

Impact of Early Cancer Detection

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Background

- Cancer ranks as the second most common cause of death in the United States, and Healthy People 2023's goal is to promote evidence-based strategies for cancer screening and prevention.
- Early cancer detection leads to significantly improved outcomes, including higher survival rates, better care experiences, lower treatment side effects, and a better overall quality of life compared to late-stage diagnoses.
- Risk assessment is crucial for evaluating cancer development.
- A root cause analysis of the quality gap showed that the breast cancer risk assessment tool Tyrer-Cuzick also known as IBIS inaccurately reflected patient risk due to EMR integration issues.
- Life-time risk scores are incorporated in mammography reports and guides recommendations for management by the radiologist.

Methods

Purpose: This project aims to improve breast cancer risk assessment accuracy by resolving discrepancies between the hospital's EPIC risk calculation and the web-based Tyrer-Cuzick Model (IBIS).

QI Study Design: A pre-and post-intervention

Inclusion Criteria:

- Women without breast cancer or high-risk mutations (excluding BRCA), ages 40-70
- Women having screening mammograms

Exclusion Criteria:

- Women over the age of 70
- Women with a personal history of breast cancer
- Women having a diagnostic mammogram
- Women carrying high risk breast cancer gene mutation
- Men having a screening mammogram

Methods

Sample:

- Women without breast cancer or high-risk mutations (excluding BRCA), categorized by age: 40-49, 50-59, and 60-70, with 12 in each group.

Data Collection:

- Risk scores were recalculated with the IBIS tool, comparing lifetime predictions to EPIC scores.
- The interface between EPIC and the vendor was modified.
- Post-intervention scores from 36 random patients were compared between EPIC and IBIS, targeting a difference of 0.1% or less variance.

Data Collection Tool						
Pre-Intervention Data						
Patient Code	Strata	Month/Year	Age	EPIC IBIS Lifetime Score	Web-Based IBIS Lifetime Score	Tool Discrepancy
Post-Intervention Score						
Patient Code	Strata	Month/Year	Age	EPIC IBIS Lifetime Score	Web-Based IBIS Lifetime Score	Tool Discrepancy

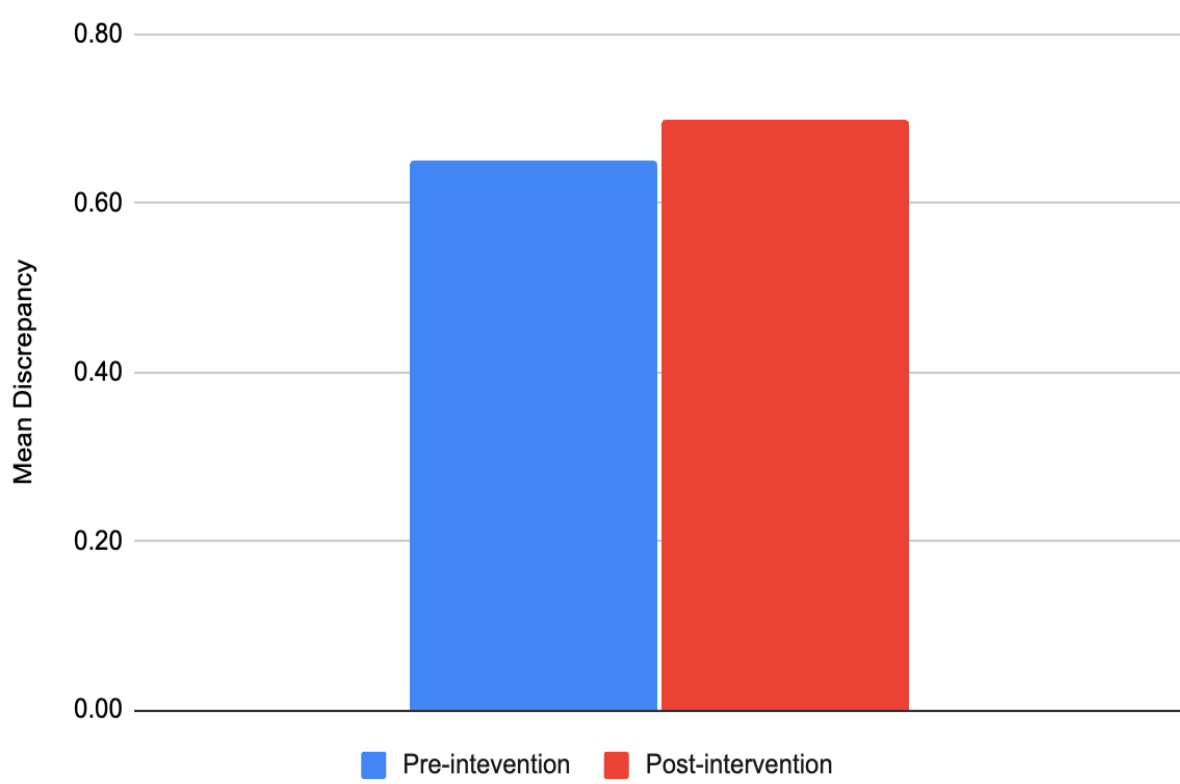
Results

Summary of Percent Difference Pre- and Post-Intervention		
	Tool Discrepancy (Absolute Value)	Percent Difference between EPIC and Web Based Scores
Pre-Intervention Strata 1	0.33	3.93
Pre-Intervention Strata 2	0.83	10.35
Pre-Intervention Strata 3	0.79	9.72
Total Mean	0.65	8.00
Post-Intervention Strata 1	0.4	3.35
Post-Intervention Strata 2	1.07	9.63
Post-Intervention Strata 3	0.63	5.20
Total Mean	0.70	6.06

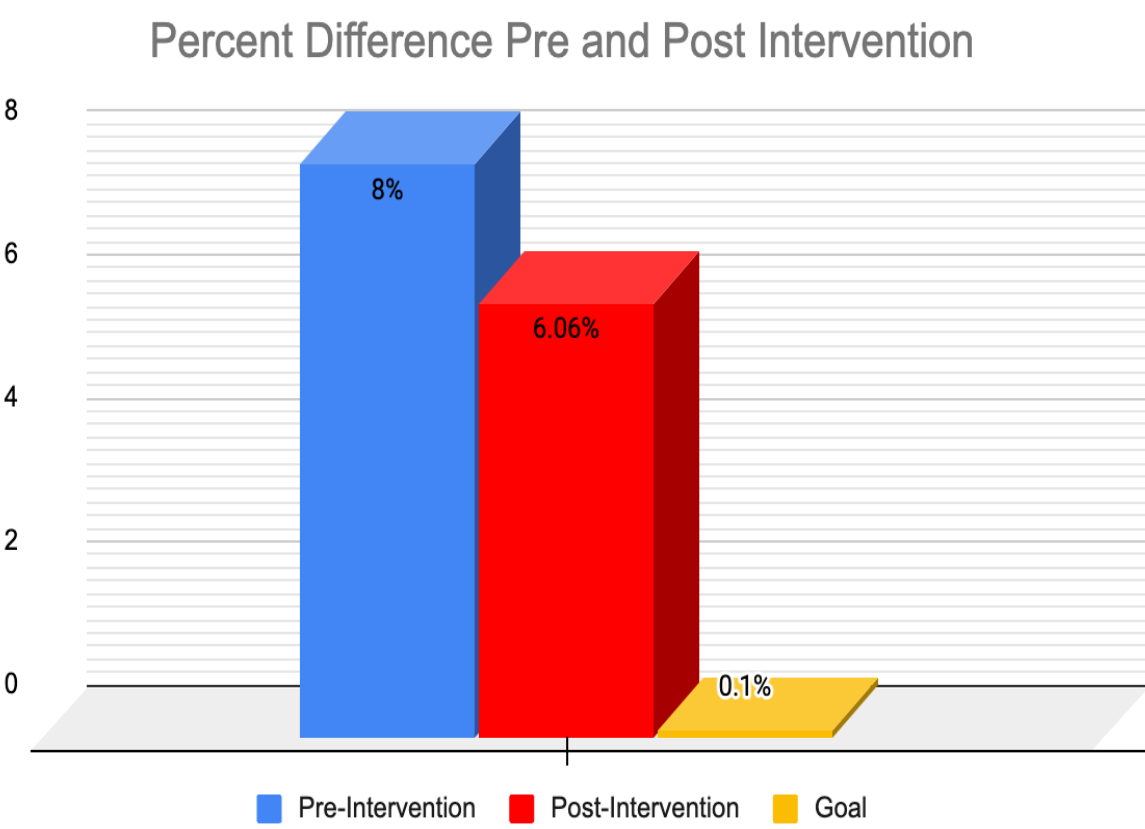
Results

Results:

- In EPIC, the pre-intervention group mean score was 11.9 (SD 6.1), and the IBIS score was 12.17 (SD 5.9), showing no significant difference ($t = -1.416$; $p = .166$).
- Post-intervention, EPIC was 12.0 (SD 5.9), and IBIS was 11.9 (SD 5.7), also with no significant difference ($t = 0.335$; $p = .740$).



- Comparing pre- and post-intervention means revealed no significant difference ($t = -0.18843$; $p = .82$), with 8.00% pre-intervention and 6.06% post-intervention percent differences ($p = 0.83$), indicating no statistical significance.



Conclusions

- Scores fell short of the 0.1% target but showed improvement post-intervention.
- This progress indicates the potential for further improvement with a longer implementation period and ongoing staff education.