Cancer Prevention: Targeting Tobacco Retailers

Philadelphia & Chicago Comparative Analysis

Deloitte Datathon 2026

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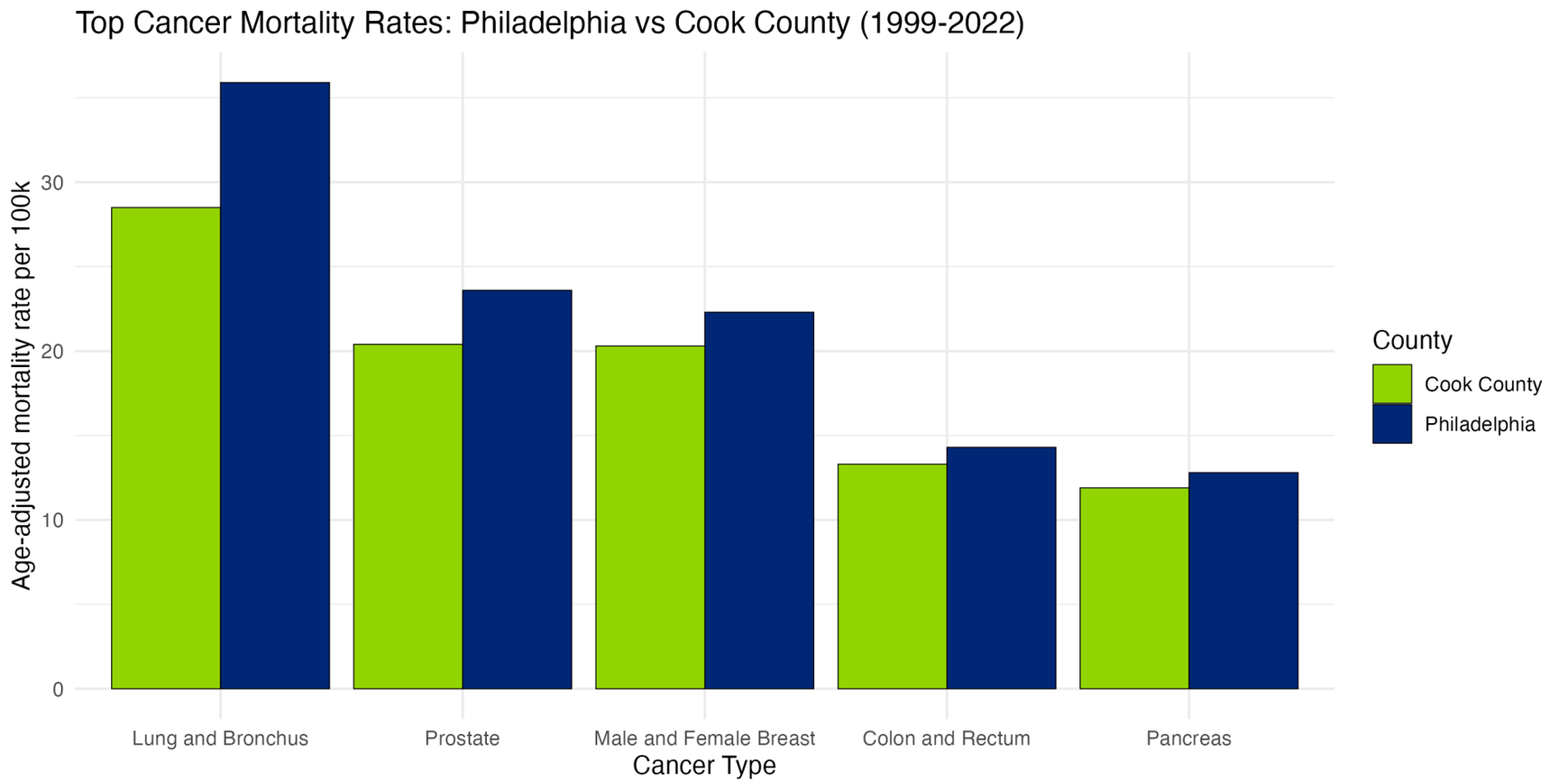
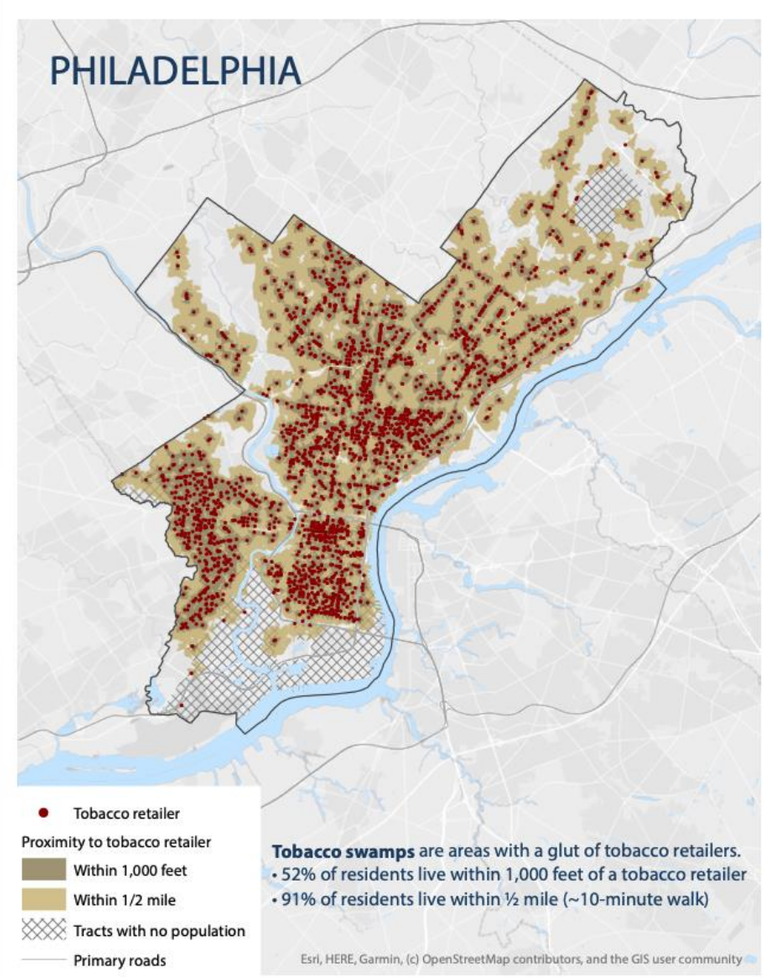
The Challenge & Our Approach

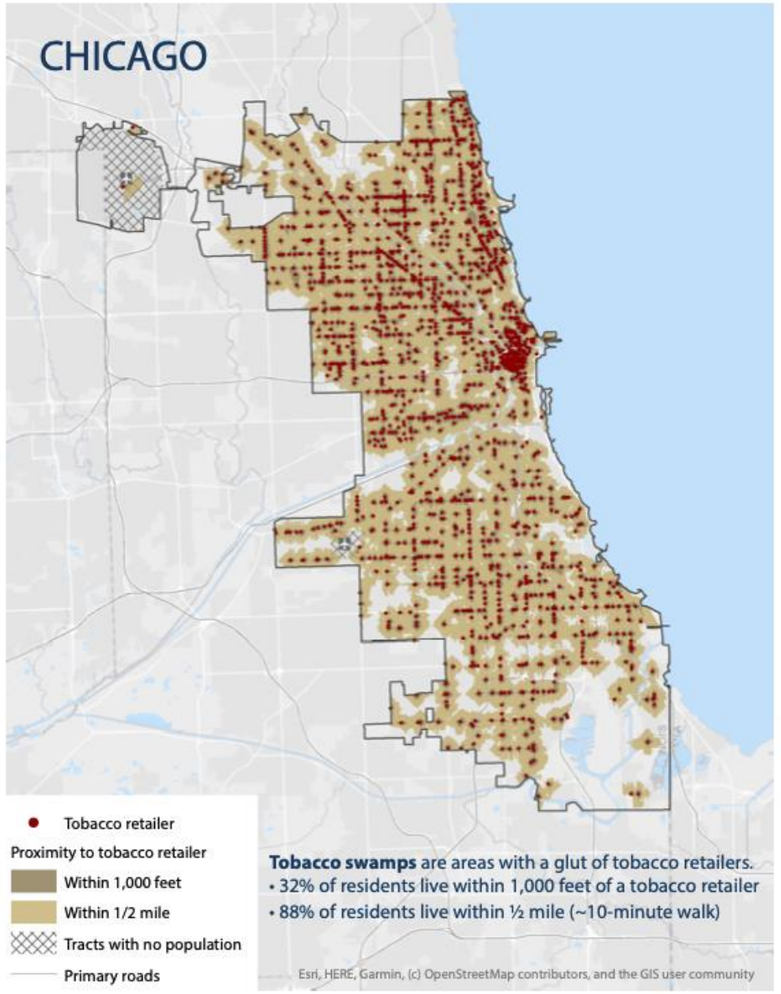
The Problem

- Tobacco drives 30% of all cancer deaths annually.
- Low-income neighborhoods in Philadelphia host 69% more tobacco retailers.
- Chicago's South Side experiences a 2× higher cancer death rate (644 vs. 320 per 100k) compared to wealthier areas.
- Children walking to school often pass up to 16 tobacco retailers on their route.



High-Risk Neighborhoods: 444,000 Residents



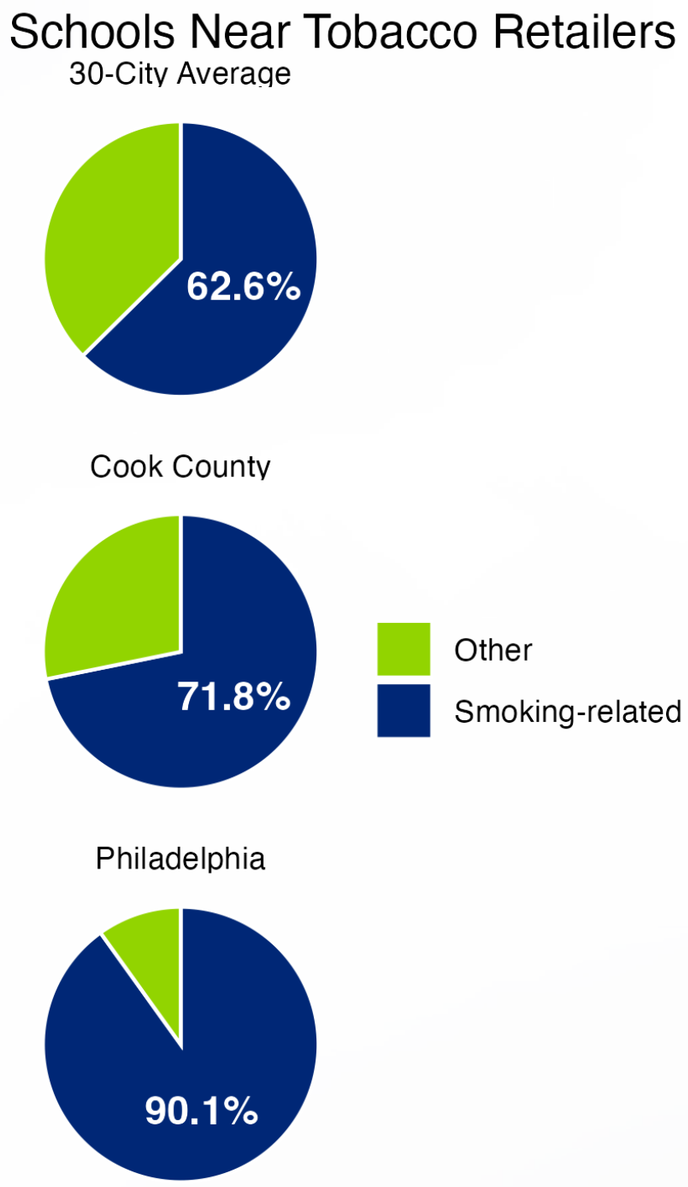


Philadelphia (300,000 residents)

- **North Philadelphia:** Characterized by very high lung cancer rates, high tobacco retail density, and low screening rates.
- **Strawberry Mansion & Kensington:** Areas with elevated cancer incidence and youth vaping rates exceeding 23% (9.5× higher than cigarette use).
- **Current Prevalence:** 14% adult smoking, 19% youth vaping.

Chicago (144,000 residents)

- **Fuller Park & South Deering:** Experiencing death rates of 644 per 100k, double the national average.
- **Englewood & West Englewood:** Alarming smoking prevalence between 35-40%.
- **Stark Disparity:** Smoking rates are 39% in the poorest neighb
  18% in the wealthiest (a 2.2× gap).



Proven Policy Effectiveness

Philadelphia 2016 Licensing Cap (CDC REACH validated)

20.3% density reduction in 3 years

From 1.97 to 1.57 retailers per 1,000 residents, demonstrating significant change.

Greater reduction in low-income districts

An equitable outcome, addressing disparities where intervention is most needed.

12% fewer retailers near schools

Implementing a critical 500-foot buffer to protect youth from tobacco exposure.

No comparable changes in control cities

Solidifying the causal link between policy intervention and observed reductions.

Health System-Funded Buyback Program

The Innovation

Health systems invest $10M to acquire and retire 200-275 tobacco retail licenses in oversaturated, high-risk neighborhoods.

Offers range from $30k to $250k (1-2x annual tobacco revenue) for voluntary license surrender, providing a fair market exit.

Why It Works

Hospitals realize $300M-$400M in avoided cancer treatment costs, creating a substantial financial incentive.

This program boasts an exceptional ROI of 30-40:1 for health systems, making it financially attractive and sustainable.

The voluntary nature of the program ensures political viability and community acceptance.

Precedent

A similar model, the Federal Tobacco Buyout (2005-2014), successfully paid $10B to tobacco farmers, achieving 95% participation and demonstrating the feasibility of such programs.

Three-Tier Strategy & Return on Investment

Strategy

1. **Licensing Cap (Chicago):** Implement a cap of 1 retailer per 1,000 residents, aligning with public health best practices.
2. **Enhanced School Buffers:** Expand exclusion zones for tobacco retailers from 500 to 1,000 feet in Philadelphia, and from 100 to 600 feet in Chicago.
3. **Buyback Program:** Accelerate voluntary retailer exits in targeted high-density areas, leveraging health system investment.

ROI

- **Investment:** $14.4M (comprising $10M for the buyback program and $4M for policy implementation).
- **Return:** A projected $555M in value generated over 30 years.
- **Components of Return:**
  - 2,000 prevented smokers, valued at $200k each = $400M
  - Shift from late-stage to early-stage cancer diagnosis = $75M
  - Avoided cancer cases and associated costs = $80M

Expected Outcomes

Early Reduction

Immediate density declines

Sustained Reduction

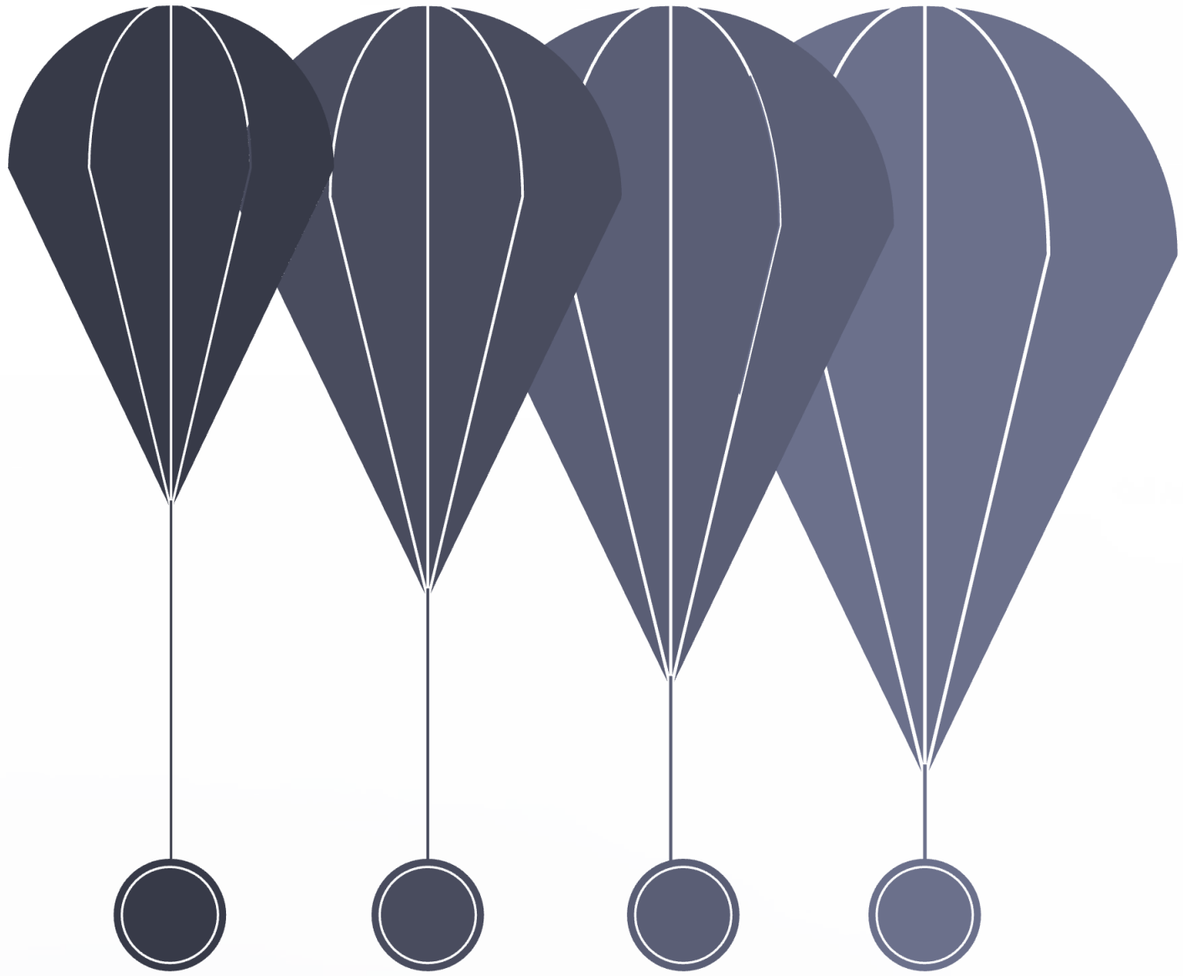
Continued lower prevalence

Screening Increase

Uptick in detection rates

Long-Term Impact

Incidence falls and value rises



Data Sources & Methodological Transparency

Primary Data Sources

- **Cancer Data:** CDC USCS, Chicago Health Atlas, Drexel UHC (2000-2021)
- **Tobacco Retail:** Philadelphia CHART (Oct 2024), CDC REACH 2020, ASPiRE (30-city database)
- **Policy Effectiveness:** AJPH Morrison 2020 (Philadelphia validation with control cities)
- **Cost Analysis:** UDS Health 2025 ($6.5T screening savings), hospital financial data

Key Assumptions & Limitations

- **Long-term Impact:** Acknowledging the 20-30 year lag from smoking initiation to cancer incidence, requiring long-term investment.
- **Causal Evidence:** Philadelphia's validated policy changes with control cities provide strong causal evidence for intervention effectiveness.
- **Data Granularity:** Primarily utilizing neighborhood-level data; individual-level linkage is needed for comprehensive analysis.

Thank you!