

Mental Health Symptoms Among Community Members and First Responders Following a Natural Gas Pipeline Explosion — Lincoln County, Kentucky, 2019

Lindsay K. Tompkins, PhD, MS
Epidemic Intelligence Service Officer

Division of Environmental Health Science and Practice
National Center for Environmental Health
Centers for Disease Control and Prevention

12th Annual CSTE Disaster Epidemiology Workshop
May 19, 2021



BACKGROUND

The explosion **killed one resident, injured several others, and produced a large fire that destroyed and damaged nearby homes.**





August 1,
2019



September 3,
2019



**Investigate potential
adverse health effects
experienced by
community members
and first responders.**

Monitoring the **mental health** needs of affected populations is an important **part of disaster response** and recovery.



National Toxic Substance Incidents Program (NTSIP)



The National Toxic Substance Incidents Program (NTSIP) collects and combines information from many resources to protect people from harm caused by spills and leaks of toxic substances. NTSIP gathers information about harmful spills into a central place. People can use NTSIP information to help prevent or reduce the harm caused by toxic substance incidents. NTSIP can also help experts when a release does occur. NTSIP is modeled partially after the Hazardous Substances Emergency Events Surveillance (HSEES) Program (1990-2009), with additions suggested by stakeholders to have a more complete program.

Reports and Data



Publications



Incident Investigations - ACE



METHODS

We adapted the Assessment of Chemical Exposures (ACE) toolkit questionnaires to include additional questions on mental health symptoms.

Nightmares

Flashbacks of the incident

*Avoidance of places/people
related to the incident*

Difficulty sleeping

Difficulty concentrating

Feeling jumpy

Easily irritated or angered

Anxiety

Feelings of hopelessness

Feelings of sadness

Feelings of fear



**August 1,
2019**



**September 3,
2019**

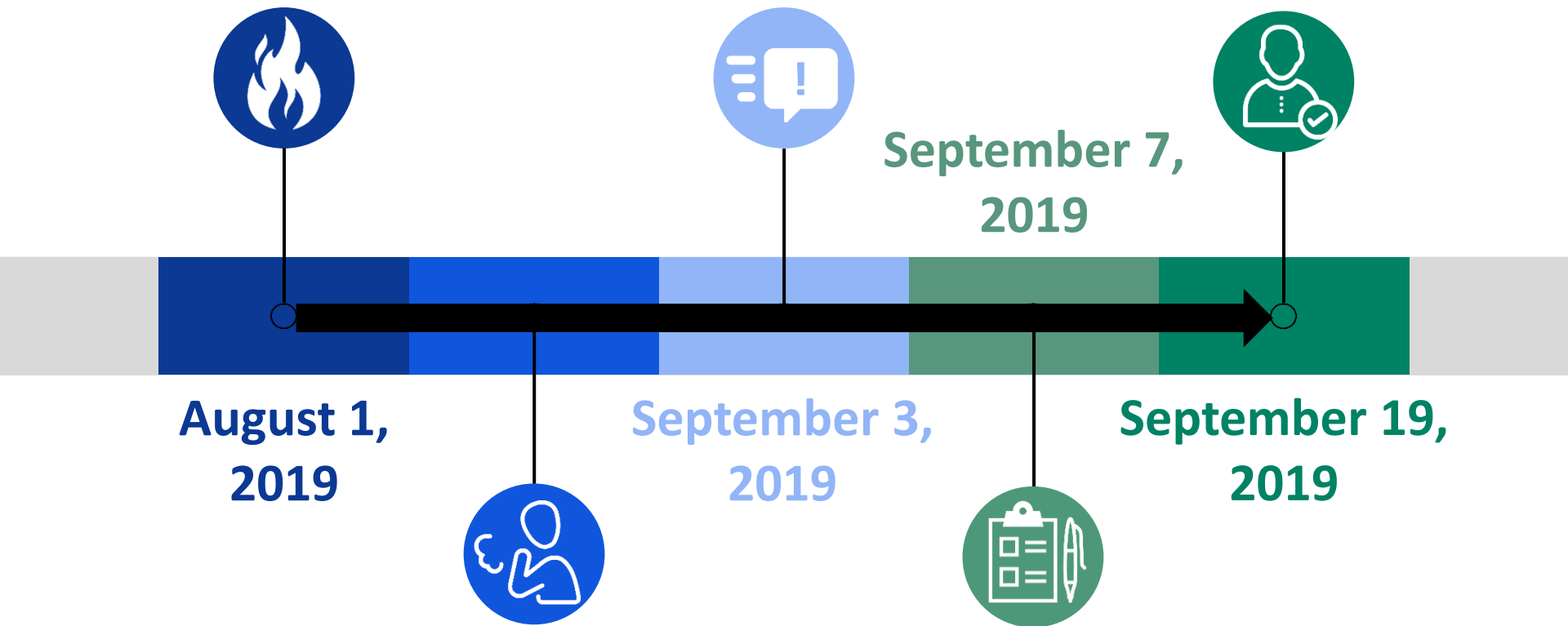


**September 7,
2019**



**September 19,
2019**

Interviews were conducted more than one month after the incident.







We interviewed **120** community members and **105** first responders.

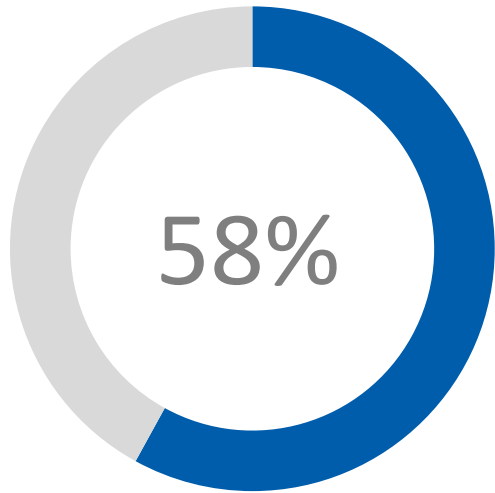


RESULTS

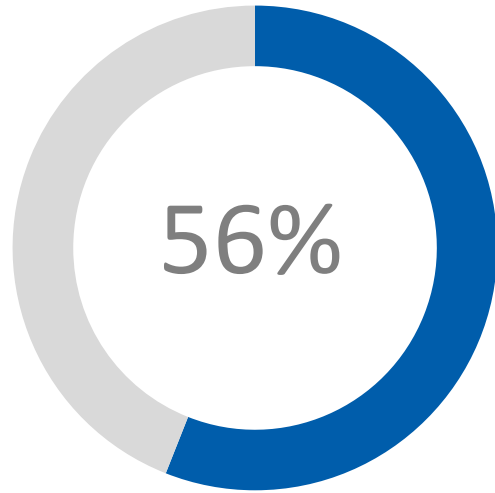


82% of community members and **27%** of first responders reported experiencing at least one new or worsened mental health symptom following the incident.

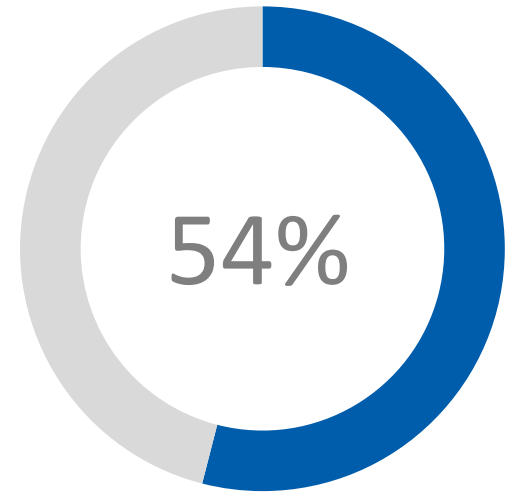
The most frequently reported symptoms among **community members** included



jumpiness

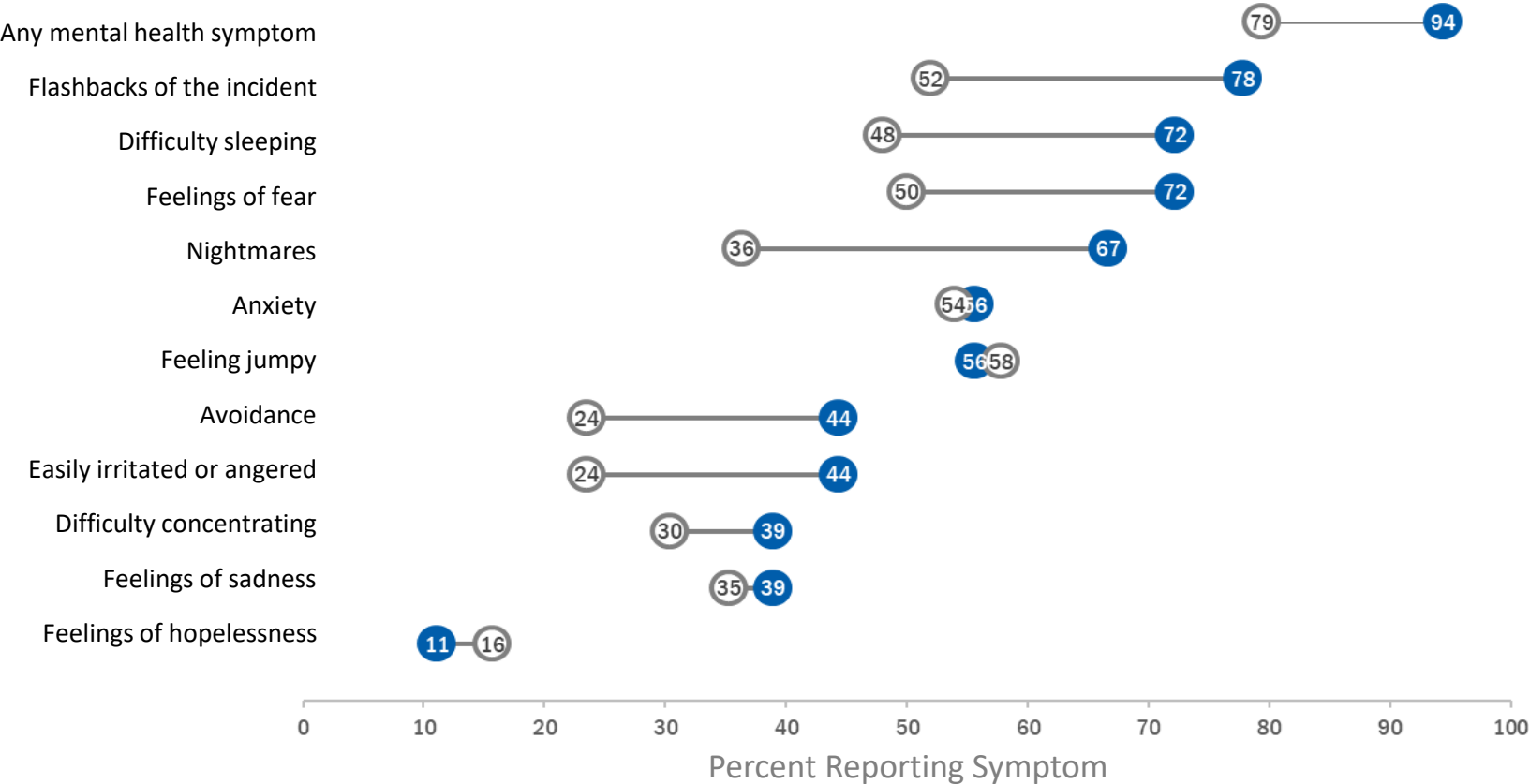


flashbacks

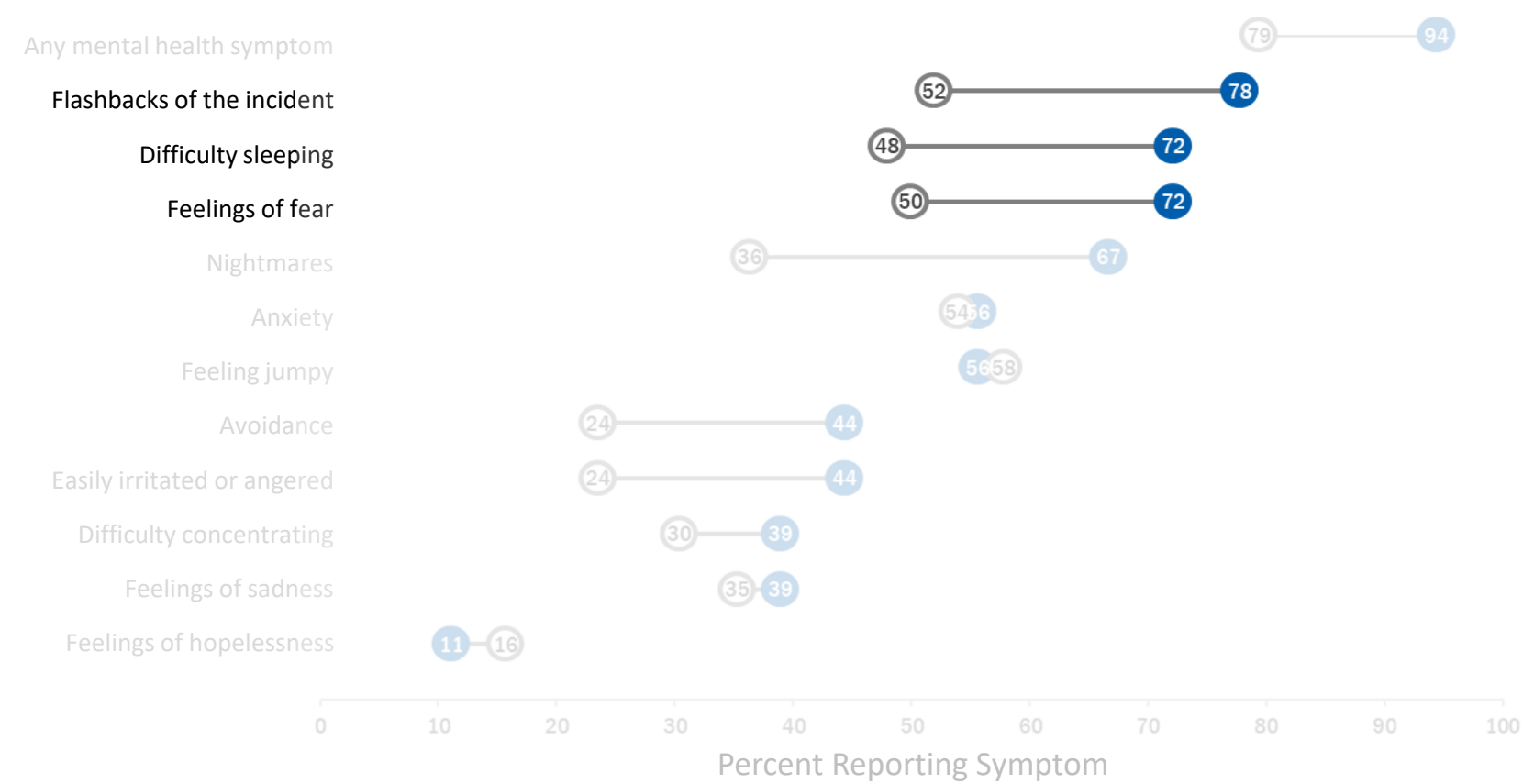


anxiety

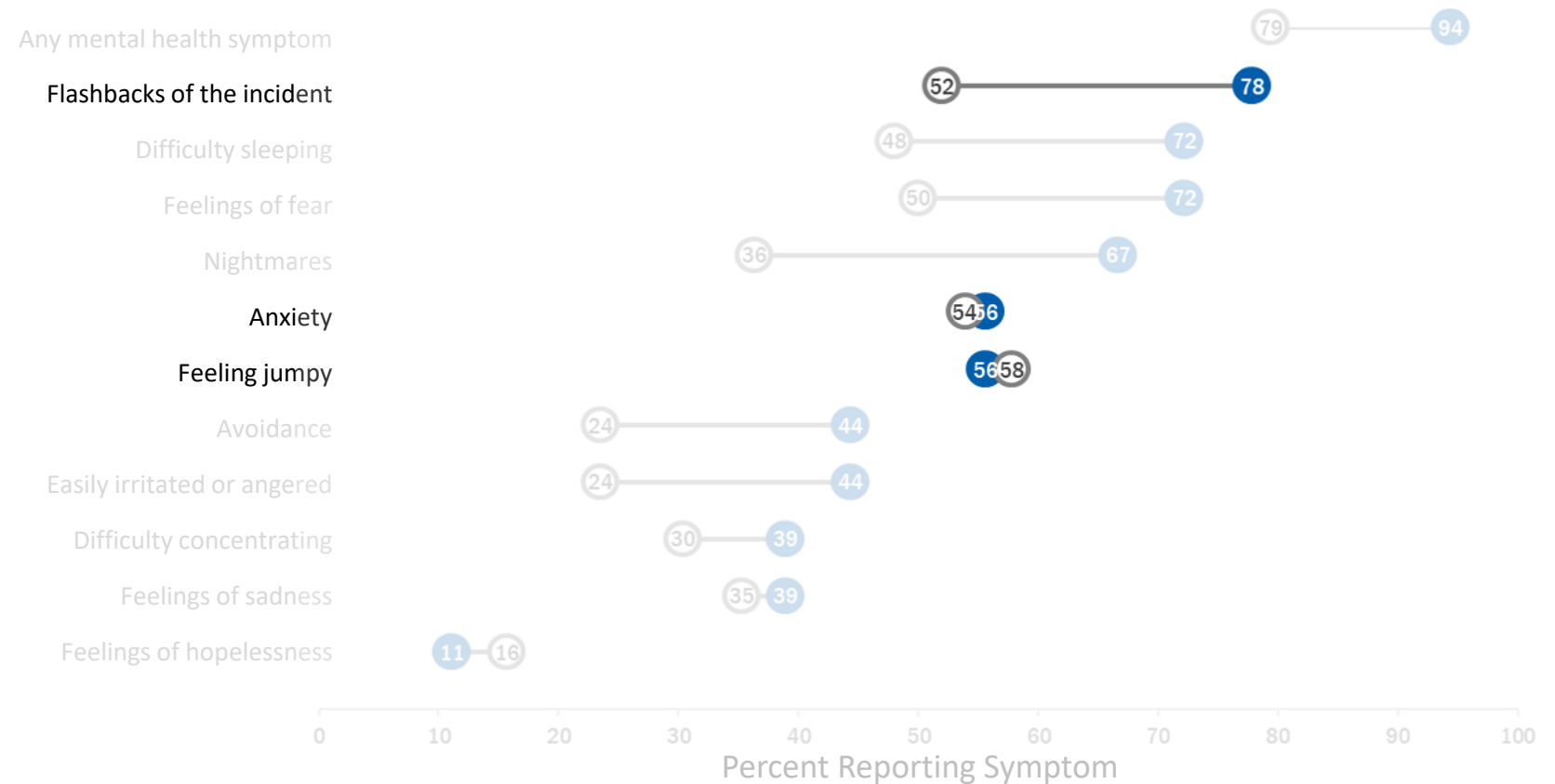
Among community members, we observed differences in the most frequently reported mental health symptoms between adults and children.



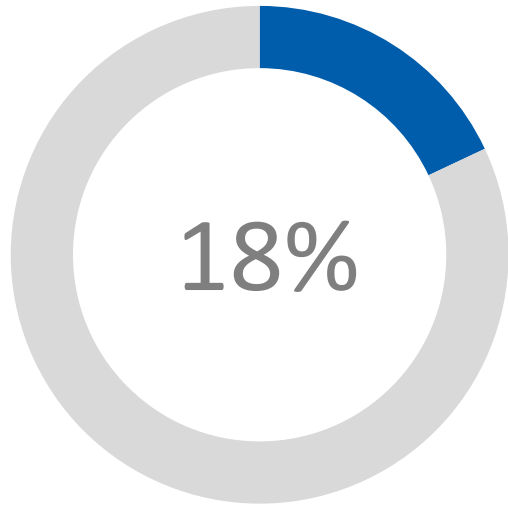
The most frequently reported symptoms among **children** included **flashbacks (78%)**, **difficulty sleeping (72%)**, and **feelings of fear (72%)**.



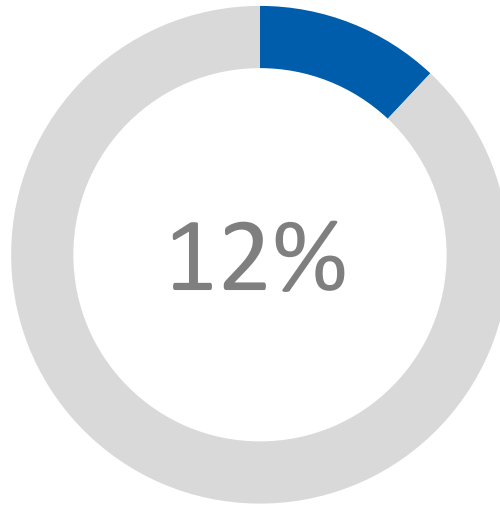
The most frequently reported symptoms among adults included feeling jumpy (58%), anxiety (54%), and flashbacks (52%).



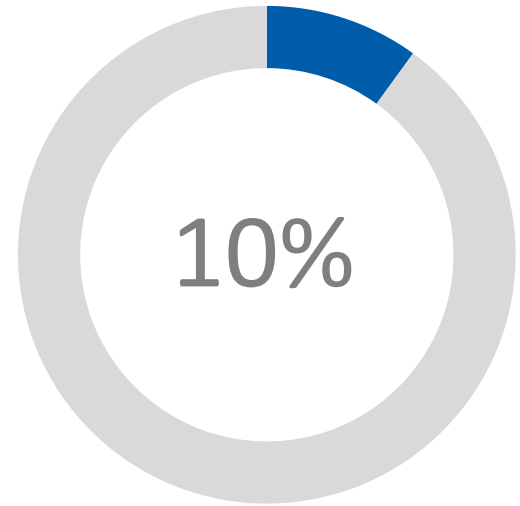
The most frequently reported symptoms among **first responders** included



flashbacks



difficulty sleeping



nightmares



91% of community members and **68%** of first responders who reported mental health symptoms were still experiencing them more than one month after the incident.

Mental health care following the incident was **infrequently reported** by both community members and first responders.



CONCLUSIONS

- Monitoring the **mental health** needs of affected populations is an important **part of disaster response** and recovery.
- Community members and first responders reported mental health symptoms post-incident.
 - Most were **still experiencing** these **symptoms** at the time of the interview (**>1 month later**)
 - **Few sought care** for these symptoms.

We recommended providing mental health **resources** and facilitating **contact** with counseling services **early in responses**.



National Toxic Substance Incidents Program (NTSIP)



The National Toxic Substance Incidents Program (NTSIP) collects and combines information from many resources to protect people from harm caused by spills and leaks of toxic substances. NTSIP gathers information about harmful spills into a central place. People can use NTSIP information to help prevent or reduce the harm caused by toxic substance incidents. NTSIP can also help experts when a release does occur. NTSIP is modeled partially after the Hazardous Substances Emergency Events Surveillance (HSEES) Program (1990-2009), with additions suggested by stakeholders to have a more complete program.

Reports and Data



Publications



Incident Investigations - ACE



Acknowledgments

Kentucky Public Health Team

Erin Blau (CDC/Kentucky Dept. for Public Health; KDPH)*
Doug Thoroughman (CDC/KDPH)*
Rebecca Hardin (KDPH)
James House (KDPH)
Diane Miller (Lincoln County Health Department)
Brent Blevins (Boyle County Health Department)
Boyle and Lincoln County Emergency Management
Volunteers

Epi-Aid Team and CDC/ATSDR Support

Esther Kukiela*, David Bui*, K. LeAnn
Bing*, Charles Edge*, Renée Funk*, Andy
Dent, Maria Mirabelli, Kanta Sircar, Tegan
Boehmer, Melissa Smith, Jared Rispens,
Luke Yip, Tesfaye Bayleyegn, Jasiri Driver,
Rich Nickle

*Coauthors

For more information, contact NCEH/ATSDR
1-800-CDC-INFO (232-4636)

TTY: 1-888-232-6348 www.atsdr.cdc.gov www.cdc.gov
Follow us on Twitter @CDCEnvironment

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry.



Thank You

LTompkins@cdc.gov

For more information, contact NCEH/ATSDR
1-800-CDC-INFO (232-4636)

TTY: 1-888-232-6348 www.atsdr.cdc.gov www.cdc.gov

Follow us on Twitter @CDCEnvironment

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry.



ADDITIONAL SLIDES

Reasons for not seeking care for mental health symptoms varied between community members and first responders.

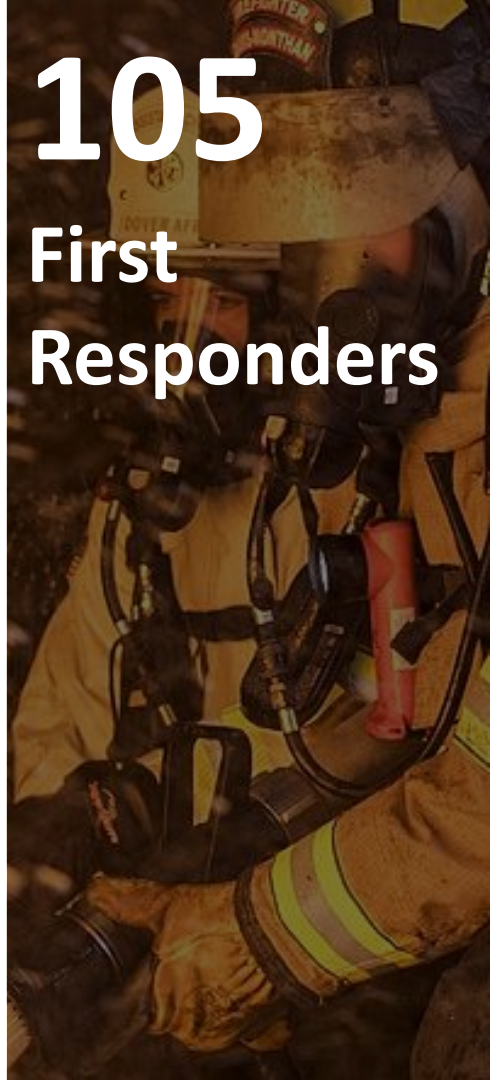


A close-up photograph of a person's hands writing in a notebook with a pen. The person is wearing a watch on their left wrist. The background is slightly blurred, showing more of the person and the notebook.

120

Community Residents

Results

A photograph of a firefighter in full gear, including a helmet and jacket. The firefighter is holding a tool, possibly a pike pole, and is looking down. The background is dark and smoky, suggesting a fire scene.

105

First Responders

We provided **information sheets** and **brochures** to residents and first responders.



WILDFIRE SMOKE FACTSHEET

Protecting Children from Wildfire Smoke and Ash



WILDFIRE SMOKE FACTSHEET

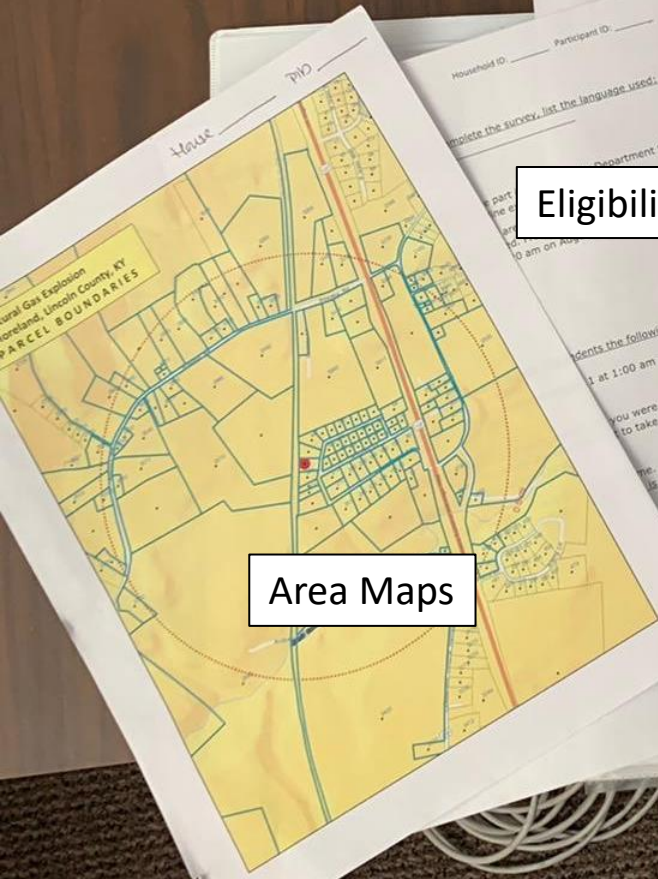
Indoor Air Filtration



Coping with the stress that
environmental contamination can cause



Photo credit:
Michael Clevenger,
Courier Journal



Eligibility Form

Consent Form

Contact information Form

Questionnaires

Contact Information Form

Household ID: _____
Participant ID: _____
Street Address: _____
City, State: _____
Zip: _____
Phone: _____
Email: _____

Cont
In or
post
pre
AR

Interviewer: _____ Household ID: _____ Participant ID: _____
Scribe: _____
Date: _____ Participant ID: _____
Start time: _____ End time: _____

GENERAL SURVEY MODULE G: DEMOGRAPHIC AND CONTACT INFORMATION
To begin, I have some general questions about you.

- G1. Do you consider yourself to be Hispanic or Latino?
☐ Yes
☐ No
- G2. What race do you consider yourself to be? Check all that apply:
☐ Black or African American
☐ White
☐ Other (specify): _____

- What is the highest level of education you completed?
☐ Grade 8 or Less
☐ Some High School
☐ High School Graduate or Equivalent
☐ Some University/College
☐ Technical or Trade School
☐ Junior or Community College
☐ University/College Graduate
☐ Graduate School or Higher

Last modified 8/10/19

Last updated 08/07/19

Last updated 08/06/19