

CARBON MONOXIDE POISONING PREVENTION

A TOOLKIT

Working Together to Keep Communities Safe

PRESENTED BY



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention

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Introduction

Carbon monoxide (CO) poisoning is the leading cause of poison-related death in the United States and is responsible for approximately 450 deaths and 20,000 nonfatal injuries every year. Poisoning occurs when CO—an odorless, colorless, and tasteless gas—escapes from fuel-burning appliances and becomes trapped in enclosed spaces. Poisonings from CO are often caused by faulty furnaces, by improperly operating portable generators, or by using other fuel-burning devices indoors.

CO poisoning is also in many ways predictable and preventable. As trusted sources of public health and safety information, state and local government agencies can be instrumental in warning the public about the dangers of CO poisoning and in educating them about taking these simple precautions:

- Installing battery-operated CO detectors in the home;
- Having gas- and oil-burning appliances regularly inspected and maintained; and
- Keeping portable generators more than 20 feet from the home.

This toolkit, developed by the Centers for Disease Control and Prevention (CDC), presents research-based strategies for preventing CO poisoning. It was developed to support the CO poisoning prevention efforts of **public information officers working within state departments of health, emergency management and preparedness, and consumer safety** at the federal, state, municipal, and community levels. The messages and materials it contains can be used to develop effective communication activities or campaigns. However, non-governmental and other groups also may be interested in adopting these strategies and using these materials.

First, the toolkit summarizes the most common scenarios for CO poisoning; identifies at-risk populations; and describes the current attitudes, beliefs, and behaviors that put individuals at risk. Second, it highlights audience-tested awareness and prevention messages that encourage CO safety, and it offers strategies for establishing state and local partnerships for CO prevention. Third, the toolkit provides customizable materials that you can adapt and use to create a prevention campaign in your state or community.

Ultimately, this toolkit is designed to help you promote CO awareness and prevent CO poisoning. As such, it includes strategies for:

- Increasing public awareness of CO as an odorless, colorless, and poisonous gas that can cause death and serious illness.
- Motivating homeowners and renters to install battery-operated CO detectors in appropriate home locations.
- Reminding consumers how to safely operate portable gas-powered generators.
- Reminding homeowners to regularly maintain their furnace and other fuel-burning appliances.

Use your knowledge of the community to customize the enclosed messages and materials and eliminate CO injuries and deaths in your area.

COMMON CO-EMITTING PRODUCTS

- Furnaces (natural gas, oil)
- Gas stoves
- Hot water heaters (gas)
- Portable generators
- Gas and charcoal grills
- Automobiles / trucks
- Kerosene / portable heaters
- Chainsaws
- Pressure washers and gas-powered tools

TOOLS INSIDE

- Facts about CO Poisoning
- CO Prevention Messages
- CO Prevention Strategies and Tactics
- Public Information and Awareness Materials
- Research and Resources

About CO Poisoning in the U.S.

Carbon monoxide (CO) is a by-product that results from the incomplete combustion of fossil fuel and can cause sudden illness and death if inhaled. CO is a colorless and odorless gas, and it is emitted from furnaces, automobiles, stoves, portable generators, gas ranges, charcoal, firewood, and other products when they malfunction or are used improperly.

Within the United States, faulty furnaces and motor vehicles are the leading cause of CO poisoning and death, respectively. Most unintentional poisonings (64 percent) occur in homes or other residences, and a smaller percentage (21 percent to 23 percent) occurs in occupational settings or other public areas.

Emergency Poisoning Situations

Emergency poisonings occur in the wake of hurricanes, tornados, ice storms, floods, and other severe weather events that cause destruction and power outages. After these events, individuals often use generators, portable heaters, chainsaws, and other devices for power, heat, and debris removal. When used improperly, these devices lead to CO poisoning. In particular, portable generators are a small but consistent cause of CO poisoning in the United States. As lower prices make generators more ubiquitous, generators may become a more common cause of CO poisoning.

Those at risk for CO poisoning in emergency situations include:

- Homeowners who own portable generators and live in southeastern coastal states susceptible to hurricanes and summer storms.
- Homeowners who own portable generators and live in regions susceptible to snow and ice storms, including states in New England, the Mid-Atlantic, the Midwest, the Great Plains, and the Pacific Northwest.

With summer storms, Hispanics and African Americans are at higher risk. Non-English speaking residents are also at higher risk for CO poisoning after summer storms. With winter storms, white homeowners are more likely to be poisoned by generators and non-white residents are more likely to be poisoned by charcoal or gas grills.

Generator poisonings usually peak within two to three days after a storm hits, with many generator poisonings caused by generators located outside the home. However, many of these generators are located only about 7 feet from homes, near air conditioners, windows, and other air intake routes. Many people also place still-running generators indoors or in garages overnight. Other poisonings are caused by generators located inside garages or carports (33 percent), inside the home (15 percent), or in sheds and basements.

KEY FACTS ABOUT CARBON MONOXIDE

- **What is it?** CO is a by-product that results from the incomplete combustion of fossil fuels.
- **What causes most CO poisonings?** Faulty furnaces and motor vehicles are responsible for most CO deaths and poisonings in the U.S.
- **Where do most CO poisonings occur?** Most unintentional poisonings occur in residential homes.
- **When are CO poisonings most likely to happen?** CO poisonings are most likely to occur during fall and winter months.

Non-Emergency Poisoning Situations

Non-emergency poisonings are most often caused by faulty home appliances and motor vehicles, although they are occasionally caused by the use of occupational tools (e.g., gas-powered pressure washers, forklifts). Furnaces are one of the leading causes of unintentional CO poisoning in the United States, and unlike motor vehicles—which have benefited from improved emissions technology over time—have a long life cycle and are not subject to regular inspection and maintenance.

Almost one-third (33 percent) of residential poisonings occur in single-family homes, with multiunit homes (27 percent) and cabins (23 percent) being slightly less common locations. Residential poisonings are also more likely to occur during the winter months when the use of home heating systems increases—especially among residents of Midwest, Northeast, and Great Plains regions, where gas- and oil-burning furnaces are more prevalent. Almost half (49 percent) of residents are asleep at the time of poisoning.

A more detailed summary of poisoning situations and at-risk populations is included as **Appendix A**.

CO Poisoning Prevention

The installation of a CO detector¹ is perhaps the most effective step for protecting household occupants. Research suggests that a detector serves as an early warning device, notifying occupants of CO before it escalates to a dangerous level. If CO poisoning occurs, homes without detectors are likely to have CO levels nearly five times higher than those homes with detectors by the time of emergency response. Research results also point to the effectiveness of detectors in both alerting residents to the presence of CO and reducing the number of victims who experience poisoning symptoms.

One of the most common strategies for educating consumers about CO risks is to provide information to consumers when they purchase CO-emitting products. Furnace manufacturers provide a warning of the risks of CO poisoning in their manuals. The Consumer Product Safety Commission (CPSC) also recommends having heating systems, including chimneys and vents, inspected and serviced annually by a trained service technician. Local gas and oil utility companies often provide similar recommendations to their customers. Similarly, portable generator manufacturers are required to provide safety information with their products. Placing generators more than 20 feet from the home is usually adequate to prevent the entry of CO into homes.

¹ The CDC describes these devices as “detectors” because their function is to detect emissions of CO. Additionally, qualitative research findings indicate that consumers identify these devices as “detectors” as opposed to “alarms.”

Public Understanding of CO Poisoning and Its Risks

Educating your community about the realities of CO poisoning is essential to preventing CO injuries and death. The more you understand what your community knows or thinks, the more effective you can be in sharing critical information with them.

Some key findings of CDC's research are outlined below to help you shape your communication strategy.

CO Knowledge and Awareness

- Most individuals have heard of CO and can describe at least a few CO poisoning symptoms. Many also can identify the most common sources of CO.
- Most recognize that CO is likely to kill individuals in their sleep.
- Many individuals incorrectly use the terms CO and natural gas interchangeably.
- Some individuals are unaware that generators or furnaces produce CO.
- Many individuals do not consider themselves at risk, even though they have failed to install CO detectors or take other precautions.
- Many residents feel they do not need CO detectors because they think they have "all-electric homes." However, these same residents commonly use CO-emitting devices such as generators, automobiles, fireplaces, and gas dryers.

Furnace Maintenance

- Homeowners service their furnaces sporadically but not necessarily professionally, and few have contracts for annual professional inspections or maintenance.
- Individuals generally support the idea of professional furnace inspections, but are hesitant to schedule them due to cost/perceived cost, uncertainty about what inspections entail, difficulty finding a trustworthy contractor, and fear of uncovering a costly repair.

Generator Placement and Operation

- Residents who own generators typically activate them after storms cause power outages.
- Most individuals use generators to power critical appliances, such as freezers, refrigerators, air conditioning units, furnaces, hot water heaters, and TVs or radios.
- Almost all residents have a standard, pre-determined location for their generator, usually an enclosed space that can easily lead to CO poisoning.

- Other residents place generators in their yard or in detached sheds. Extension cord length and ease of attending to the generator influence their placement.
- Most residents feel their generators are placed in a safe location, but many have difficulty identifying a “well-ventilated” location. Most individuals place generators in locations that are inappropriate or questionable.

CO Detector Installation

- Only half of residents are likely to own a CO detector.
- Most residents are unsure where to place CO detectors or how many they should install. Many incorrectly place detectors in basements or utility rooms—which can lead to false alerts—rather than in bedrooms and living areas where they belong.
- Residents are also unsure of the proper height for CO detectors (e.g., ceiling vs. wall). They are unaware that detectors should be installed at power outlet height, approximately 1-2 feet above the floor.
- Most residents change batteries “when a detector chirps” rather than every 6 months.

Trusted Sources of Information

- Trusted sources of health and safety information include the CDC, state and local health departments, utility companies, home improvement stores, and local newspapers or news stations.

Additional information for understanding the knowledge, beliefs, and behaviors of at-risk populations is included in **Appendices B, C, and D** of this toolkit.

Key Messages for Prevention

CDC has developed and tested two types of messages you can use to support CO prevention activities in your community. The messages were developed through extensive audience research with home- and generator owners to learn more about their understanding and needs in relation to CO prevention. The messages also were tested and revised based on two separate rounds of research with members of the target audience.

CO Detector Installation

People are most receptive to messages about CO **prevention** and **detection**. Because many consumers believe their current use of generators and furnaces protects them from CO and because many consumers view professional furnace maintenance as an unwarranted expense, your messages should focus on the purchase, installation, and maintenance of CO detectors. CO detector installation may be a more achievable behavior and may have the biggest impact in preventing deaths and injuries.

Individuals do not understand the importance of using CO detectors in the home. This lack of knowledge ranges from not thinking a CO detector is necessary to not knowing how many detectors are needed or where to place them.

Use these tested messages to encourage installation of CO detector in homes:

- “Prevent carbon monoxide (CO) gas poisoning by installing battery-operated CO detectors on every level of your home and near every sleeping area. Check your CO detectors regularly to be sure they are functioning properly.”
- “The only way to detect odorless and colorless carbon monoxide (CO) gas is to install battery-operated CO detectors near every sleeping area. Check your CO detectors regularly to be sure that they are functioning properly.”
- “Household appliances such as furnaces, generators, stoves, hot water heaters, and grills can emit dangerous carbon monoxide (CO) gas. To prevent CO poisoning, install battery-operated CO detectors near every sleeping area and check them regularly to ensure that they are functioning properly.”

Family Protection

Messages that emphasize **protecting one’s family from the danger of CO poisoning** are also important, particularly as they motivate individuals to take action. However, the messages must still identify how to avoid danger and protect the family, so information about the importance of CO detectors in preventing CO poisoning is included on the next page.

Example messages include:

- “Carbon monoxide (CO) kills hundreds of people each year in the U.S. To protect you and your loved ones from CO poisoning, install battery-operated CO detectors near every sleeping area in your home.”
- “Carbon monoxide (CO) is a poisonous gas that kills hundreds of people each year and makes thousands sick. Protect yourself from CO poisoning by installing battery-operated CO detectors on every level of your home and checking them regularly to ensure they are functioning properly.”
- “To protect your family from carbon monoxide (CO) poisoning, install battery-operated CO detectors near every sleeping area in your home. Keep your family safe year-round by checking your CO detectors regularly to make sure that they are functioning properly.”
- “What you can’t see, smell, or hear can harm your family. To protect your family from poisonous carbon monoxide (CO), install battery-operated CO detectors near every sleeping area in your home and check them regularly to ensure they are functioning properly.”

These messages are not intended to be comprehensive. Because you are already communicating important information to your community, you know best what works to motivate positive behavior in them. Use this knowledge to customize the above messages to fit your audience.

Strategies and Tools for Prevention

Now that you have the research and prevention messages, it’s time to take action. This section of the toolkit outlines communication strategies to help you develop and implement a plan to promote CO safety in your community. The pages that follow provide you with customizable materials to make your outreach relevant and impactful.

As you review these strategies, consider building a broader base of support within your community. With your help, organizations with a range of budgets can use their resources to maximize prevention efforts. After all, the more organizations in your area that reinforce the CO poisoning prevention messages, the more likely it is that the public will adopt behaviors to protect themselves.

The chart illustrates the level of effort it might take your organization to implement the outreach strategies outlined in this toolkit. However, it’s worth noting that your partners and other collaborators could contribute to your efforts, too.

Potential Level of Effort	Low Resources	Medium Resources	High Resources
Strategy 1: Combining the Efforts of State and Local Agencies			
<ul style="list-style-type: none"> Invite potential partners to in-person meetings to discuss implementation of a CO safety campaign. Share materials and explain how to use and adapt them 	•	•	
<ul style="list-style-type: none"> Develop informal partnerships with several local or state organizations 	•	•	
<ul style="list-style-type: none"> Help organizations distribute existing health and safety information 	•	•	•
Strategy 2: Promoting CO Safety through Local Media			
<ul style="list-style-type: none"> Produce and place print PSAs 	•	•	•
<ul style="list-style-type: none"> Pitch the placement of live-read PSAs 		•	•
<ul style="list-style-type: none"> Pitch the placement of copy for television and weather programs 	•	•	
<ul style="list-style-type: none"> Pitch the use of banner ads for media outlet Web sites 		•	•
<ul style="list-style-type: none"> Engage in paid advertising 		•	•

Potential Level of Effort	Low Resources	Medium Resources	High Resources
<i>Strategy 3: Disseminating Public Information and Awareness Materials</i>			
• Promote inclusion of the campaign graphic	●	●	●
• Promote inclusion of newsletter/Web page copy	●		
• Encourage the use of Web banner ads	●	●	●
• Promote tweets and text messages	●		
• Promote placement of campaign flyer/poster	●	●	
• Promote point-of-sale flyer placement	●	●	
• Promote bill insert inclusion	●	●	
• Provide suggested uses of FAQs	●	●	

Strategy 1: Combining the Efforts of State and Local Agencies

Collaborating with local agencies and organizations involved in public health and safety will increase the likelihood that individuals hear CO safety messages. Partnering with private organizations and businesses also can help you reach people in your community.

Local and regional businesses, chambers of commerce, HVAC trade organizations, public utility companies, homeowners' associations, and state and local real estate associations are in frequent contact with the public and provide a logical tie-in to CO poisoning messages.

Partner Outreach Strategies

When approaching existing or new partners about CO poisoning prevention, emphasize the goals your organizations share, such as keeping the public informed about potential dangers to their family and loved ones. CO poisoning is a danger that is easily preventable.

Before reaching out to potential partners, learn about their mission, current priorities and activities, and outreach channels, and then identify how the CO poisoning prevention efforts can be woven into their current activities. For example, have they partnered with state or local government agencies in the past, and do they offer workshops, trainings, and other educational activities? Do home improvement stores and homeowners' associations include CO safety messages when they promote spring and fall HVAC maintenance or assemble their new homeowner package? Once you learn about potential partners, you should:

- Invite potential partners to join a series of in-person meetings to discuss how you can collaborate with them;
- Show them the CO poisoning prevention materials and explain how they can use and adapt the materials to include their organizations' logos and contact information;
- Suggest ways they can help distribute the campaign materials; and
- Offer to help them distribute their own health and safety materials, especially if related to CO poisoning prevention.

Talking Points to Guide Partnership Outreach

Use the talking points that follow when approaching other organizations about a CO safety partnership. The talking points allow you to tailor outreach—whether in-person, by letter, or via e-mail—to potential partners and emphasize the aspects of CO safety that they will relate to most.

You can collaborate with a variety of groups that organize workshops, fairs, or other educational sessions that are open to the community and find ways to weave in CO education into their agendas. Some of these groups might include:

- Police and fire departments
- Hospitals and clinics
- Schools
- Libraries
- YMCAs

TALKING POINTS TO GUIDE PARTNERSHIP OUTREACH

- Each year in the U.S. at least 450 people die and 20,000 people experience nonfatal injuries as a result of carbon monoxide (CO) poisoning. Reminding individuals to install CO detectors on every level of the home and near all sleeping areas can prevent CO poisoning.
- CO poisoning is often caused by malfunctioning furnaces, portable generators, stoves, blocked chimneys, water heaters, hibachis, grills, lanterns, and gas ranges, and by burning charcoal or wood in enclosed or partially enclosed spaces.
- Although people understand that CO is poisonous, they think it is less dangerous than other household hazards, often because they rarely hear CO safety and prevention information. Reminders about CO safety, including the importance of having CO detectors on every level of the home and near every sleeping area, can prevent CO poisoning.
- People in the community need year-round reminders and information about CO safety. This information should include how many CO detectors people should have in their homes, where the detectors should be placed, and how often residents should check to ensure that the detectors are working properly.
- People expect to hear about CO safety from the state and local agencies that are responsible for public safety, including local health, fire, and police departments.
- Information about CO detectors and the safe use of appliances should be available when people are buying or researching CO detectors, furnaces, and generators. Safety information should be distributed by manufacturers, retailers, maintenance companies, and hardware stores.
- Installing CO detectors is the easiest way to prevent CO poisoning. Seasonal reminders, especially before winter or storm seasons, to install CO detectors in the proper locations and to check them regularly can save lives.
- Portable generators are a common cause of CO poisoning after storms and natural disasters. Many individuals place generators inside the house, in the garage, or near windows and air vents. Generators should always be placed more than 20 feet from the home.
- Faulty furnaces and heating systems in the home are the most common cause of CO poisoning. Residents should have a professional furnace inspection every year before heating season.

Strategy 2: Promoting CO Safety through Local Media

Because major storms and the onset of winter temperatures are linked to the use of portable generators and furnaces, weather forecasters and news reporters are a valuable resource for promoting CO safety. Their role as communicators on television, radio, print, and online outlets makes them an essential partner in any outreach strategy.

Approaching the News Media

Hundreds of public awareness campaigns compete for the attention of reporters, but the information you want to share can save lives. Even though many people are aware that CO is a poisonous gas, regular alerts are necessary to remind them how to protect themselves and their families.

When reaching out to news reporters and meteorologists to pitch CO safety messages:

- Tell them who you are, what agency you represent, and that your campaign affects the health and safety of the community.
- Make sure they have your contact information, including e-mail address, telephone number, and if possible, cell phone number.
- Remind them about previous cases of CO poisoning in the local community and that simple reminders can prevent death and serious injury.
- Time messages about installing CO detectors to seasonal periods, such as the onset of winter or approaching storms. Persuade reporters to emphasize CO safety messages by linking the campaign to Daylight Saving Time (DST), the first day of summer, and the first day of winter.
 - In focus groups, homeowners indicated that they are most likely to check smoke alarms and change batteries during DST changes.
 - The beginning of summer and winter signal the arrival of potentially dangerous storms that cause power outages and the use of furnaces triggered by the onset of colder temperatures.
- Adapt the sample e-mail pitch on the next page when reaching out to reporters. For example, radio station DJs might be drawn to a pitch that references recent instances of CO poisoning or the onset of cold temperatures that prompt homeowners to start up their furnaces. Use this pitch to guide telephone or in-person conversations with reporters.

WHEN YOU CALL...

Narrow your message to a brief sentence or two before contacting reporters. For example:

“Hello, I’m [insert your name] calling on behalf of [insert your organization]. We’re engaging in a public safety effort, and would like [mention the name of the media outlet] to consider helping us distribute important messages about CO poisoning prevention.”

SAMPLE E-MAIL PITCH FOR MEDIA OUTREACH

Hello [insert reporter's name here],

Every year, hundreds of people die and thousands are injured from unsuspected exposure to an odorless, colorless gas—carbon monoxide (CO). Studies by the Centers for Disease Control and Prevention indicate that, while people recognize CO gas is poisonous, they perceive CO as less dangerous than other household hazards.

CO poisoning is most prevalent when furnaces are turned back on to fight cold winter temperatures, but also commonly occur after summer and winter storms and accompanying power outages, when people tend to rely on portable generators for electricity.

At these times, people need simple reminders to take steps to protect themselves and their families. Help people in your community protect themselves from deadly CO gas by sharing the following information with your [readers, viewers, listeners]:

- Install battery-operated CO detectors near every sleeping area in your home.
- Check CO detectors regularly to be sure they are functioning properly.
- Have gas or oil furnaces inspected by a qualified professional every year.
- Never use a generator inside the home or garage, even if doors and windows are open.
- Only use generators and power washers outside, more than 20 feet away from the home, doors, and windows.
- Never use a charcoal grill inside the home.

Additionally, I am happy to coordinate an interview with [INSERT THE NAME OF A LOCAL SPOKESPERSON HERE]. Please let me know if you have additional questions or would like to speak to someone with [INSERT THE NAME OF A LOCAL AGENCY OR ORGANIZATION].

Many thanks,

[INSERT YOUR NAME HERE]

Media Outreach Materials

People are most receptive to messages that clearly say that CO is dangerous and kills. Including such messages in media outreach is paramount, regardless of the type outreach material (PSA, banner ad, paid advertising, others).

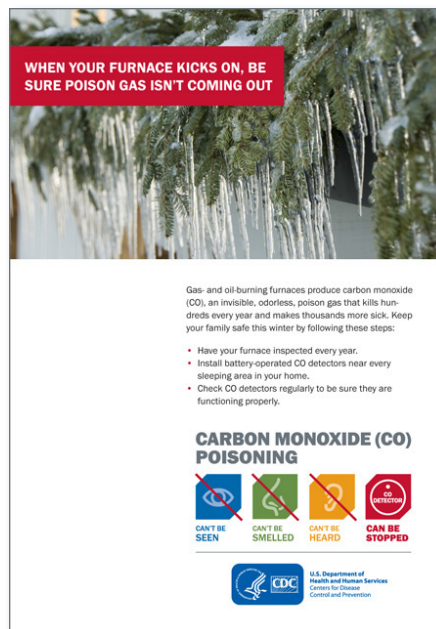
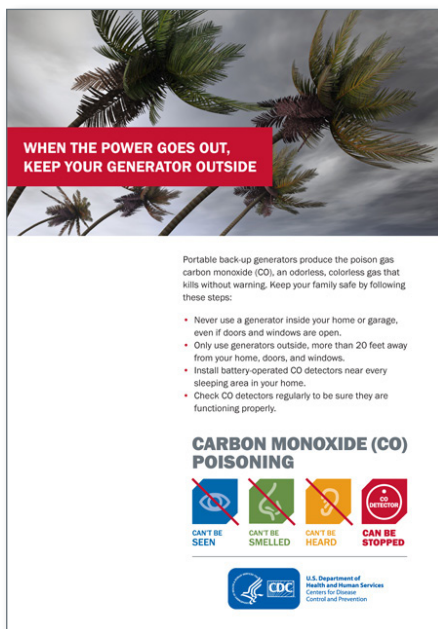
Print PSA Print public service announcements (PSAs) are advertisements that promote public service or educational messages and that media outlets place free of charge. They appear in daily or community newspapers and magazines, in the newsletters of community organizations, and can be used as flyers. Because PSAs are free of charge, it is difficult to control when and where local publications will place them. Hence, make sure you emphasize the critical nature of the PSA and pitch well in advance of when you'd like the PSA to appear. The lead time for some magazines can be up to 4 months.

Suggestions for placing the print PSA

- Identify target publications and timelines for the PSA.
- Ask the publication's public service department if they have leftover space to run the PSA near the time you desire.
- If the publication has space available, find out the size they want; whether they want it in color or black and white; the file format (e.g., PDF, JPEG); the e-mail address to send the PSA file; and finally, the deadline to submit the PSA.

The PSA is available in two versions: one emphasizes guidelines around using generators and one emphasizes guidelines around using furnaces.

To download the materials featured in this toolkit, visit the National Public Health Information Coalition's Web site, www.nphic.org/component/docman/cat_view/66-emergency-communications/101-carbon-monoxide



Each PSA version is available in two formats for download:

- 1) a final high-resolution (ready-to-print) PDF; and
- 2) a customizable original file in InDesign CS4.

The current size of the PSA is 7 inches wide by 10 inches tall. This size may not work for all publications. If you need to change the dimensions, use the customizable original file option.

The customizable original file allows you to add text to promote a local event. You can also add your organization's logo and Web address. The InDesign files have been packaged so that all imported graphics and Mac-based fonts are included. A copy or print shop also can help you customize the InDesign file; most have a designer on staff that can work with these files.

Live-Read PSAs in English and Spanish

Live-read PSAs are similar to print PSAs—they are placed by outlets for free on a space-available basis and promote public service or educational messages. However, live-read PSAs are used by radio stations (instead of publications).

Below are sample live-read PSAs that can be read by a radio announcer. Often, the announcer who reads the PSAs is familiar to the station's audience, which increases the likelihood that listeners will remain tuned in and not change the station. Because radio is a powerful medium to reach Spanish-speaking audiences, the PSA information has been adapted for Spanish.

Suggestions to place the live-read PSAs

- Time the PSA to maximize its relevance. For example, is a dangerous tropical storm on its way, or has the region been struck by a series of power outages? If so, you might want to share the PSAs featuring reminders about the safe use of portable generators. On the other hand, you might ask the radio announcer to read the PSA about CO detectors on the start date of Daylight Saving Time.
- Send the 30-second and 15-second PSA text you select in the body of your e-mail pitch.
- Follow up with announcers one day after sending an e-mail pitch or leaving a voice message. If you don't hear back from the announcer, try her or him again another day soon.

LIVE-READ PSAs IN ENGLISH

Protect Your Family from CO

:30

A public service message from the Centers for Disease Control and Prevention: It can't be seen, heard, or smelled. It kills hundreds of people a year. It's produced in our homes. It... is carbon monoxide. Gas and oil furnaces produce this deadly gas. Portable generators, charcoal grills, and power washers do, too. To protect your family from this silent killer, install carbon monoxide detectors near every sleeping area. Have your furnace checked regularly. And never use a portable generator inside. Take care of your family. Protect them from carbon monoxide.

:15

A public service message from the Centers for Disease Control and Prevention: Carbon monoxide is a colorless, odorless, poison gas that's produced in our homes and kills hundreds every year. Protect your family by installing carbon monoxide detectors near every sleeping area and have your furnace checked regularly.

Power Outages

:30

A public service message from the Centers for Disease Control and Prevention: As storms approach, remember that portable generators can be at their deadliest when the power goes out. That's because portable generators produce the poison gas carbon monoxide. Carbon monoxide can't be seen, heard, or smelled, and it kills hundreds of people a year. Install carbon monoxide detectors near every sleeping area and never use portable generators inside your home or garage. Only use them outside—more than 20 feet from your home, doors, and windows.

:15

A public service message from the Centers for Disease Control and Prevention: Portable generators produce the odorless, colorless, poison gas carbon monoxide. So when the power goes out, keep those portable generators outside—more than 20 feet away from your home, doors, and windows.

LIVE-READ PSAs IN ENGLISH (CONTINUED)

Winter Furnaces

:30

A public service message from the Centers for Disease Control and Prevention: While gas- and oil-burning furnaces produce the heat that keeps us warm in winter, they can also produce the deadly gas carbon monoxide. Carbon monoxide is an odorless, colorless, poison gas that kills hundreds every year. But you can keep your family safe this winter by installing carbon monoxide detectors near every sleeping area. And have your furnace checked regularly. So as the temperatures start to drop, now's the time to be sure you're protected from carbon monoxide.

:15

A public service message from the Centers for Disease Control and Prevention: Gas- and oil-burning furnaces can produce carbon monoxide—an odorless, colorless, poison gas that kills without warning. Keep your family safe this winter by installing carbon monoxide detectors near every sleeping area. And have your furnace checked regularly.

LIVE-READ PSAs IN SPANISH

Proteja a su familia del CO

:30

Un mensaje de servicio público de los Centros para el Control y Prevención de Enfermedades: No se ve, se oye, ni se huele, pero cada año mata a cientos de personas. Es... el monóxido de carbono. Lo producen los calefactores de gas y petróleo, los generadores, asadores y lavadoras. Para protegerse de este asesino silencioso, instale detectores cerca de los dormitorios. Inspeccione regularmente su calefactor. Y nunca use el generador bajo techo. Proteja a su familia del monóxido de carbono.

:15

Un mensaje de servicio público de los Centros para el Control y Prevención de Enfermedades: El monóxido de carbono es un gas venenoso sin color ni olor producido en nuestras casas, que mata cada año a cientos de personas. Proteja a su familia instalando detectores cerca de los dormitorios, e inspeccione regularmente su calefactor.

LIVE-READ PSAs IN SPANISH (CONTINUED)

Apagones

:30

Un mensaje de servicio público de los Centros para el Control y Prevención de Enfermedades: En caso de apagones provocados por una tormenta, el uso de generadores portátiles causa muertes, pues producen monóxido de carbono, un gas venenoso invisible, inaudible e inodoro, que mata cientos de personas cada año. Instale detectores cerca de los dormitorios, y nunca use el generador en casa ni en el garaje. Úselo al aire libre, separado a unos más de 20 pies de la vivienda, puertas y ventanas.

:15

Un mensaje de servicio público de los Centros para el Control y Prevención de Enfermedades: Los generadores portátiles producen monóxido de carbono, un gas inodoro, incoloro y venenoso. Cuando hay apagón, use el generador fuera de casa, a más de 20 pies de distancia de la vivienda, puertas y ventanas.

Calefactores en invierno

:30

Un mensaje de servicio público de los Centros para el Control y Prevención de Enfermedades: Aunque los calefactores de gas y petróleo nos calientan en invierno, también producen monóxido de carbono, un gas inodoro, incoloro y venenoso, que mata miles de personas cada año. Usted puede proteger a su familia este invierno, instalando detectores cerca de los dormitorios. Y revise regularmente su calefactor. Ahora que las temperaturas comienzan a bajar, es hora de protegerse contra el monóxido de carbono.

:15

Un mensaje de servicio público de los Centros para el Control y Prevención de Enfermedades: Los calefactores de gas y petróleo producen monóxido de carbono, un gas inodoro, incoloro y venenoso que mata sin aviso. Proteja a su familia este invierno instalando detectores cerca de los dormitorios. Y revise regularmente su calefactor.

Copy for Television News and Weather Programs

Television news and weather reporters are more likely to remind the public how to prevent CO poisoning if they are provided with ready-to-share content. Below is brief content that television and radio announcers can share in conjunction with breaking weather news.

SAMPLE NEWS/WEATHER COPY

With this approaching storm come potential power outages. Remember that if you have a portable generator, don't use it inside—not even in your garage. Portable generators produce the poison gas carbon monoxide, which can kill without warning. If the power goes out, fire up that generator, but make sure it's more than 20 feet from your home, doors, and windows to keep your family safe. And to be extra safe, the CDC recommends installing carbon monoxide detectors near every sleeping area in your home.

Suggestions to place television news and weather copy

- Identify the names of the local news anchors and weather forecasters.
- Find the e-mail address of the news desk on the station's Web site or ask for it when you call the news desk.
- E-mail the television station's news desk, tell the person at the desk the name of the agency you represent, and request that one of their anchors read the brief copy alerting viewers to the dangers of CO poisoning and how to prevent it.
- Include the copy in the body of your e-mail pitch.
- Follow up your e-mail with a phone call to the reporter and use the sample e-mail pitch on page 14 or talking points on page 15 to guide your conversation.

Banner Ads for Media Outlet Web Sites

Media outlet Web sites feature numerous paid banner ads on their Web page. On occasion, the outlet or Webmaster might be persuaded to use the CO poisoning prevention campaign Web banner ads in connection to a yearly event or when dangerous storms approach.

The banner ads are available to you as .GIFs and .JPGs (both are preferred formats for most banner ads). There are two versions available, each in two sizes. These files can be opened in the design program Photoshop and customized with your local information.

CARBON MONOXIDE POISONING PREVENTION: A TOOLKIT

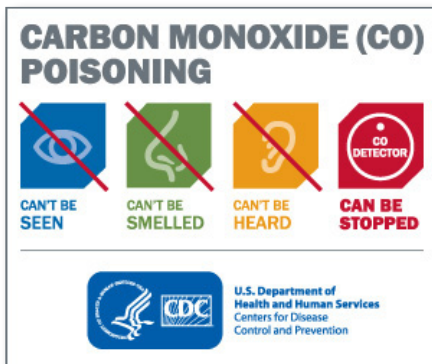
Ad 1: 300x300 pixels



Ad 1: 200x250 pixels



Ad 2: 300x250 pixels



Ad 2: 200x250 pixels



Note: The banner ads are designed for Web viewing only; they should not be used as the base graphics when creating printed materials such as flyers or posters, as described on page 27.

Suggestions to place Web banner ads in news media Web sites

- Identify when and where you want the ad to appear. For example, it could be posted to the Web site's weather, health, or real estate page.
- Contact the station's advertising department and inquire if space is available. Let her or him know that the banner ad features important public health and safety alerts.
- If free space is available, or if the cost to place the banner fits within your budget, make sure to find out the required size specifications.

Tips for Paid Advertising

If newspapers or community publications don't provide free PSA placement, they may offer significant discounts for nonprofit organizations or government agencies. The best way to find out is to call and ask. Use these tips to place a paid print PSA:

- Determine your budget and find out the placement cost of the publication in which you would like to place the PSA. If a daily newspaper's cost exceeds your budget, look for a local hospital newsletter, community newspaper, or other local publication that offers health and public safety information to its readership.
- Contact the publication and ask for the advertising sales representative. Tell the representative about the important information in the PSA and how much you are able to spend.
- Once you have determined the placement cost and decide to move forward with a paid advertisement, find out where to send the advertisement file; the size of the advertisement in inches; whether the paper wants it in color or in black and white; the file format (e.g., PDF, JPEG); and the deadline to submit the announcement.

**EVERYONE
APPRECIATES BEING
RECOGNIZED FOR
THEIR WORK**

Remember to let your media contacts know you saw their coverage of your story and reiterate to them the importance of their coverage to the safety of the community. This is also a good time to encourage reporters to keep the messages handy for the next time the season changes or a storm is imminent.

Strategy 3: Disseminating Public Information and Awareness Materials

The materials outlined in this strategy can be customized to fit the needs and activities of state and local agencies, local businesses, and other organizations. Each item was tested extensively with homeowners who use generators or have fuel-burning furnaces.

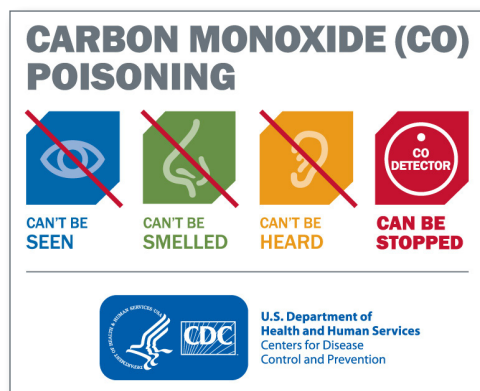
Campaign Graphic

The CO poisoning prevention campaign graphic represents the campaign’s brand and clearly states why CO gas is dangerous—it is potentially deadly and it cannot be seen, smelled, or heard. The image is designed to get the message across at a glance and to be understood even by non-English speakers (the circle and diagonal line across an image is understood by most language groups and cultures as a sign of “no”).

Suggested uses for the campaign graphic

- Display the graphic on Web pages and newsletters of state public information offices, local agencies, and non-government organizations. The public visits agency Web sites when seeking information and alerts on emergency preparedness, fire prevention, home safety and maintenance, and other CO-related topics. Webmasters can add this graphic to relevant public information sites on a seasonal or continuing basis, and you also can share it with partners.
- Create a postcard. The graphic can be reproduced as a postcard for residential mailings or distribution at health and safety fairs. You also can add the graphic to newsletters or other informational materials.
- Use the graphic in correspondence—print or electronic—with potential partners.
- Create refrigerator magnets or reminder stickers for wall calendars, generators, and furnaces.

To download the materials featured in this toolkit, visit the National Public Health Information Coalition’s Web site, www.nphic.org/component/docman/cat_view/66-emergency-communications/101-carbon-monoxide



The campaign graphic is available in both EPS and JPEG formats for download.

Newsletter/Web Page Content

CDC developed audience-tested content options for use in agency and organization newsletters and Web sites that alert the public about the deadly nature of CO, provide tips to detect and prevent CO poisoning, and can be used in combination with the campaign graphic.

SAMPLE NEWSLETTER/WEB PAGE COPY

Short Version

Danger! Carbon Monoxide Kills!

Carbon monoxide (CO) is an odorless, colorless gas that kills without warning. It claims the lives of hundreds of people every year and makes thousands more ill. Many household items, including gas- and oil-burning furnaces, portable generators, and charcoal grills, produce this poison gas.

To keep your family safe, install battery-operated CO detectors near every sleeping area in your home and check them regularly to be sure they are functioning properly.

For more information, contact [INSERT LOCAL CONTACT INFORMATION HERE].

Long Version

Danger! Carbon Monoxide Kills!

Carbon monoxide (CO) is an odorless, colorless gas that kills without warning. It claims the lives of hundreds of people every year and makes thousands more ill. Many household items, including gas- and oil-burning furnaces, portable generators, power washers, and charcoal grills, produce this poison gas.

Following these important steps can keep your family safe.

- Install battery-operated CO detectors near every sleeping area in your home.
- Check CO detectors regularly to be sure they are functioning properly.
- Have your gas or oil furnace inspected every year.
- Never use a generator inside your home or garage, even if doors and windows are open.
- Only use generators and power washers outside, more than 20 feet away from your home, doors, and windows.
- Never use a charcoal grill inside.

For more information, contact [INSERT LOCAL CONTACT INFORMATION HERE].

Customizable content of two different lengths is included:

Suggested uses for newsletter/Web page copy

- **Seasonal reminders**—Add content about CO detectors as a sidebar in agency newsletters and Web pages alongside reminders to replace smoke alarm batteries. Insert content with reminders about the safe use of generators and the importance of having furnaces inspected regularly.
- **Facebook event**—Create an event on Facebook that serves as a calendar reminder to install CO detectors or check batteries.
- **Online media room**—Online news rooms provide media organizations with public safety information they can share with their audience. Post the content as a sidebar on the media page or insert it into a press release or other media material related to a public health and safety or emergency preparedness topic. For example, content about the safe use of generators and the need to install CO detectors can be inserted in a press release updating the public about power outages after a damaging storm. Content about furnace inspection and maintenance can be inserted as a side bar or included in a press release distributed before the first significant drop in temperatures of the fall/winter season.

Web Banner Ads

Web banner advertisements are featured along the top or sides of Web pages. They appear as boxes that contain graphics, visual elements, and sometimes animation. Banner ads might vary in size and content, but invariably they direct visitors who click on them to the advertiser's Web site. The CO poisoning prevention Web banner is located in the toolkit CD and is designed to direct visitors to the CDC's Web page on CO poisoning, <http://www.cdc.gov/co/>.

The banner ads are available as .GIFs and .JPEGs (both are preferred formats for most banner ads). There are two versions available, each in two sizes. These files can be opened in the design program Photoshop and customized with your local information.

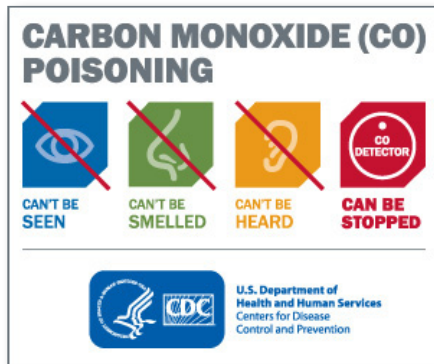
Ad 1: 300x300 pixels



Ad 1: 200x250 pixels



Ad 2: 300x250 pixels



Ad 2: 200x250 pixels



Suggested uses for Web banner ads

- Collaborate with public utility companies and homeowners' associations to place banner ads on the same Web page that consumers visit to pay their bills.
- Upload the banners to the home page of the state and local public information office or other agency Web site with information on public health and safety.
- Add the banner ad to your Facebook or other social media page.

Note: The banner ads are designed for Web viewing only; they should not be used as the base graphics when creating printed matter such as flyers or posters.

Tweets and Text Messages in English and Spanish

Tweets and text messages can be used to remind the public in up to 140 and 160 characters, respectively, of the steps they need to take to promote CO safety.

State and local agencies and organizations with Twitter accounts can use this social media tool to remind their followers of the dangers of CO poisoning as well as the need to properly install and maintain CO detectors, use generators safely, and ensure furnaces are functioning properly.

Similarly, free mobile information services known as SMS text messages can be used by agencies and organizations to distribute health and safety alerts to the public. For more information about SMS text campaigns, visit the CDC's "Mobile at CDC" page at www.cdc.gov/Mobile/.

SAMPLE TWEETS

- Carbon monoxide (CO) kills hundreds every year. Keep your family safe. Install CO detectors near every sleeping area in your home.
- Home appliances produce poisonous carbon monoxide (CO) gas. Keep your family safe with CO detectors by sleeping areas.
- Winter cold is here. Gas and oil furnaces produce poison gas carbon monoxide. Keep your family safe. Inspect your furnace ASAP.
- Storm coming? Portable generators produce poison gas carbon monoxide. Run generator >20 ft from home, doors, and windows.
- Avoid carbon monoxide (CO) poisoning: install CO detectors, have furnace checked regularly, keep portable generator >20 ft from home.

SAMPLE TEXTS

- Carbon monoxide (CO) kills 100s. Put CO detectors by slpng areas.
- Warning: Furnaces produce odorless, colorless poison carbon monoxide (CO) gas.
- Cold is here. Have furnace inspctd 4 poison CO gas ASAP.
- Storm coming? Keep generator >20 ft from home 2 avoid CO gas poison.

Suggested uses for tweets and text messages

- Incorporate CO safety messages into a regular cycle of public health and safety messages. Staff in charge of social media activities can include the CO poisoning prevention messages in their Twitter feed and/or SMS text campaign distribution cycle. If needed, the messages can be adapted with local information. The messages also can be posted in connection with seasonal reminders or tied to information about power outages caused by recent local storms. Additionally, tweets can link to agencies' Facebook pages and encourage followers to add a Facebook Event reminder to replace the batteries in their CO detectors.
- Post the messages on the agency or organization Facebook News Feed. Because the Facebook News Feed allows additional characters, it is possible to supplement the messages with links to more CO prevention information.
- Post messages to the agency's online media room. Many local news media outlets use Twitter to distribute breaking news and can easily include the CO poisoning prevention campaign messages to their message distribution cycle.

Campaign Flyer/Poster

The CO poisoning prevention campaign flyer gives a concise warning that CO gas is dangerous and shares easy-to-understand tips about CO detectors and the safe use of generators and furnaces. The flyer includes the campaign graphic and allows space for local agencies and groups to insert their branding and contact information. The InDesign files provided in the toolkit CD offer different sizes of the flyer/poster and include indications for customizing them with local branding and contact information.

The flyer/poster is available in two formats for download:

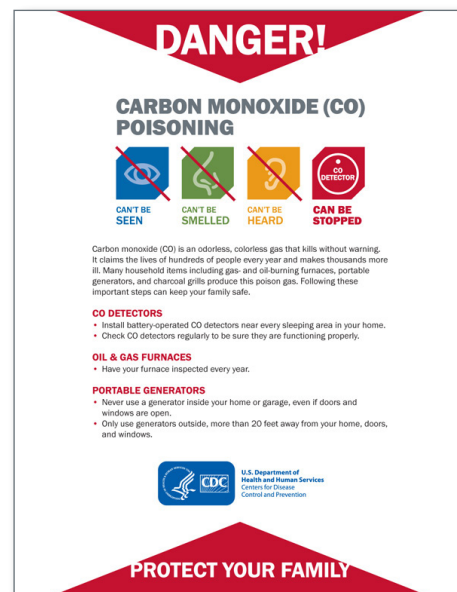
- 1) a final high-resolution (ready-to-print) PDF; and
- 2) a customizable original file in InDesign CS4.

It is 8.5 inches wide x 11 tall; change the dimensions by using the customizable original file option.

The customizable original file also allows you to swap out photos with your own or add copy to promote a local event. In these files space has been provided to add your organization's logo and Web address. The InDesign files have been packaged so that all imported graphics and Mac-based fonts are included. A copy or print shop also can help you customize the InDesign file; most have a designer on staff that can work with these files.

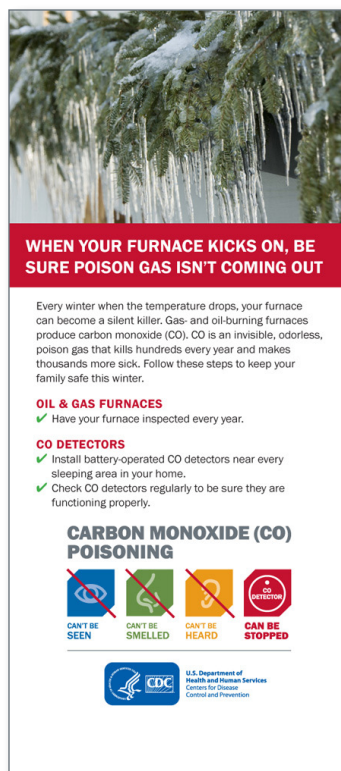
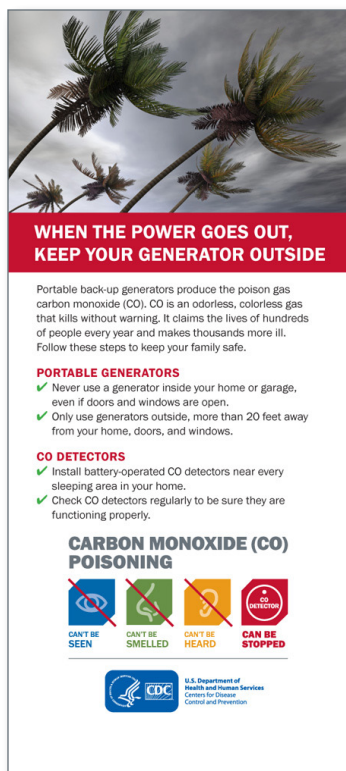
Suggested uses for campaign flyers/posters

- Display flyer/poster on walls, doors, and windows of partner agency and organization buildings. This approach raises awareness of the gravity of the CO poisoning prevention message and helps to motivate like-minded agencies and offices to join your CO poisoning prevention efforts. Appropriate organizations might include libraries; fire stations; elementary and high schools; secondary educational institutions, like community colleges and universities; community health clinics; YMCAs; and local hospitals and health centers.
- Ask for permission from supervisors and managers to display the flyer/poster in grocery and convenience stores, gas stations, hardware and home improvement stores, real estate offices, and related establishments.
- Distribute the flyer/poster to HVAC trade groups and encourage them to share it with local HVAC maintenance companies.
- Create a one-sheet calendar. Use the InDesign files provided in the toolkit CD to create a calendar that flags dates for replacing CO detector batteries and scheduling furnace maintenance appointments. Distribute the calendar at health fairs and collaborate with local fire and health departments that can distribute the calendars when they conduct poison prevention workshops and presentations.



Point-of-Sale (POS) Flyer

- Point-of-sale materials are used by various organizations to deliver information. They are known as “literature” by POS marketing material vendors. Government buildings often showcase materials from public information and awareness campaigns designed to reach the local public. Some buildings even have offices that house a variety of public information materials.
- The POS flyer is available in two versions, specific to those audiences that use either generators or furnaces.



Each version is available in two formats for download:

- 1) a final high-resolution (ready-to-print) PDF; and
- 2) a customizable original file in InDesign CS4.

The current size of the POS flyers is 4 inches wide by 9 inches tall; change the dimensions using the customizable original file option.

The customizable original file also allows you to swap out photos with your own or add copy to promote a local event. In these files space has been provided to add your organization’s logo and Web address. The InDesign files have been packaged so that all imported graphics and Mac-based fonts are included. A copy or print shop also can help you customize the InDesign file; most have a designer on staff that can work with these files.

Suggested uses for POS flyers

- Display the POS flyers by information desks and main lobby areas in government or civic buildings. Contact the department in charge of selecting materials for public display and discuss placement requirements and options.
- Display the POS flyers in local hardware stores, gas stations, convenience stores, and other retail establishments that the general public frequently visits. If possible, work with these organizations to position the flyers near CO- or storm-related items, such as generators, gasoline pumps, flashlights, furnace filters, extension cords, and smoke alarms.

Bill Insert

Public utility companies often insert materials—known as bill inserts—inside customer bills that contain information ranging from energy and water conservation tips to seasonal reminders. Bill inserts reminding individuals to install battery-operated CO detectors, to regularly inspect furnaces, and to use portable generators outside and more than 20 feet away from windows and doors are included as part of this toolkit.

The bill insert is available in two versions, specific to those that use either generators or furnaces.



Each version is available in two formats for download:

- 1) a final high-resolution (ready-to-print) PDF; and
- 2) a customizable original file in InDesign CS4.

The bill insert is sized at 5.75 inches wide by 3.75 inches tall to fit in a standard commercial envelope; change the dimensions using the customizable original file option.

The customizable original file allows you to swap out photos with your own or add copy to promote a local event. The InDesign files have been packaged so that all imported graphics and Mac-based fonts are included. A copy or print shop also can help you customize the InDesign file; most have a designer on staff that can work with these files.

Suggested uses for bill insert

- Work with utility companies to include the inserts in bills that appear before DST and before the first day of summer and winter.
- Collaborate with utility companies to adapt a similar version of the bill insert into magnets that can be included with utility bills.
- Approach community and neighborhood associations about including the insert in member mailings.

FAQs

Agencies and organizations use FAQs (Frequently Asked Questions) to provide their audiences with concise information about important issues. This format provides an alternative to lengthy narrative that many consumers would not take the time to read. The FAQs below provide essential information about CO poisoning.

What is carbon monoxide (CO)?

Carbon monoxide (CO) is an odorless, colorless gas that can cause sudden illness and death if inhaled. CO results from the incomplete combustion of fossil fuels. It can be emitted from fuel-burning devices and appliances that you use in your home, including furnaces, small gasoline engines, stoves, portable generators, lanterns, gas ranges, and cars, or by burning charcoal and wood in enclosed or partially enclosed spaces.

How can I prevent CO from entering my home?

You can maintain CO-emitting appliances, such as a furnace, by having it inspected once a year and keeping a generator more than 20 feet away from your home when you are running it. However, you cannot always prevent CO from entering your home. The best way to protect your family is to install CO detectors. CO detectors are the only method of detecting the odorless, colorless gas in your home.

How many CO detectors do I need in my house? Where should I put them?

You should have a CO detector on every level of your house and near every sleeping area. It is also important to check them regularly to ensure that they are functioning properly. It's a good idea to check your CO detector when you check your smoke detector.

How often should I check my CO detector?

Every time you change the batteries in your smoke detector, you should change the batteries in your CO detector. A good time to do this is when the time switches to Daylight Saving Time. Put it on your calendar and get into the habit of checking your smoke and CO detectors each time you change your clocks. Or, find another time of year that works for you and stick to it.

How far should my generator be from my house?

When running your generator, you should keep it more than 20 feet from your home, doors, and windows. Make sure the generator is outside because running it in an enclosed space can lead to CO poisoning.

How often should I have my furnace inspected?

You should have your furnace inspected annually by a qualified professional. When you have your furnace installed be sure to talk to your vendor about proper furnace maintenance and CO safety.

What time of year should I worry about CO poisoning?

You should take safety precautions year-round to prevent CO poisoning in your home. While storm season can lead to increased generator use and therefore increased cases of CO poisoning, CO can escape from appliances you use year-round: your furnace, stove, portable generator, lantern, gas range, and car, or by burning charcoal and wood in enclosed or partially enclosed spaces.

What are the symptoms of CO poisoning?

Symptoms of CO poisoning include headache, dizziness, weakness, nausea, vomiting, chest pain, and confusion. Not everyone experiences all these symptoms. CO poisoning can lead to death if you are exposed for a long period of time. If you experience any of these symptoms while inside your house, you should go outside immediately and call 911.

Where can I find more information about CO poisoning and how to prevent it?

Visit the Centers for Disease Control and Prevention Web site dedicated to CO at <http://www.cdc.gov/co/>.

Suggested uses for FAQs

- Post the FAQs to agency and organization Web pages that feature information about public health and safety, poison prevention, and emergency management. Similarly, post or link the FAQs to online media rooms.
- Adapt the FAQs into a CO Poisoning Prevention fact sheet for inclusion in print or online newsletters and, if space allows, include the campaign graphics.
- Collaborate with real estate agencies, homeowner insurers, and homeowners' associations to include a fact sheet version of the FAQs with new homeowner's guides.
- Approach public utility companies to insert the FAQs in packets for new subscribers.
- Work in partnership with local HVAC trade organizations to include the FAQs in packets for new furnace owners that include information about furnace inspections, what to expect in professional inspections, and how to identify a qualified HVAC contractor.