

The Impact of Social Determinants of Health on Follow-up of Actionable Incidental Findings

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Background

Backstop Program Overview

- Early recognition of actionable incidental findings (AIFs) allow providers to identify disease at an earlier stage
- Follow-up rates for AIFs vary significantly (28% – 77%)¹
 - Communication failures
 - Diffusion of responsibility
 - Inability to make appointment
- We implemented a multistage recommendation tracking system with escalating reminders (called **Backstop**)
 - Follow-up rates for AIFs increased from 43% to 71%¹



The **Backstop** program is a series of escalating reminders to complete follow-up imaging for studies flagged with AIFs.

Background

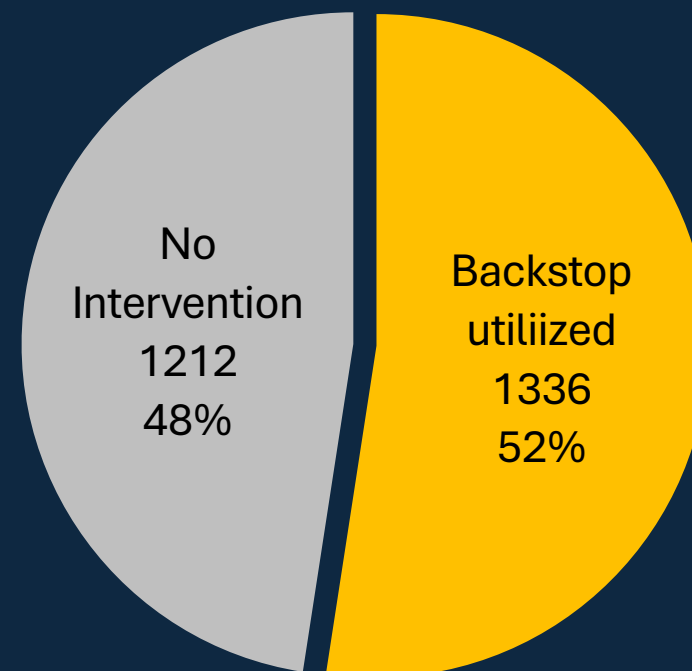
Project Goal

- Social determinants of health are major contributors to an individual's healthcare outcomes
 - Risk of developing disease
 - Ability to manage disease
 - Ability to access the necessary healthcare services
- **Were the benefits of the Backstop program equitable?**



Methods

- This is a post-hoc analysis of the **Backstop** dataset
 - N = 2,548 patients with **incidental pulmonary nodules**
- Multiple **demographic** and **socioeconomic** data were collected:
 - Insurance type
 - Area deprivation index (ADI)^{3,4}
 - Self-identified race & ethnicity
 - Use of language interpretation services
- Logistic regression analysis performed to predict examination completion based on these variables



Lung nodule dataset. Demographic variables were extracted from n = 1,336 patients with pulmonary nodules that required any escalation of the **Backstop** system. (Approximately 30% completed imaging by stage 1, another 40% by stage 2, and a final 30% by stage 3 and 4)

3. Kind AJH, Buckingham W. Making Neighborhood Disadvantage Metrics Accessible: The Neighborhood Atlas. *New England Journal of Medicine*, 2018. 378: 2456-2458. DOI: 10.1056/NEJMp1802313. PMID: PMC6051533

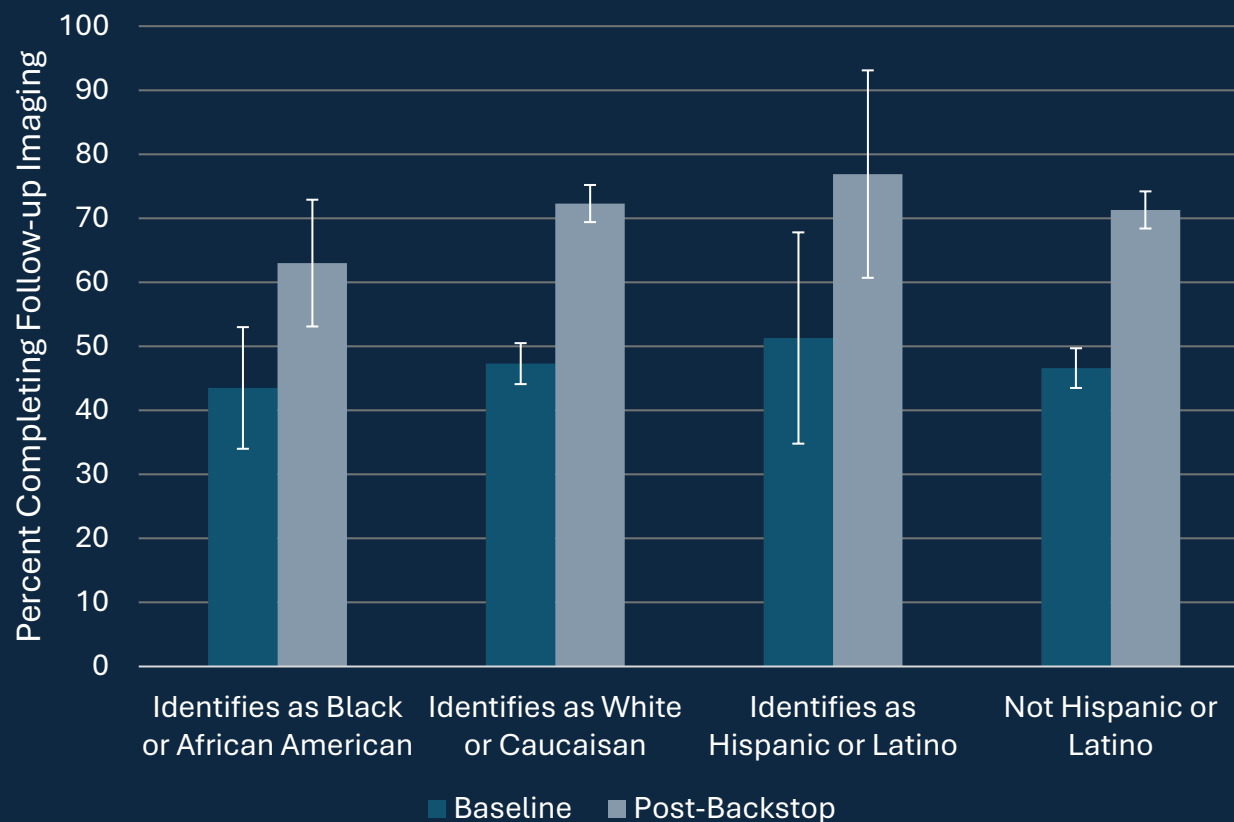
4. University of Wisconsin School of Medicine and Public Health. 2022 Area Deprivation Index, *version 4*.

Downloaded from <https://www.neighborhoodatlas.medicine.wisc.edu/> August, 2024

Results

Demographic Outcomes

- Imaging completion rates increased across self-identified race and ethnicity
 - **45% increase** among Black or African American patients
 - **53% increase** among White or Caucasian patients
 - **50% increase** among Hispanic or Latino patients
 - **43% increase** among non-Hispanic or Latino patients

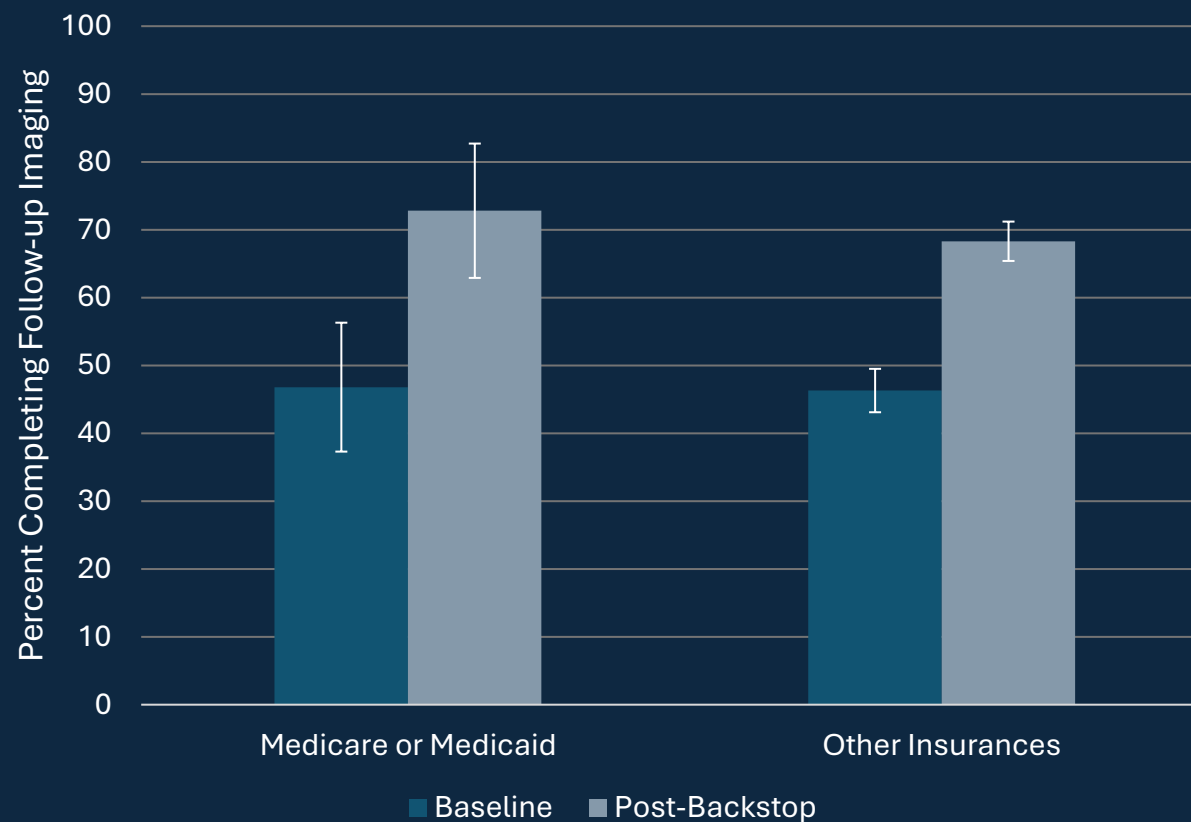


Imaging completion rates increase across multiple demographic domains. Significant differences of paired proportions are reported as results of McNemar’s test. (* $p < 0.05$, ** $p < 0.005$)

Results

Insurance Outcomes

- Follow-up imaging improves for patients on both public and private insurance
 - **56% increase** among patients with Medicare or Medicaid insurance
 - **48% increase** among patients with private insurance

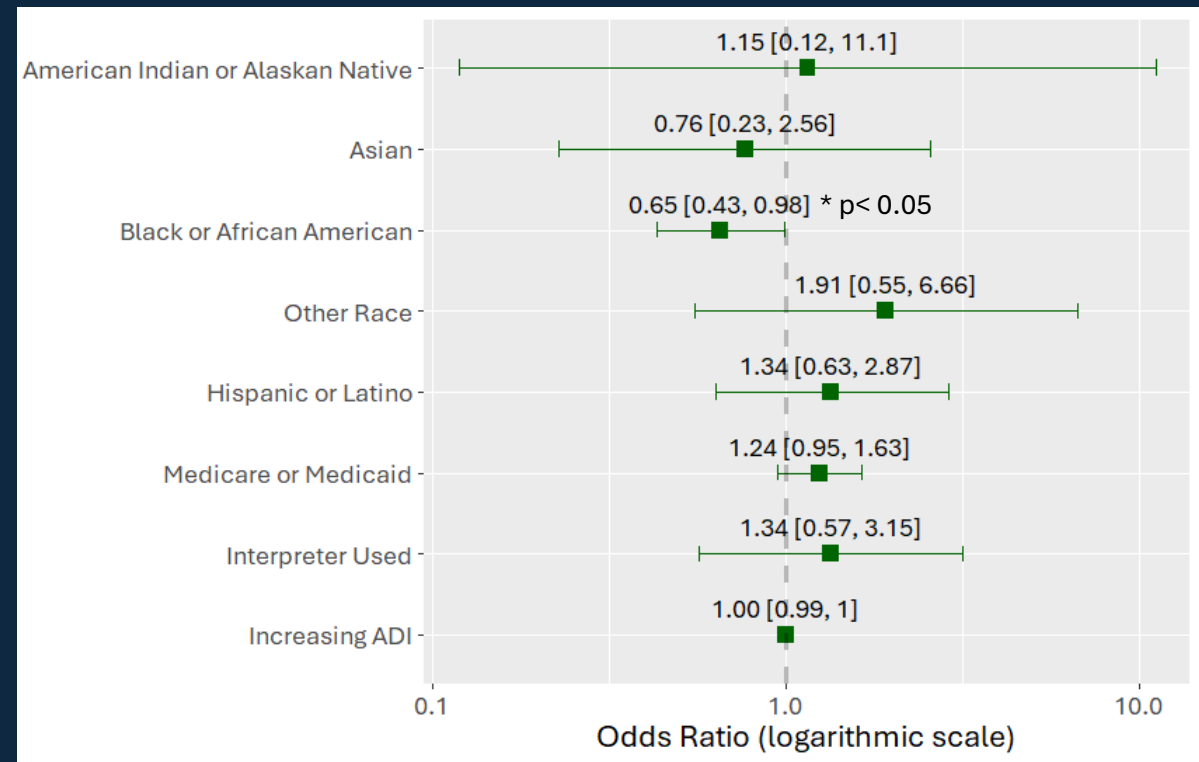


Imaging completion rates increase for both public and private insurance holders. Significant differences of paired proportions are reported as results of McNemar’s test. (* $p < 0.05$, ** $p < 0.005$)

Results

Univariable Statistics

- Demographic and socioeconomic variables were each analyzed independently
- There was **no difference** in imaging completion between most variables
- The odds of patients identifying as Black completing follow-up imaging was **35% less** than white patients ($p = 0.042$)

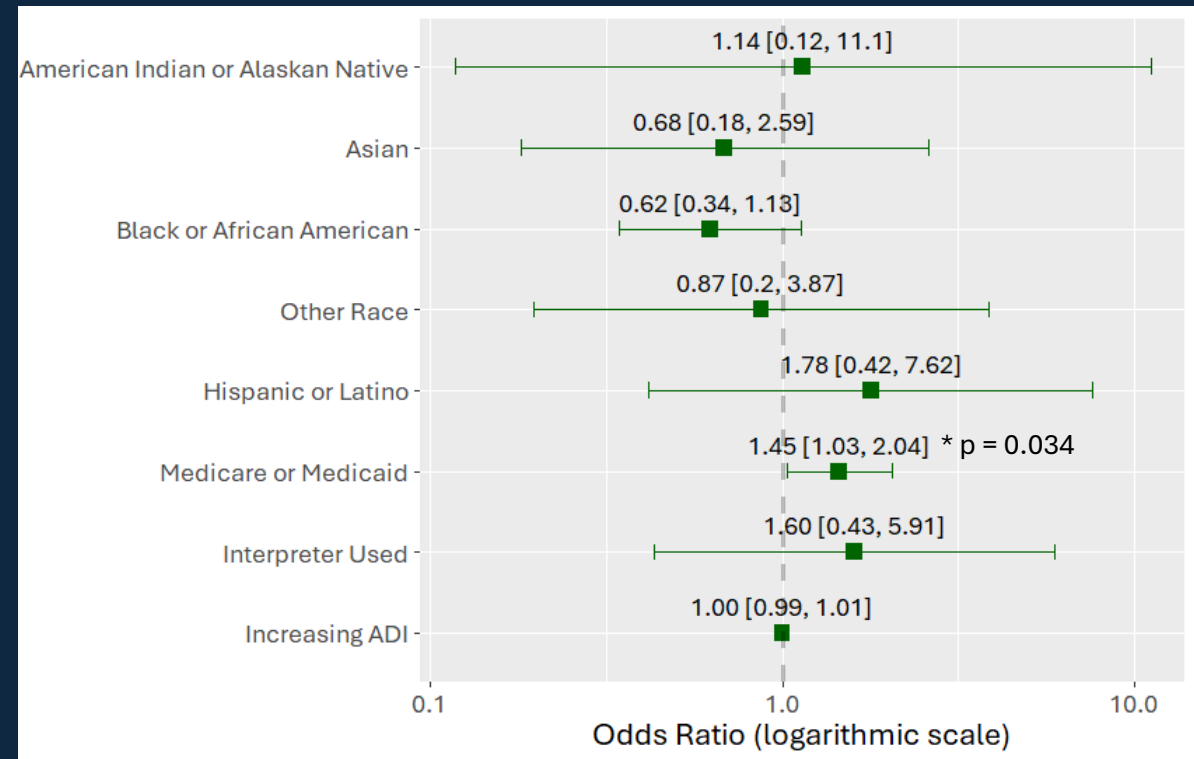


Univariable logistic regression of follow-up imaging completion after Backstop. Self-identified race is compared to white patients, insurance is compared to private insurance, and ADI is by census block national decile.⁴

Results

Multivariable Statistics

- Multivariable modelling accounts for each demographic variable simultaneously
 - Including ADI and insurance status **reduces the significance** of race on follow-up imaging completion
- **Insurance** becomes a significant predictor of imaging completion
 - OR = 1.45 [1.03, 2.04], p = 0.034
 - Public insurance holders have a 45% greater odds of completing imaging than those with private insurance



Multivariable logistic regression of follow-up imaging completion after Backstop. Self-identified race is compared to white patients, insurance is compared to private insurance, and ADI is by census block national decile.⁴

Discussion

- Imaging completion rates **improved across all demographic and socioeconomic variables** after **Backstop**
- **Insurance status** is related to imaging completion for incidental pulmonary nodules
 - Patients with **public insurance have 45% greater odds** of completing follow-up imaging, compared to private insurance holders
 - Low or no deductible costs may explain this difference
- Including ADI and insurance status reduces the significance of race on follow-up imaging completion
 - Systemic inequalities that disproportionately impact Black patients might better explain this disparity rather than race alone
- Language barriers did not appear to contribute to imaging follow-up
- Limited generalizability due to using sample including **only pulmonary nodules**

Key Points



Recommendation tracking systems such as **Backstop** improve rates of imaging completion when follow-up recommendations are made



Gains are realized across race, ethnicity, insurance, and socioeconomic status



Patients with **public insurance are more likely to complete** follow-up imaging



Other factors not studied here may be related to imaging completion

- e.g., transportation to appointments, time constraints, patients may be asymptomatic