

Redefining Readiness:

Terrorism Planning Through the Eyes of the Public

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Executive Summary

The Redefining Readiness Study is the first opportunity the American people have had to describe how they would react to protective instructions in two terrorist attacks: a smallpox outbreak and the explosion of a dirty bomb. This information is critically important because the plans currently being developed to deal with these situations are based on expert *assumptions* about what people would be concerned about and how they would behave. If planners' assumptions about the public are wrong — as they have been in the past — the plans being developed will not work as expected, and a large number of people who should be protected will be unnecessarily harmed.

This study is unique in terms of its perspective, rigor, and content. Preliminary work included confidential, in-depth conversations with government and private-sector planners and an extensive review of the literature to identify the critical assumptions about the public on which current plans are based. We also engaged a diverse spectrum of community residents around the country in 14 group discussions to identify a frame of reference for thinking about terrorism preparedness planning that is meaningful to the general public. Incorporating what we learned, we fielded a telephone survey of 2,545 randomly selected adult residents of households in the continental United States. Conducted in English and Spanish, with oversampling of African Americans and people in the two cities that experienced the 9/11 attacks, the survey achieved an excellent response rate.

The study uses scenarios that put people in smallpox and dirty bomb situations at a place and time they would be likely to hear about the attack and be told what to do. The smallpox scenario explores how people would react to instructions to go to a public site to be vaccinated if some residents in their community and people in other parts of the country became sick with smallpox after having been exposed to the virus in an attack at a major airport. The dirty bomb scenario explores how the public would react to instructions to stay inside a building other than their own home if a dirty bomb exploded a mile from where they were and a cloud containing radioactive dust were moving in their direction. In addition to these scenarios, the study also explored people's interest in, and perspectives about, their community's terrorism planning activities.

Below, we highlight key findings from the study report, focusing on:

- the public's reactions to the smallpox and dirty bomb situations;
- the public's redefinition of readiness in these situations; and
- the public's role in future planning efforts.

THE PUBLIC'S REACTIONS TO THE SMALLPOX AND DIRTY BOMB SITUATIONS

Far fewer people than needed would follow protective instructions in these two terrorist attack situations.

- **Only two-fifths of the American people** would go to the vaccination site in the **smallpox** outbreak.
- **Only three-fifths of the American people** would shelter in place for as long as told in the **dirty bomb** explosion.

One reason for this lack of cooperation is that **many people would be seriously worried about something *other* than what planners are trying to protect them from.**

- **Two-fifths of the American people would be seriously worried about what government officials would say or do.** This concern is even more prevalent among members of the public who are Hispanic, African-American, foreign-born, have a low income, lack health insurance coverage, live in New York City, or have not attended college. People's trust in official instructions and actions is important because people who don't have a lot of trust are only **half as likely to cooperate** in the smallpox and dirty bomb situations as are those who do.
- **Three-fifths of the American people would have serious worries about the smallpox vaccine** — that's *twice* as many people as would be seriously worried about catching smallpox in the outbreak situation.
 - **Worries about vaccine side effects would make one-fifth of the American population afraid to follow instructions to go to the vaccination site.** The public's worries appear to be well founded since it is estimated that over 50 million people in this country have conditions that put them at risk of developing serious complications from the vaccine, either from being vaccinated themselves or from accidentally coming in contact with someone who has recently been vaccinated.

- **Half of the American people — and two-thirds of African Americans — would be seriously worried if they were told that the smallpox vaccine is investigational.** More people would be seriously worried about this issue than about any other aspect of the smallpox situation. Concern about the investigational status of the vaccine would make one-third of the population decide *not* to get it, even if they were at the vaccination site already.

Many people would face *conflicting* worries and trade-offs in these situations, which would make it very difficult for them to decide what the most protective course of action would be.

- **Three-quarters of the people who would be seriously worried about catching smallpox in the outbreak situation *also* would be seriously worried about the vaccine.** People who are *only* worried about catching smallpox are three times more likely to cooperate as those who are not. But **that increase in cooperation is completely *eliminated* when people are also seriously worried about the vaccine.**
- **Two-thirds of the American people would try to avoid being in the same place with other people they don't know in the smallpox situation.** But going to a public vaccination site *violates* people's inclination toward protective isolation. **Two-fifths of the population** would be afraid of catching smallpox from other people at the site. **One-fifth** would be afraid of coming in contact with people at the site who shouldn't be exposed to anyone who recently got the vaccine.
- In the dirty bomb situation, many people face **conflicting obligations**, and assuring the safety of people who are dependent on them is often more important than assuring their own safety. **One-third of the people** who would not cooperate fully in this situation would leave the shelter of their building in order to take care of their children; **one-quarter** would leave to take care of other family members.

A substantial number of people would be able to cooperate with protective instructions if certain conditions were met, but those conditions are *not* met now.

- **Three-quarters of the people** who said they would not fully cooperate with instructions to stay inside the building in the dirty bomb situation *would* do so if they could communicate with people they care about or if they knew that they

and their loved ones were in places that had prepared in advance to take good care of them in this kind of situation. But **three-fifths of the American population know only a little or nothing at all** about how people would actually be cared for in those places. Overall, the American people are **half as likely to cooperate** in the dirty bomb situation if they don't know a lot about their building's shelter-in-place plans than if they do. And they are **half as likely to cooperate** if they lack confidence in their community's preparedness plans than if they don't.

Not surprisingly, considering the serious worries and trade-offs people face, many people would want more information or advice to decide what to do in these situations.

- Members of the public are looking for **decision-making support**, *not* just facts, and they want to be able to talk with someone **beforehand**, *not* just during an attack.
- For **free telephone support** from a trained person in the smallpox situation, considerably *more* people would find it very helpful to talk with **someone who they know wants what is best for them** (like their health practitioner) than to talk with someone they don't know who works for their local government.

THE PUBLIC'S REDEFINITION OF READINESS IN THESE TWO TERRORIST ATTACK SITUATIONS

The findings presented above are cause for worry because they suggest that current plans to deal with smallpox and dirty bomb attacks will be far less effective than planners want or the public deserves. Although the study is based on a hypothetical scenario, our findings need to be taken seriously because the way the American people say they would react to instructions in the smallpox outbreak is consistent with the *actual behavior* of health care workers in the CDC Smallpox Vaccination Program. If three-fifths of the American people were reluctant to follow instructions in a smallpox outbreak, the protection of large-scale vaccination might not be achieved, even if planners worked out all of the challenging logistics involved in dispensing the vaccine. If two-fifths of the American population were reluctant to shelter in place in a dirty bomb explosion, many people would be unnecessarily exposed to dangerous dust and radiation, and first responders would face excess traffic and congestion in getting to the scene of the explosion.

Planners have been focusing a lot of attention on public education and risk communication, but our study suggests that informing people what they should do in these terrorist attack situations will *not* be sufficient to garner their timely cooperation. On a more optimistic note, the study shows how, **by addressing the public's concerns, planners can develop more behaviorally realistic approaches for dealing with smallpox and dirty bomb attacks and, as a result, protect many more people than would otherwise be possible.**

The report describes what plans to deal with these two kinds of terrorist attacks would look like if they incorporated the public's perspectives. As readers will see, **looking at preparedness planning through the public's eyes redefines the notion of protection.**

In the smallpox situation, the public's insights emphasize the importance of **developing plans that protect *everyone* at risk:** not only the people who are at risk of contracting smallpox, but also the large number of people who are at risk of developing serious complications from the vaccine.

In the dirty bomb situation, the public's insights emphasize that people not only need to be protected from dangerous dust and radiation. They also need to know that they and their loved ones would be safe and cared for in whatever building they happen to be in at the time of an explosion. To make such protection possible, **a broad array of places** — work sites, shops, malls, schools, day care centers, hospitals, clinics, cultural institutions, recreational and entertainment facilities, government buildings, apartment buildings, and transportation terminals — **have to be able to serve as safe havens** for people should the need arise. The managers of these places need to recognize that it is as important to prepare to serve as a safe haven as to be able to evacuate people in the event of a fire or an explosion.

The American people's perspectives also redefine how public protection can best be achieved. To a large extent, this involves the development of community and organizational plans that address people's concerns, minimize the conflicts and trade-offs they would face, and support them in choosing the best protective action.

As the plans in the report illustrate, many of these **actions need to be taken *now***, well before an attack occurs.

Examples related to the smallpox situation include:

- strategies to enable everyone in the country to determine their own vaccine risk status and that of the other members of their household;
- the training of health care practitioners and other community members to provide people with decision-making support; and
- the involvement of community leaders — particularly among the African-American population — in overseeing the development and testing of vaccines.

Examples related to the dirty bomb situation include the development of:

- confidence-generating safe-haven plans in the broad array of buildings and places where people frequently are; and
- back-up systems that can maintain telephone and e-mail service for the general public in the event of a large-scale emergency.

The plans also involve **changes in actions that would be taken *during the crisis***, as the following strategies from the smallpox plan illustrate.

- Rather than triaging or screening people at public sites, steps would be taken to make sure that anyone who is potentially infected or exposed to smallpox or who is at risk of developing serious complications from the vaccine stays home and does *not* go to any public vaccination site.
- To provide people with accurate information from people they trust, government-run telephone networks would be supplemented with a more community-embedded telephone support system.

Finally, the plans emphasize the **need for communities and the nation to focus on *long-term issues***. Reflecting the public's concerns in the dirty bomb situation, for example, the plans emphasize the need to discuss and address the potential environmental, economic, and health consequences that might ensue.

THE PUBLIC'S ROLE IN FUTURE PLANNING EFFORTS

The Redefining Readiness Study documents the value of letting the American people speak for themselves rather than relying on planners' untested assumptions about what the public cares about and how the public will behave. Moreover, the study provides planners in government agencies and private-sector organizations with **reliable information from the public** that they can use to assess and strengthen their plans to deal with terrorist-initiated smallpox outbreaks and dirty bomb explosions. Because most of the findings in the study are **generalizable**, they are applicable to planning efforts throughout the country. Some of the strategies in the study's illustrative plans are also applicable to other situations, such as an outbreak of pandemic influenza or SARS, an electrical blackout, or the malfunction of a nuclear reactor.

Planners will need to **work with community residents directly**, however, to benefit from their insights about responding to many other kinds of terrorist attack and emergency situations. The study documents that involving people in these kinds of planning efforts can accomplish another important objective as well: it can address the trust and confidence issues that currently discourage so many members of public from following protective instructions.

- The study shows that **people are more likely to follow official instructions when they have a lot of trust in what officials tell them to do and are confident that their community is prepared to meet their needs if a terrorist attack occurs.** Currently, the American people's trust and confidence levels are disturbingly low. But elected officials, government agencies, and private-sector organizations have a *unique opportunity* to **build the public's trust, confidence, and cooperation by involving the public directly in planning.** When community members are part of the planning process, they can be more confident that planners are actually aware of their concerns. When community residents play a role in developing protective strategies, they can be more trusting of officials who instruct them to follow those strategies.

Thus far, the public has had little or no direct involvement in community and organizational preparedness planning. The study documents that **only a tiny fraction of the American people know very much about the plans that are being developed in their communities**, and it paints a mostly discouraging picture about people's perceptions about current planning activities.

- Large proportions of people think their **community isn't prepared** to deal with these kinds of terrorist attacks, that **planners don't know about their concerns** and information needs, that people like them **can't influence the plans that are being developed**, and that **neither they nor the people they care about would receive the help they need when they need it** if a terrorist attack were to occur.
- People's perceptions about the potential benefits of planning are in stark contrast to the problems they see. **Three-fifths of the American population believe that the harm caused by a terrorist attack in their community could be reduced a great deal or a lot by preparing ahead of time to deal with the effects.**

Fortunately for planners, the study documents that **a large proportion of the American people are interested in community-level planning** — not just in learning more about plans, but in being actively involved in developing them.

- In **New York City and Washington, D.C.**, where terrorism is a particularly salient issue, **two-fifths of the population are extremely or very interested in *personally* helping** a government agency or other community organization develop plans to deal with these kinds of attacks.
- But **interest levels are also high in the rest of the country**, where people think much less about terrorist attacks and believe the possibility of an attack is much less likely. In those places, **one-third of the population has a strong personal interest in participating in planning.**

The next challenge is to make it possible for government agencies and private-sector organizations to engage the public in planning efforts. Our study demonstrates that **to make participation meaningful and worthwhile to community residents, the process needs to assure them considerable influence in planning and needs to focus their involvement on identifying and addressing the issues they care about a lot.** We recognize that this kind of inclusive process would entail a substantial change in the way many planners currently go about their work and that there are a variety of barriers that currently make it difficult for planners to move in this direction. Nonetheless, **the stakes are too high to continue the *status quo*.** To provide planners with practical models for engaging the public in these kinds of activities, our **next step** will be to support planning processes in selected sites around the country that demonstrate exactly how community residents can be meaningfully and feasibly engaged.

Introduction

Since September 11, 2001, the United States has invested billions of dollars to help government agencies and private-sector organizations prepare to respond to terrorist attacks involving biological, chemical, and radiological weapons. Responding effectively to such attacks is challenging because it requires not only treating people initially affected by the attack, but also taking rapid actions to protect a much larger population from the risk of illness or injury. To minimize the harm that the public might experience in these situations, plans need to incorporate strategies that will protect as many at-risk people as possible. Examples include vaccinating people who are at risk of contracting smallpox or having people shelter-in-place to avoid exposure to the radioactive dust from a dirty bomb. To realize the full benefit of these protective strategies, however, the American public needs to participate actively in their implementation. As former Senator Sam Nunn stated, playing the U. S. President in the *Dark Winter* smallpox bioterrorist exercise in June 2001, “The federal government has to have the cooperation from the American people. There is no federal force out there that can require 300,000,000 people to take steps they don’t want to take.”¹ (p. 982)

Considering the importance of public behavior in determining the ultimate success of terrorism preparedness plans, planners need to know:

- How are community residents likely to react in these situations?
- What issues are they most concerned about?
- What factors determine whether they will do what they are told?

Currently, planners don’t have direct answers to these questions because the public has had little or no role in helping government agencies and private-sector organizations develop terrorism preparedness plans. So plans are based, instead, on planners’ *assumptions* about what the public cares about and how people will behave.

The problem with these assumptions is that they may not be right. Planners often base their assumptions of public behavior on how people have responded to emergencies in the past. But the nation hasn’t had any prior experience with some kinds of terrorist weapons, like dirty bombs. When disease outbreaks, like smallpox, last occurred, the population and social environment in the United States were very different. Although the nation’s experience with natural disasters is

clearly relevant, these emergencies differ in important ways from intentional attacks with unconventional weapons.

Disagreement among planners is another source of uncertainty. Not infrequently, planners have conflicting opinions about how the public will respond to an emergency situation. When predictions of public behavior differ, on which assumption should plans be based?

Of even greater concern, planners' assumptions about the public have been wrong in the past, with serious consequences. There are numerous examples in the literature of people not responding as planners expected.²⁻¹⁰ Moreover, emergency plans based on misconceptions of how people react can create more difficulties than they solve.^{4,10} Most recently (and of direct relevance to terrorism planning), planners failed to anticipate the behavior of health care workers in the Centers for Disease Control and Prevention (CDC) Smallpox Vaccination Program. As a result, 4 months after successful completion of the program had been anticipated, only 8.5% of the targeted 440,000 health care workers actually had been vaccinated.¹¹⁻¹⁴

Mistakes happen, but the stakes for the nation will be very high if the terrorism preparedness plans now being developed are not based on accurate assumptions about the public. In the event of an attack, responders will have a limited window of opportunity to get things right. If plans fail to address the issues that are important to the American public and if the public does not follow protective instructions, a large number of people will be unnecessarily harmed.

Fortunately, however, planners don't have to guess what the public cares about or would do in these kinds of crisis situations. Recognizing the importance of basing plans on the most accurate information possible, leaders involved in terrorism preparedness have been encouraging planners to obtain information from the public directly.^{4,6,13,15-20} As Julie Gerberding, Director of the CDC, said in a July 2002 interview: "...we can't sit in an ivory tower and speculate about what people need or want or should know. We have to go out and find out."²¹ (p. 17)

This is exactly what the Redefining Readiness Study has done. To enable planners to test their assumptions and develop more behaviorally realistic plans, we went to the American people themselves to find out what terrorism planning looks like through their eyes.

Preliminary work for the study included in-depth conversations with governmental and private sector planners and an extensive review of the literature to identify the critical assumptions about the public on which current plans are based. We also engaged a broad spectrum of community residents around the country in group discussions to identify a frame of reference for thinking about terrorism preparedness planning that is meaningful to the general public. Incorporating what we learned, we designed and fielded a telephone survey of 2,545 randomly selected adult residents of households in the continental United States to find out:

- how people believe they would react to protective instructions in two specific terrorist attack situations;
- why they would behave that way; and
- what they think about terrorism planning activities.

The findings of the Redefining Readiness Study, presented below, document the value of letting the American people speak for themselves. The study uncovers striking differences in the way planners and the public think about these issues — differences that could seriously undermine the effectiveness of current plans. The public's perspectives suggest practical ways of refining plans that would make it much easier for people to take protective actions in these kinds of emergency situations. Going further, the study highlights the substantial interest of the American people in participating in community and organizational preparedness planning and lays a strong foundation for engaging the general public meaningfully in these activities.

Study Components

Since the study's findings are based on information from multiple sources, we begin by briefly describing how that information was obtained. More detailed information about the methods used in the study can be found at the end of this report.

In the fall of 2003, we engaged in confidential **telephone conversations with government and private-sector planners** who are responsible for terrorism and emergency preparedness in four representative communities around the country. The sites we selected include urban, suburban, and rural communities located in the Northwest, Midwest, Atlantic, and Southeast regions of the United States. To learn about planning in each community, we spoke with the people who are responsible for community-wide emergency preparedness, state and local planning funded by federal terrorism preparedness grants, emergency planning for the local school district(s), and emergency planning for a major community employer. To supplement what we learned in these conversations, we spoke with key informants in federal agencies, national associations, and academic institutions involved in terrorism preparedness planning. In addition, we reviewed the available literature related to local and national planning efforts.

Also in the fall of 2003, we **engaged community residents around the country in 14 group discussions**. To make sure we would hear a broad range of perspectives, we conducted discussions in urban, suburban, and rural communities; communities that do and do not routinely experience natural disasters; and communities that had and had not directly experienced the 9/11 attacks. Participants involved men and women spanning a broad age range, living in households with and without children, and encompassing diverse racial, ethnic, socioeconomic, educational, and occupational backgrounds. Some discussions intentionally involved people from a single racial or ethnic group, and a Spanish translator participated in all of the discussions with Hispanic residents.

In the late winter and spring of 2004 we obtained quantitative information from the American public through a **random digit dial telephone survey**. The survey was designed to provide reliable and comparable information about the perspectives of people from different racial and ethnic backgrounds, socioeconomic groups, and geographic areas in the continental United States. We conducted several rounds of

cognitive interviews to develop a 25-minute questionnaire that would be clear, relevant, and uniformly interpreted by a broad range of people. To capture perspectives that would otherwise be under-represented, the survey oversampled African Americans and people in the cities that experienced the 9/11 attacks (New York City and Washington, D.C.). The survey was fielded in English and Spanish by the Survey Research Center at the Institute for Social Research at the University of Michigan. Their highly trained interviewers completed 2,545 interviews and achieved an excellent response rate.

Both the group discussions and telephone survey were designed to allow community residents to think about terrorism preparedness planning in their own frame of reference — *unlike* traditional focus groups and public opinion polls, in which people are asked to provide their views about issues framed by experts. Since it is very difficult for people to think about terrorist attacks in the abstract, both the group discussions and telephone survey used scenarios to put participants in specific smallpox and dirty bomb situations at a place and time they would be likely to hear about the attack and be told what to do. The scenarios also provided participants with basic information that they would either be told at the time or readily find out. The scenarios, survey questions, and weighted national responses for each of the survey questions can be found in the Appendix to this report.

Study Findings

Below, we present the findings of the Redefining Readiness Study, providing quantitative data from the telephone survey in the context of information obtained from our conversations with planners, review of the literature, and group discussions with community residents. The findings explore the American public's reactions to two specific kinds of terrorist attacks — a smallpox outbreak and the explosion of a dirty bomb — as well as their perceptions about terrorism preparedness planning activities.

PUBLIC REACTIONS TO A SMALLPOX OUTBREAK

Although there is no consensus about the best way to protect the population in the event of a terrorist-initiated smallpox outbreak, federal funding has focused primarily on preparations for large-scale vaccination. Substantial efforts have been made to vaccinate health care workers in advance.¹⁴ To protect the general public if an outbreak occurs, planners at state and local levels are developing strategies for quickly getting the vaccine from the national stockpile to key locations around the country and setting up clinics in schools and other places that can triage and vaccinate large numbers of people within a few days.^{20,22-27}

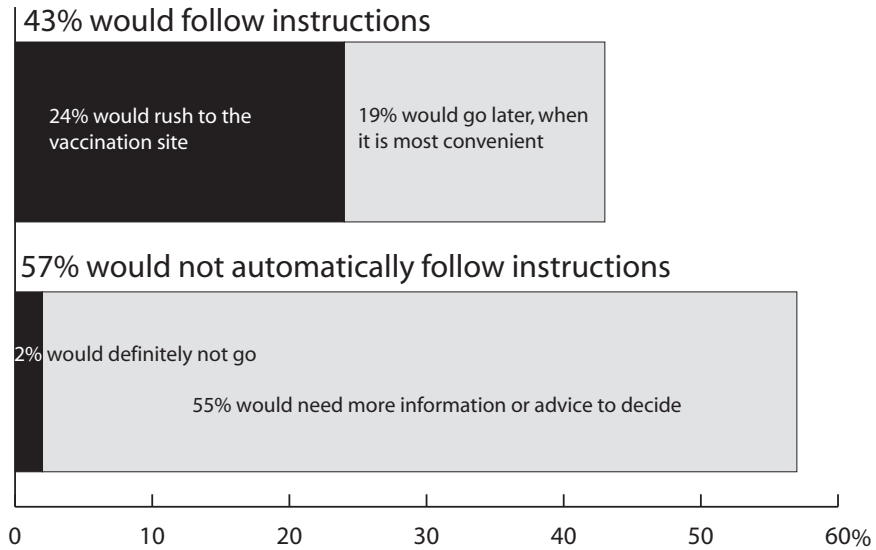
The survey scenario explores how the public would react to instructions to go to such a site to be vaccinated if some residents in their community and people in other parts of the country became sick with smallpox after having been exposed to the virus at a major airport. To achieve large-scale vaccination in a short time frame, the American people would need to follow these instructions.

Our conversations with state and local planners indicate that most planners expect the public to behave in that way. In fact, many plans explicitly address crowd control because planners expect people to flood the vaccination sites when they hear about a smallpox outbreak.

What do the American people believe they would do in this situation?

Most people (57% of the population) would *not* automatically follow instructions to go to the vaccination site.

Figure 1 – Public Cooperation in the Smallpox Outbreak



As **Figure 1** illustrates, only 24% of the American population say they would rush to the vaccination site; another 19% say they would go later when it is most convenient for them. More than half of the population (57%) would *not* automatically follow instructions, primarily because they would need more information or advice to decide what to do.

Although the study uses a hypothetical scenario, our findings need to be taken seriously because they are consistent with the actual behavior of health care workers in the CDC Smallpox Vaccination Program. If 57% of the American people were reluctant to follow official instructions in an actual smallpox outbreak, the protection of large-scale vaccination might not be achieved, even if planners worked out all of the challenging logistics involved in dispensing the vaccine.

Why would so many people be reluctant to follow instructions in the smallpox outbreak?

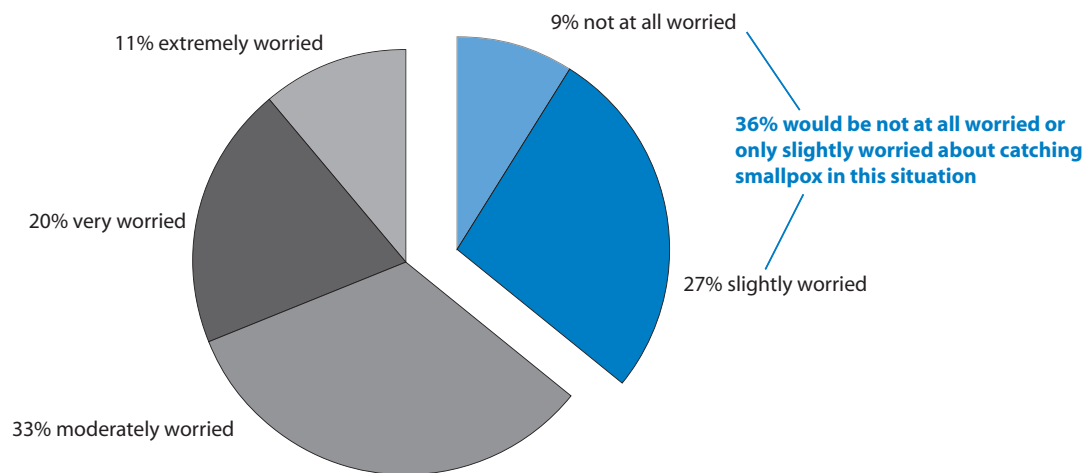
As we discuss in more detail below, the study identifies four reasons for people’s reluctance to follow instructions to go to the vaccination site:

- lack of worry about catching smallpox in this situation;
- serious worries about what government officials would say or do;

- serious worries about the vaccine; and
- conflicting worries about catching smallpox and getting sick from the vaccine.

One-third of the American population (36%) say they wouldn't be worried at all or would be only slightly worried about catching smallpox in this situation.

Figure 2 – Level of Concern About Catching Smallpox



Many of the planners we interviewed think the public would be extremely or very worried about catching smallpox if an outbreak occurred. As **Figure 2** illustrates, 31% of the American public say they would have this level of concern. Yet although the scenario included information about the dangers and contagiousness of smallpox, at least as many people — 36% — say they wouldn't be worried at all or would be only slightly worried about catching smallpox in this situation. The hypothetical nature of the smallpox scenario does not appear to account for their lack of worry since respondents expressed considerably more concern about other issues in the survey.

Of the people who say they wouldn't be worried about catching smallpox, 42% believe the outbreak would not pose much of a danger to them, usually because they have a lifestyle that doesn't bring them into contact with many other people. A smaller proportion (19%) say they wouldn't be worried because they have already been vaccinated for smallpox. Since this belief is not correlated with age, it is likely that some of the people who think

they have been vaccinated are misinformed. Quite a few of the community residents in our group discussions were confused about whether they had previously been vaccinated for smallpox, and other surveys have documented that some Americans are misinformed about their vaccination status.^{15,28}

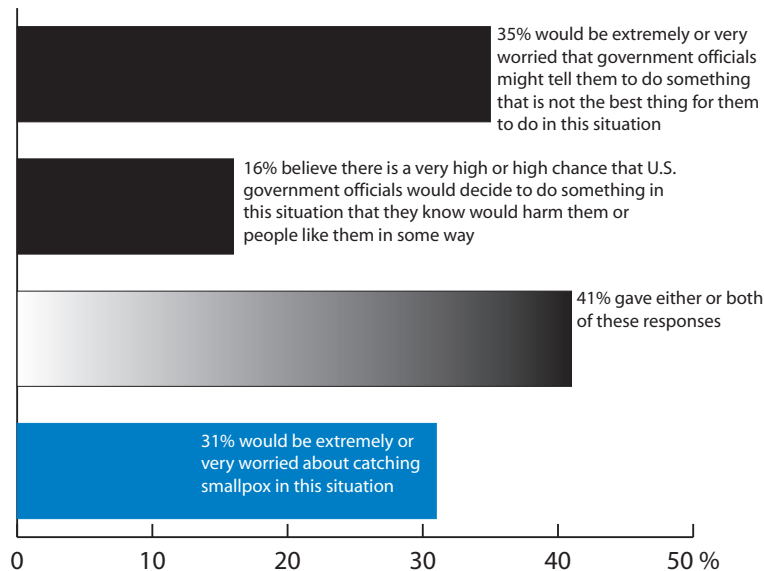
Two-fifths of the American population (41%) would be extremely or very concerned about what government officials would say or do in this situation. This is *larger* than the proportion of people who would be extremely or very worried about catching smallpox.

Planners recognize that they need the public's trust in order to vaccinate the population rapidly in the event of a smallpox outbreak.^{20,29} While the public did trust the instructions they were given by officials during the 1947 smallpox outbreak in New York City, our study suggests that many Americans would not be so confident today.¹⁰

As **Figure 3** (next page) illustrates, 35% of the American population say they would be extremely or very worried that government officials might tell them to do something that is not the best thing for them to do in the smallpox situation (65% of the population would be moderately to extremely worried about this). This worry has practical implications because **it would make 26% of the population afraid to go to the vaccination site**. In both the survey and group discussions with community residents, people's specific concerns are that government officials: (1) would not be completely truthful (i.e., they would intentionally mislead the public, lie to the public, manipulate people, or blow things out of proportion in order to further their own agenda); (2) wouldn't know what to do (i.e., they would be uninformed, misinformed, or act too hastily without having all the facts); or (3) wouldn't care about people like "me" (i.e., the officials would look out for themselves, people like themselves, or the majority rather than the interests of minority groups or individuals).

Figure 3 also shows that 16% of the American population believe there is a very high or high chance that government officials in the United States would decide to do something in this situation that they *know* would harm them or people like them in some way (42% of the population believe there is a moderate to very high chance of this happening). Here, people are concerned that government officials would knowingly: (1) conceal or withhold

Figure 3 – Concerns About Official Instructions and Actions



information from the public; (2) lie or provide false information to the public (e.g., about the safety of the vaccine); (3) experiment on people; or (4) look after their own interests — or the interests of wealthy Caucasian Americans — at the expense of others.

Two-fifths of the American population (41%) would be seriously worried about *one or both* of these issues. As Figure 3 illustrates, that proportion is significantly greater than the 31% of the population who would be extremely or very worried about catching smallpox in this situation. Serious concern about what officials would say or do in the smallpox situation is even more prevalent among people who are Hispanic (61%), African-American (57%), foreign-born (55%); have a low income (57%); lack health insurance coverage for everyone in the household (56%), live in New York City (55%), or have not attended college (51%).

Looking at the issue from the other perspective, only 26% of the American population have a lot of trust in official instructions and actions. These are people who say they would be not at all or only slightly worried about what government officials would tell them to do in this situation *and* who believe there is no chance or only a slight chance that government officials would decide to do something in this situation that they know would harm them. Having a lot of trust in official instructions and actions is more common

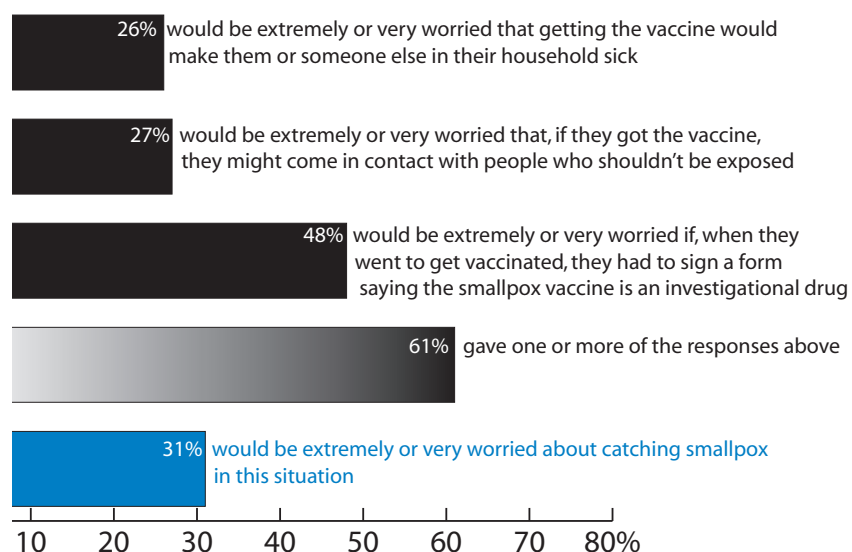
among people who have high incomes (40%), have attended graduate school (35%), are male (30%), Caucasian (28%), or have full household health insurance coverage (28%).

Three-fifths of the American population (61%) would have serious worries about the vaccine. That is twice as many people as would be seriously worried about catching smallpox in this situation.

The community residents who participated in the group discussions we held around the country expressed three distinct concerns about the smallpox vaccine. To find out how prevalent these concerns are, we asked the survey respondents about them. As [Figure 4](#) shows, 61% of the American people say they would be extremely or very worried about one or more of the three vaccine issues. That is a much greater proportion than the 31% of the population who say they would be extremely or very worried about catching smallpox in this situation.

Looking at **the first two vaccine issues in** [Figure 4](#), we see that 26% of the American population would be extremely or very worried that getting the vaccine would make them or someone else in their household sick (57% would be moderately to extremely worried about this). The same proportion (27%) would be extremely or very

Figure 4 – Concerns About the Smallpox Vaccine



worried that, if they got the vaccine, they might come into contact with the kinds of people who shouldn't be exposed to anyone who recently got the vaccine (55% would be moderately to extremely worried about this). Two-fifths of the population (38%) would be extremely or very worried about *one or both* of these vaccine issues, and **these concerns would make one-fifth of the American people afraid to go to the vaccination site.**

From what is known about the smallpox vaccine, the public's concerns about these two vaccine issues appear to be well-founded. In fact, concerns about the vaccine's side effects were a major reason that so few health care workers agreed to be vaccinated prophylactically in the CDC Smallpox Vaccination Program.^{13,14,30}

Smallpox vaccine can protect people from getting sick from smallpox if they are vaccinated before being exposed to the smallpox (variola) virus or within a few days after exposure. Nonetheless, the smallpox vaccine, made with live vaccinia virus, is the least safe of all available vaccines today, and substantially more Americans are at high risk for developing serious adverse reactions to the vaccine today than 40 years ago when data about the safety of the vaccine were collected.^{11,13,31} Currently, it is estimated that about 20% of the people in this country are at risk of developing serious illness or even death from the vaccine — either from being vaccinated themselves or from accidentally coming in contact with someone who has recently been vaccinated.³²⁻³³ People who are vaccinated may inadvertently infect other people with the vaccinia virus until their scab falls off, which may take weeks.³⁴⁻³⁵

Information about the particular kinds of people who are at risk for developing serious complications from the smallpox vaccine has been widely publicized. In the event of an outbreak, people would be screened to identify potential contraindications.^{23,36} High-risk people include pregnant women; babies under one year old; people with immune system problems like HIV/AIDS, leukemia, lymphoma, organ transplant, or agammaglobulinemia; people with autoimmune system problems like lupus; people currently taking chemotherapy agents or undergoing radiation treatment for cancer; people taking medicines like steroids (such as prednisone) or organ transplant medicines; people who have eczema (atopic dermatitis) or who have had this skin condition in the past; people with other skin problems like burns, impetigo, contact dermatitis, or herpes zoster; and people who are allergic to certain antibiotics (polymixin B, streptomycin, chlortetracycline, neomycin).^{23,34}

Repeatedly, community residents in the group discussions we conducted wanted to know **what would be done to protect the people who are at risk of developing serious complications from the vaccine.** The questions they raised highlight the need for such strategies. What if they went to the vaccination site, exposing themselves to lots of other people and potentially to smallpox, and then found out they have a contraindication to getting the vaccine? What if someone else in their household has one of these conditions? What if they got the vaccine and then, accidentally, came in contact with such a person? What if they were pregnant, or were infected with HIV/AIDS, and didn't know it?

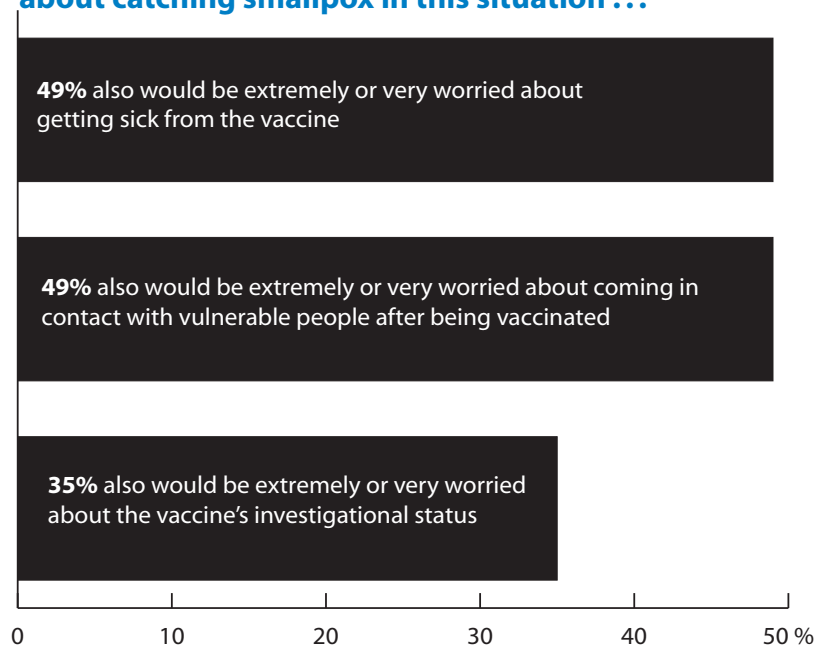
Now, let's turn attention to the **third vaccine issue in Figure 4.** Under current plans, the smallpox vaccine would only be available to the public under an Investigational New Drug protocol, so people would have to give their informed consent before being vaccinated.²³ Figure 4 shows how the American people would respond in such a situation. Half of the population (48%) — **and two-thirds of African Americans (68%)** — would be extremely or very worried if, when they went to get vaccinated, they were asked to sign a piece of paper saying that the smallpox vaccine is an investigational drug that has not been completely tested (78% of the population would be moderately to extremely worried about this). Of note, **more people would be seriously worried about the investigational status of the vaccine than about any other aspect of the smallpox situation and 32% of the population say this worry would make them decide *not* to get the vaccine, even if they were at the vaccination site already.** The history of the Tuskegee syphilis study and other past events make the investigational status of the vaccine particularly worrisome to African Americans.

Many people say they would have serious worries about getting the vaccine *and* about catching smallpox, which puts them in a very difficult decision-making predicament.

As we mentioned earlier, 31% of the American people say they would be extremely or very worried about catching smallpox in this situation. **Figure 5** (next page) shows that three-quarters of these people (74%) would ***also*** be extremely or very worried about one or more issues related to the vaccine. Specifically, 49% would be extremely or very worried about getting sick from the vaccine, 49% would be extremely or very worried about coming into contact with vulnerable people after being vaccinated, and 35% would be extremely or very worried about the investigational status of the vaccine.

Figure 5 – Conflicting Worries in the Smallpox Outbreak

Of the 31% who would be extremely or very worried about catching smallpox in this situation ...



We know from the survey and our group discussions with community residents that **most of the people who would be seriously worried about the vaccine and about catching smallpox are *not* nonspecific worriers**. Nonspecific worriers (i.e., the people who respond “extremely or very worried” to almost all of the “worry questions” in the survey) make up only 5% of the population. The vast majority of the people with serious worries about both the vaccine and smallpox are facing a very difficult and specific trade-off.

How would the conflicting worries and trade-offs that people face affect their behavior in the smallpox situation?

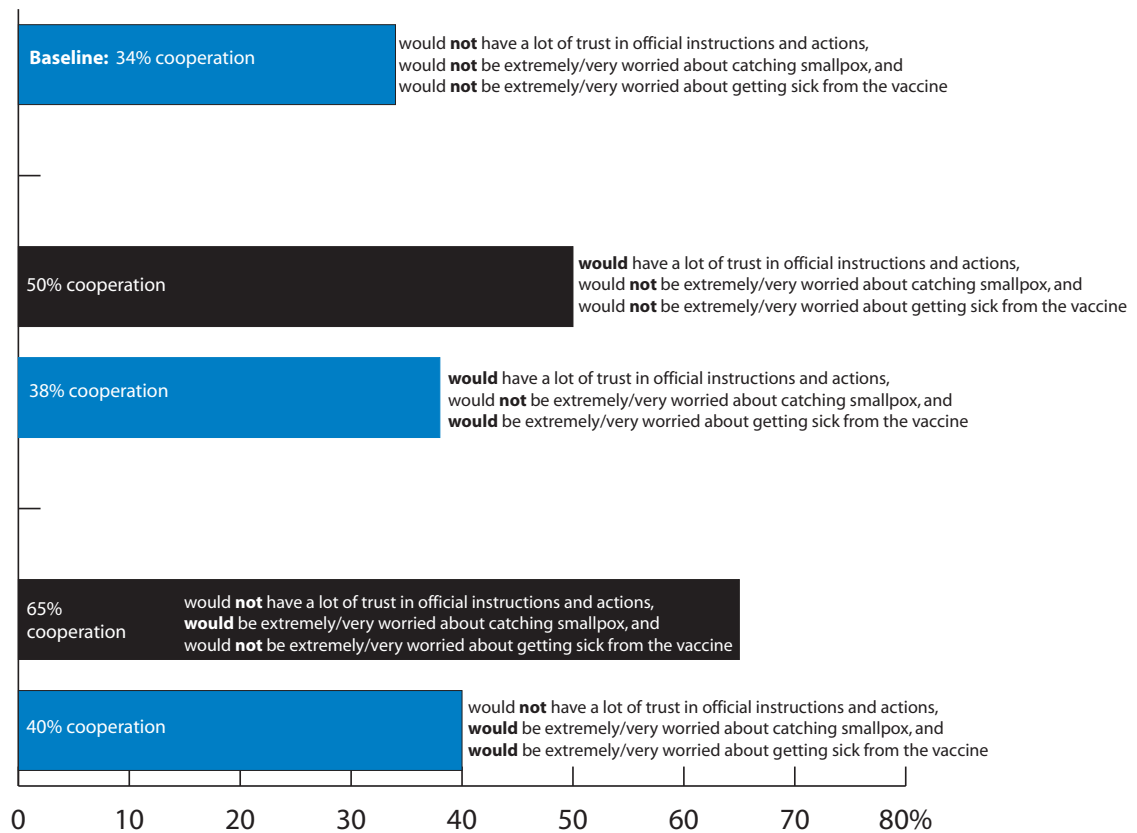
When people have serious worries about the smallpox vaccine, their level of cooperation is very low, even if they have beliefs or concerns that would otherwise motivate them to go to the vaccination site.

People can be defined as being cooperative in the smallpox outbreak if they would follow instructions to go to the vaccination site (either by going immediately or by going later, when it is most convenient for them). As a baseline for making comparisons about cooperation, consider people who say they would *not* have a lot of trust in official

instructions in this situation, would *not* be extremely or very worried about catching smallpox, and would *not* be extremely or very worried about getting sick from the vaccine.

Figure 6 – How Conflicting Worries Affect Behavior

Levels of cooperation (i.e., would go to the vaccination site) among people who ...



As **Figure 6** illustrates, cooperation is very low (34%) among the people in this group.

Now consider the people who are just like the baseline group with one exception: they would **have a lot of trust in official instructions and actions**. **Figure 6** shows that the cooperation rate for this group is 50% (47% **higher than baseline**), which is not surprising since people who have a lot of trust in what officials say and do are likely to be more confident about following instructions to go to the vaccination site. This boost in cooperation is **completely offset by serious worries about the vaccine**, however. Among people who say they would have a lot of trust in official instructions and actions *and* would be extremely or very worried about getting sick from the vaccine, cooperation is only 38% (not significantly different than baseline).

Being seriously worried about catching smallpox is also associated with a higher cooperation rate, which makes sense since the vaccine can protect people from getting sick from smallpox. As Figure 6 illustrates, cooperation is **91% higher than baseline** (65%) among people who say they would be **extremely or very worried about catching smallpox** in this situation but are otherwise just like the baseline group. But again, this boost in cooperation is **completely offset by serious worries about the vaccine**. Among people who say they would be extremely or very worried about catching smallpox *and* would be extremely or very worried about getting sick from the vaccine, cooperation is only 40% (not significantly different than baseline).

These comparisons demonstrate that when people have serious worries about the vaccine, that worry is like a trump card — it wins out over factors that would otherwise have a positive influence on cooperation. The take-home message from these findings is straightforward. If planners want the public to cooperate with instructions to go to a vaccination site in the event of a smallpox outbreak, they will have to develop plans that effectively address the public's concerns about the vaccine.

Cooperation in the smallpox outbreak is correlated more strongly with what people are concerned about than with where they live or who they are.

We used a special kind of analysis, multivariate logistic regression, to look at a broad range of factors that could potentially influence whether people follow instructions in the smallpox outbreak. This analysis, which distinguishes factors that are significantly associated with people's cooperation ($p < 0.05$) from those that are not, provides further documentation of the link between people's conflicting worries and their behavior.

We found that people's cooperation is *positively* correlated with:

- being extremely or very worried about catching smallpox (odds ratio = 3.3);
- having a lot of trust in official instructions and actions (odds ratio = 1.74);
- being foreign-born (odds ratio = 1.56); and
- living in a large household (odds ratio = 1.47).

Their cooperation is *negatively* correlated with:

- having conflicting worries about catching smallpox and getting sick from the vaccine (i.e., being both extremely or very worried about getting sick from the vaccine *and* extremely or very worried about catching smallpox) (odds ratio = 0.35);
- being extremely or very worried about the vaccine being an investigational drug (odds ratio = .58);
- wanting to talk directly with someone to decide what to do (odds ratio = .60);
- having a high income (odds ratio = .40);
- being Hispanic (odds ratio = 0.53); and
- being female (odds ratio = 0.70).

The odds ratios in the analysis indicate how much influence each factor has *on its own*. An odds ratio of 3, for example, means that, taking everything else into account, people are three times more likely to cooperate in the smallpox situation if they have that characteristic than if they do not. An odds ratio of 0.33, for example, means that, taking everything else into account, people are one-third as likely to cooperate if they have that characteristic than if they do not.

Taking the factors above into account, people's cooperation in the smallpox scenario is *not* significantly correlated with their cooperation in the dirty bomb scenario (discussed later in this report). It is also not significantly correlated with other sociodemographic factors (age, race, education, children, health insurance coverage); where people live (i.e., in New York City, Washington, D.C., or the rest of the continental United States); their responses to other questions related to the smallpox scenario (i.e., whether they would try to avoid other people in this situation; whether they would be more or less worried by having options in this situation); or other constructs in our analysis (people's awareness of plans, confidence in plans, knowledge level [either related solely to information in the smallpox scenario or to information in both scenarios], nonspecific worry, and salience of terrorist attacks).

These are good findings for planners. What we have learned about cooperation in the smallpox outbreak is **generalizable** to all parts of the country. Moreover, although some sociodemographic factors are significant on their own, **cooperation is correlated most strongly with issues that people care about and that planners can do something about.**

Our findings suggest that planners could boost initial cooperation substantially by developing plans that explicitly address the issues we have identified, paying particular attention to the population groups that are more likely to care about some of these issues. Such plans would entail: (1) taking precautions to protect the large number of unexposed people who would be at risk of developing serious complications from the smallpox vaccine; (2) actively involving the public — especially the African-American community — in overseeing the development and testing of investigational vaccines; (3) working to build the public’s trust in what government officials would say and do in this kind of situation (especially among the population groups least likely to have this trust); (4) providing people with accurate information to dispel unwarranted lack of concern about catching smallpox in the event of an outbreak; and (5) providing the public with decision-making support.

What kind of decision-making support would be most helpful to the American public?

The vast majority of the American people (87% of the population) say they would want to talk directly with someone who can give them information or advice to help them decide what to do in this situation.

Although we live in an electronic age and a lot of information is available through the Internet, obtaining information or advice from another human being appears to be critically important to the American public in this situation. Both the survey and our discussions with community residents around the country document that **people are looking for decision-making support, not just facts.** People want to talk to someone to (1) confirm what they are hearing from government officials or through the media, (2) get additional information to answer their questions, and (3) help them resolve difficult trade-offs so they can make the best decisions for themselves and their families.

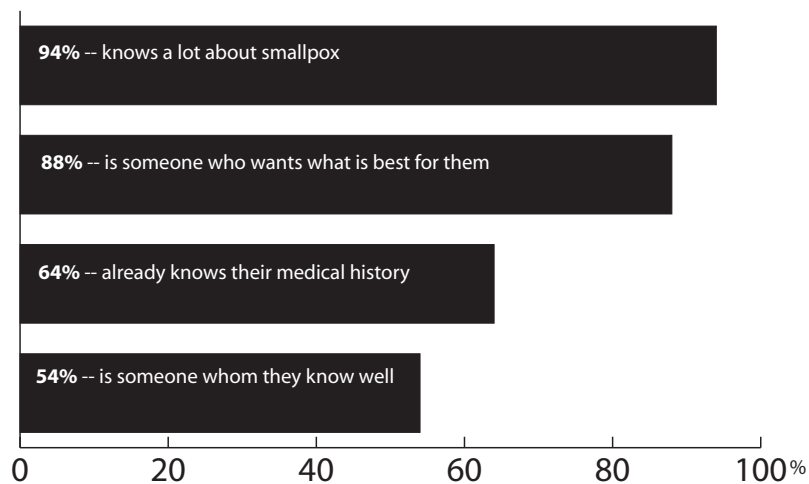
Participants in the group discussions emphasized that they wanted to be able to talk to someone **beforehand**, *not* just during an attack. Many people have difficult decisions to make, and a crisis situation is not the best time to make such decisions. Moreover, the person they would most want to talk to would likely be overwhelmed if an outbreak occurred.

When it comes to decision-making support, expertise about smallpox is important, but not sufficient. Most people want to talk to someone who has their best interests at heart.

The characteristics people are seeking in the person they want to talk to are presented in **Figure 7**. Of note, almost as many people say it would be extremely or very important that the person be someone who wants what is best for them (88%) as that the person be someone who knows a lot about smallpox (94%). Fewer — but still over half the population — want to talk to someone who already knows their medical history (64%) or whom they know well (54%). Our finding that people are seeking guidance from someone who has more than scientific expertise is consistent with the work of other investigators.³⁷

Figure 7 – Whom People Want To Talk To

Of those who would want to talk to someone who could give them information or advice (87%), percent who say it would be extremely or very important that the person ...



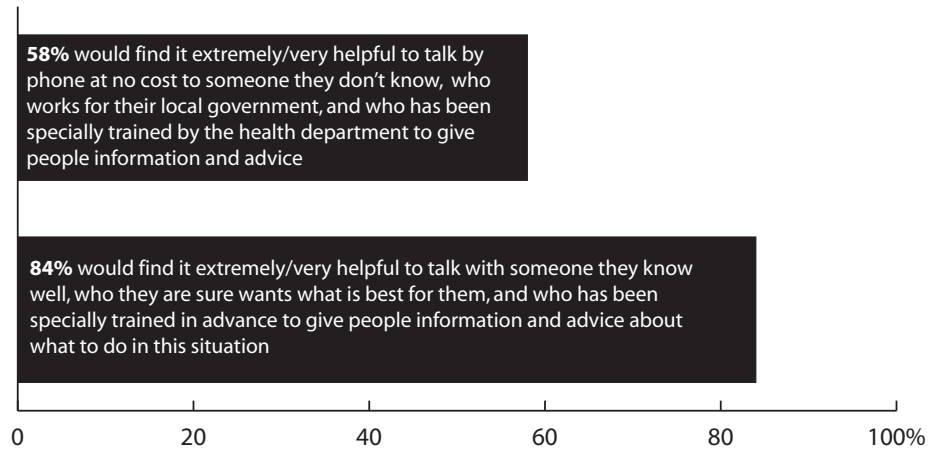
Two-thirds (63%) of the people who would want to talk directly with someone say that they know a person they could contact who has all of the characteristics they feel are important. People are more likely *not* to know someone with the characteristics they seek if they are Hispanic, live in households without full health insurance coverage, are under 40, are foreign-born, are male, or have young children.

For free telephone support from a trained person, considerably more people would find it extremely or very helpful to talk with someone who they know wants what is best for them than to talk with someone they don't know who works for their local government.

In our conversations with planners, many said they were considering setting up 1-800 numbers that the public could call in the event of a smallpox outbreak. In the survey, we asked people how helpful two telephone support options would be. We found that community-organized telephone support networks would be helpful even to people who said they already know someone they could contact for information or advice. As we learned in the group discussions with community residents, such support is valuable because people realize how hard it would be to get in touch with the person they have in mind during a crisis, and many people want to get information or advice from multiple sources.

The value of community-organized telephone support depends on how it is structured, however. [Figure 8](#) (next page) shows that 58% of the American people would find it extremely or very helpful if they could talk by telephone at no cost with someone they don't know, who works for their local government, and who has been specially trained by the health department to give people information and advice about what to do in this situation. However, considerably more people (84% of the population) say they would find it extremely or very helpful to talk with someone they know well, who they are sure wants what is best for them, and who has been specially trained in advance to give people information and advice about what to do in this situation. This finding suggests that government-run telephone networks need to be supplemented by a more community-embedded telephone support capacity.

Figure 8 – Preferences for Free Telephone Support



Almost everyone (94% of the American population) wants someone they know well and who wants what is best for them to be *trained in advance* to give other people information and advice in this situation.

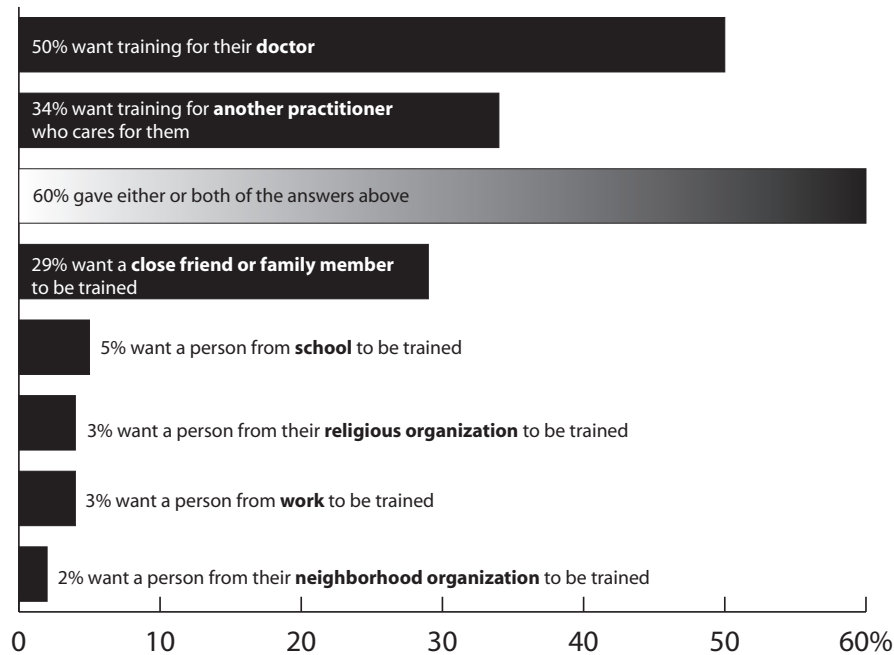
In the group discussions, community residents emphasized that unless the person they would want to talk to received advance training, that person would probably *not* be able to provide them with accurate information or constructive decision-making support.

As data from the survey show (Figure 9, next page), most people want either their doctor or other health care practitioner to receive this training, which should be feasible from a planning perspective. In the group discussions, community residents said that health professionals need training because many do not currently have sufficient expertise about smallpox *or* the skills to help their patients reconcile the situation's difficult trade-offs.

Training health practitioners to provide decision-making support would not be sufficient to meet the public's needs, however. In the survey, people who lack full household health insurance coverage, who are Hispanic, African-American, under 40 years of age, low-income, or who have not attended college were less likely to identify a health care practitioner for training. Moreover, almost a third of the population want a close friend or family member to be trained. This response is even more common among people who are African-American, Hispanic, or who have not attended college. While it probably would not be practical to implement such extensive training, our findings suggest that planners

Figure 9 – Whom the Public Wants to be Trained to Provide Decision-Making Support

Of the 94% of the population who want someone to be trained in advance ...



need to work closely with members of these population groups to identify a cadre of people whom they trust and to provide these people with advance training.

What are the American people's views about targeted vaccination?

Planners have been engaging in heated discussions about the relative benefits of mass vaccination and ring vaccination in dealing with a terrorist-initiated smallpox outbreak, and currently local jurisdictions vary considerably in whom they plan to vaccinate and when.^{11,38} While many factors have been considered in models comparing the relative benefits of mass and ring vaccination, thus far the public's views have neither been sought nor incorporated. In the survey, we posed the question to the American people directly.

We found that **almost everyone (94% of the population) supports providing the vaccine right away to people who are known to be exposed to the smallpox virus even if it means slowing down vaccinating people who have not yet been exposed.** Most of these people (86% of the population) support this approach strongly. Only 8% oppose this strategy; 4% oppose it strongly.

Do the American people see vaccination as the only means of protecting themselves in the event of a smallpox outbreak?

Although current plans are focusing almost exclusively on vaccination to protect the public in a smallpox outbreak, two-thirds of the American population (65%) say they would engage in protective isolation.

As a recent study in California revealed, local planners have different views about whether healthy people should stay at home or go about their normal activities during a smallpox outbreak.³⁸ Data from our survey show that 65% of the American population would try to avoid being in the same place with other people they don't know in this situation. Most of these people (84%) would try to avoid others to reduce their chances of getting smallpox. Thinking beyond their own welfare, 20% would try to avoid others to reduce their chances of giving smallpox to someone else, and 8% would do so to reduce the chances of inadvertently coming in contact with people who could get sick from being exposed to someone who recently got the vaccine.

As the survey and our discussions with community residents highlight, **going to a public vaccination site *violates* people's inclination toward protective isolation.** Two-fifths of the population (38%) say they would be afraid of catching smallpox from other people at the vaccination site. Concerns about accidentally coming into contact with someone who shouldn't be exposed to anyone who recently got the vaccine would make 21% of the population afraid to go to the vaccination site. These are important issues for the public, but current plans do *not* seem to take them into account. The planners we interviewed and the plans we reviewed frequently referred to public sites as venues for triage (the identification of people who have been exposed to smallpox) and screening (the identification of unexposed people who are at high risk for developing complications from the vaccine).^{23,39}

The anxiety level of half of the American population (48%) would be reduced if the officials managing the smallpox outbreak gave them a choice of protective actions. Only 13% of the population would be more worried by having options.

The planners we interviewed were very interested in learning what they could do to reduce people's anxiety levels and prevent panic in the event of a smallpox outbreak. Since quite a few of the community residents in our group discussions said that panic could be averted by giving the public a choice of actions, and since that view has also been endorsed by some experts in emergency preparedness planning,⁴⁰ we included a question about options in the survey.

Half of the population (48%) say they would be *less* worried if, instead of telling everyone to go to a particular vaccination site to get the smallpox vaccine, officials offered people several different ways they could get the vaccine and told them about other ways they could protect themselves in this situation. We know from the group discussions we held with community residents around the country that many people would prefer to be vaccinated by their own health care practitioner or at home.

Two-fifths of the population (39%) say that having options would *not affect* how worried they would be. Only 13% say they would be *more* worried if they were offered options. Having options is more likely to increase worry among people who are foreign-born, African-American, Hispanic, live in New York City, have not attended college, or have a low income. Not surprisingly, people who are nonspecific worriers (i.e., the 5% of the population who respond "extremely or very worried" to almost all of the "worry questions" in the survey) are also more likely to become more worried by having options.

What would smallpox plans look like if they incorporated the public's perspectives?

Planners have been focusing a lot of attention on public education and risk communication, and they have taken important steps to make information about smallpox and the vaccine available to the public and to encourage the American people to follow instructions should an outbreak occur.^{25,36,41-43} Our study suggests that these efforts will *not* be sufficient to garner the public's timely cooperation, however.

As the Working Group on Governance Dilemmas in Bioterrorism Response has said, members of the public are "decision-makers who are interested in determining the nature of the danger and acting to reduce the chance of illness for themselves and loved ones."²⁰

(p. 31) The Redefining Readiness Study identifies some of the specific and difficult decisions

that many people would face in this situation. It shows the particular kind of decision-making support that people would like to have — both now and during an outbreak. Moreover, it suggests practical steps that planners can take to reduce the conflicts people currently face in choosing the best protective action. A key element of those steps is to develop plans that explicitly **protect *everyone* at risk: the people who are at risk of developing serious complications from the vaccine as well as those who are at risk of contracting smallpox.**

Below, we illustrate what plans to deal with a smallpox outbreak might look like if they incorporated the public's perspectives, focusing on actions that would need to be taken prior to an outbreak, at the first hint of an outbreak, and when an outbreak is confirmed. While this illustration deals specifically with smallpox, it contains strategies that could be useful in other situations, such as managing an outbreak of pandemic influenza or SARS or enhancing public cooperation with routine vaccinations.

Smallpox Planning Through the Eyes of the Public

Prior to an Outbreak

(1) **Identify people who are and are not at high risk for developing serious complications from the smallpox vaccine and encourage all members of the public to know their vaccine risk status.** Building on existing materials, develop easy-to-use questionnaires that help individuals assess their risk in the context of their household, identifying potential contraindications to the vaccine both for them and for the other people who would be exposed to the vaccine if they got it. Disseminate and promote the use of these questionnaires in a broad array of venues, including medical practices, worksites, schools, churches, and community-based organizations. Using these and other strategies, enable *everyone*, including people in marginalized groups, to know their vaccine risk status — well before they would ever be asked to go to a site to be vaccinated.

(2) Train health practitioners and other people to provide community residents with information about smallpox and the vaccine and to support their decision making before and during an outbreak. Training people from diverse population groups and community-based organizations will develop the capacity to provide the American public with accurate information about the trade-offs they would face, from people they trust, in a context that supports individualized decision making. **Extend emergency phone bank systems to relay critical information to these trained people during an outbreak and, if possible, to allow many of them to field toll-free calls from the public in their homes.**

(3) Meaningfully involve community leaders — particularly among the African-American population — in overseeing the development and testing of smallpox (and other) vaccines. Building on the suggestions of others, establish an objective, citizen-majority National Vaccine Safety Board.⁴⁴ Engage the general public in frank discussions about the safety and testing of vaccines and what is reasonable to expect in terms of investigational status. Consider using a different term to refer to an investigational vaccine (e.g., “vaccine approved for emergency use only”).

(4) Build the public’s trust in what government officials would say and do in this kind of situation, especially among community residents who are African-American, Hispanic, foreign-born, low-income, lack health insurance coverage, and have limited education. As suggested by others, encourage officials to engage in open and honest communication with the public and to pay special attention to assuring that policies for dealing with emergency situations are not discriminatory.^{10,19,20,25,29} Even more important, encourage officials to listen to the American people directly and — as we are illustrating here — to develop plans and policies that explicitly address the public’s concerns.

At the First Hint of an Outbreak

- (1) Inform the public about the possibility of a smallpox outbreak as soon as clinical suspicion is high.
- (2) Take advantage of people's natural inclination to try to avoid others in this situation and declare a "snow day" (i.e., have people stay home; close schools and nonessential businesses). This action will not only make sense to the public, it will also facilitate containment and case-finding.
- (3) Tell people to call a special number for evaluation and possible treatment if they have symptoms of smallpox (describe what those symptoms are) or were at certain places at certain times (i.e., where they might have been exposed to smallpox).

When an Outbreak is Confirmed

- (1) Provide the vaccine *first* to people who are known to have been exposed to the smallpox virus and to people providing essential community services who do not have any contraindications to the vaccine. Use multiple trusted sources to inform all population groups about the symptoms of smallpox and the times and places where people could have been exposed. Tell anyone who has symptoms or who thinks they might have been exposed to *stay home* and call a special number. Provide medical care and vaccination through home visits by vaccinated health care workers.
- (2) Implement special strategies to protect non-exposed people who are at risk of developing serious complications from the smallpox vaccine.
 - Tell these people to *stay home* and call a special number. Make plans to assure that people in high-risk households receive needed food, medications, and supplies until the outbreak is under control. If a person who needs to leave the house (such as a wage earner) does not have contraindications to getting the vaccine but other members of her household are at risk, identify other places where that person could stay after being vaccinated until the vaccination site is healed.

- **Enable people who do not already know their vaccination risk status to determine what it is *without* going to a vaccination site.** Publicize the conditions that put people at risk for developing serious complications from the vaccine. Provide a hotline that people can call to go through a questionnaire that helps them determine whether they or any other member of their household has a potential contraindication to the vaccine. Publicize the numbers of all of the community-based organizations that have these questionnaires. People from these organizations will have been trained in advance to provide community residents from different backgrounds with this kind of telephone assistance.

(3) **To address the concerns of the rest of the public:**

- **Do *not* rely on public sites for triage or vaccine risk screening.** Take steps (as described above) to make sure that people who are potentially infected, exposed, or at risk of developing serious complications from the vaccine stay home and do *not* go to any public vaccination site. **Make sure the rest of the public is aware of this strategy** so people won't worry about being infected or harming others when they go to a vaccination site.
- **Use multiple trusted sources to get important information to all population groups.** To decide the best course of protective action for themselves and their family, people need accurate information not only about vaccine risks, but also about the seriousness of smallpox, when infected people are contagious, the post-exposure effectiveness of the vaccine, their likelihood of having been vaccinated in the past, the protection afforded by prior vaccination, their chances of getting sick from the vaccine if they and other household members do not have known contraindications, and provisions for compensation if bad reactions to the vaccine occur. It will also be important to distinguish smallpox from chickenpox for people from Spanish-speaking countries that use the same term for both conditions.

- Offer people without contraindications **multiple options for receiving the vaccine**, including, if possible, being vaccinated in their own health practitioner's office.
- Reiterate important points from the pre-event public discussion about the testing and investigational status of the vaccine (see above). If informed consent is required, **do not combine vaccine risk screening with the process to obtain informed consent**.
- Provide the public with **telephone decision-making support through the cadre of people from different population groups and community-based organizations who have received training in advance** (i.e., use this community-embedded capacity to reinforce government-sponsored hotlines).

PUBLIC REACTIONS TO A DIRTY BOMB EXPLOSION

A dirty bomb uses conventional explosives to disperse radioactive material across a wide area.^{42,45-49} The main risk for people who are not at the site of the explosion is the inhalation of contaminated dust, which is carried downwind by a radioactive plume. The dust, itself, can cause respiratory problems in the people who inhale it. In addition, the radioactive material in the dust can raise the risk of cancer in exposed people and contaminate the soil and crops on which it falls. Depending on the particular type of radioactive material in a dirty bomb, the long-term consequences of the explosion can vary greatly.⁵⁰

To protect the general public in the event of a dirty bomb explosion, current plans are to instruct everyone in the vicinity of the plume to take shelter in an undamaged building (i.e., by staying inside such a building if that is where they are at the time, or by going inside the nearest undamaged building if they are outside). People would be instructed to close all windows and doors, shut down ventilation systems, and stay inside the building until officials say it is safe to leave.^{36,41,42,45-48}

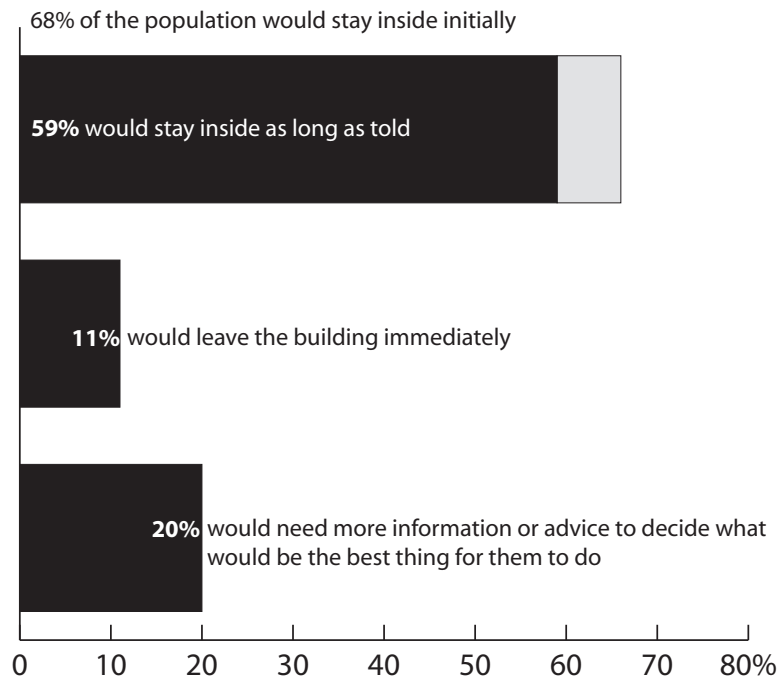
The survey scenario explores how the American public would react to instructions to stay inside a building other than their own home if a dirty bomb exploded a mile from where they were and a cloud containing radioactive dust were moving in their direction. Since planners are concerned about the possibility of communications problems in this kind of emergency, the scenario states that telephone lines are jammed so people are unable to reach anyone by phone.^{27,49} Many of the planners we interviewed thought that a lot of people — especially parents of young children — would panic and leave the building in this kind of situation. That response would not only expose the people who leave to dangerous dust and radiation, but also would make it more difficult for first responders to get to the scene of the explosion.

What do the American people believe they would do in this situation?

Only three-fifths of the American people would cooperate fully with instructions to stay inside the building.

As **Figure 10** illustrates, 68% of the population say they would stay inside the building, at least initially. Three-fifths (59%) say they would stay as long as officials told them, no matter how long that would be. One-fifth (20%) say they would need more information or advice to decide what to do. Only 11% say they would leave the building immediately.

Figure 10 – Public Cooperation in the Dirty Bomb Situation



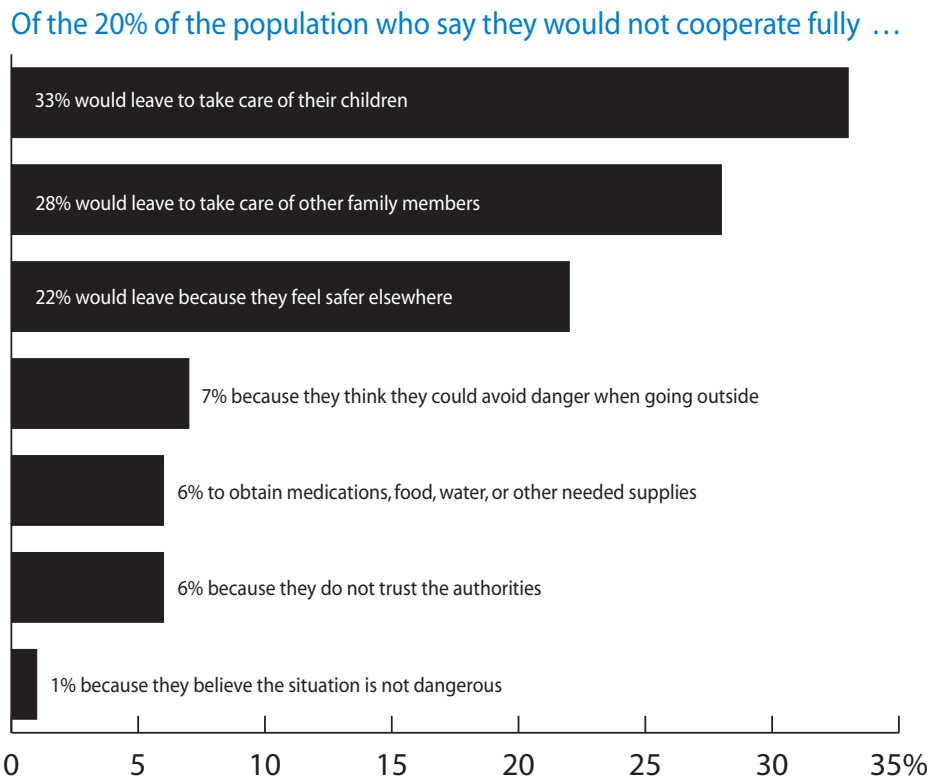
Why would people leave the building immediately or not stay inside as long as told?

Many of the people who say they would not cooperate fully in this situation would leave the building in order to meet other pressing needs.

In the survey, 20% of the American people say they would *not* cooperate fully with official instructions in this situation (11% would leave the building immediately, and 9% would stay initially, but not for as long as they are told).

As **Figure 11** shows, many of these people would leave the building because they face conflicting obligations (i.e., it is more important for them to assure the safety of people who are dependent on them than to protect their own safety). Others would leave because they face difficult trade-offs (i.e., it is more important to obtain the medications or food they need to stay alive than to risk exposure to dust and radiation by leaving the building). Of note, a substantial proportion of the people who would not cooperate fully would leave the building because they would feel safer elsewhere (usually at home). Only 1% would leave because they believe the situation is not dangerous (far fewer than in the smallpox scenario).

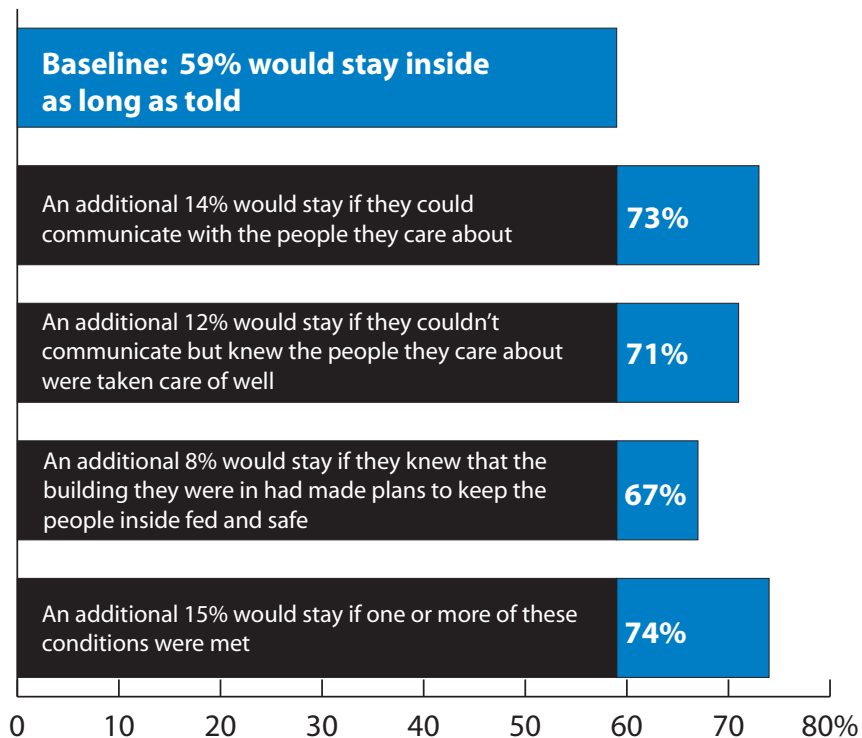
Figure 11 – Why People Wouldn’t Cooperate Fully in the Dirty Bomb Situation



Three-quarters of these people say that they *would* cooperate fully with the instruction to stay in the building if certain conditions were met. If that happened, the public’s full cooperation in the dirty bomb situation would increase from 59% to 74%.

As **Figure 12** illustrates, an additional 14% of the American population say they would stay in the building as long as told if they could communicate with the people they care about by telephone or e-mail to tell them they are safe and to find out that the people they care about are safe. An additional 12% of the population say they would stay if they couldn't communicate with anyone outside their building, but they definitely knew that the people they care about were in places that had prepared in advance to take good care of them for at least three days in this kind of situation. An additional 8% of the population say they would stay if they knew that the building they were in had made plans to keep the people inside fed and safe for at least three days in this kind of situation. Overall, an additional 15% of the American population say they would stay if *one or more* of these conditions were met, boosting full cooperation in the dirty bomb situation from 59% to 74%.

Figure 12 – Conditions That Would Enable More People to Cooperate Fully in the Dirty Bomb Situation



Only 5% of the population would leave even if all three conditions were met. Of note, people who live in households with children or other adults do *not* make up a significantly larger portion of this group.

The conditions that would enable an additional 15% of the American population to cooperate fully with instructions to stay inside the building are *not* met now.

As the findings in Figure 12 document, Americans place a high priority on their ability to communicate with the people they care about during an emergency. In our study, as in studies of natural disasters, enabling family members to communicate with each other appears to be more important than keeping families together.⁴ Nonetheless, while quite a lot of attention has been paid to assuring that first responders can communicate with each other in the event of a terrorist attack, **we are not aware of any backup plans to assure phone and e-mail communication for the general public.**

Figure 12 highlights how important it is for people to know that they and their loved ones are in places that have prepared in advance to take good care of them in this kind of situation. The survey documents, however, that **three-fifths of the American population (58%) know only a little or nothing at all about what would actually happen at the place they would be.** Lack of this knowledge is even more prevalent among people who are Hispanic (79%) or live in New York City (70%). **A similar proportion (62%) know only a little or nothing at all about what would actually happen at the places where the people they care about would be.** Lack of this knowledge is even more prevalent among people who are Hispanic (79%) or African-American (71%).

The public's limited awareness of shelter-in-place plans is not surprising, considering the broad array of buildings the people in the survey said they would be in and the focus of current planning. The dirty bomb scenario takes place on a weekday afternoon when respondents say they would be at work sites, shops, malls, schools, day care centers, hospitals and clinics, cultural institutions, recreational and entertainment facilities, government buildings, apartment buildings, and transportation terminals. From what we have been able to find out, emergency planners for places like these are primarily concentrating on preventing attacks or evacuating people from an on-site fire or explosion. **We found very few examples of shelter-in-place or safe-haven planning.**

What else affects people's cooperation with instructions in the dirty bomb situation?

The survey links public cooperation in the dirty bomb situation to two other factors that planners can address: the American people's trust in official instructions and their confidence in their community's preparedness plans.

Looking at the population as a whole, we used multivariate logistic regression to look at the broad array of factors that could potentially influence whether people follow instructions to stay inside the building they are in for as long as they are told.

We found that full cooperation is *positively* correlated with:

- having a lot of trust in official instructions and actions (odds ratio = 2.1);
- knowing a great deal or a lot about what the managers of the place you are in would actually do to meet the needs of the people inside (odds ratio = 1.8);
- being female (odds ratio = 1.9); and
- living someplace other than New York City (odds ratio = 1.7).

Full cooperation is *negatively* correlated with:

- not being confident about preparedness plans (odds ratio = .43);
- earning more than a very low income (odds ratio = .38); and
- having children under the age of 14 (odds ratio = .66).

Taking the factors above into account, people's cooperation in the dirty bomb scenario is not significantly correlated with their cooperation in the smallpox scenario. It is also not significantly correlated with other sociodemographic factors (i.e., age, race/ethnicity, place of birth, education, household size, health insurance coverage); people's responses to other questions related to the dirty bomb scenario (i.e., their concerns about cancer, the environment, jobs and businesses, and compensation; their knowledge about what managers of the places where the people they care about are would do in this situation); or other constructs in our analysis (people's awareness of community preparedness plans, knowledge level, nonspecific worry, or salience of terrorist attacks).

Our analysis confirms a common assumption of planners that parents of young children are less likely to shelter in place than are other people. It also documents a lower level of cooperation among people who live in New York City. The comments of participants in the group discussions we held in New York City shed light on this finding. They frequently mentioned that many of the people who died in the collapse of the World Trade Center had been told to stay inside the building or to go back inside after they had left.

Although these and other sociodemographic factors are significant, the analysis demonstrates that **cooperation is strongly correlated with factors that planners can address directly**. It provides additional documentation of the importance of developing shelter-in-place plans in a broad array of community buildings and of making all of the people who use those buildings very aware of the plans. As with our findings in the smallpox situation, the analysis links people's cooperation with their trust in official instructions. In addition, it links cooperation levels in the dirty bomb situation to people's confidence in community preparedness plans.

Cooperation is significantly lower among people who *lack confidence* in their community's preparedness plans (8% of the American population). In the survey, these people say that (1) their community is not at all or only a little prepared to deal with the kinds of terrorist attacks discussed in the survey; (2) the people making plans to deal with terrorist attacks in their community know nothing at all or only a little about the concerns they would have and the information they would want in these sorts of situations; (3) they definitely would not or probably would not receive the help they need when they need it if a terrorist attack were to happen in their community; and/or (4) in the event of a smallpox outbreak, they definitely could not or probably could not get the vaccine in time to prevent them from getting smallpox.

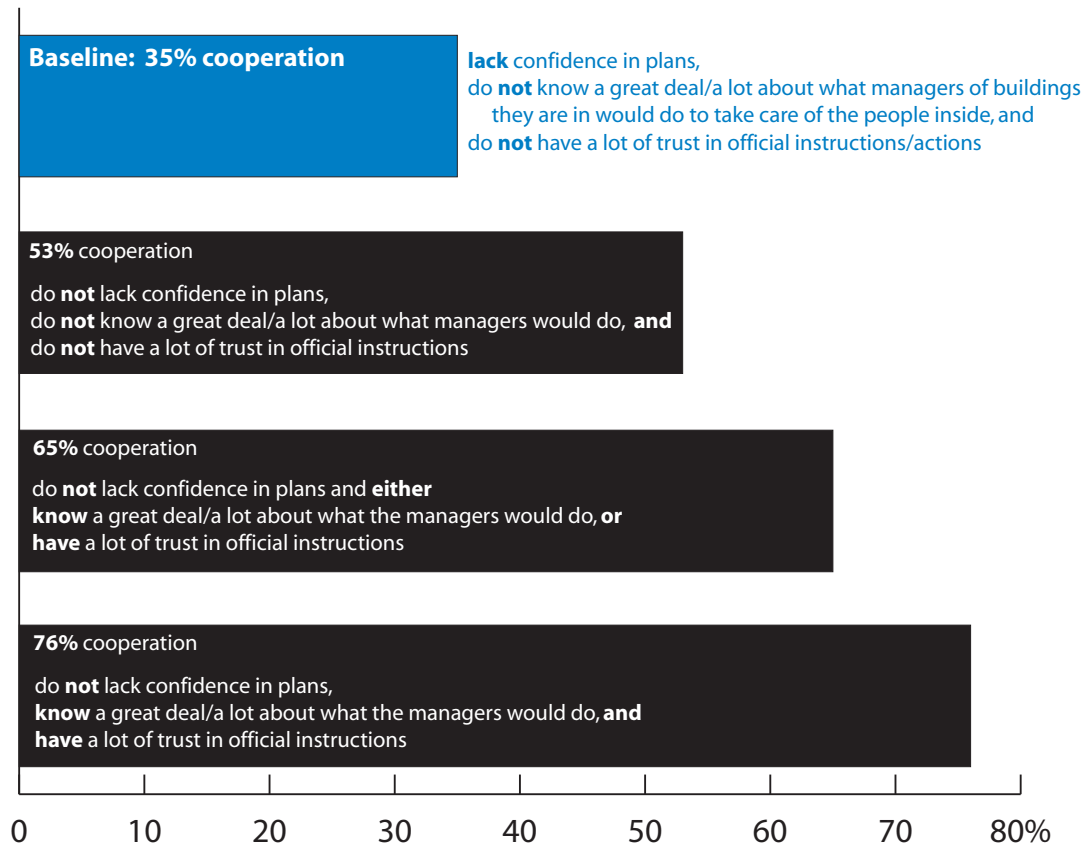
The public's full cooperation in the dirty bomb situation could be increased substantially by developing shelter-in-place plans in the places people frequently are in and making people very aware of those plans; by strengthening people's confidence in community preparedness plans; and by enhancing people's trust in official instructions and actions.

People can be defined as cooperating fully in the dirty bomb situation if they would stay inside the building they are in for as long as they are told. As **Figure 13** illustrates, cooperation is very low (35%) among people who **lack confidence** in community preparedness plans, do **not know a great deal or a lot** about what the managers of the building they are in would do to take care of the people inside, and **do not have a lot of trust** in official instructions and actions.

Cooperation is 51% higher (53%) among people who have the characteristics above but do *not* **lack confidence** in community preparedness plans.

Cooperation is 86% higher (65%) among people who do **not lack confidence** in community preparedness plans and *either* know a great deal or a lot about what the managers of the building they are in would do to provide them with shelter or have a lot of trust in official instructions and actions.

Figure 13 – Impact of Three Factors on the Public’s Cooperation in the Dirty Bomb Situation

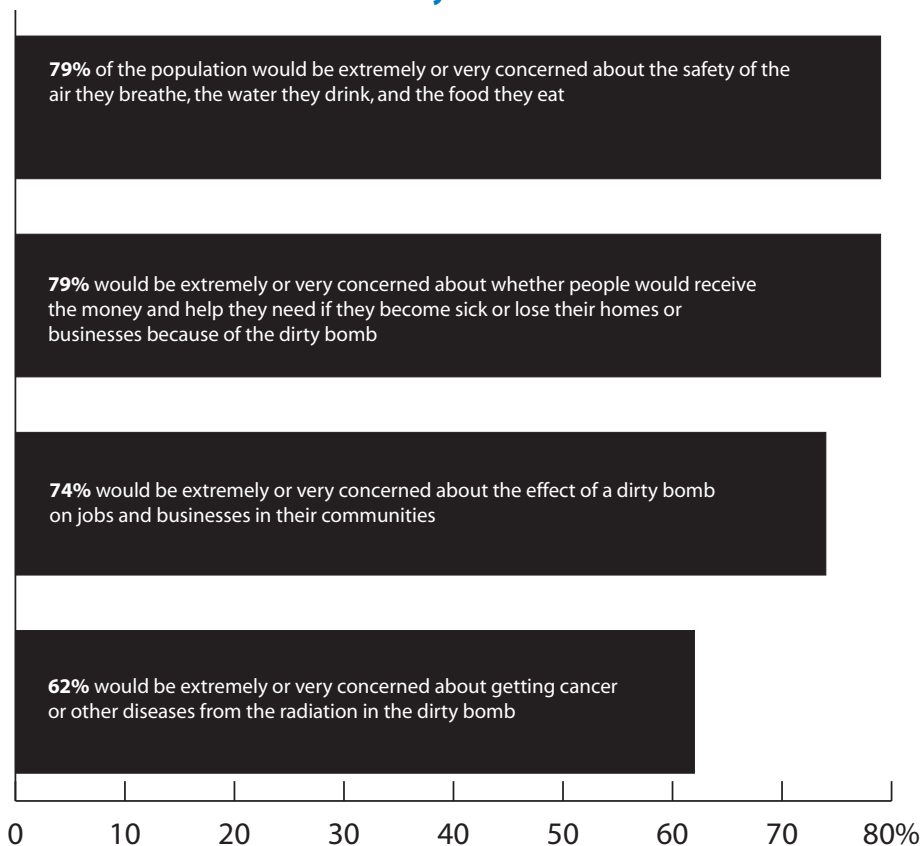


Cooperation is 117% higher (76%) among people who **do not lack confidence** in plans, **know a great deal or a lot** about what the managers of the building they are in would do, *and* **have a lot of trust** in official instructions and actions.

How concerned is the American public about the long-term consequences of a dirty bomb?

Currently, most of the planning for dirty bomb attacks focuses on the short-term impact of the explosion.⁵¹ Yet, as **Figure 14** illustrates, if a dirty bomb explosion were to occur, **three-quarters of the American people would be very concerned about the long-term consequences**. People would be **more concerned about environmental and economic issues than about health issues**. This finding suggests that communities may face serious and unanticipated consequences if long-term issues are not adequately addressed in the plans that are being developed.

Figure 14 – Concerns About Long-Term Consequences in the Dirty Bomb Situation



What would dirty bomb plans look like if they incorporated the public's perspectives?

Dirty bomb explosions have been the focus of well-publicized exercises, like TOPOFF 2. To prepare the public to protect themselves in such a situation, planners have been conducting education campaigns that instruct people to assemble three days of supplies in their home and to take shelter in the nearest undamaged building if an explosion occurs when they are not at home. These campaigns may explain, at least in part, why 59% of the American people say they would stay inside the building they are in for as long as they are told in a dirty bomb situation.

But 41% of the population would either not follow such instructions or be unsure about what to do, and our study suggests that public education alone will not be sufficient to obtain their full cooperation. Many people are likely to be in places other than their home when a dirty bomb explosion occurs. As we have learned, very few people know how they, or the people they love, would actually be cared for if they had to stay in those places — most likely because few places have prepared to function as safe havens in the event of an emergency or, if they have prepared, the public has not been informed of these preparations. Even when people are aware of such plans, it doesn't mean they are confident that the people at the site would be provided with adequate shelter. Compounding the problem, members of many families are likely to be in different locations when an explosion occurs. If telephone service fails, those who stay inside a building will not be able to find out whether other family members are safe or not.

Below, we illustrate what plans to deal with a dirty bomb explosion would look like if these issues were taken into account. The steps we lay out, which would need to be taken well **before** an attack occurred, would make sheltering in place a feasible option for a greater proportion of the American people, and would begin to address the public's serious concerns about the long-term consequences of a dirty bomb explosion. Some of the strategies in the plan are applicable to other situations where sheltering in place would provide safety (for example, when people are at work and cannot get home in a blackout) or where long-term environmental consequences are an issue (the malfunction of a nuclear reactor, for instance).

Dirty Bomb Planning Through the Eyes of the Public

Steps that Would Make Sheltering in Place Feasible for More People

(1) Promote widespread awareness of, and confidence in, the way the managers of the buildings people are frequently in (and the buildings the people they care about are frequently in) would handle a shelter-in-place emergency.

- A broad array of places fall into this category, including work sites, shops, malls, schools, day care centers, hospitals and clinics, cultural institutions, recreational and entertainment facilities, government buildings, apartment buildings, and transportation terminals. Managers of such places need to recognize that **their sites may have to function as safe havens** in the event of a dirty bomb explosion (or other emergencies, such as a blackout) and that it is as important to make plans to serve as a safe haven as to be able to evacuate people in the event of a fire or an explosion.
- To give people confidence in shelter-in-place plans, the managers of such places need to **work with the kinds of people who are frequently at their sites** (including the parents of children who attend schools and day care centers) **to develop strategies for keeping the people inside fed and safe for several days** in the event of a shelter-in-place emergency. **Information about such plans needs to be broadly disseminated** among everyone who is frequently in (or responsible for people in) each site, with special attention to people who are African-American, Hispanic, have young children, and live in New York City.

(2) Address the public's communications issues by working to develop back-up systems that will maintain general telephone and e-mail service in the event of a large-scale emergency.

(3) **Meaningfully involve a broad array of community residents in other kinds of community preparedness planning** so they will be **confident** that planners know a lot about their concerns and information needs, that they and their family members would receive the help they need when they need it, and that their community is well prepared to deal with a terrorist attack.

(4) **Build people's trust in what government officials would say and do in these situations.** In New York City, this involves explicitly addressing what happened at the World Trade Center on 9/11 and taking steps to assure that, **in the future, officials have accurate information about the stability of buildings so they do *not* inadvertently instruct people to stay or return to a building that is in danger of collapsing.**

Steps to Deal with the Long-Term Consequences of a Dirty Bomb

(1) **Engage the general public in frank discussions about the potential environmental, economic, and health consequences of a dirty bomb.** Develop, and inform the public about, decontamination and other plans to effectively address issues related to:

- air, water, and food safety;
- jobs and businesses;
- long-term health effects; and
- compensation for people who become sick or lose their home or business as a result of a dirty bomb.

PUBLIC PERCEPTIONS ABOUT TERRORISM PREPAREDNESS PLANNING

The public's safety in terrorist attack situations like a smallpox outbreak or a dirty bomb explosion depends on much more than what individuals or households can do on their own. The plans that government agencies and private-sector organizations develop and the actions they take will largely determine how well the public is protected. As we have documented in the study findings presented thus far, the American people have a lot to contribute to community and organizational preparedness planning. They are the only ones who really know the difficult decisions that community residents would face in these kinds of situations and the conflicts and barriers that would prevent them from following official instructions. Their insights can help planners identify strategies that will enable the greatest possible number of people to engage in protective behaviors.

Since the American public has had little or no role in helping government agencies and private-sector organizations develop terrorism preparedness plans, the survey included questions that explore people's thoughts about current preparedness plans and their interest in participating in community or organizational planning. While some of our findings corroborate observations made in other studies, most of what we report is new information.^{17, 52}

How much do the American people currently know about terrorism preparedness plans in their communities?

The Redefining Readiness Study documents that **very few people in the United States (only 3% of the population) know much about plans that are being developed by government agencies or other community organizations to deal with situations like a smallpox outbreak or the explosion of a dirty bomb.** Three-quarters of the population (74%) say they are not aware of any plans. Only 3% say they know a great deal or a lot about such plans. People who are Hispanic or under 40 are even less likely to have this level of awareness.

What are the American public's views about current planning activities?

Our study paints a mostly discouraging picture about people's perceptions about current planning activities.

- Half of the American people (55%) say **their community is not at all or only a little prepared** to deal with the kinds of terrorist attacks addressed in the survey. Only 11% think their community is extremely or very prepared.
- Not being prepared matters because **61%** of the population believe that the **harm caused by a terrorist attack in their community could be reduced a great deal or a lot by preparing ahead of time** to deal with the effects.
- Two-fifths of the American people (44%) think that **planners know nothing at all or only a little about the concerns they would have and the information they would want** in these sorts of situations.
- Two-fifths of the population (41%) believe that **people like them can have no influence or only a little influence on the plans** that government agencies or other community organizations are developing to deal with possible terrorist attacks.
- Half of the American people (47%) are **not confident that they and the people they care about would receive the help they need when they need it**. One-fifth (12%) say that they and the people they care about definitely would not or probably would not receive the help they need when they need it. An additional 35% think they might or might not get that help.

How interested is the American public in preparedness planning activities?

An important finding of our study is the documentation that a **large proportion of the American people are interested in community-level planning — not just in learning more about plans, but in being actively involved in developing plans.**

- Half of the population (47%) say they are **extremely or very interested in learning more about the plans** that government agencies or other community organizations currently have to deal with the kinds of situations covered in the survey (77% are moderately to extremely interested in learning more).
- Three-fifths of the population (62%) believe it is **extremely or very important for people like them to work with government agencies or other community organizations to develop plans** to deal with these kinds of situations (84% of the population believe this is moderately to extremely important).
- One-third of the American people (34%) say they are extremely or very interested in *personally helping a government agency or community organization develop plans* to deal with these kinds of situations (65% are moderately to extremely interested in being personally involved).

What makes people extremely or very interested in personally helping to develop community and organizational plans?

Salience is clearly important, but so are other factors.

We used multivariate logistic regression to look at the broad range of factors that could potentially influence whether people are extremely or very interested in personally helping to develop community and organizational plans.

We found that strong personal interest in participating in planning is *positively* correlated with:

- finding terrorist attacks to be very salient (odds ratio = 3.7);
- believing that you can have a great deal or a lot of influence on plans (odds ratio = 2.7);
- believing that preparing ahead of time can reduce harms a great deal or a lot (odds ratio = 1.9); and
- having attended college (odds ratio = 1.5).

Strong personal interest in participating in planning is *negatively* correlated with:

- finding terrorist attacks not to be salient (odds ratio = .42); and
- having a very high income (odds ratio = .32).

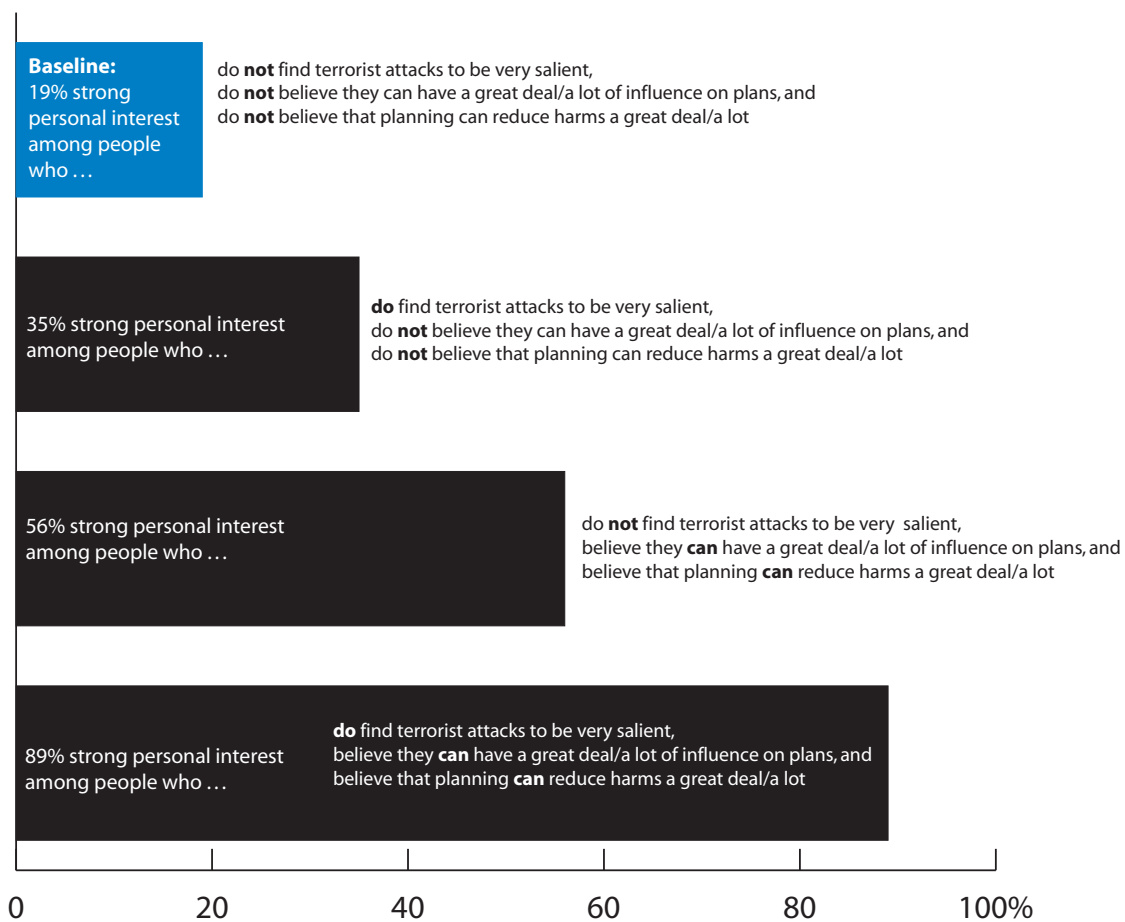
Taking the factors above into account, being extremely or very interested in personally helping to develop plans is *not* significantly correlated with other sociodemographic factors (age, gender, race/ethnicity, place of birth, children, household size, health insurance coverage); where people live (i.e., in New York City, Washington, D.C., or the rest of the continental United States); their cooperation in the smallpox and dirty bomb scenarios; or other constructs in our analysis (people's awareness of plans; confidence in plans; knowledge level, or trust in official instructions and actions).

It is to be expected that people's strong personal interest in developing terrorism preparedness plans is linked to how salient they find terrorist attacks to be. Overall, only 4% of the American population find terrorist attacks to be very salient. In the survey, these people say they have thought about the possibility of a future terrorist attack a great deal or a lot during the last two months and think it is extremely or very likely that a terrorist attack will happen somewhere in their community during the next 10 years. Terrorist attacks are considerably more likely to be very salient to people who live in Washington, D.C. (19%), New York City (15%), or who are African-American (8%).

Salience is not the only factor linked to high levels of personal interest, however. While the proportion of people who are extremely or very interested in personally helping to develop plans is particularly high in New York City (44%) and Washington, D.C. (40%), over a third of the population in the rest of the country (34%) express this level of personal interest. **Our analysis documents the other factors that are linked to strong personal interest:** (1) believing that you can have a great deal or a lot of influence on plans (i.e., that if you devote your time to community or organizational planning, it will make a difference); (2) believing that preparing ahead of time can reduce harms a great deal or a lot (i.e., that you and other people in the community will be better off because of your efforts); and (3) education and income levels.

By assuring community residents an influential role in planning and by focusing their involvement on reducing the harms they care a lot about, planners could boost strong personal interest in helping government agencies and community organizations develop plans to 56% among people for whom terrorist attacks are not salient, and to 89% among people for whom terrorist attacks are salient.

Figure 15 – Factors Associated with Strong Personal Interest in Community and Organizational Planning



As **Figure 15** illustrates, only 19% of the people who do **not** believe that they can have much influence on plans, do **not** believe that planning can have much impact on reducing harms, and do **not** find terrorist attacks to be salient are extremely or very interested in personally helping government agencies or other community organizations to develop

terrorism preparedness plans. The low level of interest in this baseline group is not surprising since there is not much motivating people with these beliefs to invest their time and energy in planning.

Salience alone is *not* associated with a significantly greater interest in participating in planning. 35% of people for whom terrorist attacks are salient, but who otherwise share the characteristics described above are extremely or very interested in personally helping to develop plans. This proportion is not significantly different than the baseline value.

Among people who believe that that they **can have a lot of influence on plans** and that **preparing ahead of time can reduce harms a lot**, strong personal interest in participating in planning is **threefold greater** than baseline, even among people for whom terrorist attacks are not salient. This finding suggests that a process that assures people meaningful influence in planning and that focuses on reducing the harms that people care about a lot could boost interest in planning to 56% among the people for whom terrorist attacks are not very salient.

Almost everyone for whom terrorist attacks are **salient** and who believe that **planning can reduce harms a lot** and that they **can have a lot of influence on plans** are extremely or very interested in personally helping to develop plans. The interest level in this group is **over four times greater** than baseline. This finding suggests that a process that assures community residents meaningful influence in planning and that focuses on reducing the harms that people care about a lot could increase interest to 89% among the people for whom terrorist attacks are salient.

How should the American public be involved in future planning efforts?

Considering what is at stake if the nation's terrorism preparedness plans are based on misconceptions about the public, planners are very fortunate that the public is so interested in participating in community and organizational planning efforts. As the Redefining Readiness Study demonstrates, when the American people have an opportunity to speak for themselves, planners no longer have to guess about their concerns or behavior. By incorporating the public's insights in plans, planners can develop more behaviorally realistic approaches for dealing with emergency situations and, as a result, protect many more people than would otherwise be possible.

Giving the American people a meaningful voice in planning is also a way to enhance their cooperation with protective instructions in emergency situations. Our study shows that people are more likely to follow such instructions when they have a lot of trust in what officials tell them to do and are confident that their community is prepared to meet their needs if a terrorist attack occurs. Currently, people's trust and confidence levels are disturbingly low. **But elected officials, government agencies, and private sector organizations have a *unique opportunity* to build the public's trust, confidence, and cooperation by involving the public directly in planning.** When community residents are part of the planning process, they can be more confident that planners are actually aware of their concerns. When community residents play a role in developing protective strategies, they can be more trusting of officials who instruct them to follow those strategies.

In our conversations with planners, some were concerned that involvement in terrorism preparedness planning would be frightening to the public. Consistent with the work of other investigators, we did *not* find that to be the case.⁵³⁻⁵⁴ As we learned in the group discussions we held with community residents around the country, people are already thinking about the possibilities of terrorist attacks. Although the participants in the group discussions thought the smallpox and dirty bomb scenarios were very realistic, **they were not frightened by talking about these situations.** Quite the contrary, many appeared to be empowered by having an opportunity to think about these situations and discuss the issues that would matter to them most.

Many of the planners we spoke with wanted to know *how* to engage the public in terrorism preparedness planning. Our study demonstrates that **in order to make participation in planning worthwhile to community residents, the process needs to assure them considerable influence in planning and needs to focus their involvement on identifying and addressing the issues that they care about a lot.** As others have emphasized, to conduct such a process planners need to approach the public as peers with valuable knowledge to offer.^{20,55} They need to find out how community residents think about emergency situations rather than what they think about plans that have already been developed.^{2,16,56} Equally important, planners need to expect that public involvement will make plans different — and better — than they would have been otherwise.⁵⁴

We recognize from our conversations with planners that this kind of inclusive process would entail a substantial change in the way many planners currently go about their work, and that there are a variety of barriers that currently make it difficult for planners to move in this direction.^{9,57-59} Nonetheless, **the stakes are too high to continue the *status quo***. The safety and protection of the American people depend on having plans based on accurate information about their concerns and behavior, and the only way to obtain that information is to ask the American people themselves.

The Redefining Readiness Study provides planners in government agencies and private-sector organizations with **reliable information from the public** that they can use to assess and strengthen their plans to deal with smallpox, dirty bombs, and related situations. **Planners will have to work with community residents directly**, however, to develop plans that can respond effectively to other kinds of terrorist attack and emergency situations and to make needed headway in building the public's trust. To provide planners will practical models for engaging the public in these kinds of activities, **our next step will be to support planning processes in selected sites around the country** that demonstrate exactly how community residents can be meaningfully and feasibly engaged. The kinds of scenarios and group discussions that were developed for this study will lay a strong foundation for those endeavors.

Study Methods

This report of the Redefining Readiness Study is based on information obtained from multiple sources: group discussions with community residents around the country; conversations with government and private-sector planners; a review of the planning and survey literature; and a national telephone survey. Below, we describe these data sources and the methods that were used to analyze the survey data.

Group Discussions with Community Residents

From late August through early October 2003, we engaged community residents around the country in 14 group discussions. The purpose of these discussions was to lay the foundation for the telephone survey by identifying language and a frame of reference for thinking about terrorism preparedness planning that is meaningful to a broad array of people and that allows them to contribute their perspectives in a constructive way.

The discussions were carefully structured to avoid limiting or predetermining what people thought. Since it is very difficult for people to talk about terrorist attacks or planning in the abstract, most of the discussions were grounded in two specific and realistic situations: a smallpox outbreak and the explosion of a dirty bomb. We found that only by placing people within such situations could we obtain meaningful information about what they would think about and do and what they believe others would need to do to minimize the harms that they and the people they care about might experience.

The discussion guides went through extensive pilot testing and revision before they were fielded. The New York Academy of Medicine Institutional Review Board reviewed and approved the discussion guide, the post-discussion participant questionnaire, and the financial incentive for participants. Informed consent was obtained from all participants prior to the start of the group discussions. All discussions were audiotaped and transcribed.

To make sure we would hear a broad range of perspectives, we conducted discussions in urban, suburban, and rural communities; communities that do and do not routinely experience natural disasters; and communities that had and had not directly experienced the 9/11 attacks. Participants involved men

and women spanning a broad age range, living in households with and without children, and encompassing diverse racial, ethnic, socioeconomic, educational, and occupational backgrounds. Some discussions intentionally involved people from a single racial or ethnic group, and a Spanish translator participated in all of the discussions with Hispanic residents. The sites and populations for the discussions are listed below.

- Cerro Gordo County, IA (general population including farmers)
- Chicago, IL (general population including commuters)
- District of Columbia (African-American and other Black population)
- Lubbock, TX (general population, including ranchers and farmers)
- Miami, FL (Cuban, other Hispanic, and general population)
- New York City, NY (general non-Hispanic population)
- New York City, NY (Puerto Rican, Dominican, and other Hispanic population)
- Prince William, VA (general population, including commuters)
- San Jose, CA (general non-Hispanic population)
- San Jose, CA (Mexican and other Hispanic population)
- Savannah, GA (Caucasian population)
- Savannah, GA (African-American population)
- Seattle, WA (Asian and other multicultural population)
- Seattle, WA (suburban and commuter population)

To reduce the potential for bias, we made considerable effort to recruit participants who had never participated in a focus group, and we did not tell the people who were recruited what the topic would be beforehand. When community residents found out about the topic when they arrived for the discussions, they were very interested and eager to participate even though they would have received the same financial incentive

whether they did or not. We found that the scenarios were realistic to participants, but as documented in the post-discussion questionnaire, engaging in this type of discussion was not a frightening experience for them. Quite the contrary, participants appeared to be very energized by the discussions — there was a lot they wanted to say and many people continued the discussions on their own after the formal activity had concluded.

Conversations with Planners

In September and October 2003, we engaged in confidential telephone conversations with government and private-sector planners in four representative communities around the country. (To protect confidentiality, we cannot identify the specific communities.) The sites we selected included urban, suburban, and rural communities located in the Northwest, Midwest, Atlantic, and Southeast regions of the United States. To learn about terrorism preparedness planning in each site, we spoke with the people who are responsible for community-wide emergency preparedness, state and local planning funded by federal terrorism preparedness grants, emergency planning for the local school district(s), and emergency planning for a major community employer.

A key objective of these discussions was to identify the critical assumptions about the public on which current plans are based as well as the specific questions about public perspectives and behavior that local planners have. The conversations focused on the same smallpox and dirty bomb scenarios as did the group discussions with the general public. The scenarios were modified slightly, however, so that each type of planner was put in each situation at a place and time that they would be likely to find out about it and need to decide what to do. The conversations explored the plausibility of each scenario, how the planners would be likely to respond, what they thought the public would be concerned about and want to know, what they would want the public to do, and what they thought the public would actually do. The conversations also explored each planner's experience with, and ideas about, engaging the public in terrorism preparedness planning. To supplement what we learned in these conversations, we also spoke with key informants in federal agencies, national associations, and academic institutions involved in terrorism preparedness planning.

Literature Review

For more than a year, beginning in June 2003, we conducted an extensive review of published literature, web sites, and surveys related to terrorism preparedness planning. The purpose of this review was to find out as much as possible about (1) the actual plans that are being developed to deal with smallpox and dirty bomb attacks in the United States; (2) how planners are communicating with the public, including the specific information about smallpox, dirty bombs, and terrorism preparedness planning that is available, or actively being provided, to the public; (3) the nature and extent of public involvement in terrorism preparedness planning; (4) what is known about human behavior in emergency situations; and (5) the particular questions that the public has been asked about smallpox, dirty bombs, and terrorism preparedness in national and local surveys and public opinion polls. This review indicated that most of the issues raised by the community residents in the group discussions we held around the country, and subsequently explored in our national telephone survey, have *not* been covered in previous surveys and public opinion polls. A list of the sources we reviewed can be accessed at www.cacsh.org.

National Telephone Survey

The quantitative information in this report comes from a telephone survey of 2,545 randomly selected adult residents of households in the continental United States. Below we discuss the development of the survey questionnaire, sample design and survey implementation, and data analysis.

Development of the Survey Questionnaire

The 25-minute telephone questionnaire used in the survey is presented in the Appendix to this report. The language, frame of reference, content, and scenarios in the questionnaire are based on the group discussions with the community residents, conversations with planners, and literature review described above. Most of the questions in the survey used a five-point scale. We conducted three rounds of cognitive interviews to assure that the questionnaire would be clear, relevant, and interpreted uniformly among people of different racial, ethnic, socioeconomic, educational, and geographic backgrounds. The first round of interviews was conducted face-to-face, using “think-aloud” techniques. The second and third rounds of interviews were conducted over the telephone, using specific probes.

The survey was translated into Spanish by a team of experts who speak different dialects. The Spanish questionnaire was then refined based on what we learned from cognitive interviews with people from different Spanish-speaking countries and different educational backgrounds and from back-translating the questionnaire into English. Critical language issues were identified through this process. For example, we found that the terms for smallpox and chickenpox are identical in some Spanish-speaking countries and that a commonly used translation of “investigational drug” connotes an illicit drug for some Spanish speakers. These issues were addressed in the final version of the Spanish questionnaire.

Sample Design and Survey Implementation

The survey was fielded by the Survey Research Center at the Institute for Social Research at the University of Michigan (SRC). The sample population for the survey included adults, 18 years of age and older, who reside in households in the continental United States served by standard land-line telephone service. An adult household member was randomly selected as the respondent.

The sample was selected using a list-assisted random digit dialing (RDD) sample design.⁶⁰ The telephone numbers were drawn from a national frame developed and maintained by Genesys Sampling Systems. To capture perspectives that might otherwise be under-represented, the survey oversampled African Americans and people in the cities that were directly affected by the 9/11 attacks (New York City and Washington, D.C.) To achieve these oversampling goals, we used a sample design involving four strata: the five boroughs of New York City; the District of Columbia; areas in the remainder of the United States in which 25% or more of household telephone service customers are expected to be African-American; and areas in the remainder of the United States in which less than 25% of household telephone service customers are expected to be African-American. Differential sampling rates were used in each of the four strata to achieve the completed interview targets for the subpopulations.

SRC’s intensively trained telephone interviewing staff conducted computer-assisted telephone interviews between January 19, 2003 and June 3, 2004. The sample was released for interviewing in replicates. Each sample RDD telephone number was dialed until contact with a household member was made or a nonsample disposition was determined (e.g., nonworking number, business or nonhousehold number). Up to 12

contact attempts were made with each telephone number, using a call grid that distributed contact attempts over days of the week, times of day, and weeks of the field period. In the final month of the field period, SRC sampling statisticians implemented a two-phase subsampling of outstanding no contact and resistant cases.⁶¹⁻⁶² This strategy enabled interviewers to focus their efforts on a random subsample of outstanding cases, improving the final representation of the sample and yielding better data quality for the final hard-to-reach and hard-to-interview cases.

A total of 2,545 interviews were completed during the field period. This total includes 392 interviews in New York City, 526 interviews in Washington, D.C., and 1,627 interviews in the rest of the country. Six hundred and fifty-eight of the respondents were African Americans. To control for question-order effects, each respondent was randomly assigned one of two forms of the survey, which differed from each other in the order in which response categories were presented. Final analysis weights were constructed to adjust for sample selection probability, stratum-specific nonresponse, and small differences in demographics between the final sample in each stratum and corresponding estimates from 3-year averages (2001–2003) of the March Supplement of the Current Population Survey, a large annual survey undertaken by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.

Final cooperation and response rates for the sample were computed using the American Association of Public Opinion Research guidelines.⁶³ The respondent-level cooperation rate (Cooperation Rate 3) for the combined sample is 96.5%. The AAPOR RR3 response rate for the combined sample is 50.7%. This is an excellent response rate, especially considering the decline in telephone survey response rates in the last 10 years.⁶⁴ In recent analyses of RDD surveys, the mean response rate has been 46% for government surveys and 12% for surveys in the commercial sector.⁶⁵⁻⁶⁶ In New York City and Washington, D.C., response rates have been much lower than for the nation as a whole.⁶⁷

The Institutional Review Boards at The New York Academy of Medicine and the University of Michigan reviewed and approved the survey questionnaire, interviewer introduction scripts, respondent pre-notification letters, interviewer answering machine scripts, and refusal conversion protocols. In the debriefing section of the survey, all respondents were asked about their emotional state and were offered two options for talking to a counselor: a toll-free number they could call or having a counselor call them.

Fewer than 1% of respondents requested the number for the counselor and none called.

Data Analysis

The weighted national responses for all of the questions in the survey are presented in the Appendix. In the analyses presented in this report, we adjusted for the study's stratified sampling design using the survey procedures in Stata 8.0. These procedures adjust estimates of means, logistic analysis odds ratios, and standard errors to reflect both the stratified sample and the weighting adjustments. We used F-tests, adjusted for sample design, to assess the statistical significance of estimated differences. Unless otherwise noted, all comparisons presented in the report are significantly different at the 95% confidence level.

Most survey responses used a 5-point scale. For many of the analyses, we dichotomized responses, comparing respondents who gave the highest two answers (usually "extremely" and "very") to those who gave the other three responses. For some analyses, we developed constructs using predetermined definitions that combined responses to several questions. When developing constructs, we coded as missing those cases where respondents failed to answer any of the constituent questions. Even in the case with the most missing observations, fewer than 7% had missing values. Omitting this construct in multivariate analyses had no substantive effect on any other results. Construct definitions are presented below.

Construct Definitions

- Cooperation with protective instructions
 - Cooperation in the smallpox scenario: respond "rush or go later" to Q7
 - Cooperation in the dirty bomb scenario: respond "stay inside" to Q25 and "yes; would stay as long as authorities say" to Q25a
- Nonspecific worry
 - Nonspecific worrier: respond "extremely or very worried" to Q8, Q9, Q10, Q18, Q28, Q29, Q30, and Q31
 - Nonworrier: respond "not at all or slightly worried" to Q8, Q9, Q10, Q18, Q28, Q29, Q30, and Q31

- Trust in official instructions and actions
 - A lot of trust: respond “not at all or slightly worried” to Q 11 and “no or slight chance” to Q20
 - Lack of trust: respond “extremely or very worried” to Q11 and “very or high chance” to Q20
- Confidence in plans
 - A lot of confidence: respond in the following way to at least 3 of the following questions: “definitely or probably could” to Q16; “a great deal or a lot” to Q34; “definitely or probably would” to Q35; “extremely or very prepared” to Q36.
 - Lack of confidence: “definitely or probably could not” to Q16; “nothing at all or a little” to Q34; “definitely or probably would not” to Q35; “not at all or a little prepared” to Q36.
- Salience of terrorist attacks
 - Very salient: respond “a great deal or a lot” to Q3 and “extremely or very likely” to Q41
 - Not salient: respond “not at all or a little” to Q3 and “not at all or slightly likely” to Q41
- Awareness of plans
 - Very aware: respond “a great deal or a lot” to Q26, Q27, and Q32a
 - Not aware: respond “nothing at all or a little” to Q26, Q27, and Q32a; or respond “nothing at all or a little” to Q26 and Q27 and “am not aware” to Q32
- Knowledge level
 - Well-informed: respond “Yes, did know it” to at least 5 of the following questions: Q4, Q5, Q6, Q22, Q23, Q24
 - Uninformed: respond “No, did not know it” to at least 5 of the following questions: Q4, Q5, Q6, Q22, Q23, Q24

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