RWD159

Real-World Insights Into Breast Cancer in the UK: Findings From UK EHR-Derived Data

Amit Samani, PhD, MD[1]; Mohamed S. Ali, PharmD, SM[2]; Arun Sujenthiran, MD[1]; Blythe Adamson, PhD, MPH[2]

[1]Flatiron Health UK, London, UK; [2]Flatiron Health, New York, NY, USA

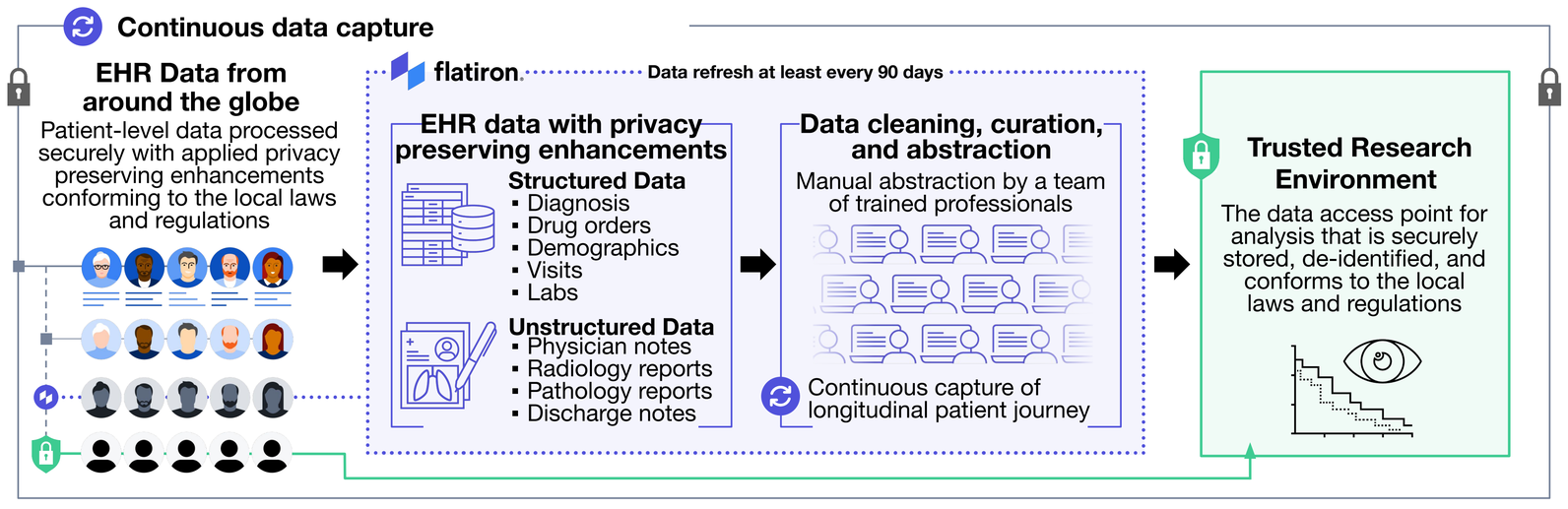
Background

- Breast cancer is one of the most prevalent cancers among women. Understanding real-world disease characteristics is important for improving care
- We aimed to describe the comprehensive, de-identified patient-level data in Flatiron Health Research Database, derived from electronic health records (EHRs) of breast cancer patients in the UK, with a focus on patient demographics, clinical characteristics, treatments, and outcomes

Methods

- **Data source:** The study used the UK Flatiron Health Research Database, a nationwide, longitudinal, EHR-derived, de-identified database, comprising patient-level data from a range of National Health Service (NHS) clinics. The data are curated using a combination of technology-enabled abstraction and manual review[1,2]
- **Setting:** Individuals diagnosed with breast cancer (all stages) from January 2011 to March 2025 (n = 4393)
- **Outcomes:** Descriptive analysis of patient characteristics (demographics, biomarker testing rates, treatment patterns) and survival analysis using Kaplan-Meier methods

Figure 1. Overview of the Process for EHR-Derived Real-World Data Curation



Results

- **Cohort:** Of 4393 patients, 968 (22%) had metastatic disease, of whom 293 (30%) had de novo disease and 673 (70%) had distant recurrence. A total of 1188 patients had systemic therapy for non-surgically treated locally advanced or metastatic disease (**Table 1**)
- **Completeness**: Key variables had high completeness including hormone receptor (HR) and HER2 receptor status (100% amongst tested), histology (98%), grade (97%) and group stage (91%)
- **Treatment regimen**: Treatment patterns were as expected. For patients with advanced HR+/HER2- disease who received treatment (n = 813), 89% (721) received first-line endocrine therapy +/- CDK4/6 inhibitor while the majority of the remainder received chemotherapy
- **Outcomes**: Median overall survival from initial diagnosis was 27 months (95% CI: 25 - 30). Survival was lower in patients with triple negative tumours compared to those with HR+ and/or HER2+ disease (**Figure 1**), and those with higher stage (**Figure 2**)

Table 1. Demographics of Patients Included in the Study

Characteristics	Full cohort (n = 4393)	Metastatic cohort (n = 968)	Treated cohort (n = 1188)
Age, median (IQR), y	62 (52, 73)	62 (50, 75)	67 (52, 78)
Group stage, n (%)			
Stage I	1708 (43)	98 (11)	213 (20)
Stage II	1393 (35)	258 (29)	343 (32)
Stage III	613 (15)	248 (28)	243 (23)
Stage IV	293 (7)	293 (33)	263 (25)
Unknown	388	63	118
Tumour Grade, n (%)			
Grade 1	708 (17)	43 (5)	108 (9)
Grade 2	2263 (53)	443 (48)	623 (54)
Grade 3	1318 (31)	438 (47)	413 (36)
Unknown	103	38	43
Histology, n (%)			
Invasive ductal	3148 (73)	638 (73)	818 (71)
Invasive lobular	558 (47)	143 (15)	193 (17)
Mixed ductal/lobular	163 (4)	33 (4)	43 (4)
Mucinous	78 (2)	13 (1)	23 (2)
Tubular	73 (2)	≤10	≤10
Other	373 (8)	>86 (9)	>101 (9)

IQR -interquartile range; Counts were masked for privacy by midpoint-10 rounding and recalculating proportions

Results (continued)

Figure 1. Overall Survival From Start of First-Line Therapy for Advanced Disease by Biomarker Subtype

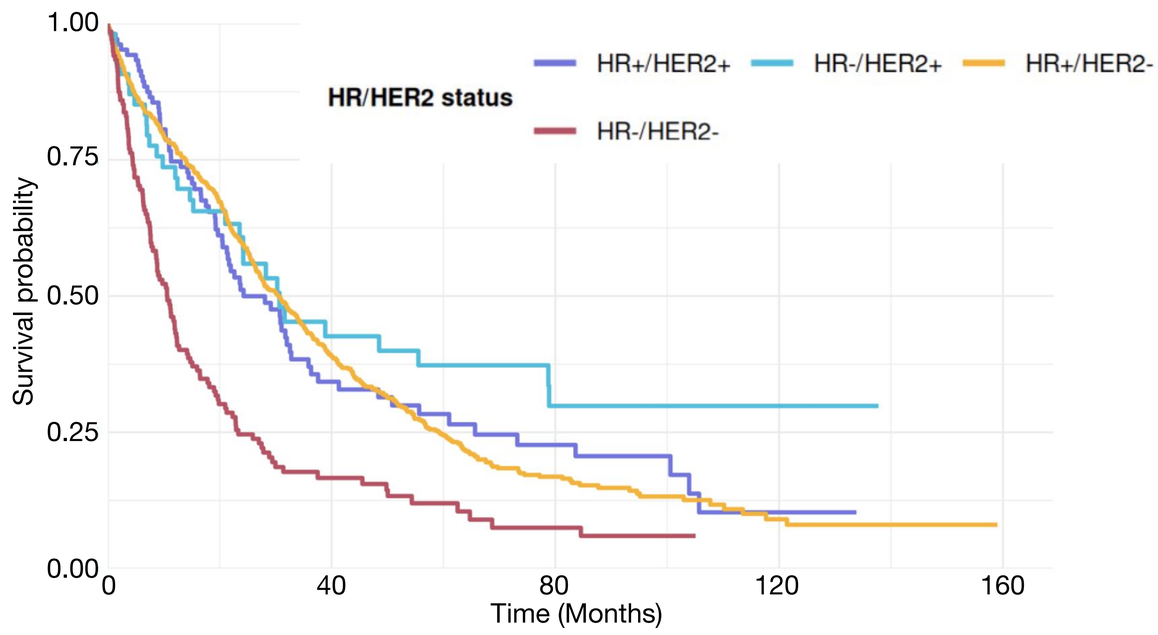
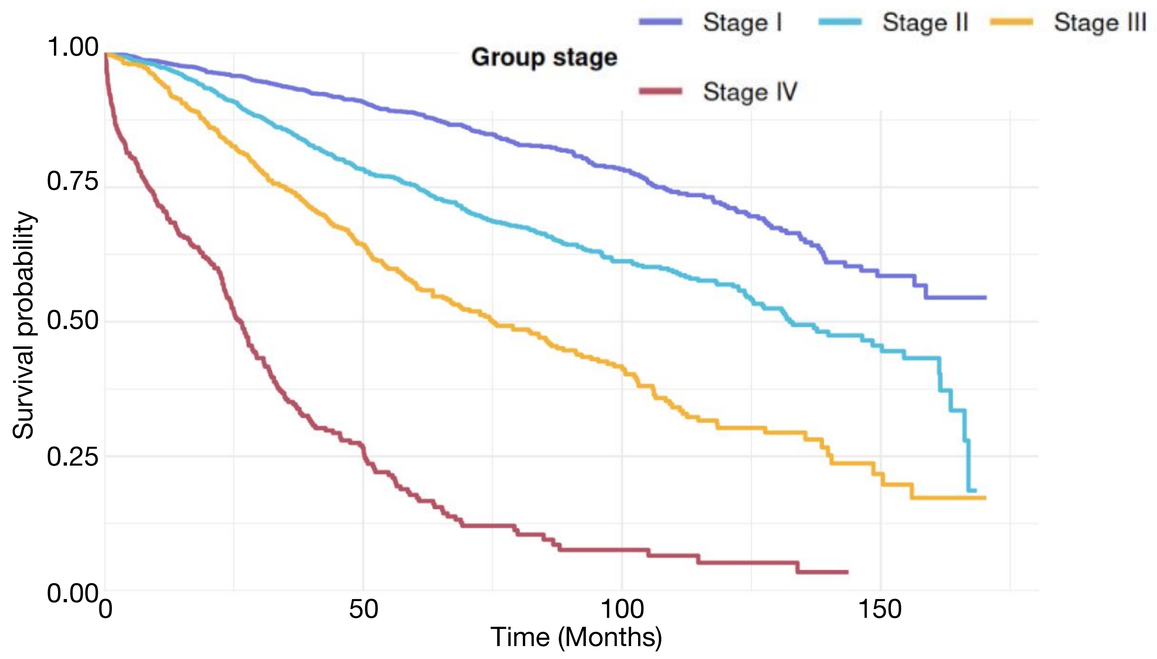


Figure 2. Overall Survival From Initial Diagnosis by Stage



Baseline characteristics and **outcomes** from the UK Flatiron Health breast cancer dataset **align with clinical expectations**. Outcomes for **triple negative** breast cancers remain especially poor, highlighting an important **area of unmet need.**

Future Directions

- Future research should focus on long-term follow-up to understand how various treatments affect survival, recurrence, and patient quality of life over extended periods, contributing to personalised care in the UK
- Expand research to include additional global datasets, facilitating broader cross-national comparisons and helping identify universal treatment strategies that can be adapted for different healthcare systems

Acknowledgments: Darren Johnson (Flatiron Health) for publication management support and Vanessa Acquaah & Victor Lhoste (Flatiron Health) for presentation of the data. Data first presented at ISPOR Europe on 9-12 November 2025.
Disclosures: This study was sponsored by Flatiron Health, Inc.—an independent member of the Roche Group. During the study period, AmS, MA, AS and BA reported employment with Flatiron Health, Inc. and stock ownership in Roche.
Author contact information: Blythe Adamson blythe.adamson@flatiron.com

References
1. Adamson B, et al. Characterisation of oncology EHR-derived real-world data in the UK, Germany, and Japan. *ESMO Real World Data Digit Oncol*. 2025;7:100113. doi:10.1016/j.esmorw.2025.100113
2. Flatiron Health. Database Characterization Guide. Flatiron.com. Published March 18, 2025. https://flatiron.com/database-characterization

Scan for abstract and digital poster