

# North Carolina Climate and Health Implementation and Monitoring Strategy (IMS) for **Landfire Smoke**



This Implementation and Monitoring Strategy (IMS) is a living document. It outlines a plan of action for the North Carolina Division of Public Health to implement adaptations and interventions aimed at disrupting the pathway between fire smoke and its subsequent health outcomes. The document describes how each adaptation and intervention will be implemented, communicated, and evaluated.

These interventions and adaptations were developed following the BRACE framework, with continued input from local stakeholders. An initial, completed IMS for all selected exposure foci will satisfy performance measures A through H of the CDC-RFA-EH16-1602. Updates to the IMS over time will satisfy performance measure K of the CDC-RFA-EH16-1602.

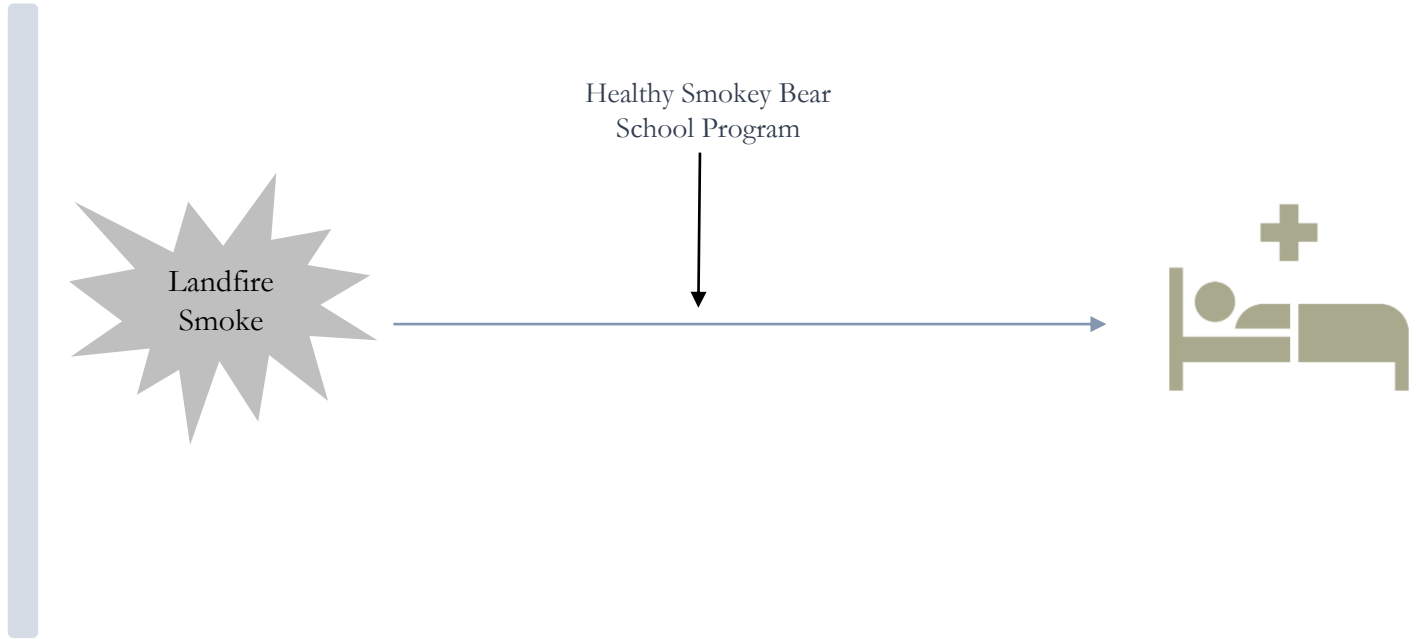
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## SELECTED EXPOSURE-RESPONSE INTERVENTION

### EXPOSURE – RESPONSE PATHWAY

Public Health System-Focused



Community-Focused

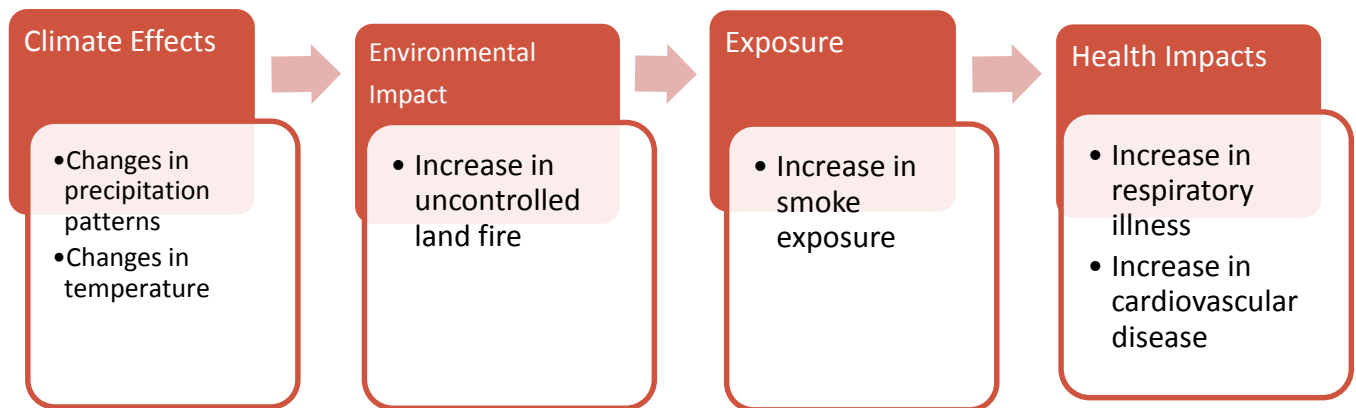
Through collaboration with the Environmental Protection Agency (EPA), NC State Climate Office, NC Forest Service, and stakeholder input, a smoke vulnerability map was created for NC. Hoke, Robeson, and Columbus counties were the three North Carolina counties considered most vulnerable to landfire smoke exposures in NC. All three counties had high exposure to landfire smoke illnesses and high numbers of people with underlying conditions. Hoke and Columbus counties also had low numbers of residents that accessed the EPA’s air quality information system.

Hoke county was chosen as the county to focus adaptation efforts in since it met all three criteria: high exposure, high sensitivity, and low adaptive capacity. Robeson county had higher adaptive capacity (i.e. low air quality info access), and Hoke’s sensitivity was higher than Columbus. (Rappold, 2017 and NC DPH, 2017).

## EXECUTIVE SUMMARY

There is widespread scientific agreement that our climate is changing. Some changes will likely include an increase and intensity in extreme heat events, heavy precipitations events, flooding, droughts, more intense storms and air pollution. Each of these climatic changes impacts public health.

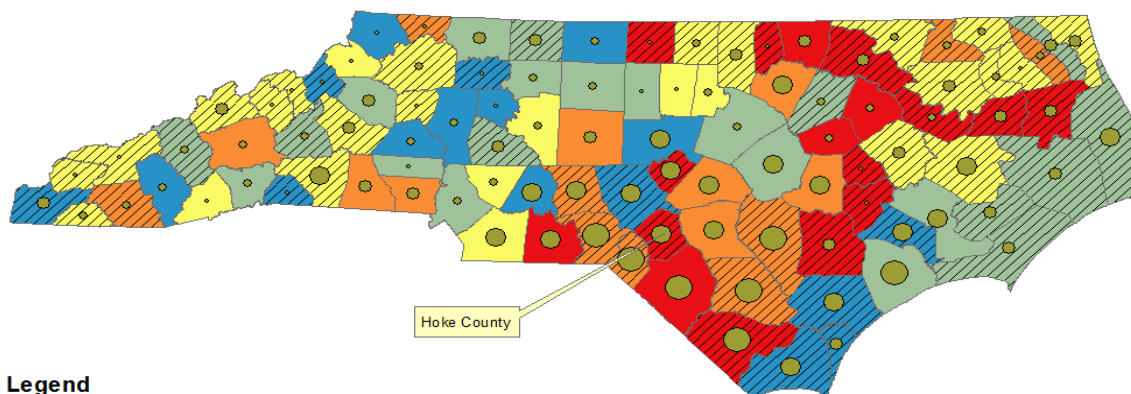
In North Carolina, shifting climatic conditions have impacted the fire smoke conditions as a part of an array of influences. North Carolina has a variety of private and public conservation lands that rely on fire to maintain ecosystem health (Nature Conservancy, 2016). Uncontrolled fires may result from controlled burns or other sources in forests across most of the state, as well as in peat bogs in Eastern North Carolina. Smoke from these fires may result in additional emergency department visits for respiratory and cardiovascular disease in North Carolina (Rappold, 2011).



## IMPLEMENTATION AND MONITORING STRATEGY (IMS)

The goal of this Implementation and Monitoring Strategy (IMS) executive summary is to create a plan of action that can minimize the health impacts of smoke exposure. The IMS is a framework provided by the Centers for Disease Control (CDC) for guiding public health interventions intended to disrupt the exposure pathway of hazards, behaviors, and health outcomes, such as smoke related health outcomes. The three major components of the IMS – implementation, communication and evaluation – are outlined below. Like other strategic planning efforts, the IMS includes internal agency leadership support and resources, as well as support from external champions, community or stakeholder input, and additional resources that will contribute to its long-term effectiveness and sustainability.

# Smoke Vulnerability in North Carolina



## Legend

### Exposure Index

- Low
- Med Low
- Medium
- Med High
- High

Low AirQuality Info Access

### Sensitivity Index

- Low
- Med Low
- Medium
- Med High
- High

0 50 100 200 Miles

Data from: NCFS- wildfire statistics CMAQv5.0.1/5.0.2, EPA's Air Now, and from Ana Rappold of the EPA. Created for: the NC DHHS OEE Branch. Map created by Kat Selm on 07/29/2016

IMPLEMENTATION

## IMPLEMENTATION

### Intervention. Education and Information- Smokey Bear Program Collaboration

The North Carolina Division of Public Health (NC DPH) will support local organizations in the development and implementation of enhanced fire prevention education and information programs. These programs will be targeted towards Hoke County youth (children ages 7-10 years old) with the aim of educating youth first and then having youth educate their peers, parents, and other family members, via a peer educator system.

#### Site locations

The collaboration between the *Smokey Bear* program and NC DPH will take place at different locations in Hoke and Cumberland counties. The program will be administered at different elementary schools in Hoke County. There could be possibilities where NC DPH and the *Smokey Bear* program could present at recreation centers, meetings, and festivals.

#### Methodology

NC DPH and Sustainable Sandhills will build on existing wildfire prevention programming (*Smokey Bear*) to include a health education component. This component will not infringe on the current *Smokey Bear* program but add to it.

## Local Data

NC DPH will conduct at least 7 qualitative interviews via phone and emails with Hoke County stakeholders. The interview information will be used to write a community readiness model (CRM) report.

## Stakeholder and Team Roster and Responsibilities

- NC BRACE staff (Lauren Thie, Environmental Program Consultant; Lisa Garland, Climate Health Educator; Sarah Shaughnessy, Climate & Health Program Assistant; Mac Ledgerton, Climate and Health Program Consultant; Mina Shehee, Branch Head)
  - Conduct qualitative assessment, host meetings, identify schools, update stakeholders, develop curriculum, and evaluate program
- Sustainable Sandhills staff (Denise Bruce, Climate and Health Program Contractor; contractor works with NC BRACE staff on curriculum development and other logistics)
  - Identify schools, update stakeholders, develop curriculum, and evaluate program
- NC Forest Service
  - Host meetings, execute program, provide feedback
- NC Conservation Network
  - Provide feedback
- Hoke County Fire Department
  - Provide feedback
- Hoke County Public Schools
  - Provide feedback and space for program
- Hoke County Public Health Department
  - Provide feedback

## Funding

- CDC grant supporting NC DPH staff
- Stakeholder funding that allows continued involvement, such as local health department or agriculture extension funding

## Needed Resources

- Phone calls and emails to reach out to the stakeholders and conduct qualitative interviews
- Google forms to record interviewee responses
- Computer software to create database of interviewee responses
- Venues to host meetings with stakeholders

## COMMUNICATION

We will communicate how the *Smokey Bear* health curriculum will be implemented through:

- Community meetings
- Stakeholder meetings
- Group trainings
- Educator trainings

### **Cultural Humility**

NC DPH staff are aware of the limitations they face regarding the different cultures of Hoke County in North Carolina. NC DPH uses cultural humility to not master the culture but to learn more about the culture they are working with to better serve them (Cynthia Foronda, Diana-Lyn Baptiste, Maren M. Reinholdt, and Kevin Ousman, 2016).

NC DPH will work to understand the community that they are working with and make sure that the community's needs are being met in an effective manner. NC DPH and Sustainable Sandhills will work together to build sustainable relationships with various partners in Hoke County. These partners will provide valuable feedback to improve the program.

NC DPH and Sustainable Sandhills will consider language and educational level when developing materials. Materials will be easy to understand and be effective in getting out the information to vulnerable populations.

## EVALUATION

NC DPH will evaluate the Healthy *Smokey Bear* Curriculum component and how NC DPH will improve the program.

In total, seven stakeholders were interviewed that worked and/or lived in Hoke County. Stakeholders ranged in title from health care workers to forest rangers. Most people acknowledged that landfire smoke has the potential to aggravate people who have a pre-existing condition. In terms of existing efforts in Hoke county, interviewees said there were not that many programs that addressed landfire smoke exposure and health.

## FOLLOW-UP

NC DPH will communicate monthly and meet quarterly with stakeholders to provide updates on the progress of the program and to discuss next steps.

## REFERENCES

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