

US EPA ARCHIVE DOCUMENT



EPA Office of Research and Development (ORD),
National Exposure Research Laboratory (NERL)

Community-Focused Exposure & Risk Screening Tool:
C-FERST



OUTLINE

- What is C-FERST?
- Need and Benefits
- Partners in C-FERST Development
- How were Environmental Issues Selected?
- Progress and Next Steps
- Screenshots: C-FERST Demo as of 11/08



What is C-FERST?

- Community-Focused Exposure and Risk Screening Tool
 - User-friendly, web-based screening tool to assist with identifying and prioritizing community environmental issues

- A “one-stop shop” to:
 - View available EPA information at national or local scale
 - View community exposure/risk characterization report for selected issues
 - general information, population affected, sources, concentrations, exposures, risks/health effects, reduction actions
 - fact sheets, technical papers, weblinks, dynamic maps
 - Add/view local information if available
 - Link to other tools and information

- Intended to help Level I CARE project officers (POs), their communities, and other community programs
 - CARE is EPA’s Community Action for a Renewed Environment program (www.epa.gov/care)



What is the need?

- Communities want to understand environmental issues in context of risk
 - difficulties accessing, integrating and interpreting data
 - currently rely mostly on risk perception
 - technical assistance across regions & communities varies greatly

- User-friendly, state-of-science tools that rely on best available information are needed to empower communities to make their own decisions



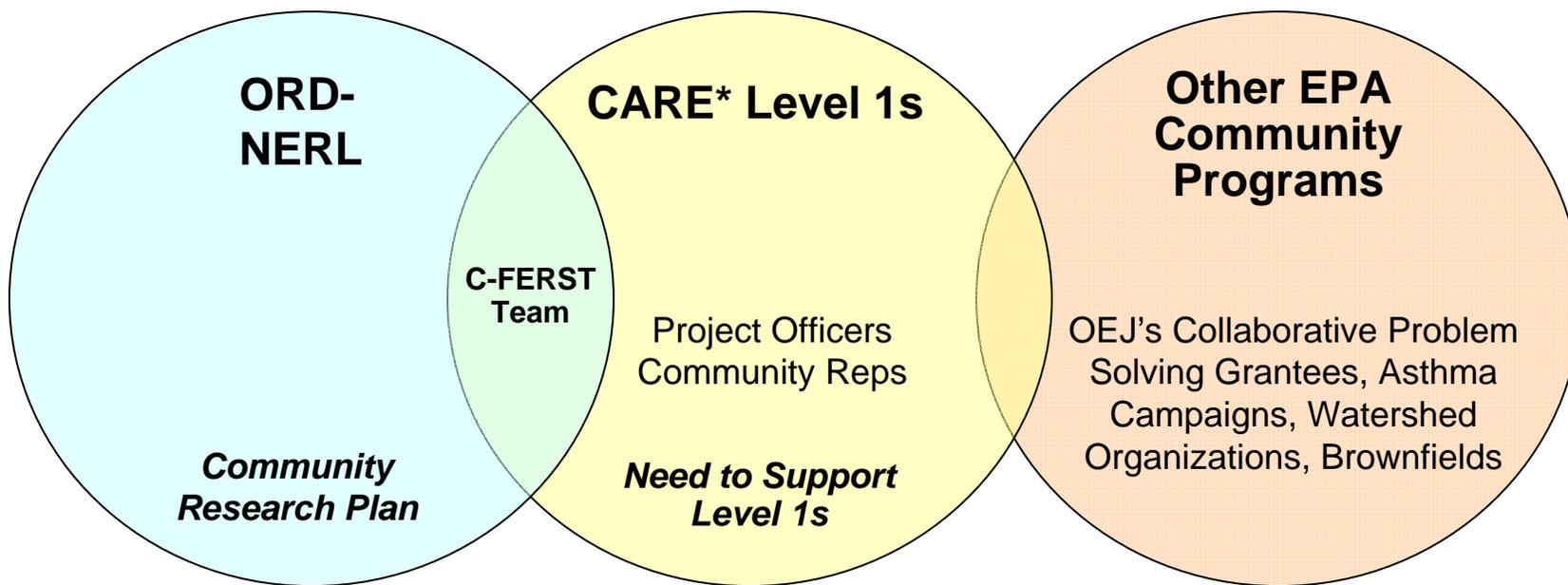
What are the benefits?

- Empower communities with information
- Incorporate more exposure science
- “Level the playing field” across regions, communities



Partners in C-FERST Development

* CARE is EPA's Community Action for a Renewed Environment (www.epa.gov/care)



Potential Future Stakeholders



How were Environmental Issues Selected?

- Reviewed community issues identified previously
 - Matrix of EPA reports, CARE PO survey, CARE documents
- Prioritized considering community health risks & concerns
- Organized ORD/CARE working groups around each issue
 - air toxics, radon, PM, ozone, drinking water, lead, ETS, UV radiation
 - Holyoke and Detroit CARE case studies
 - C-FERST usability and mapping aspects
- Planning by type and availability of information
 - Fact sheets/weblinks
 - Promising practices
 - Risk maps (and technical papers)



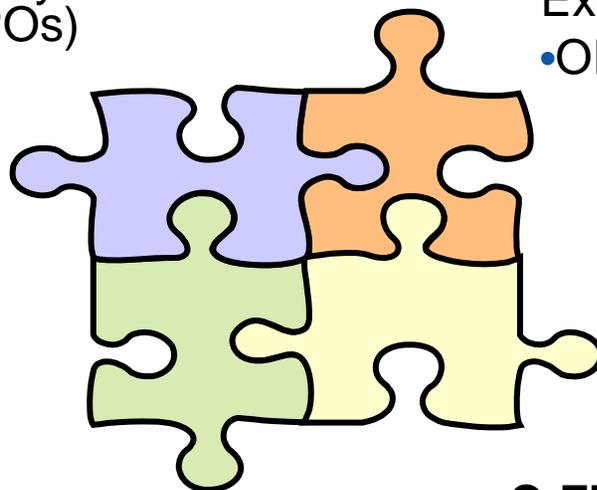
Progress to Date

Preparation

- Reviewed existing tools and defined research needs
- Discussions with / survey of stakeholders (CARE POs)

Internal Collaborations

- ORD/CARE working group
- ORD/OEI/OAQPS on NATA-Explorer
- ORD/OW/OAR: issue research



Recruit External Partners

- CARE Level 1 case studies of Detroit and Holyoke
- Support CARE communities and inform C-FERST development

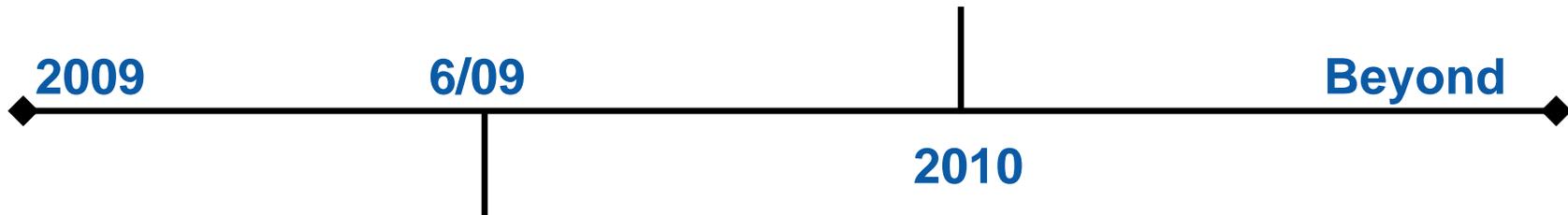
C-FERST Prototype

- Identified initial issues
- Feedback from CARE; Community Tech Support Forum
- Demo Prototype at 11/08 Chicago CARE Workshop
- Other Conferences



Next Steps

- Subsequent versions of C-FERST with additional issues, info, maps, refinements
- Application/testing of C-FERST with case studies
- Deployment of C-FERST via EPA website
- Publication of C-FERST related research



- Publicly available C-FERST test version 1 to obtain feedback
- Selection/initiation of C-FERST case studies
- Journal papers describing research to date



Continuing ORD/CARE Collaboration

ORD/NERL

- Identify issues for C-FERST
- Dialogue with Program Offices
- Lead technical issue papers
- Collaborate on case studies
- Incorporate CARE feedback
- Incorporate links to other tools

CARE

- Identify issues for C-FERST
- Dialogue with Program Offices
- Share promising practices
- Collaborate on case studies
- Provide info, feedback to ORD
- Liaison to communities



C-FERST Prototype Test Version

Example Demonstration Screens

C-FERST Main Page | C-FERST | U.S. EPA - Mozilla Firefox

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Community-Focused Exposure and Risk Screening Tool: C-FERST

prototype test version 2008

ABOUT THIS TOOL

C-FERST is a computerized tool intended to assist communities in identifying and prioritizing community environmental health risk issues. It focuses on EPA-related environmental issues and information; there may be other issues very important to your community that the tool will not be able to address. In all cases, it is up to the user/partnership to decide whether you think the information provided by the tool is useful, and to set priorities for action.

DISCLAIMER

The U.S. EPA through its Office of Research and Development, National Exposure Research Laboratory (ORD/NERL) developed and funded this computerized CARE Workbook in collaboration with the EPA Community Action for a Renewed Environment (CARE) Program and the EPA Community Technical Support Forum, and with assistance from its contractor Alion Science and Technology.

The tool has not yet been subjected to Agency review, but it is being circulated internally for comments on its technical merit. This draft prototype version represents an interim test version of the tool not intended for public use and only to be used by those individuals and institutions authorized to do so by EPA.

Please contact Dr. Valerie Zartarian (617-918-1541; zartarian.valerie@epa.gov) with any questions, comments, or specific suggestions related to this draft prototype version of C-FERST.

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What Do You Want To Do?

- About C-FERST
- First Time User
- Select Environmental Issues
- View Maps
- Enter Local Data
- View Community Report
- CARE Road Map
- EPA/ORD Communities Program
- EPA/CARE Program

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What Do You Want to Do?

[Learn About Using C-FERST](#)

Learn about C-FERST, using C-FERST in your community, and other sources of information for looking at your environmental concerns.

[View maps of your community](#)

View national risk maps and/or maps of your community with available data (optional table comparison of community risk to national risk estimates for different issue layers).

[Select from a list of environmental concerns](#)

Select from a list of common EPA-related community environmental concerns (optional links to available EPA information are provided to inform decision).

[Information on obtaining local data](#)

View guidance/methods on how to obtain local data for key exposure/risk factors, and enter new data for those factors, if desired.

[View the Community Report for selected issues, containing the following:](#)

- **General information about the selected issue**, including a technical paper, fact sheets, and web links as available
- **Scale (population affected) information**, including available key factors and maps
- **Sources information**, including available key factors, factsheets & web links, and maps
- **Concentration/exposure information**, including available key factors, factsheets & web links, and maps
- **Community risks/ health effects**, including available key factors, vulnerabilities, factsheets & web links, and maps
- **Exposure reduction actions** including available key factors, factsheets & weblinks

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CARE Road Map for C-FERST

- Build a Partnership:** Build a collaborative partnership representing a broad range of interest that is able to identify environmental risks and impacts, build consensus, and mobilize all the resources necessary to achieve community goals.
- Identify Community Concerns:** Identify the environmental, health, and related social and economic concerns of the community. Use C-FERST [Select Environmental Issues](#) page to select and research issues to determine interest.
- Identify Community Vulnerabilities:** Identify community vulnerabilities that may increase risks from environmental stressors. View C-FERST [maps of environmental sources and risks](#).
- Identify Community Assets:** Develop a list of community assets in order to build on the existing strengths of the community.
- Identify Concerns for Immediate Action:** Identify and begin to address immediate concerns and vulnerabilities. Consider issues pursued by other CARE groups displayed in a [categorized list or matrix](#).
- Collect and Organize Information:**
 - Collect and Summarize** available information on stressors, concerns, and vulnerabilities. [Enter local environmental data here](#)
 - Identify Gaps** where the information on stressors, concerns, and vulnerabilities is missing or inadequate. View the [Community Report](#) to identify collected and missing data.
- Rank Risks and Impacts:** Compare and rank community concerns to help identify those that have the greatest impact.
- Identify Potential Solutions:** Identify and analyze options for reducing priority concerns and vulnerabilities and for filling information gaps.
- Set Priorities for Action and Begin Work:** Decide on an action plan to address concerns, fill information gaps, and mobilize the community and its partners to carry out the plan.
- Evaluate Results & Become Self-Sustaining:** Evaluate the results of community action, analyze new information, and develop a plan to restart the Roadmap process. You can restart the process as needed to reestablish priorities, develop new plans for action, collect information, and make your partnership self-sustaining.



The CARE Road Map diagram illustrates a winding road with various signs and icons representing the steps of the process. The signs include: 'Build a Partnership', 'Identify Community Concerns', 'Identify Community Vulnerabilities', 'Identify Community Assets', 'Identify Concerns for Immediate Action', 'Collect and Organize Information', 'Rank Risks and Impacts', 'Identify Potential Solutions', 'Set Priorities for Action and Begin Work', and 'Evaluate Results & Become Self-Sustaining'. The icons include a sun, a tree, a person, a house, and a car.

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Select Concerns | C-FERST | US EPA - Mozilla Firefox

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View a [list of community environmental concerns](#)

Select Community Environmental Issues of Interest

Media

- Outdoor Air
 - Air Toxics
 - Stationary Sources [Information Resources](#)
 - Mobile Sources [Information Resources](#)
 - Criteria Pollutants
 - Fine Particulates [Information Resources](#)
 - Ozone [Information Resources](#)
- Indoor Environments
 - Lead [Information Resources](#)
 - Radon [Information Resources](#)
 - ETS [Information Resources](#)
- + Water
- + Soil
- + Food

-Sources of Exposure

- Diesel Exhaust [Information Resources](#)
- UV Radiation [Information Resources](#)

-Specific Health Effects of Concern

- Asthma [Information Resources](#)

-Specific Chemicals of Concern

- Benzene [Information Resources](#)

MORE DETAILED ANALYSES

For a more detailed assessment, you may want to consider EPA's [Internet Geographical Exposure Modeling System \(IGEMS\)](#) and/or EPA's [TRI-NATA Explorer](#).

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Where is your community?

User Name:

Email:

Zip Code:

County:

State (Abbreviation):

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Risk Maps | C-FERST | US EPA - Mozilla Firefox

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IGEMS epa

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 Lead
 — Select Issue —
 Benzene
 Lead
 Radon
 Radon

[SN](#) | [LocLead](#) | [NatRad](#)

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Enter Local Data

Upload File with Local Coordinates or Addresses

Data Collection Guidance

[List of Test Methods From November 2008](#)
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14 (1 of 2) 75.2% Find

Table 6. Example of screening measurement methods: Example of commercially available test kits (Mention of trade names or commercial products does not constitute endorsement or recommendation of use.)

Analyte(s)	Estimated Price Range	Brand	Source
Indoor Air			
Mold and Bacteria			
Formaldehyde, Nitrogen Dioxide, Carbon Monoxide and Carbon Dioxide	\$ 69.95 for one; \$109.95 for two	EnviroCheck	http://www.healthgoods.com/Shopping/Home_Test_Kits/EnviroCheck_Indoor_Air_Quality_Test_Kit.asp
Ozone	\$14.95	Eco Badge Ozone Detector Kit	http://ecobadge.com/Merchant5/merchant.mvc?Screen=SFNT&Store_Code=ecobadge or http://www.negativeiongenerators.com/ozonedetector.html or http://www.airpurifiersbestonline.com/site/1406502/product/Eco%20Badge%20Ozone%20Test%20Kit or http://www.honest-air-online.com/site/948704/product/HA-06-TK-2 or http://www.air-zone.com/detector.html
Toxic black mold, bacteria, and yeast	\$19.95	Enviro-Tester	http://www.envirotester.com/
Mold Spores Bacteria Fungus	\$13.95 per set	Comtech Research	http://www.vgdllc.com/dishes.htm
Water			
Phosphate	50 tests, \$71.90		http://www.lamotte.com/page/common/pdf/instruct/3590-02.pdf or
Chlorine	50 tests, \$ 61.20		http://www.benmeadows.com/search/LaMotte/9061/ or
Ammonia Nitrogen	50 tests, \$48.50	LaMotte	http://www.benmeadows.com/search/LaMotte/21495/
Chloride	50 for \$39.50		
Bacteria		PurTest Home Water Analysis Test Kit	http://www.purtest.com/ or http://www.healthgoods.com/Shopping/Home_Test_Kits/PurTest_Home_Water_Analysis_Test_Kit.asp or
Atrazine & Simazine	\$ 33.95 to 35.95		https://www.freshwatersystems.com/p-455-purtest-complete-home-water-test-kit.aspx?affiliatid=10050&qid=0
Nitrate & Nitrite			
Iron, Chlorine			
Copper, Lead			
Bacteria		ITS Complete Water Analysis Test Kit	http://www.healthgoods.com/Shopping/Home_Test_Kits/Industrial_Test_Systems_Complete_Water_Test_Kit.asp or http://www.testing-kits.com/list-testing-kits.asp?txtsearchParamTxt=alkalinity&txtsearchParamType=ALL&txtsearchParamCat=9&txtsearchParamMan=ALL&txtsearchParamVen=ALL
Free Chlorine Nitrate, Nitrite	\$24.45		
Total Chlorine			
Iron			
Copper Sulfate Chloride			
Hydrogen Sulfide			
Bacteria		Watersafe All-In-One Water Analysis Test Kit	http://www.discoveresting.com/?source=googleCPC&s_cid=299566559&gclid=CPO7pvadppICFQTWsgod7kCRRg or http://www.healthgoods.com/Shopping/Home_Test_Kits/Watersafe_All_In_One_Water_Test_Kit.asp
Lead	\$19.95		
Atrazine & Simazine			
Nitrate Nitrite			
Chlorine			
Lead	\$9.95	Watersafe	http://www.healthgoods.com/Shopping/Home_Test_Kits/Watersafe_Lead_Water_Test_Kit.asp

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Community Environmental Report | C-FERST | US EPA - Mozilla Firefox

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View Community Reports

Available Issues

- Asthma
- [Benzene](#)
- Diesel Exhaust
- Environmental Tobacco Smoke (ETS)
- Fine Particulates
- [Lead](#)
- Mobile Sources
- Ozone
- [Radon](#)
- Stationary Sources
- UV Radiation
- [All Issues](#)

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Community Report

BENZENE REPORT

BENZENE RESULTS

Community Environmental Report for zip code 27701.

GENERAL INFORMATION

This section provided general information on Benzene...

- [Technical Issue Paper](#)
- [Factsheets & Web Links](#)

SCALE (POPULATION AFFECTED)

- Key Factors:
 - Benzene has the greatest effect....
- [Maps](#)

SOURCES

- Key Factors:
 - Benzene ...
- [Factsheets & Web links](#)
- [Maps](#)

CONCENTRATION / EXPOSURE

- Key Factors:
 - [Factsheets & Web links](#)
 - [Maps](#)

COMMUNITY RISKS / HEALTH EFFECTS

- Key Factors:
 - Given the information you have provided ...
 - This is **lower** than the national average. [Comparison Table](#)
- Vulnerabilities
 - Benzene is found in gasoline among ...
 - Individuals ...
 - [Smokers](#)
- [Factsheets & Web links](#)
- [Maps](#)

RISK REDUCTION ACTIONS

Learn how you may reduce your risk to Benzene exposure.

- Key Factors:
- [Factsheets & Web links](#)

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[EPACARE Program](#)

Care Resource Guide References

- [CARE Resource Guide \(key word search: Air Pollution\)](#)
- [EPA's OPPT Community Assistance Program \(CAP\)](#)
- [EPA's Office of Pollution Prevention & Toxics](#)

Additional EPA Links

- [Technical Factsheet: Benzene](#)

Additional External Links

- [Safety & Health Topics: Benzene \(Occupational Safety & Health Administration\)](#) [EXIT Disclaimer](#)
- [Facts About Benzene \(CDC\) | PDF version \(4pp, 316KB, About PDF\)](#) [EXIT Disclaimer](#)
- [Benzene: ToxFAQs \(ATSDR\) \(PDF\) \(2pp, 30KB, About PDF\)](#) [EXIT Disclaimer](#)

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Care Resource Guide References

- [EPA's Technology Transfer Network: Air Toxics Website](#)
- [EPA's High Production Volume Challenge Program](#)

Additional EPA Links

- [Air Toxics Risk Assessment Reference Library, Volume 1, Chapter 4, Air Toxics: Chemicals, Sources, and Emissions Inventories \(PDF\)](#) (32pp, 1MB, [About PDF](#))
- [National Air Toxics Assessment \(NATA\) Website](#)
- [EPA's Toxic Air Pollutant Website](#)

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Exposure Reduction Actions - Benzene Factsheets and Links

Care Resource Guide References

- [Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts \(TRACI\)](#)

Additional External Links

- [Benzene: ToxFAQs \(ATSDR\) \(PDF\) \(2pp, 30KB, About PDF\)](#) [EXIT Disclaimer](#)

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Community Report

LEAD REPORT

LEAD RESULTS
Community Report for Cook County, Illinois.
GENERAL INFORMATION
This section provided general information on Lead... <ul style="list-style-type: none"> Technical Issue Paper Factsheets & Web Links
SCALE (POPULATION AFFECTED)
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Lead has the greatest effect on developing ... Maps
SOURCES
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Lead occurs in paint and ... Factsheets & Web links Maps
CONCENTRATION / EXPOSURE
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Age of housing or playset Upkeep of ... Factsheets & Web links Maps
COMMUNITY RISKS / HEALTH EFFECTS
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Given the information you have provided ... This is lower than the national average. Comparison Table Vulnerabilities <ul style="list-style-type: none"> Very young children ... Factsheets & Web links Maps
RISK REDUCTION ACTIONS
Learn how you may reduce your risk to Radon exposure. <ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Factsheets & Web links

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Lead Factsheets-Concentrations | C-FERST | US EPA - Mozilla Firefox

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General Information - Lead Factsheets and Links

Care Resource Guide References

- [CARE Resource Guide \(links related to Lead\)](#)
- [EPA's Office of Air and Radiation Indoor Air Pollution Information Gateway](#)
- [OPPTS Concerns Citizens Web Page](#)
- [Protect Your Child From Lead Poisoning](#)
- [EPA Office of Children's Health Protection](#)

Lead Links

Lead Report

- General Links
- Source Links
- Concentration and Exposure Links
- Risks and Effects Links
- Risk Reduction Links

Additional EPA Links

- [Lead: Basic Information Web Page](#)
- [What You Need to Know About Lead Poisoning \(PDF\)](#) (2pp, 86KB, [About PDF](#))

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Community Report

RADON REPORT

RADON RESULTS
Community Report for zip code 27701.
GENERAL INFORMATION
This section provided general information on Radon... <ul style="list-style-type: none"> Technical Issue Paper Factsheets & Web Links
SCALE (POPULATION AFFECTED)
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Radon has the greatest effect.... Maps
SOURCES
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Radon is a naturally occurring gas ... Factsheets & Web links Maps
CONCENTRATION / EXPOSURE
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Fraction of houses with basements House construction Factsheets & Web links Maps
COMMUNITY RISKS / HEALTH EFFECTS
<ul style="list-style-type: none"> Key Factors: <ul style="list-style-type: none"> Given the information you have provided and available data for your community, lung cancer risk estimates range from A in 10,000 to B in 10,000. This is lower than the national average. Comparison Table Vulnerabilities <ul style="list-style-type: none"> Lung cancer is the major risk from Radon exposure. Individuals in some groups are at a larger risk for lung cancer: <ul style="list-style-type: none"> Smokers Factsheets & Web links Maps
RISK REDUCTION ACTIONS
Learn how you may reduce your risk to Radon exposure. <ul style="list-style-type: none"> Key Factors: Factsheets & Web links

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Exposure Reduction Actions - Radon Factsheets and Links

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- [EPA/CARE Program](#)

Care Resource Guide References

- [Healthy School Environments](#)
- [Green Building: Green Homes](#)
- [Green Building](#)
- [Farm*A*Syst / Home*A*Syst](#)

Additional EPA Links

- [Reducing Radon Risks](#)
- [Local Efforts to Reduce Radon Risks: Highlights and Lessons Learned \(PDF\)](#) (12pp, 400KB, [About PDF](#))
- [Consumer's Guide to Radon Reduction \(PDF\)](#) (20pp, 601KB, [About PDF](#))
- [Home Buyer's and Seller's Guide to Radon | PDF version](#) (43pp, 1MB, [About PDF](#))

Additional External Links

- [Radon Testing Guidance for Child Day Care Centers & Group Day Care Homes \(Connecticut Department of Public Health\) \(PDF\)](#) (2pp, 48KB, [About PDF](#)) [EXIT Disclaimer](#)

Radon Links

Radon Report

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