Mass General Brigham

Patient Navigation Improves Diagnostic Imaging Timeliness Among Mammography Van Patients with BIRADS-0

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Introduction:

- Mobile mammography vans have improved access to cancer screening among minorities and the uninsured[1].
- Our institutional mammography van is the only one in Massachusetts bringing screening to an ethnically diverse and predominantly underserved population (73% women of color, 55% non-English speaker, and 48% Medicaid beneficiaries)[2-3].
- However, increasing access to screening alone is insufficient as mobile patients with abnormal results (BIRADS-0) are more likely to experience delay in follow-up imaging[1].
- Delay in follow-up imaging is specifically linked to overall delay in cancer diagnosis[4].

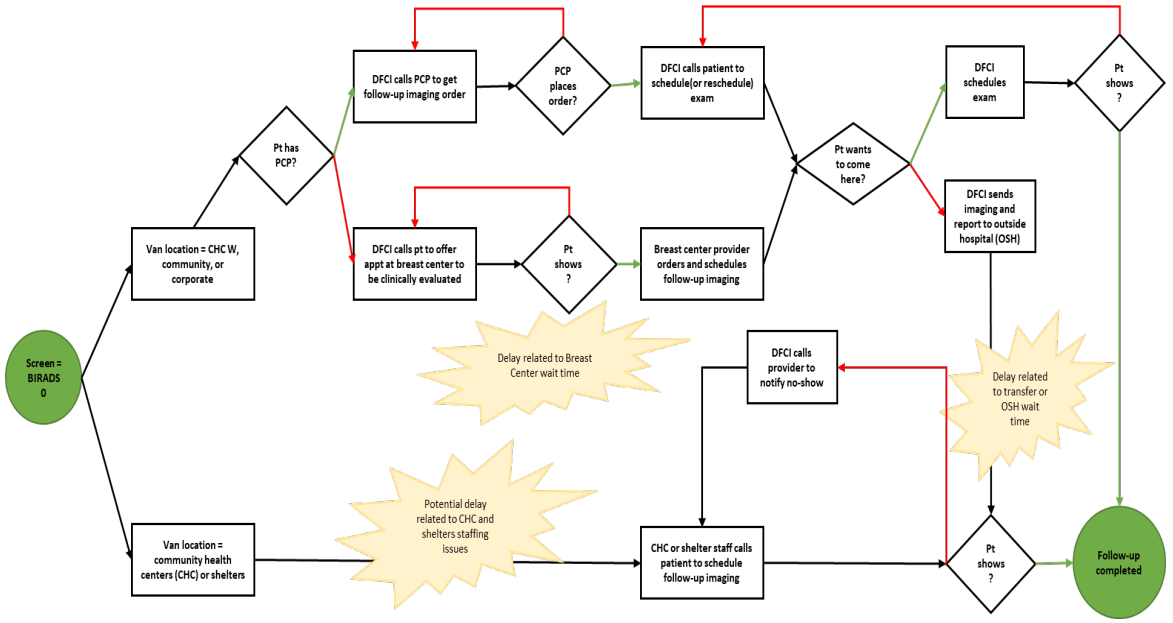
1. Chen et al. Cureus, 2016. 2. Amornsiripanitch et al. Curr Probl Diagn Radiol. 2022. 3. Amornsiripanitch et al. JACR 2022. 4. Miller-Kleinhenz et al. JACR 2021. image: https://www.dana-farber.org/about-us/community-outreach/mammography-van/sites-served/

Purpose:

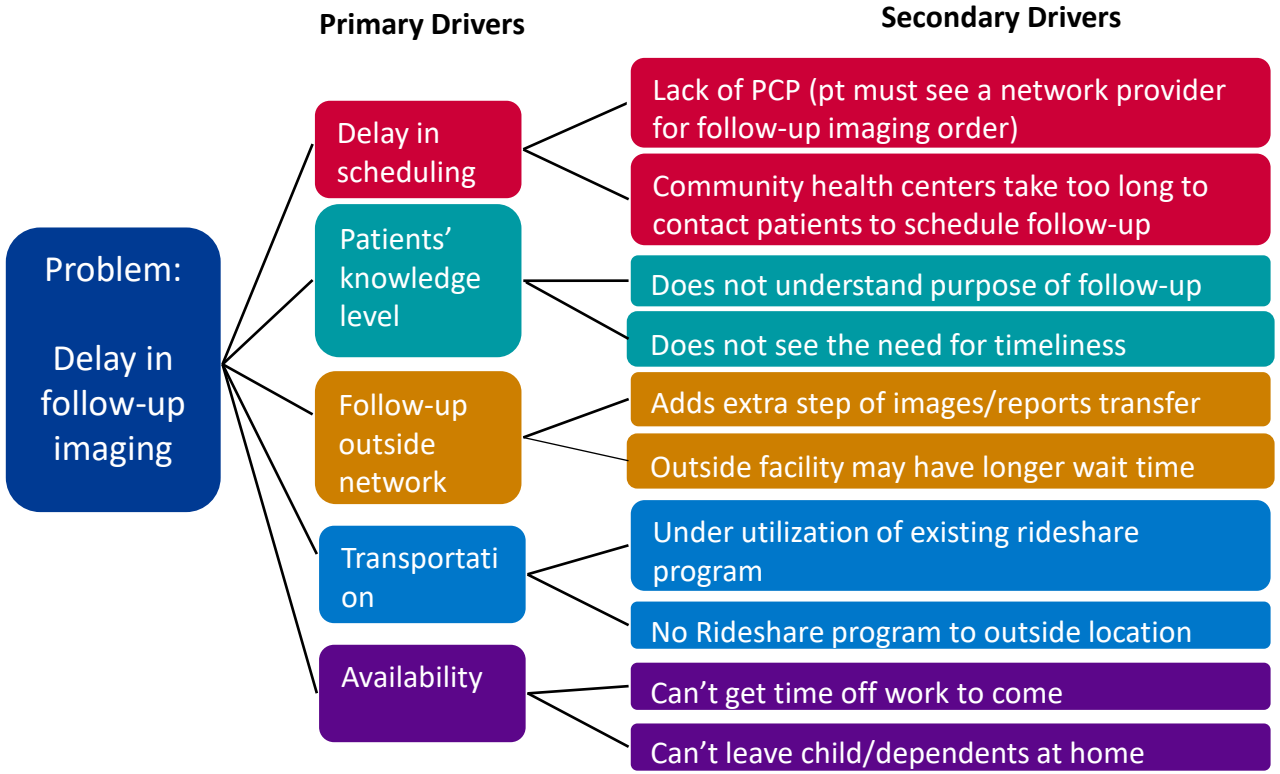
The purpose of this QI initiative is to reduce breast imaging follow-up delay (defined as >30 days from screening) for women with BIRADS-0 screened by our institutional van.

Methods

Process Map – illustration of events, operations, and possible breakdowns in a patient's journey to obtain a BIRADS-0 follow-up



Driver Diagram – organization of barriers to follow-up into primary and secondary drivers



Major reasons for delay identified were delay in patient communication, lack of patient education, and complexity of scheduling workflow.

Methods

- **Validation:**
  - Baseline follow-up time between 7/1/2021-6/30/2022 and variables including location of screening van were collected from Epic Hyperspace (Verona, WI) and internal database.
  - Baseline data confirmed wide variation in mean follow-up depending on sites, which had variable patient communication and follow-up workflow (ranged 7-96 days).
- **Intervention:**
  - Four sites with mean follow-up time >49.7 days agreed to participate in the pilot.
  - On 8/16/2022, patient with BIRADS-0 interpretations at pilot sites were outreached via telephone by culturally competent, multilingual institutional patient navigators to schedule follow-up.
  - Primary Outcome Data: follow-up time in days, collected for approximately 6 months before and after the intervention. (However, van did not service pilot sites during 2/1/2023-2/28/2023.)
  - Process Data: Percent of patients reached by institutional staff pre vs post intervention were collected to ensure intervention's functionality.
  - Analysis: Statistical Process Controlled (SPC) X Chart by Rule for Special Cause (QI Macro, Denver, CO).

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Results

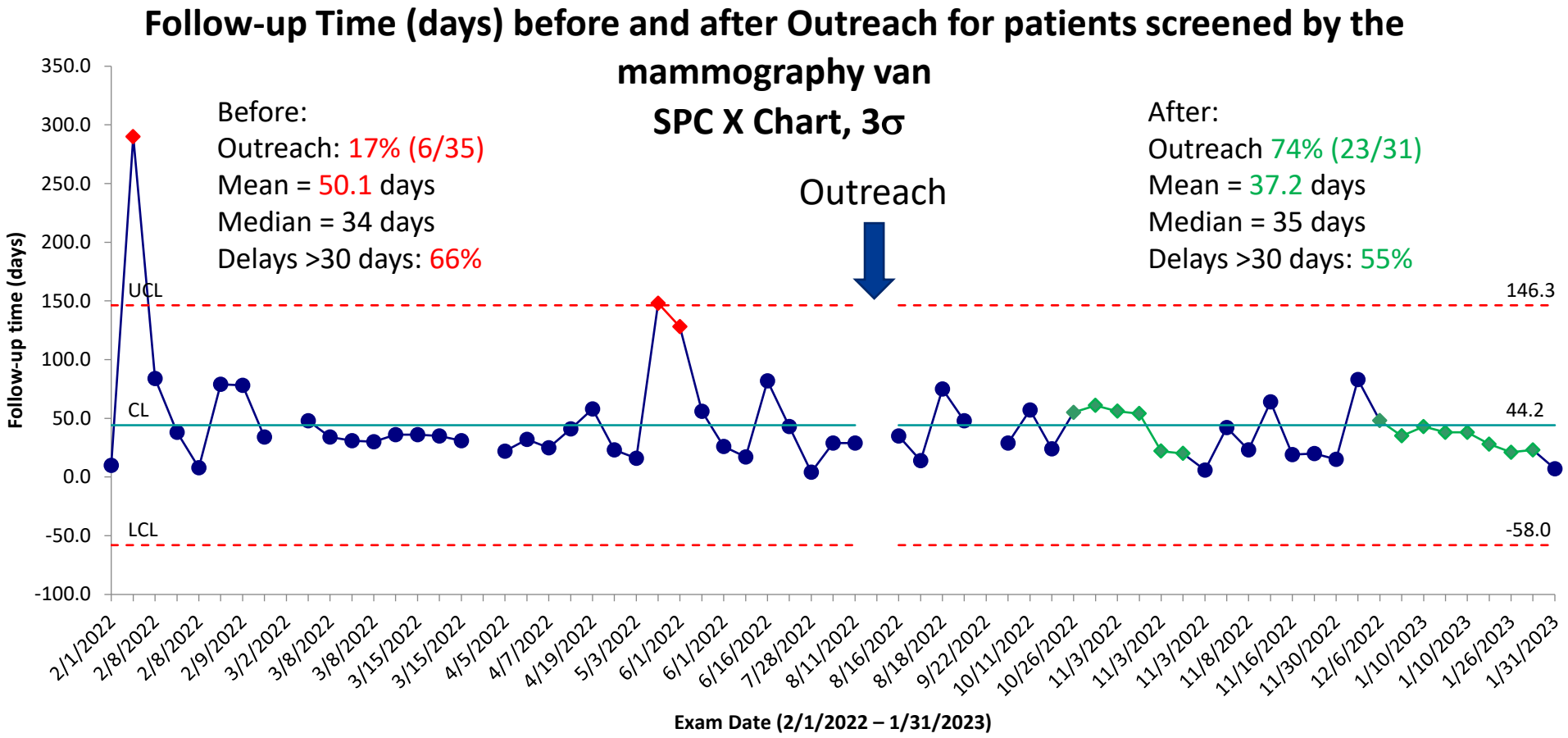
Baseline data (all sites 2/1/2022-1/31/2023)**:**

- Callback rate: 12.9% (239/1848)
- Mean follow-up time: 49.7 days (range = 6-345)
- 62% of patients (148/239) experienced follow-up delay (>30 days after screening).

Intervention data (4 pilot sites, 2/1/2022-8/15/2022 vs 8/16/2022-2/28/2023)**:**

- Process data:
  - the number of patients scheduled for follow-up by patient navigator increase from 17% (6/35) to 74% (23/31).
- Outcome data:
  - SPC-X chart demonstrated significant (3σ) downward trend in follow-up time after intervention.
  - Mean follow-up time decreased by 12.9 days (from 50.1 to 37.2).
  - Percent of patients with follow-up delays decreased by 11% (from 66% to 55%).
  - Six patients (3/period) were lost to follow-up and excluded.

Results:



Green data points meet Rule 5 for Special Causes: 6 or more consecutive points increasing or decreasing

Discussion:

This finding supports previous literature that patient outreach by language concordant, culturally competent, and knowledgeable navigators has potential to improve timely follow-up, a vital step in achieving equitable early cancer diagnosis[5-6].

- Limitations: The power of this study was limited by the number of cites that agreed to participate and ongoing staff shortage at the van, leading to lack of services during February 2023.
- Future directions:
  - Increase number of pilot sites
  - Staff recruitment
  - Standardizing follow-up scheduling workflow at outside facility to mirror that of our central patient navigators' by engaging our community partners about importance of timely follow-up and creating a tip sheet with step-by-step instructions on how to schedule follow-up at our institution.
  - IT-based solution to streamline ways our community partners could schedule follow-up directly from their electronic medical systems.

Citations:

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3. Amornsiripanitch N, Jaramillo-Cardoso A, Dean KL, Burns AW, Goodman T, Moreno-Gobin J, Byrne SC, Neuman ML, Chikarmane SA, Flores EJ. Leveraging Quality Improvement Frameworks to Reduce Barriers to Screening Mammography among Underserved Populations. Journal of American College of Radiology. 2022 Sep 14;S1546-1440(22)00634-2.
4. Miller-Kleinhenz JM, Collin LJ, Seidel R, Reddy A, Nash R, Switchenko JM, et al. Racial Disparities in Diagnostic Delay Among Women With Breast Cancer. J Am Coll Radiol. 2021;18(10):1384-93. Epub 2021/07/20. doi: 10.1016/j.jacr.2021.06.019. PubMed PMID: 34280379; PubMed Central PMCID: PMCPMC8492512.
5. Nguyen DL, Oluyemi E, Myers KS, Harvey SC, Mullen LA, Ambinder EB. Impact of Telephone Communication on Patient Adherence With Follow-Up Recommendations After an Abnormal Screening Mammogram. J Am Coll Radiol. 2020;17(9):1139-48. Epub 2020/05/01. doi: 10.1016/j.jacr.2020.03.030. PubMed PMID: 32353352.
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