Exploring Sociodemographic and Structural Barriers to Timely Surgery in ER+ HER2- Breast Cancer: A Single-Institution Study in the Bronx

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Background

- Delays to breast cancer surgery increase mortality risk
- Quality benchmark: **surgery within 60 days** of diagnosis (Commission on Cancer)
- In HR+ HER2- patients, **TTS > 42 days** is linked with exponential increase in breast cancer–specific mortality
- Previously identified delay risks:
  - Younger age
  - Medicaid insurance
  - Pre-operative MRI
- Prior studies show mixed findings regarding racial disparities

Aim

- Identify modifiable and non-modifiable factors contributing to surgical delay in ER+ HER2- patients at an urban, multiethnic academic center (Bronx, NY)

Methods

- **Design:** Single-institution retrospective chart review
- **Primary Outcome:**
  - **Time to surgery (TTS)** = days from biopsy → index operation
- **Extracted Variables:**
  - Demographics (age, race, insurance)
  - Clinical factors (pathology)
  - Treatment demands (MRI, reconstruction, IORT, medical clearance, cancellations)

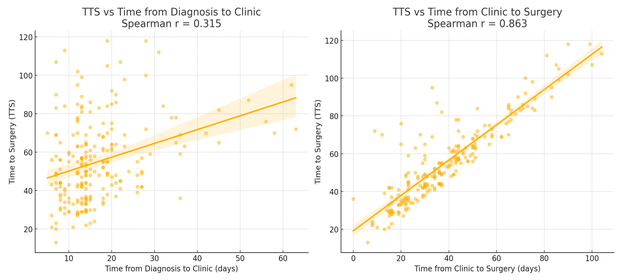
Invasive Breast Cancer Patients (ER+ HER2 -); Diagnosed Jan. 2013- Dec. 2024
Initially planned for upfront surgery; **N= 412**

Excluded: (N= 185)
- Male, n =3
- Duplicate, n= 8
- Surgeon not in group/Surgery at OSH, n=129
- DCIS/LCIS/ADH, n= 26
- TTS >120 days, n= 17
- Patients with neo-endocrine, n= 4

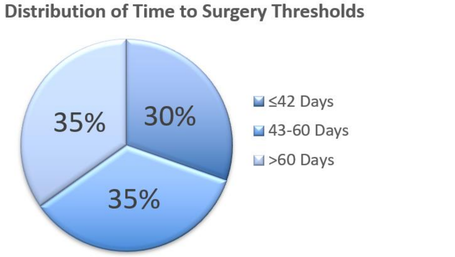
Final cohort included in analysis; **N = 227**

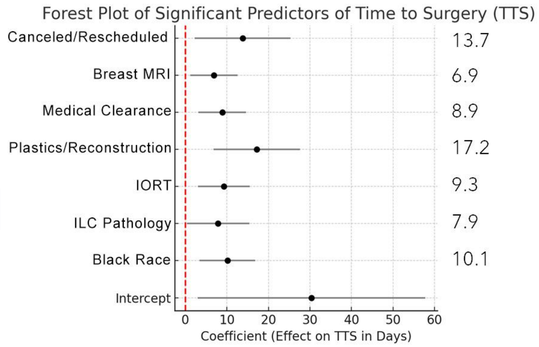
Results

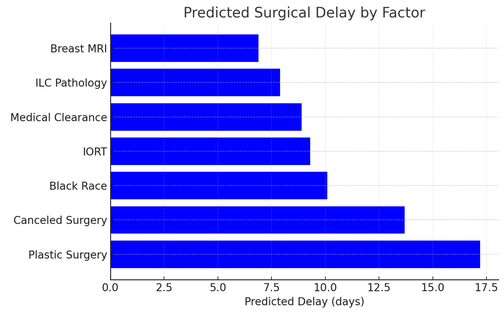
- **N = 227** total cases
- Mean **TTS = 55 ± 21 days**
  - **65%** had surgery < 60 days
  - **30%** had surgery < 42 days
- Median age: **65 years (IQR 57–73)**
- Workflow intervals:
  - Biopsy → Clinic Visit: **16.7 ± 9.6 days**
  - Clinic Visit → Surgery: **38.3 ± 20.0 days**
- Strong correlation between TTS and clinic-visit-to-surgery interval
  - Spearman r = 0.863, p < 0.001
- **Younger age (≤65):** longer TTS (57 vs 48 days, p = 0.0037)



	Median TTS	IQR	Mean TTS	Std Dev	Univariate p-value	Multivariate p-value
Race					0.0432	0.004
White	49	36.0-62.8	51.61	19.68		
Black	58	42.0-75.2	59.63	22.12		
Asian	43	30.0-54.0	48.89	23.17		
Other/Unknown	60	47.2-66.8	58.69	20.15		
Ethnicity					0.5964	0.4468
Hispanic	49	38.8-65.0	54.1	19.8		
Non-Hispanic	55	40.5-69.0	55.71	22.09		
Insurance					0.005	0.0557
Private	52	38.0-70.0	55.57	23.05		
Medicaid	59	49.0-83.0	62.82	22.16		
Medicare	48.5	36.0-63.0	50.94	18.21		
Unknown	65	65.0	65	0		
	Median TTS	**IQR**	**Mean TTS**	**Std Dev**	**Unadjusted p-value**	**Adjusted p-value**
Pathology					0.2108	0.0404
IDC	50	38.0-64.0	53.85	20.71		
ILC	64	49.8-75.0	63.93	22.69		
IMC	47	45.0-49.0	49.40	9.21		
Other	54.5	51.2-57.8	54.50	9.19		
Mixed	49	32.0-75.0	52.86	26.26		
Surgery					0.0044	0.4909
Lumpectomy	49	37.0-64.0	53.11	20.34		
Mastectomy	62	52.8-80.2	66.37	22.21		
Axillary Surgery					0.0823	0.5989
SLNB	53.5	41.0-69.0	56.02	21.70		
ALND	65	52.8-78.0	67.90	20.50		
None	47	35.0-61.0	48.73	17.01		
IORT	57	43.0-69.5	58.10	21.11	0.1522	0.0039
Plastic Surgery	66	57.0-83.0	70.07	21.72	<0.001	0.0013
Clearance	58	42.0-69.8	60.11	22.68	0.0271	0.0026
Breast MRI	57.5	43.0-72.8	59.70	22.21	0.0017	0.0186
Staging Scans	69	57.5-93.5	74.55	25.12	0.0079	0.0566
2nd Look Imaging	68	58.0-81.0	72.33	20.44	0.0093	0.5716
Additional Biopsy	70	64.0-84.0	75.35	16.81	<0.001	0.3664
Outside Review	60	49.2-71.2	64.44	22.13	0.042	0.2257
Canceled/Reschedule Sx	58	57.0-85.0	71.45	18.60	0.006	0.0195







Discussion

Conclusions:
- Several modifiable and non-modifiable factors contribute to longer TTS in ER+ HER2- patients
- Significant delays linked to:
  - Black race
  - ILC pathology
  - Plastic surgery involvement (largest delay)
  - IORT
  - Medical clearance
  - Pre-operative MRI
  - Surgery cancellations/rescheduling
- Streamlining institutional workflow- particularly reconstructive coordination and scheduling reliability- may reduce TTS

Limitations
- Retrospective, single-center design
- Limited to ER+ HER2- patients undergoing upfront surgery
- Excluded patients with TTS >120 days

Future Directions:
- **Prospective workflow analysis**
  - Process mapping study to identify specific bottlenecks in imaging, reconstruction consultations, and OR scheduling
- Assess specific **social determinants of health (SDoH) barriers**

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