

### Information on the Survey:

Participants of this study are the users of the Smoke Sense application. Users will be asked to establish their user profile through a “Profile Survey” (S1) and to report their weekly symptoms and behaviors related to wildfire smoke through a “Symptoms Report Survey” (S2). All questions will be answered with pull down menus accepting a single input or check boxes/buttons accepting multiple inputs.

In the Profile Survey (S1), we will ask participants 10 survey questions, basic demographics such as sex, age-group, race, and baseline health and activity information. The profile survey also asks for a preferred zipcode location (not necessarily the location of residence). Users can choose an option to “Allow the app to access GPS when Smoke Sense is in use” instead of “referred zipcode”. The app will not track GPS locations, only the preferred location will be saved and used to center map displays of smoke. Users will be given an option to receive notifications “I agree to receive notifications” [checkbox].

On Monday mornings, participants will receive a notification on their device inviting them to complete their weekly “Symptoms Report Survey” (S2) on health symptoms (Yes/No). If the participants answer “No”, no further questions will need to be answered. If the participant answers “Yes” participants will be asked to select from four groups of symptoms: Eyes & Ears; Respiratory, Nose & Throat; Cardiovascular; and Other. After selecting a symptom-group, participants will be asked to select a specific date of the symptom onset (calendar view), whether or not they were seen by physician (inpatient/outpatient); whether they used medication(s) (prescribed or over the counter); and whether they traveled further than 50 miles from their “preferred” location. If a participant has missed filling in the weekly survey they will be able to report previous answers up to four weeks. Along with the health symptom section, participants will be prompted with a question about smoke exposure and actions they took to reduce exposure (wear a mask) during the previous week. If no, the survey ends; if yes, the survey continues with a module about behavior during the past week. If a user does not respond in several consecutive weeks we will push a notification asking for the reason (too busy, not affected by smoke, etc).

### **Consent to Participate Embedded in the Survey and App.**

A following consent will be embedded with the survey and use of Smoke Sense app. Users will not be able to use the app without confirming willingness to participate.

“The purpose of this research is to understand the impact of wildfire smoke on health and the use of environmental monitors to communicate the likelihood of potential exposure. The approach we are testing uses mobile technology (i.e., “cell phone apps”) to facilitate real time exchange of information. Participation is open to all individuals over 18 years of age who is interested, as long as they can use the app. The results of weekly survey and basic usage statistics across all participants will be provided back to the app and available to all users in real time. In addition, participants will be provided with environmental model predictions of smoke from large fires and recommended measures to reduce health impacts from wildfire smoke.

Participation is voluntary. Data obtained through widespread use of the Smoke Sense app will help researchers quantify health impacts experienced in communities during smoke events and gain understanding about how individuals access information and make decisions in order to improve health outcomes during smoke events. Data provided through survey responses and use of the app will not be linked to individual users. The study will end on October 31, 2017.

I agree to participate in the research study and certify that I am at least 18 years old.”

## Survey Data Collected From Participants

The users will be asked to provide feedback through surveys. There will be two distinct surveys; (S1) Profile Survey, (S2) Weekly Symptoms and Behavior Survey. All questions will be answered with pull down menus accepting a single input or check boxes/buttons accepting multiple inputs.

### Profile Survey-S1

Example questions for the profile survey.

- 1) Your sex:
  - a. Male
  - b. Female
  
- 2) Your age?
  - 18-29
  - 30-39
  - 40-49
  - 50-64
  - 65+
  
- 3) What race/ethnicity best describes you? [checkbox]
  - a. White
  - b. African-American/Black
  - c. Asian/Pacific Islander
  - d. Native American
  - e. Hispanic/Latino
  - f. Other
  
- 4) What is your highest education level? [checkbox]
  - a. High school degree, GED or less
  - b. Technical school, trade or vocational training
  - c. College, master's degree, doctorate or professional degree.
  
- 5) Has a health care provider ever diagnosed you with any of the following diseases: [checkbox, multiple answers]

- a. Asthma
  - b. Chronic Obstructive Pulmonary Disease (COPD)
  - c. Other respiratory disease
  - d. Hypertension and high blood pressure, other heart disease
  - e. Type II diabetes, metabolic syndrome, or obesity
  - f. Allergies related to the upper respiratory track, eyes, and ears
  - g. Other chronic disease
- 6) Do you commonly experience symptoms of: [check box, multiple answers] [please note that each symptom is aggregated and each answer is one bullet]
- Coughing, trouble breathing, shortness of breath, wheezing, asthma attacks, or similar
  - High blood pressure, chest pain or tightness, rapid or irregular heartbeat, or similar
  - Stinging eyes, scratchy throat, or similar
  - Runny or stuffy nose, irritated sinuses, or similar
  - Tiredness, headaches, or similar
- 7) How much time do you spend outdoors each week on average? [continuous scale 0-8+ hr]
- Mon-Fri
  - Sat-Sun
- 8) On average when you are outside, how active are you? [pull down]
- a. Mild (walking, standing)
  - b. Moderate (regular jog, gardening)
  - c. Very Active (run, bike daily, work outdoors)
  - d. Not Very Active
- 9) Does smoke and air pollution affect your health?
- 10) Does smoke and air pollution affect the health of other people?

## Weekly Survey - S2

The second survey is repeatable; on Monday mornings participants will receive notification on their device inviting them to complete their weekly survey on health symptoms (Yes/No). If the participants answer "No", no further questions will need to be answered. If the participant answers "Yes" participants will be asked to select from four groups of symptoms: Eyes & Ears; Respiratory, Nose & Throat; Cardiovascular; Other:

- 1) Record your health symptoms [ multiple choices 4 categories, individual symptoms are listed as examples, do not choose individuals symptoms]

**Eyes and Ears** (category 1)

[list examples] Stinging, itching or watery eyes, ear infections, allergic symptoms, or similar.

**Respiratory, Nose and Throat** (category 2)

[list examples] Runny or stuffy nose, scratchy throat, irritated sinuses, coughing, trouble breathing normally, shortness of breath, wheezing, asthma attack, allergic symptoms, or similar.

**Cardiovascular** (category 3)

Fast or irregular heart rate, pain or tightness in the chest, high blood pressure, or similar.

**Other** (category 4)

Tiredness, dizziness, viral infections, other.

For each outcome category, participants will be asked to click on days of the week that best approximate the onset of symptoms.

Each question should have a submenu:

Have you been treated by physician during the smoke episodes (unscheduled meeting)?

- a. Yes, Inpatient visit
- b. Yes, Outpatient/Clinic visit
- c. No

Did you use medication to treat your symptoms?

- a. Prescription
- b. Over the counter

- 2) Did you travel more than 50 miles from your “preferred” location when you experienced symptoms [Yes/No]

## **Behavioral Survey Module of the Weekly Survey**

As part of the weekly survey, participants will also be asked whether they have experienced a significant smoke episode during the last week [Yes/No].

- 3) Did you experience a significant smoke event while using this app?  
If [No] survey ends  
If [Yes] then following additional questions are asked:
- 4) Did you smell smoke outside your home/workplace/school during this time?
- Not at all
  - 1-2 days
  - 3+ days
- 5) Did you smell smoke inside of your home?
- Not at all
  - 1-2 days
  - 3+ days
- 6) Did you reduce exposure by
- Leaving the area
  - Using a mask
  - Using an air cleaner
  - Avoided going to work/school [days]
  - Avoided normal outdoor recreation [days]
  - Stayed indoors [days]
- 7) What source did you find most reliable/useful/informative? [pulldown]
- TV, local news and print
  - Search Engines (Google, yahoo)
  - State and Local Agencies
  - AirNow
  - Smoke Sense
  - Social Media (FB, Twitter, ..)
  - Other
- 8) Did you find reliable/useful/informative source?
- Yes
  - No

An additional question will be asked if the participant has not responded to their weekly survey for more than 2 weeks

- 9) Good morning "Nickname", we haven't received your weekly surveys recently, we would like to ask you is it because
- a. You haven't been affected by smoke
  - b. Too busy
  - c. Technical difficulties

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Screenshot

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**Smoke Sense**

WEEK 3 OF 16



**Smoke Sense**