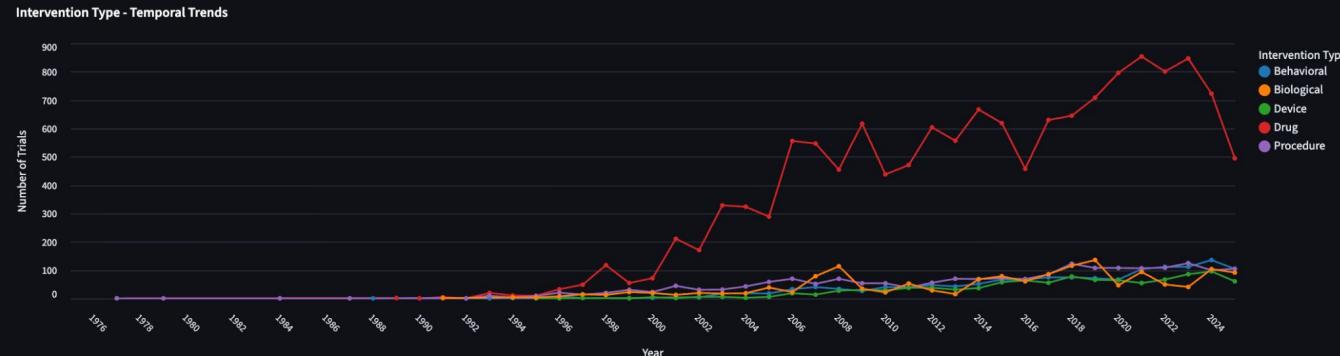
Task 2: Geographic distribution of breast cancer clinical trials

Which regions contribute the most to breast cancer clinical research, and where are the major geographic gaps?



Task 3: Distribution and evolution of intervention types in breast cancer research

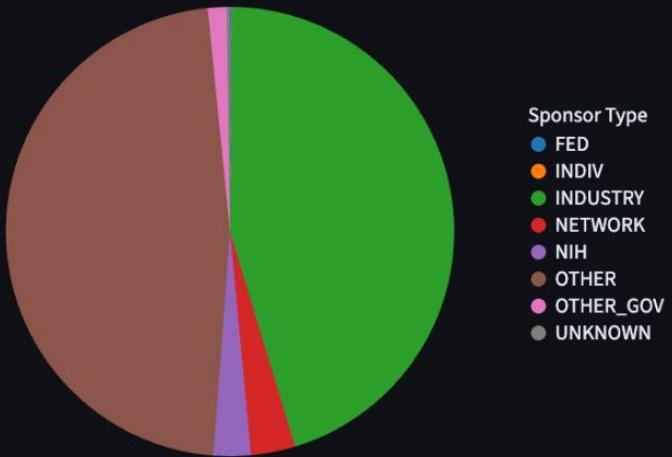
Which intervention types dominate, how have they evolved, and how do they affect trial duration?



Task 4: Influence of sponsor types on trial design and outcomes

How do sponsor types shape study volume, status, intervention, and completion rates?

Sponsor Type Composition



Sponsor Category Definitions

FED: US Federal government agencies excluding NIH

INDIV: Individual physician investigators

INDUSTRY: Pharmaceutical and biotech companies

NETWORK: Research consortia and cooperative groups

NIH: US National Institutes of Health agencies

OTHER: Universities, academic medical centers, non-profit hospitals, and cancer research organizations

OTHER_GOV: Non-US government hospitals and health agencies

Example Demo

Which year range has the most active breast cancer clinical trials?

Filters

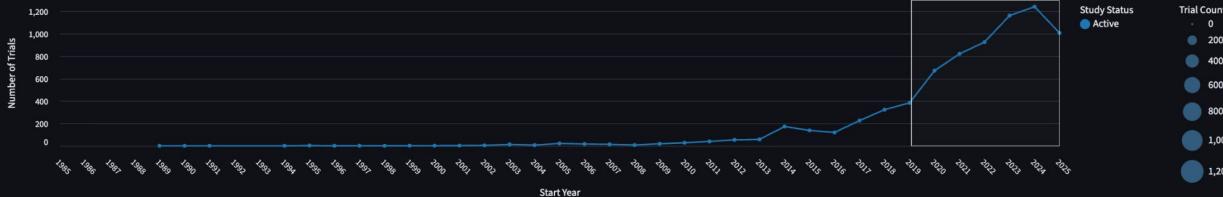
Study Status

Active

Country

All

Temporal Trends by Study Status



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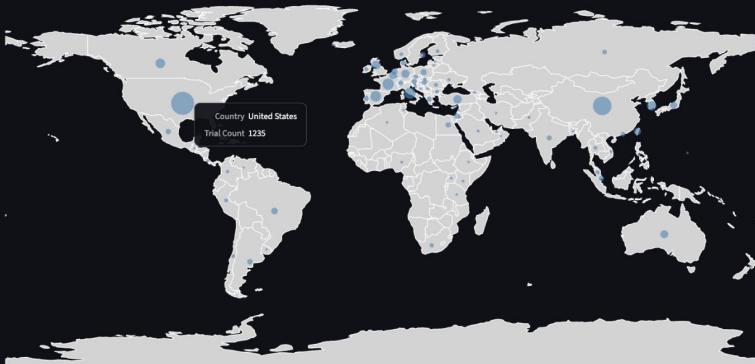
Study Status

Active

Trial Count

0
200
400
600
800
1,000
1,200

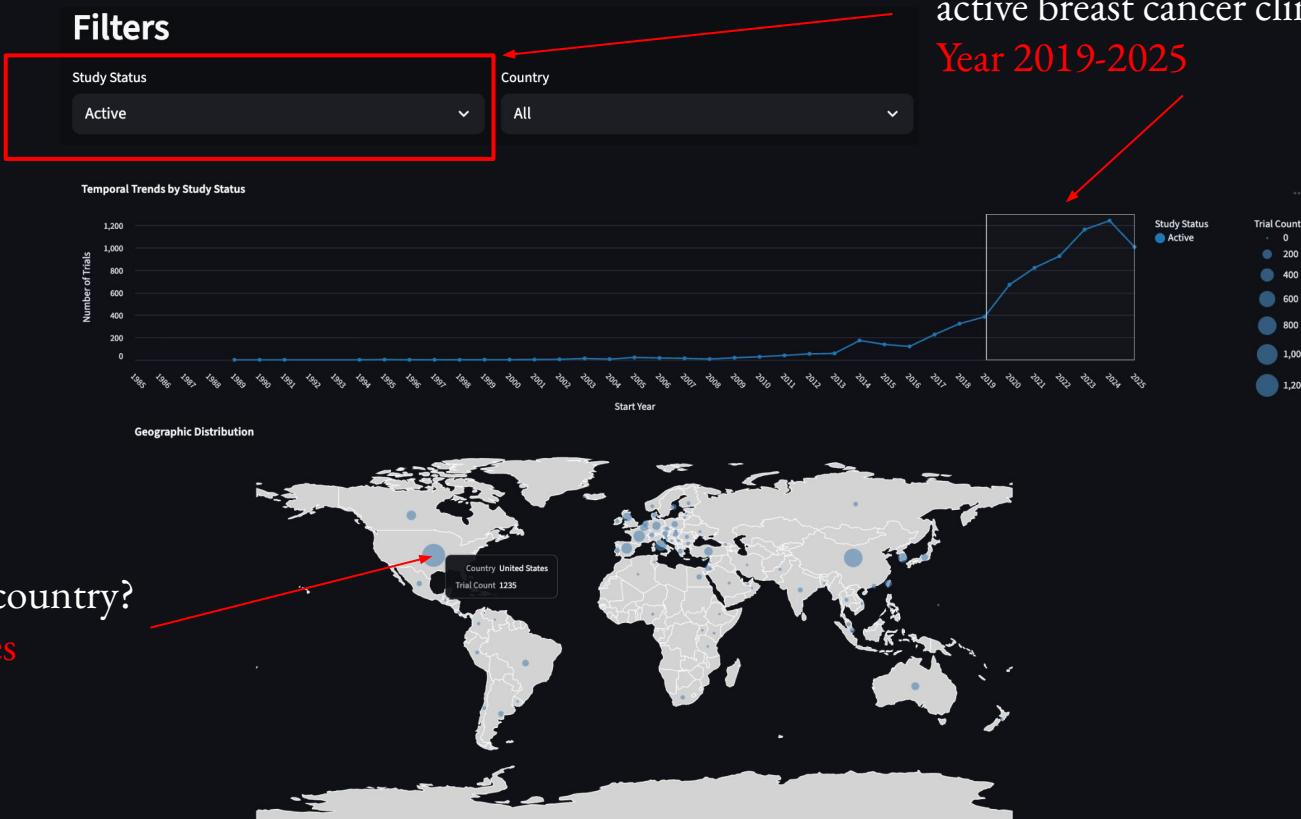
Geographic Distribution



And which country?

Example Demo

Filters



Which year range has the most active breast cancer clinical trials?
Year 2019-2025

And which country?

United States

Example Demo

Filters

Study Status

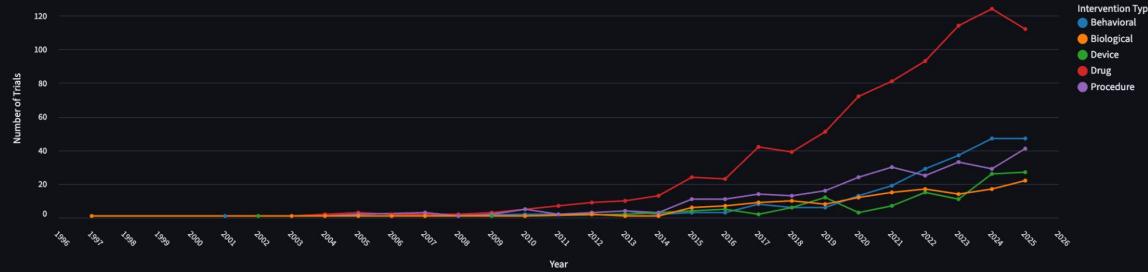
Active

Let's focus on the United States!

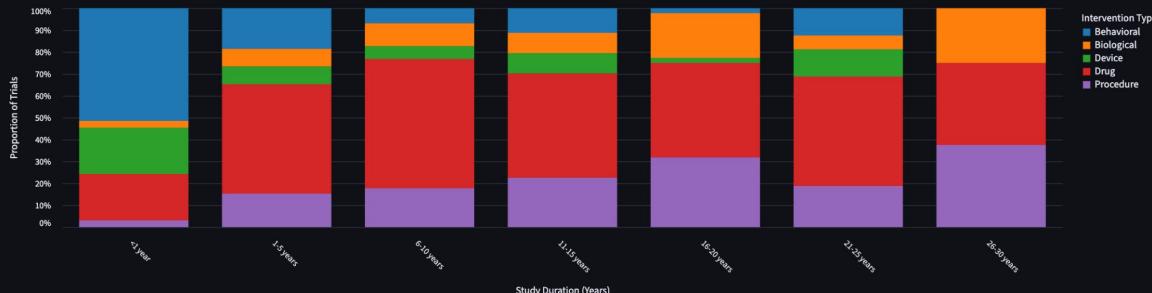
Country

United States

Intervention Type - Temporal Trends



Intervention Type - Composition by Study Duration



Which intervention type is most associated with the active trials in the U.S. from year 2019-2025?

What intervention type contributed the most to the longest-running active breast cancer clinical trials?

Among active U.S. trials from 2015–2019, what are the longest study durations observed?

Example Demo

Filters

Study Status

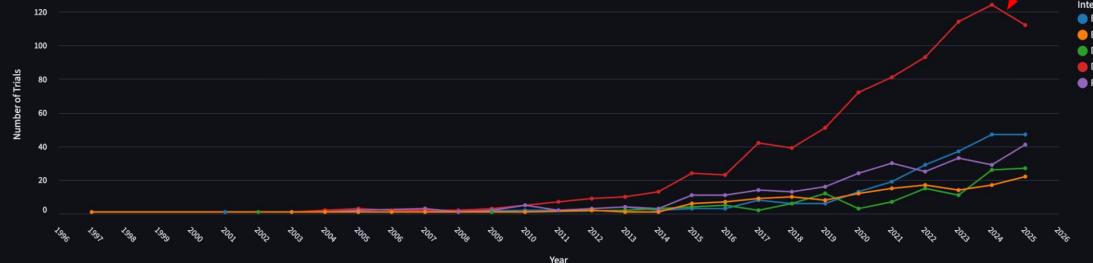
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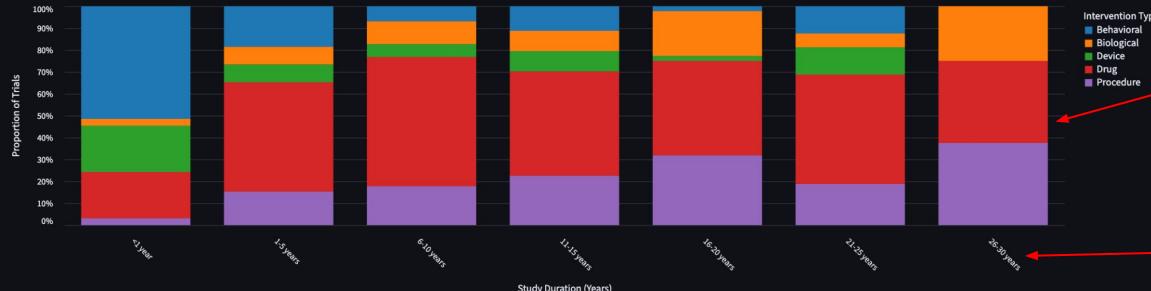
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United States

Intervention Type - Temporal Trends



Intervention Type - Composition by Study Duration



Which intervention type is most associated with the active trials in the U.S. from year 2019-2025?

Drug intervention

What intervention type contributed the most to the longest-running active breast cancer clinical trials?

Drug intervention

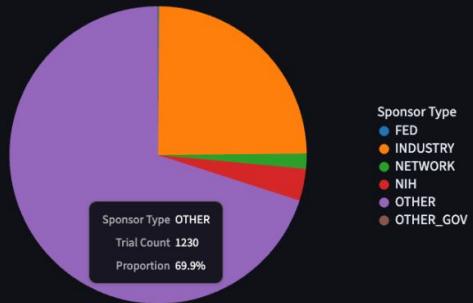
Among active U.S. trials from 2019-2025, what are the longest study durations observed?

26-30 years

Example Demo

Among active U.S. trials from 2015–2019, which sponsor type contributed the most?

Sponsor Type Composition



- Sponsor Type
 - FED
 - INDUSTRY
 - NETWORK
 - NIH
 - OTHER
 - OTHER_GOV

▼ Sponsor Category Definitions

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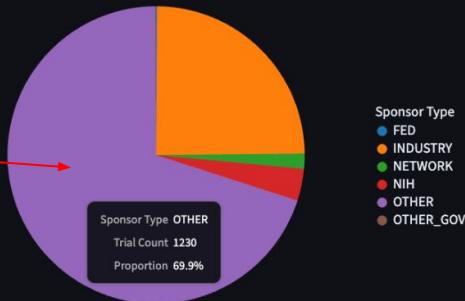
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OTHER_GOV: Non-US government hospitals and health agencies

Example Demo

Among active U.S. trials from 2019–2025, which sponsor type contributed the most?
OTHER: Universities, academic medical centers, non-profit hospitals, and cancer research organizations

Sponsor Type Composition



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