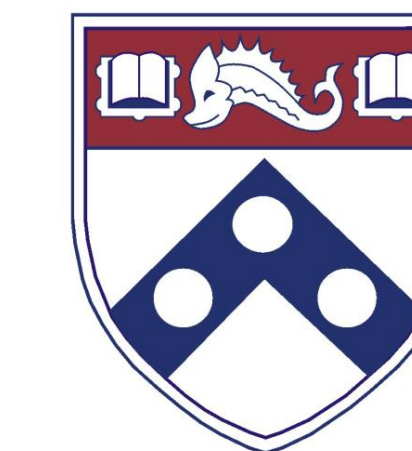


# Women with higher BMI do not have Higher Recurrence Scores (RS)-a Single Institution Series



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## INTRODUCTION

### Obesity is Prognostic of Poor Outcome in Breast Cancer Patients

#### Eastern Cooperative Oncology Group<sup>1</sup>

- 6885 women with stage I-III breast cancer enrolled in 3 clinical trials
- Obesity was associated with diminished DFS, OS, and breast cancer specific survival in HR+/HER2- breast cancer, but not triple-negative or HER2+ disease

#### Meta-analysis<sup>2</sup>

- Pooled analysis of 82 studies assessing the relationship between higher BMI and survival
- Compared to normal weight women, obese (BMI >30.0), and overweight (BMI 25.0–<30.0) women had higher relative risks of overall mortality and breast cancer specific mortality

### The Relationship between Oncotype DX recurrence score (RS) and BMI is largely unexplored

#### Muniz<sup>3</sup>

- 533 eligible women, 22% had metabolic syndrome
- No correlation between metabolic syndrome and higher RS

#### Lohrisch et al<sup>4</sup>

- 166 ER+, node negative patients breast cancer patients who had both Oncotype DX and BMI data
- Obese patients (BMI >30) had similar proportions of low, intermediate, and high RS tumors.

#### Wellspring Group<sup>5</sup>

- 125 patients with ER+ breast cancer who had Oncotype DX and BMI within one year of diagnosis
- BMI was recorded at diagnosis, 6 months and/or 12 months
- No correlation was seen between RS and BMI at diagnosis, at 6 months and at 12 months respectively.
- Changed in BMI from diagnosis to 12 months were not associated with RS

## HYPOTHESIS

We hypothesize that tumors in women with higher BMI have higher recurrence scores (RS)

## METHODS

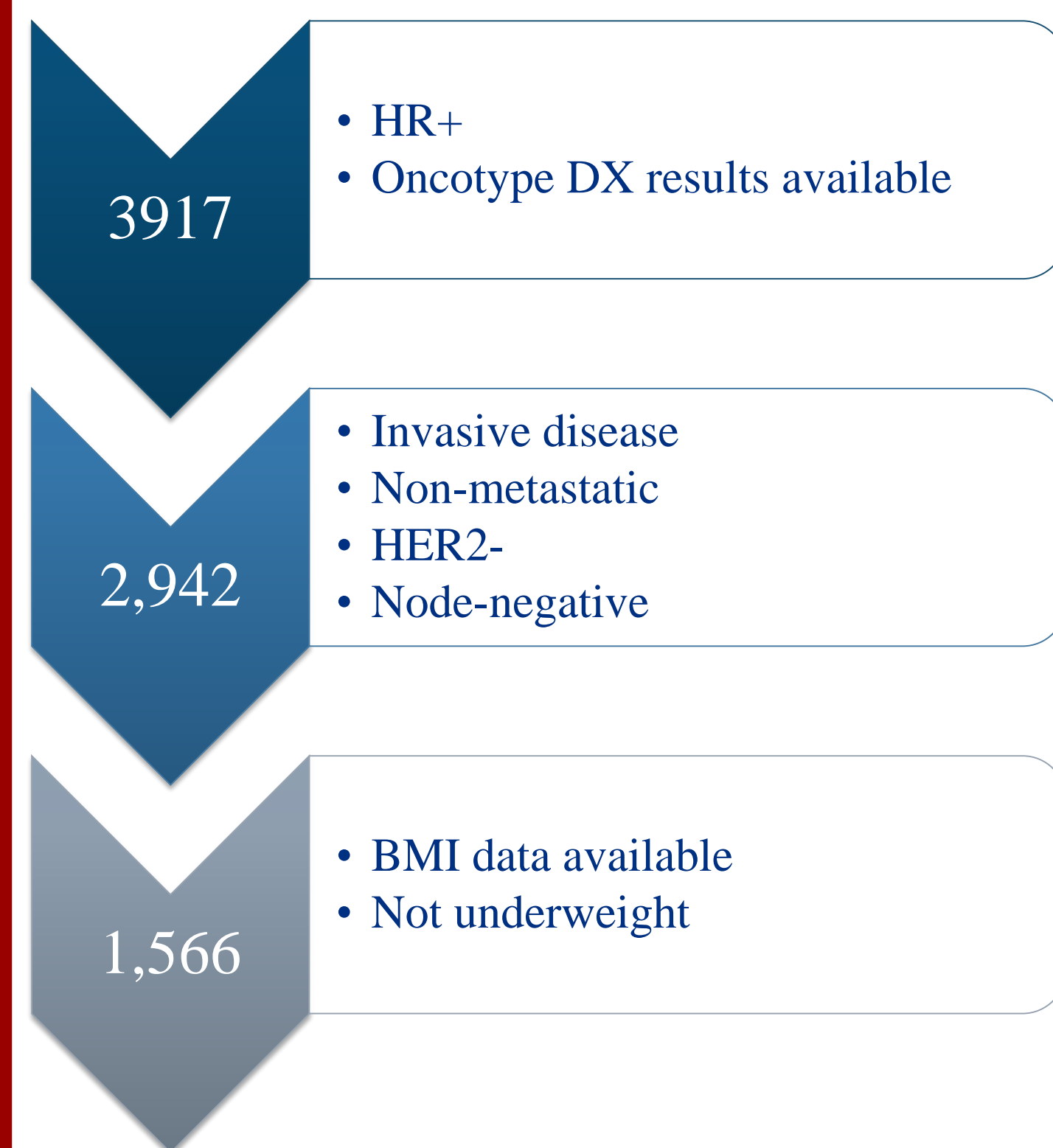


FIGURE 1 - Study schema and patient inclusion/exclusion.

## RESULTS

	BMI <25		BMI 25 to < 30		BMI ≥ 30		P
RS (median IQR) <sup>2</sup>	590 37.7%		479 30.6%		497 31.7%		
RS Group <sup>1</sup>	16 (11-25)		15 (10-20)		16 (11-21)		0.12
	≤10	125 31.7%	126 26.3%	118 23.7%			0.22
	11-25	382 64.8%	302 63.0%	312 62.8%			
	≥26	83 14.1%	51 10.6%	67 13.5%			
Tumor Size, mm (median IQR) <sup>2</sup>	12 (8-17)		13 (9-19)		12 (8-20)		0.02
Grade <sup>1</sup>							0.05
	Low	187 31.69%	118 24.63%	136 27.36%			
	Intermediate	296 50.17%	269 56.16%	255 51.31%			
	High	74 12.54%	67 13.99%	81 16.30%			
	Unknown	33 5.59%	25 5.22%	25 5.03%			
Adjuvant Treatment <sup>1</sup>							0.80
	Hormone Therapy	563 95.4%	455 95.0%	472 95.0%			
	Radiation Therapy	337 57.1%	292 61.0%	330 66.4%			
	Chemotherapy	100 16.9%	78 16.3%	83 16.7%			0.96
Recurrence <sup>1</sup>	15 2.5%	9 1.9%	20 4.0%			0.11	

TABLE 1 – Demographic, tumor, and treatment characteristics of patients with node negative HR+ HER2- tumors according to the three body mass index groups. RS: Recurrence Score, using TAILORx criteria. <sup>1</sup>Chi square test <sup>2</sup>Two-sided ANOVA Test

## DISCUSSION

- Patient demographics were similar
- Patients with BMI >25 had larger tumors, higher histologic grade, and higher rates of adjuvant radiation use
- Obesity may affect expression of reporter genes other than those used in the 21-gene recurrence score assay.

## FUTURE DIRECTIONS

- Expand our cohort to include patients with 1-3 positive axillary lymph nodes, given the updated inclusion criteria of Oncotype DX
- Future work is needed to elucidate the genetic and epigenetic effects of obese state on tumor progression.

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