Protecting Children From Wildfire Smoke: 
Investing In Indoor Air Quality In California Schools

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Background

- Wildfire smoke threatens children's health and education (figure 1)
- Heating, ventilation, and air conditioning (HVAC) systems can help ensure healthy, safe indoor air quality for children in school
- School infrastructure is underfunded, and lower-income families tend to have the poorest quality school facilities and the fewest dollars to invest in their facilities
- California does not keep records of the current status of ventilation systems in schools, which makes it difficult to plan, track, and fund needed improvements

Methodology

- I conducted research at the Sean N. Parker Center for Allergy and Asthma Research from September 2021 to March 2022
- Collected qualitative data from over 700 California public school, HVAC contractors, and experts asking about the school's HVAC systems and associated costs
- Reviewed scholarly research papers and publicly available reports

Research Questions

- What is the current status of HVAC systems in K-12 California Public Schools?
- What is the cost estimate of installing, maintaining, and upgrading HVAC systems in all K-12 public schools in California to maintain healthy indoor air quality?

Results

Current Status

- Nearly 2 out of 5 public schools in California do not have HVAC systems or do not have maintained or updated systems
- Over 1/2 of new HVAC systems and 4/5 of replacement HVAC systems are estimated to not be performing correctly due to poor quality installation (NEMI 2020)

Cost Estimate

- The cost estimate of installing HVAC systems to schools that do not already have will be $1.7 billion.
- The cost estimate of maintaining and upgrading HVAC systems in all K-12 public schools is $3.5 billion annually.

Significance

- Due to climate change, wildfires are projected to increase in both severity and frequency (figure 4), which makes it imperative to install, maintain, and upgrade HVAC systems to protect children
- My findings will be used in the Green New Deal for Public Schools in California, which is targeted at state legislators

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