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TECHNICAL
REPORT

Initial Evaluation of the Cities Readiness Initiative

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RAND HEALTH

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PREFACE

Over the past decade, concern about the threat of bioterrorism, pandemics, and other large-scale natural disasters has spurred large federal investments in state and local response capabilities. Despite this, little is known about the effectiveness of such investments in improving readiness.

To begin addressing this knowledge gap, the Centers for Disease Control and Prevention (CDC) asked the RAND Corporation to provide an initial evaluation of the Cities Readiness Initiative (CRI). Since 2004, CRI has expended some $300 million to improve the ability of the nation's largest metropolitan regions to provide life-saving medications in the event of a large-scale bioterrorist attack or naturally occurring disease outbreak.

The study found that the program, with its clear focus on a single scenario, along with performance assessments and technical assistance, has taken important steps toward improving participating regions' readiness to dispense medications on a large scale. This report presents the results of that study and also provides recommendations about using newly emerging data sources to conduct a more thorough evaluation in the future, including an assessment of whether these achievements are worth the investment.

This report should be of interest to those seeking to understand the operations of public health preparedness and homeland security programs, as well as to those interested in developing feasible approaches to evaluating these programs' effectiveness. The study was carried out between the spring of 2007 and the spring of 2008 within the RAND Health Center for Domestic and International Health Security. RAND Health is a division of the RAND Corporation. A profile of the center, abstracts of its publications, and ordering information can be found at http://www.rand.org/health/centers/healthsecurity.

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SUMMARY

In 2004, the U.S. Department of Health and Human Services (HHS) created the Cities Readiness Initiative (CRI) as part of the Cooperative Agreement on Public Health Emergency Preparedness (PHEP) to help the nation's largest metropolitan regions develop the ability to provide life-saving medications in the event of a large-scale bioterrorist attack or naturally occurring disease outbreak. Administered by the Centers for Disease Control and Prevention's (CDC's) Division of Strategic National Stockpile (DSNS), CRI seeks to help awardees respond to a large-scale anthrax attack or other large-scale public health emergency by providing antibiotics and other life-saving medical supplies to 100 percent of a planning jurisdiction's population within a 48-hour time frame. The program currently includes 72 metropolitan regions and covers an estimated 57 percent of the U.S. population.

In the spring of 2007, CDC asked the RAND Corporation to provide an initial external, independent evaluation of CRI to determine whether the program has led to discernible improvements in awardees' readiness to conduct mass medical countermeasure dispensing[1] above and beyond what would have occurred in the absence of the program. The evaluation is considered *initial* because not enough time has passed to expect the impacts of CRI to be fully observable in all sites and because the data sets required to support evaluation activities are still being developed. To conduct the evaluation, we drew upon available empirical evidence, including Technical Assistance Review (TAR) data, a CDC-administered assessment that focuses on jurisdictions' capabilities in 12 core functional areas associated with countermeasure distribution and dispensing. We also collected primary data through discussions with personnel involved with countermeasure dispensing in nine metropolitan areas.

CRI HAS IMPROVED READINESS FOR MASS COUNTERMEASURE DISPENSING

Based on this initial examination, CRI appears to have improved regions' readiness to rapidly dispense lifesaving medications and other medical supplies on a large scale. Specifically, CRI has enabled awardees to

- increase the number of staff working on countermeasure dispensing, either by hiring new staff or by freeing up existing staff

[1] CDC refers to the process of providing medical countermeasures to individuals as *dispensing*. Alternatively, Homeland Security Presidential Directive 21 (2007) refers to this process as *distribution*.

- strengthen key partnerships with other responders with key roles in countermeasure dispensing, including law enforcement, fire, and emergency management
- develop more detailed countermeasure dispensing plans, especially with regard to the critical last step of dispensing life-saving medications and other materials to patients
- adopt more streamlined dispensing models that rely less on medically trained staff (likely to be in short supply) and that take advantage of nontraditional venues and partners
- purchase needed equipment and supplies (e.g., mobile dispensing units, communication equipment)
- engage in key planning activities (e.g., security assessments), training, and exercises.

CRI's Funding, Clear Focus, and Accountability Requirements Are Important Drivers

The CRI program's clear focus on a single scenario, along with the specific targets set out in the TAR, are among the most important mechanisms by which CRI has produced improvements in countermeasure dispensing readiness in the cases we examined. For instance, the scenario has helped awardees prioritize resource allocation and reach out to key partners.

The program's effectiveness appears to depend on a number of factors. CRI sites that have less developed plans and planning processes appear to respond more favorably to the program's scenario focus and goals. It also appears that CRI sites located in decentralized public health systems face additional challenges in developing relationships with other local first responders, often simply because these systems tend to have larger numbers of jurisdictions. In addition, CRI's efforts to improve relationships among response partners within regions seem to have been more successful than efforts to improve state-local relationships, which, in some cases, were subject to preexisting and long-standing tensions and conflicts. In nearly every region studied, the efforts, skills, and working styles of individuals affected how well CRI goals were met.

CRI Impacts on Other Programs and on Operational Capabilities Could Not Be Assessed

CRI may also have affected other aspects of PHEP that could not be evaluated systematically in this study. First, there might be spillover CRI impacts on other areas of PHEP, nonemergency areas of public health, and public health systems not participating in CRI. However, limitations in the sample of health departments made this difficult to assess. Second, while CRI is designed to improve awardees' ability to *implement* their mass dispensing plans in emergency conditions, there is little available evidence on which to base an assessment. While operational exercises provide a

potential source of data, the lack of standardized performance metrics and standards limits our ability to use exercises to evaluate operational capabilities.

THERE IS MERIT IN CONTINUING THE CRI PROGRAM

Given the improvements that CRI appears to have brought about in staffing, equipment, planning, partnerships, and dispensing strategies, there is merit in continuing the program. However, a decision to continue the program needs to be accompanied by steps to build on the program's existing strengths and to ensure the use of measurement and evaluation tools that allow effective program monitoring going forward.

Reassess the impact and renewal of the program after two to three years. After another two to three years of continued investment, future evaluation efforts should confirm whether CRI awardees have continued to build the relevant capacities and capabilities and should consider whether the program's goals should be revised (e.g., to focus on a different planning function, emphasize sustaining rather than creating readiness, or include other metropolitan regions in the program).

Continue development of systems for measurement and evaluation. Although the measurement tools already developed by the Division of Strategic National Stockpile (SNS) and CRI programs provide a solid foundation, better tools for evaluation and measurement are required to support a robust reevaluation of the program and continuous program improvement. In particular, promising opportunities include the following:

- *Developing finer-grained budget data:* Doing so would allow evaluators to assess the impact of CRI and other programs on key spending priorities and should consider collecting data on actual expenditures. This would include continuing efforts to improve archiving of data from the plan-based assessment already in place (the TAR).
- *Continuing to roll out standard, drill-based metrics:* These tools provide a means of assessing key operational capabilities. In addition, opportunities exist to further explore the use of alternative means of measuring operational capabilities, including computer-based simulation models.
- *Comparing the costs and benefits of the CRI program:* In addition to evaluating impact, it is prudent to consider whether the achievements of the CRI program justify the investments made to produce them. Future evaluations could be extended to include assessments of public health risks, risk reduction, and the cost-effectiveness of public health programs.

Continue improvements in technical assistance and assessment. Awardee satisfaction with CRI's technical assistance varies considerably. At several sites, we heard concerns about the impacts of frequent changes in consultants. CDC officials point to efforts currently under way to continuously improve training for these consultants, and these efforts seem worth continuing.

In addition, attention should be paid to ensuring the ability of the relevant state health department to provide assistance to local health departments in meeting CRI goals. Agreements between CDC, state, and local participants might be needed on such issues as the division of CRI-related tasks, priorities in furtherance of CRI planning, norms of communication between federal, state, and local officials, and so on.

Finally, a certain degree of flexibility in TAR scoring seems warranted, given the wide variation in state and local public health systems, relationships with other first responders, and threat profiles. Flexibility might also allow jurisdictions to address the challenges of declining funding levels for PHEP and might be especially warranted for awardees that have demonstrated strong performance in past assessments.

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ABBREVIATIONS

AAR	after-action report
BERM	Bioterrorism and Epidemic Outbreak Response Model
CDC	Centers for Disease Control and Prevention
CRI	Cities Readiness Initiative
DSLR	Division of State and Local Readiness
DSNS	Division of Strategic National Stockpile
GIS	geographic information system
HHS	U.S. Department of Health and Human Services
HSEEP	Homeland Security Exercise and Evaluation Program
ICS	Incident Command System
MMRS	Metropolitan Medical Response System
MOU	memorandum of understanding
MSA	metropolitan statistical area
NACCHO	National Association of City and County Health Officials
NIMS	National Incident Management System
PHEP	public health emergency preparedness
POD	point of dispensing
RSS	receiving, staging, and storing
SNS	Strategic National Stockpile
TAR	Technical Assistance Review
TCL	Target Capabilities List

1. INTRODUCTION

Large-scale bioterrorism attacks and other public health emergencies are likely to stretch the ability of state and local entities to rapidly deliver life-saving medications and other medical countermeasures. Accordingly, the federal government maintains stockpiles of medical supplies that can be provided to state and local governments for large-scale health-related emergencies. The program that maintains these reserves is known as the Strategic National Stockpile (SNS). Since 2004, the Cities Readiness Initiative (CRI) has sought to develop the ability of the nation's largest metropolitan areas to dispense SNS materiel to their communities during emergencies involving rapid timelines and requiring delivery of supplies to extremely large numbers of individuals.

CRI requires awardees to develop the ability to dispense life-saving antibiotics to 100 percent of the population of a metropolitan region (usually referred to as a metropolitan statistical area, or MSA) within 48 hours of the decision to do so—a goal based on an outdoor aerosolized anthrax bioterrorism attack scenario. Awardees receive enhanced funding and technical assistance and are subject to assessment and accountability requirements that go beyond those outlined in other portions of the Centers for Disease Control and Prevention (CDC) Cooperative Agreement on Public Health Emergency Preparedness (PHEP).

During the spring of 2007, RAND was asked by CDC's Division of State and Local Readiness (DSLR) and Division of Strategic National Stockpile (DSNS)[1] to provide an external, independent evaluation of the CRI program. The evaluation was to determine whether the CRI program has led to discernible improvements in communities' readiness for mass medical countermeasure dispensing. This report documents the approach and results of that evaluation.

1.1. OVERVIEW OF THE CITIES READINESS INITIATIVE

The CRI program was established in response to bioterrorism concerns. It began in 2004 as an annex of CDC's larger PHEP cooperative agreement. CRI builds on a preexisting program that provides for the availability, distribution, and dispensing of medical countermeasures (covered by the PHEP cooperative agreement) from the SNS. The SNS maintains caches of medications and other medical countermeasures in undisclosed locations across the country. SNS materiel can be requested by states and localities (working through their states) in the event that they are

[1] DSLR acts as the fiscal agent for the program, and DSNS administers and provides technical assistance for the program.

overwhelmed—or are threatened with being overwhelmed—by a large-scale public health emergency.

Often described as "SNS-plus," the CRI program provides additional funds, guidance, and technical assistance to the nation's most populous MSAs to ensure that they are prepared to effectively request, receive, distribute, and dispense countermeasures to every individual in the MSA within 48 hours of the decision to do so. Specifically, the program was designed to reduce identified gaps in (1) strategies and facilities for dispensing medications to individuals, (2) mechanisms for communicating effectively with the public, and (3) the availability of medical personnel, volunteers, and equipment (Burel, 2008).

In response to the survey results, senior leadership at the U.S. Department of Health and Human Services (HHS) decided to create a program narrowly focused on mass countermeasure dispensing. Initially, the CRI program funded 21 "pilot" MSAs (see Table 1.1). During the second year, the program expanded to include the entire MSA for each of the 21 pilot MSAs, as well as an additional 15 MSAs. Collectively, these 36 MSAs represent earlier entrants into the program. More recently, the program expanded again to include an additional 36 planning MSAs, which we refer to as late entrants. Appendix A contains lists all 72 awardees.

Greater detail about the components and implementation of CRI is provided in Appendix B.

1.2. FOCUS OF THIS STUDY

The evaluation of the CRI program sought to address the following questions:[2]

- Has CRI improved local planning and preparedness for public health emergencies?
- What resources and capabilities are in place to sustain local planning, preparedness, and response efforts?
- What lessons have been learned from past experience with CRI? What are the key strengths and challenges facing the program?

Fortunately, there have been no real-world incidents that have fully tested the capacities and capabilities that CRI seeks to develop. Thus, the evaluation focused mainly on whether the program has succeeded in catalyzing activities critical to developing plans and building key capacities. These include resource allocation, the development of plans and partnerships with other key first responders, and the development of streamlined dispensing strategies that are suited to CRI's

[2] The evaluation questions are revised versions of those originally posed by CDC. Revisions were made in consultation with CDC.

ambitious 48-hour timeline. Chapter Eight describes some limited evidence about capabilities, but evaluating operational capabilities remains a challenge for all homeland security and preparedness programs.

Table 1.1. Original CRI Pilot Sites (entered in 2004)

State	Pilot Site
Arizona	Phoenix
California	San Francisco
California	San Diego
California	Los Angeles[a]
Colorado	Denver
District of Columbia	Washington[a]
Florida	Miami
Georgia	Atlanta
Illinois	Chicago[a]
Massachusetts	Boston
Michigan	Detroit
Minnesota	Minneapolis
Missouri	St. Louis
Nevada	Las Vegas
New York	New York City[a]
Ohio	Cleveland
Pennsylvania	Philadelphia
Pennsylvania	Pittsburgh
Texas	Houston
Texas	Dallas
Washington	Seattle

[a] Directly federally funded awardees.

The evaluation is considered *initial* because not enough time has passed to expect the impacts of CRI to be fully observable in all sites and because the data sets required to support evaluation activities are still being developed. In this context, the evaluation plan was adapted to make use of obtainable data. Where available, the evaluation draws upon preexisting data sources. For instance, the CRI program employs the CDC-administered Technical Assistance Review (TAR) tool, which assesses awardees' performance in several core functional areas of SNS distribution and dispensing. However, because of the limited availability of existing data, we also collected new data through visits to nine cities: seven that have been part CRI planning MSAs and two that have not. Through site visits and interviews, we collected mostly qualitative data that supported conclusions about the ways that components of CRI—or absence of them—affected planning and preparedness.

1.3. STRUCTURE OF THIS REPORT

The remainder of this report provides additional detail on the CRI program, describes the methods used to collect and analyze the data, and summarizes key findings and policy implications. Chapter Two provides the conceptual framework used to guide this analysis and describes data sources and methods. Chapter Three focuses on the results of our analysis of the TAR data. The subsequent five chapters present answers to the evaluation questions based on other complementary data sources. Chapter Four describes the impact of the CRI program on the availability and use of resources for public health preparedness. Chapter Five considers CRI's impact on planning processes, and Chapter Six focuses on its impact on the development of key partnerships. Chapter Seven describes CRI's impact on new strategies for mass countermeasure dispensing, while Chapter Eight explores existing evidence about the program's impact on the operational capability to implement CRI plans in response to real-world public health emergencies. Chapter Nine closes the report with a discussion of key findings and policy implications. Finally, five appendixes provide additional details about CRI awardees, CRI program components, our site-visit methodology, interview questions, and the TAR, respectively.

2. EVALUATION APPROACH

The goal of this evaluation was to assess whether the CRI program has leveraged improvements in communities' readiness for mass medical countermeasure dispensing above and beyond what would have occurred in the program's absence. In short, the goal is not to evaluate the current state of readiness but to assess CRI's *contribution* in promoting readiness. This chapter describes the primary components of the evaluation design and includes

- a framework that helped identify which aspects of state and local mass countermeasure dispensing readiness are most important to focus on
- strategies for seeking to isolate CRI's contribution to state and local readiness for countermeasure dispensing
- strategies for data collection and analysis.

Each of these strategies was designed with the goal of capturing as much internal (the ability to make attributions of causality) and external (generalizability beyond the sample studied) validity as possible. For reasons described later, the evaluation places a greater emphasis on internal validity. The remainder of this chapter provides an overview of these strategies. Additional technical details on how the evaluation strategies were designed to ensure validity are described in Appendix C.

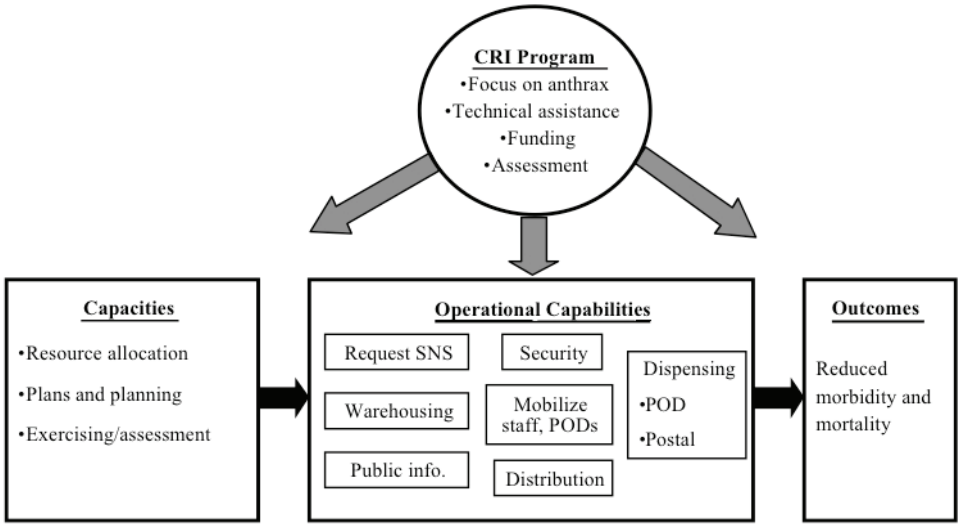
2.1. CONCEPTUAL FRAMEWORK HELPED IDENTIFY KEY ASPECTS OF READINESS

While some of the specific capabilities fostered by CRI have been put to the test in relatively small-scale outbreaks and other incidents, there have been no incidents requiring countermeasure dispensing to an entire metropolitan region within a timeline as short as 48 hours. Thus, an evaluation of CRI (and similar programs) must rely on markers that might be predictive of readiness for large, high-velocity incidents. Yet, the same paucity of large-scale events that limits our ability to observe readiness in action also means that there is limited empirical evidence to rely on in identifying these predictive markers of readiness (Altevogt et al., 2008; Nelson, Lurie, and Wasserman, 2007; Asch et al., 2005). Thus, we employed a conceptual framework, or logic model (see, e.g., Chen, 1994), that identifies a plausible—though not validated—chain of events leading from the components of the CRI program (e.g., funding, the anthrax planning scenario,

assessment/accountability, technical assistance) to the desired outcome of reducing morbidity and mortality through mass countermeasure dispensing operations.[1]

The framework, illustrated in Figure 2.1, includes capacities and operational capabilities. *Capacities* refers to the resources and processes involved in readiness, including resource allocation, response plans, planning processes, and exercising, assessing, and improving readiness. *Operational capabilities*, by contrast, refers to the ability to put resources and plans into practice in real-life operational contexts. The capabilities addressed by CRI (and SNS) include requesting, warehousing, securing, distributing, and dispensing SNS materiel; mobilizing staff and facilities; and mounting effective public information campaigns. Simply having a plan and resources is no guarantee of the ability to respond. However, resources, plans, and partnerships are generally thought to be necessary for mounting an effective response.[2] Thus, assessing CRI's

Figure 2.1. Conceptual Framework



[1] For simplicity's sake, we have omitted a number of intermediate outcomes (or outputs) that come between the execution of operational capabilities and ultimate health outcomes. These include (but are not limited to) throughput (patients processed per hour), dispensing accuracy (ensuring that individuals receive the correct medication), and rate of adverse reactions. We thank a reviewer for pointing this out to us.

[2] We are aware of no empirical evidence on the relationship between planning and execution in PHEP. However, Hallmark and Crowley (1997) provide empirical evidence that increases in the quality of planning are related to increases in levels of execution for Army tank companies conducting operational exercises at the National Training Center at Fort Irwin, California.

contribution to capacities provides an important first step in evaluating CRI and can tell us whether the program is placing awardees on the path to operational readiness. As an additional proxy for capabilities, the evaluation also sought to identify real-world (though smaller-scale) outbreaks that test some of the capabilities supported by CRI.

2.2. A COMBINATION OF APPROACHES WAS USED TO ASSESS CRI'S CONTRIBUTION

An evaluation of CRI would ideally compare trends in readiness before and after entry into the program with trends in readiness over the same period at nonparticipating sites.[3] Provided that the participating and nonparticipating sites are similar, if it were to turn out that CRI sites posted *larger improvements* in readiness, this would reflect the impact of CRI.

However, there are a number of challenges to using this approach for an evaluation of CRI. First, the fact that the CRI program is targeted to large, high-risk metropolitan areas makes it difficult to identify equivalent comparison sites not already included in the CRI program. For instance, logical comparison sites for large metropolitan areas, such as Philadelphia and Houston, are themselves both part of the CRI program. Another challenge is that both CRI and non-CRI MSAs have been subject to a number of programs and interventions designed to improve public health emergency response capabilities related to dispensing. Examples of such PHEP programs not part of the CDC/SNS program include the National Smallpox Vaccination Program, the Metropolitan Medical Response System, and the National Incident Management System. Thus, even if CRI is effective in leveraging improvements in planning and preparedness, it might be difficult to disentangle its contribution from the influence of these other programs. Finally, because the CRI program has been in existence for only a few years, there is limited longitudinal data with which to compare trends. This is especially true for the most recent wave of MSAs that entered the program after 2006. To compensate for these factors, the evaluation design drew upon two approaches to assess CRI's contribution.

2.2.1. Quantitative Comparisons Between CRI Sites with Different Levels of Exposure to the Program

One approach to assessing a program's contribution is to test whether more exposure to the program leads to more of the desired output than does less exposure—a rough equivalent to the dose-response curve in medical research (Davidson, 2005). The fact that CRI has been rolled out in

[3] This is also known as the "pre/post with a non-equivalent control group" design (Shadish, Cook, and Campbell, 2002). Randomization of sites into treatment and control groups would strengthen such a design but would be infeasible.

waves provides an opportunity to test whether early entrants (with more experience in the program) have made more progress in developing CRI-related capacities and capabilities than later entrants. Data from the TAR allow for some such comparisons. CDC provided access to item-level TAR data, along with narrative portions of the assessment filled out by the CDC consultants evaluating the sites. More details on the methods used to analyze the data, as well as a summary of key findings, are provided in Chapter Three.

2.2.2. Qualitative Comparisons Between CRI and Non-CRI Sites

TAR data do not exist for MSAs that are not in the CRI program. Thus, it is impossible to use the data to assess whether CRI participation has led to improvements above and beyond what might have been experienced without the program. Furthermore, the TAR data by themselves provide little or no information about whether CRI's components (e.g., scenario, funding, technical assistance, assessment) were factors in driving any observed improvements in readiness for mass countermeasure dispensing.

Accordingly, we collected and analyzed relatively in-depth qualitative data during site visits to nine "focal sites" (see Section 2.3 in this chapter and Appendix C). The sites included five of the original pilot MSAs (see Appendix A), two MSAs that entered CRI after 2005, and two non-CRI MSAs that are of somewhat similar size and threat profile relative to CRI awardee MSAs.[4] This allowed us to compare the pilot sites to two groups: (1) sites that have been in CRI for less time and (2) sites that have never been part of the CRI program. The sites were also selected to represent variations in state and local public health structure. Thus, the sample includes public health systems that are centralized (i.e., the state agency has direct control over local public health services), decentralized (i.e., local health departments have more discretion), and mixed (i.e., including elements of both centralization and decentralization) (Wasserman et al., 2006). Two of the focal sites—a pilot MSA and a non-CRI planning MSA—are located in the same state, providing a comparison that controls for within-state factors.

Table 2.1 identifies the regions chosen for investigation in this study. To protect those who participated in this study and to encourage full answers to questions, observations described in this report are not attributed to specific people or organizations. Since the purpose of the evaluation is to assess the CRI program and not the level of preparedness in any particular planning MSA, protecting confidentiality does not greatly limit the conclusions that can be drawn from the analysis.

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[4] See Koh et al. (2008) for another attempt to draw lessons about CRI from a largely qualitative case study.

In some instances, however, it did limit to a small extent our ability to fully document the evidence behind our findings.

Table 2.1. Characteristics of Focal Sites Selected for the Evaluation

State/Local Public Health Structure	CRI Pilot MSAs	CRI MSAs Designated After 2005	Non-CRI MSAs
Centralized	Las Vegas, NV Miami, FL		Fort Myers, FL
Decentralized	Chicago, IL Cleveland, OH	Salt Lake City, UT	Rochester, NY
Mixed	Los Angeles, CA	Louisville, KY	

2.3. QUALITATIVE DATA CAME FROM SEVERAL SOURCES

Data collection at site visits varied according to the availability of reports and analyses, but we generally attempted to obtain the following types of information:

- *Interviews with federal, state, and local officials associated with each site:* RAND staff interviewed state and local officials involved in CRI planning at each site, including staff from public health, law enforcement, fire, public works, emergency management, and other departments. These semistructured interviews were conducted during two-day site visits and were guided by our interview protocol (see Appendix D). The interviews covered such topics as site context and history, resources, planning processes, partnerships, and key elements of CRI plans. Before interviewing officials at each site, we interviewed the relevant CDC program services consultant to collect background information that helped us refine and customize plans for data collection during the site visits.
- *CRI plans:* We obtained and evaluated current and prior versions of CRI or SNS plans for focal sites.[5] This analysis attempted to determine whether improvements in CRI site plans have exceeded those in comparison sites. This examination considered the extent to which planning processes had progressed—including the degree of integration between state and local agencies and between public health

[5] Mass countermeasure dispensing plans were provided for eight of the nine focal sites. For the ninth site, we received a briefing of the plan contents and approach.

and other response disciplines—as well as how the approaches used to conduct mass dispensing operations had changed since CRI program implementation.

- *After-action reports (AARs):* We reviewed AARs of exercises as a potential source of evidence of the extent to which planning had progressed and as a potential indicator of capability.[6] However, due to the limitations of the AARs, discussed in Chapter Eight, they were of limited use to this evaluation.
- *Reports of lesser outbreaks:* RAND staff compiled a list of lesser outbreaks since 2005 that involved dispensing of countermeasures at points of dispensing (PODs), if only on a small scale. These cases provided an opportunity to view how CRI has changed public health preparedness through both direct and spillover mechanisms.

In contrast to the quantitative data analysis, which focused on within- and between-group comparisons, the qualitative data analysis sought to understand whether patterns of evidence found at the sites were consistent with the hypothesis that the CRI program had an impact on planning and preparedness (see, e.g., Davidson, 2005; Sagan 1993; George and Bennett, 2005).[7] The team began by using the logic model shown in Figure 2.1 and discussions with subject-matter experts to identify a set of specific and observable markers that would count as evidence for CRI impact. Then, we assessed whether the pattern of available evidence matched the hypothesis of CRI impact. For example, to assess the hypothesis that CRI resources contributed to improvements in preparedness, we looked for evidence suggesting increased staff and acquisition of materials for CRI-related tasks. We also used the comparison cases, where possible, to consider similar trends observable in both CRI and non-CRI MSAs. Thus, the conclusions drawn from this analysis reflect the extent to which the evidence fit the expected patterns of observations associated with hypotheses for the effects of CRI on local preparedness.[8]

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[6] We reviewed CRI exercise AARs for six of the nine focal sites. This included three CRI exercises and three pandemic flu exercises.

[7] Scriven (1991) refers to this as the "modus operandi" approach, as it seeks to determine whether the patterns fit the chain of events expected from the program.

[8] While uncommon in program evaluations, the "pattern-matching" style of causal reasoning is quite common in such fields as clinical decisionmaking (see, e.g., Elstein and Schwartz, 2002) and political science (see, e.g., George and Bennett, 2005; Sagan, 1993), in which analysis of covariation among cases is often not possible.

2.4. SUMMARY AND LIMITATIONS

This chapter described the methods used to assess CRI's contribution to readiness for mass countermeasure dispensing. The most important challenges in evaluating CRI and similar programs are (1) the fortunate rarity of large-scale real-world events against which to evaluate readiness and identify proxies for readiness and (2) the fact that the program's focus on large, high-risk cities means that there are few, if any, non-CRI sites that can be used as a comparison group for CRI sites.

We used a conceptual model to identify some of the most important elements of readiness, in lieu of real-world events and a strong evidence base of leading indicators of readiness. Given available data, much of the analysis focused on capacities (e.g., resource allocation, plans, partnerships) rather than operational capabilities. We also employed two types of comparisons in order to assess CRI causality: (1) quantitative comparisons among CRI sites with different levels of exposure to the program and (2) qualitative comparisons among a small number of CRI (both early and late entrants) and non-CRI sites.

While these approaches are not able to support high-precision causal claims, they do provide a solid initial assessment of the program's contributions to readiness for mass countermeasure dispensing. Moreover, while assessments of capacity cannot ensure that awardees have the operational capability to conduct countermeasure dispensing operations, the methods are able to assess whether they are taking important steps toward operational capability.

Finally, this assessment was conducted between May 2007 and April 2008. Thus, the findings are dependent on the data available at that time, and conclusions need to be considered in the context of continued developments in health departments since the study period.

3. EVIDENCE OF CRI'S IMPACT IN TECHNICAL ASSESSMENT REVIEW PROGRAM ASSESSMENT DATA

As described in Appendix B, the TAR is one of four integral components of CRI (the current version of the tool is provided in Appendix E). The current version of the TAR provides concrete, quantitative scores in several functional areas relevant to CRI, such as command and control, inventory control and distribution, and public information and communication.

TAR assessments currently represent the only source of standardized, comparable data that document the extent of planning across all CRI sites since the beginning of the program. TAR scores thus provide the opportunity for quantitative comparisons of preparedness across sites (e.g., early versus later entrants), across time (e.g., to assess improvement), and across functional areas (e.g., to assess different rates of improvement). This chapter addresses two questions:

- Has the performance of CRI awardees (as measured on the TAR) improved over time?
- Do awardees perform better at some functions than others?

Answering these questions provides an initial view of what impact the CRI program has had, but a more in-depth qualitative approach is required to address issues of causal attribution. In addition to addressing these specific questions, the analyses presented in this chapter demonstrate the promise of TAR data as a tool for assessing and improving the program's impact.

3.1. APPROACH FOR CONDUCTING THE ANALYSIS

As described in Chapter One, CRI sites include 72 of the largest MSAs in the United States. Sites entered the program in three successive cohorts. The first cohort includes the original 21 MSAs (pilot MSAs), the second includes 15 planning MSAs (remaining early-entrant MSAs), and the third consists of 36 additional planning MSAs that became awardees in 2006 (late-entrant MSAs).

To investigate the insights that annual TAR assessments provide into the impact of the CRI program, we drew on function-level TAR scores as reported in the *Cities Readiness Initiative Progress Report: August 31, 2005 to August 30, 2006* (CDC and USPS, 2007). The function-level TAR scores are based on aggregations of item-level TAR questions in each functional area. We also analyzed item-level TAR data from the 2007 reviews to assess CRI site performance in two clusters of functional areas: planning and implementation/coordination.

The item-level analysis was based on data provided by CDC that are not otherwise reported in CRI annual reports. Missing health department–level data for some CRI sites limited the analysis

somewhat.[1] Additional analyses beyond those reported here should be possible as more data become available.

3.2. INSIGHTS ABOUT CRI IMPACT BASED ON TAR ASSESSMENT DATA

Analysis of TAR data for all CRI sites suggests that CRI has had an impact both on overall preparedness for mass countermeasure dispensing and in specific functional areas. We explain these findings next.

3.2.1. CRI MSAs Show Improved Preparedness Over Time

We began by assessing whether participating regions' performance, as measured on the TAR, has improved over time. Given that longitudinal data are currently available only for the 21 original pilot MSAs, this analysis was limited to 21 regions. The first two columns of Table 3.1 compare TAR scores for the 21 pilot sites upon entering the program (baseline) and again one year later.[2] Scores are shown separately for each functional area assessed in the TAR; in addition, the bottom row shows the aggregated score that CDC uses to represent overall preparedness.

The data indicate that TAR scores for the pilot sites have improved over time. One-year follow-up scores are uniformly higher than baseline scores, with average total preparedness improving from 50 to 72 percent.[3] Improvement was also apparent at the 180-day assessment point for these MSAs (data not shown here). Improvements in the functional areas ranged from 8 percentage points for command and control to 30 percentage points for training, exercises, and evaluation. Several other functional areas saw improvements of at least 20 percentage points during this period: management of SNS operations, tactical communication, public information and communication, security, inventory control, distribution, and dispensing.

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[1] Specifically, we received item-level data from jurisdictions in 44 different MSAs (23 from early entrants and 21 from late entrants). We included an MSA in the analysis if we had *any* health department–level data, taking the mean of each item across all departments with available data (number of observations per MSA ranged from one to 12). The result was a dataset containing a single mean score for each TAR item for each of the 44 included MSAs. Mean scores were also calculated for each functional area.

[2] Data are from the *Cities Readiness Initiative Progress Report: August 31, 2005 to August 30, 2006* (CDC and USPS, 2007). Additionally, function-level data were provided by CDC for baseline assessments only. Hence, statistical tests in Table 3.1 comparing pilot baseline to one-year follow-up performance assume equal variances and minimal correlation ($r = 0.10$). See Appendix B for additional details on the TAR and Appendix E for the current version of the TAR itself.

[3] Scores may be interpreted as the percentage of tasks identified on the TAR that have been completed.

Table 3.1. Functional Comparison of CRI Sites

	Pilot Early Entrant Sites (N=21)		Remaining Early-Entrant Sites (N=15)	Late-Entrant Sites (N=36)
Assessment Function	**Baseline (2004) (%)[a]**	**1-Year Follow-Up (2005–2006) (%)[a]**	**Baseline (2006) (%)[a]**	**Baseline (2006–2007) (%)[b]**
Developing SNS plan	72	90[c]	68	52[d]
Command and control	85	93	84	55[d]
Requesting SNS	79	90	68	54[d]
Management of SNS operations[e]	59	81[c]	49	NA
Tactical communication	63	84[c]	58	59
Public information and communication	52	79[c]	56	47
Security	41	68[c]	28	36
Local distribution site	38	63[c]	38	47
Inventory control	55	79[c]	67	48
Distribution	40	65[c]	46	43
Dispensing	47	68[c]	43	40
Treatment center coordination	53	67	45	41
Training, exercises, and evaluation	34	64[c]	50	41
Total preparedness	50	72[c]	49	43

[a] Data are from the *Cities Readiness Initiative Progress Report: August 31, 2005 to August 30, 2006* (CDC and USPS, 2007, p. 15).

[b] Baseline item-level data provided by CDC.

[c] Significantly different from baseline, $p < 0.05$, by paired t-test assuming equal variances and minimal correlation ($r = 0.10$).

[d] Significantly different from early entrants, $p < 0.01$, by independent samples t-test.

[e] For early-entrant MSAs, the *Cities Readiness Initiative Progress Report: August 31, 2005 to August 30, 2006* (CDC and USPS, 2007) includes an additional function, management of SNS operations, which was combined with command and control in the late-entrant summary.

3.2.2. MSAs in Each of the CRI Cohorts Started at Approximately the Same State of Preparedness

We also sought to assess whether there have been differences over time in the performance of regions just coming into the program. Looking across only the three sets of baseline assessments shown in Table 3.1 (for all sites), we see that each of the groups started at approximately the same state of preparedness, both in terms of overall preparedness and for most functional areas. Baseline scores for late-entrant and non-pilot early-entrant planning MSAs are remarkably similar to those for the pilot sites, and no differences are significant.[4] While baseline preparedness scores were similar for most functional areas, there were areas in which late-entrant sites scored lower at baseline than the early-entrant and pilot sites, including developing an SNS plan, command and control, and requesting SNS ($p < 0.01$).[5]

3.2.3. Implementation/Coordination Has Lagged Behind Planning

We also used item-level data to assess the impact of CRI on key aspects of performance that cut across functional areas. In particular, we constructed two functional clusters from the item-level data to differentiate planning functions from implementation/coordination functions. Implementation/coordination functions generally require not just the drafting of plans and other documents but also demonstration that the MSA can take practical steps based on plans and collaborate with multiple response partners. The score for each functional cluster was derived by averaging the scores for multiple items from a variety of functional areas.[6]

We found that, on average, sites scored better on planning items (mean = 80%) than on implementation and coordination items (mean = 50%).[7] This was true for both sets of early-entrant

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[4] Given that the pilot sites tend to have larger populations than the others—a potential confound in evaluation—this result suggests that region size is not a significant factor in determining baseline preparedness (at least for the set of the largest MSAs).

[5] Independent samples t-tests presented here are typically powered to detect differences of about 20 percent, assuming α = 0.05 and β = 0.80.

[6] Items from the local TAR in the "planning" functional cluster included the planning function (items 1 and 2), command and control (items 1 and 5), requesting SNS (items 1 and 3), tactical communication (item 2 and 5), public information (item 1), and exercising functions (item 1). Items from the local TAR in the "implementation/coordination" functional cluster included planning (item 4), command and control (item 4), public information (items 4, 5, and 7), security (items 3 and 4), dispensing (item 10), treatment center coordination (item 5), and exercising (item 4). These item numbers refer to the TAR question number within a functional area.

[7] Paired $t(43) = 10.87$, $p < 0.001$. As noted elsewhere, only baseline data were available for remaining early entrants and late entrants. While we had access to baseline *and* follow-up data for early entrants, inconsistent data-archiving practices left us unable to examine item-level changes. These data limitations prevented a comparison of *changes* for planning versus implementation.

MSAs (planning mean = 91%, implementation/coordination mean = 60%) as well as for late-entrant MSAs (planning mean = 68%, implementation/coordination mean = 39%). In the 2007 assessment, early-entrant planning MSAs also scored better than did late-entrant planning MSAs, as would be expected given the longer CRI participation of the former.[8]

3.3. LIMITATIONS AND PROMISE OF FUTURE TAR DATA ANALYSIS

Data from the TAR represent a potentially valuable tool for program monitoring and evaluation. Nevertheless, a number of limitations must be considered when interpreting the findings presented here. First, improvements in the TAR over the life of the program have strengthened item clarity and promoted consistency in ratings. But because of these changes, the analyses amount to comparisons among related—but not identical—instruments. Second, the TAR does not directly measure awardees' ability to *implement* their plans in real-world circumstances.

Also, the nature of the items on the TAR means that CDC consultants must exercise a degree of judgment in scoring sites' performance. While CDC has made considerable efforts to provide clear scoring guidance and promote interreliability, it is possible that at least some of the trends and differences described here are due to variations in scoring practices (an issue addressed in subsequent chapters). Nonetheless, the strength of the observed trends makes it quite unlikely that the findings are merely a reflection of measurement error.

With greater stability over time in TAR items and the continued accumulation of longitudinal data, it will be possible to address additional questions, including the following:

Therefore, these analyses included baseline data for the remaining earlier entrants and late entrants and one-year follow-up data for early entrants.

[8] When aggregating data from individual health departments into MSA-level aggregates, one must decide whether all departments should be given equal weight or whether the preparedness of some should weigh more heavily into an assessment of regional preparedness. These analyses were performed using equal-weighted averages to aggregate across subregions within an MSA. We also performed these analyses using population weighting to aggregate within an MSA according to its 2006 estimated population. (When TAR data existed for cities and counties with overlapping populations, both populations were included in the weighting, effectively overweighting TAR scores for center-city populations.) Population-weighted results are virtually identical to unweighted results. Sites scored better on planning items (weighted mean = 80%) than on implementation and coordination items (mean = 50 percent; paired $t(43) = 10.37$, $p < 0.001$). This was true whether the site was an early entrant (planning mean = 91%; implementation/coordination mean = 62%) or a late entrant (planning mean = 69%; implementation/coordination mean = 39%). Whereas population weighting did not make a difference here, we refrain from drawing more sweeping conclusions about the need to weight (or not) because of the incompleteness of the datasets that were available. Specifically, for cities, we had only limited data on outlying jurisdictions.

- Do certain capabilities tend to precede others?
- Do capabilities develop at different rates?
- Does city size affect progress in reaching TAR goals?
- Does the nature of the local-state relationship affect the rate of progress in achieving CRI goals?

Answers to these and other questions could help program managers target training resources, improve program guidance, match program services consultants with sites, and identify promising practices.

3.4. CONCLUSIONS

This chapter summarized findings from our analysis of data from the TAR, an assessment of CRI and SNS awardees developed and administered by CDC. The key findings of the analysis are as follows:

- CRI appears to have improved preparedness for mass countermeasure dispensing in the 12 functional areas identified in the TAR.
- There has been little difference over time in the preparedness levels of the three cohorts entering the program.
- Functional areas related to implementation and coordination have lagged behind those related to planning.

In subsequent chapters, we draw upon findings from the site visits described in Chapter Three in order to get a clearer picture of whether and how the specific components of CRI (e.g., funding, the scenario focus, technical assistance, assessment) are responsible for these enhancements in preparedness for countermeasure dispensing.

4. CRI'S IMPACT ON RESOURCES AVAILABLE FOR COUNTERMEASURE DISPENSING

A key component of the CRI program is dedicated funding to state and local MSAs to support planning for the 48-hour aerosolized anthrax scenario. In this chapter, we explore whether these funds have enabled CRI sites to acquire and maintain the staff, equipment, and other resources required to run warehouses and PODs, provide security, and perform other core functions of mass countermeasure dispensing.

It is important to note that this chapter does not attempt to provide an audit of the appropriateness of state and local use of CRI funds. This was neither the goal of the evaluation nor was it possible, given limitations (described later in this chapter) in available budget and expenditure data. Nonetheless, it is helpful to begin by describing what kinds of staff and materiel CRI funds have supported.

4.1. CRI INCREASED STAFF TIME DEDICATED TO COUNTERMEASURE DISPENSING

Officials at most of the sites we visited indicated that CRI funds have helped fund *additional* increases in staff resources focused on countermeasure dispensing, above and beyond earlier overall increases in PHEP staff due to the PHEP cooperative agreement. In many sites visited, CRI monies were used to fund a specific position. One site, for instance, used CRI funds to support a CRI coordinator, while other cooperative agreement funds were used to support additional staff. Respondents at another site reported concerns about any one position becoming too dependent on a single funding source, preferring instead to use CRI funds to support a portion of several positions.

In many communities, officials pointed to planning tasks that had gone uncompleted before CRI funding but had been completed since receiving the new funding. Examples of these tasks included such basic activities as recruiting volunteers, updating plans, and coordinating plans for approval. In at least one instance, officials reported that such tasks would have been completed without CRI but that the additional funding significantly *accelerated* completion.

In addition, the fact that CRI enabled sites to hire dedicated staff to plan for countermeasure dispensing appears to have created benefits for other aspects of PHEP by allowing other staff to focus on their primary responsibilities. In some communities, this was done by using CRI funds to help sustain public health preparedness offices and programs that, as noted earlier, had been created to coordinate bioterrorism planning. For example, in one community, preparing for mass dispensing of vaccines and antibiotics was the responsibility of the same person who was charged with all other bioterrorism planning. When CRI funding became available, this allowed the city's

division of emergency preparedness, which was established with other bioterrorism funding, to hire an individual to coordinate all CRI functions. Officials at the site reported that, since the person was hired, both functions—CRI planning and other bioterrorism planning—benefited from dedicated staff to manage and implement required planning activities.

Several respondents also spoke of the importance of hiring staff versus contracting key functions, such as planning, to outside entities. While contractors often provide useful expertise, these respondents emphasized the importance of gaining buy-in and active participation in planning *processes*—something they believed was more likely to occur with staff hired into the health department. While available data were insufficient to quantify the frequency with which consultants were used, the case studies suggest that use of contractors was more common during the program's early days and was motivated in part by fear that CRI funding would not be sustained to support new hires.

At one site, for instance, a contractor was employed to develop an early version of a CRI plan. However, the site later opted to hire a full-time CRI coordinator after finding that outsourcing failed to create the relationships among response partners that are required for preparedness. These respondents noted the importance of having someone with the time and longevity in the community to build and sustain personal relationships and serve as overall champion for the CRI planning and preparedness process.

4.2. CRI ENABLED NEEDS ASSESSMENT, TRAINING, AND PURCHASE OF SYSTEMS AND SUPPLIES

Our site visits also suggested that CRI sites have used program funds to conduct training and needs assessments that supported the development of CRI plans. The following list provides illustrative examples but is not exhaustive:

- *Developing in-house geographic information system (GIS) capabilities:* One awardee, for instance, reported using CRI funds to train a staff member in one of the participating local health departments to use GIS tools, which can be helpful in locating potential POD sites and mapping out distribution routes for moving SNS materiel from the warehouse (receiving, staging, and storing, or RSS, facility) to PODs.
- *Planning workshops*: Officials at one site reported convening a workshop for the purpose of bringing together security professionals in the region to coordinate planning for CRI-related security functions. Interviewees at another site reported convening a regional conference that included a full range of CRI stakeholders for the purpose of building relationships and beginning a regional planning process.

- *Site security assessments*: One site reported using CRI funds to hire a security contractor to conduct systematic security assessments of potential POD sites.
- *Exercises*: Another site reported using CRI funds to fund exercises that involved staff from non–public health agencies.

Similarly, most sites reported using CRI funds to purchase systems, supplies, and equipment relevant to mass countermeasure dispensing. Examples include

- a mobile command center
- rolling POD kits with such supplies as signs, rope lines, and other way-finding equipment
- enhancements to local poison control centers' call-center capabilities (put to dual use)
- videoconference systems to facilitate tactical communication during emergencies
- personal protective equipment for public health first responders
- credentialing and identification systems to help ensure security at PODs, RSS facilities, and other facilities
- systems for storing and coordinating volunteer databases
- databases that include information about potential POD sites
- rental and configuration of warehousing facilities specifically designed to facilitate POD deployment.

It should be noted, however, that assessing the value of these purchases in creating and sustaining preparedness was beyond the scope of this evaluation.

4.3. FUNDING HAS HAD SPILLOVER BENEFITS AT THE STATE LEVEL

As noted in Appendix B, states are required to pass at least 51 percent of CRI funding to local health departments. In about half of the states we visited, we found that state health departments had used their portion of the CRI resources to fund state CRI planning coordinators. In some instances, these state-level coordinators had worked to develop policy guidance for local jurisdictions (e.g., criteria for reducing the number of steps and certification requirements for dispensing); provide technical support to local jurisdictions in developing, exercising, and improving countermeasure dispensing plans; and disseminating promising practices.

In several states, these state-level CRI-funded staff also represented a means of extending the benefits of CRI to non-CRI MSAs, through both informal and formal mechanisms of information-sharing across MSAs within the state. For example, in one state, a new state-level CRI coordinator developed a template for countermeasure dispensing that was shared with both CRI and non-CRI local health departments across the state. In two of the states visited, officials viewed CRI's structure

and 48-hour goal as applicable to all cities. One state went so far as to administer a version of the TAR to all cities above a given population threshold.

The potential benefit lies in helping to close any preparedness gaps created by the CRI program between CRI and non-CRI communities. A potential downside of the spread of CRI resources to non-CRI MSAs, of course, is it that leaves fewer resources for CRI program participants. Weighing the costs and benefits of this approach was beyond the scope of our evaluation.

4.4. BUDGET DATA ARE INSUFFICIENT TO QUANTITATIVELY ASSESS CRI'S IMPACT ON SPENDING

The findings about CRI's impact on resources relied largely on reports from individuals at CRI sites. This is because existing data on CRI-related expenditures are currently not able to support an assessment of the program's impact on resource allocation. Quantitative examination of CRI-related expenditures at the state and local levels is difficult for several reasons. First, many local health departments—and the individuals working in them—are supported by multiple federal funding sources, making it difficult to asses the impact of any one program, such as CRI.[1] Second, budget data maintained by CDC DSLR are not detailed enough to track changes in the ways in which funding resources are being used in local health departments. Third, current data track budgets, not actual expenditures. Finally, budget data collected thus far have employed different categories over the years, limiting possibilities for trend analysis.

Limitations in these data also make it difficult to assess the sustainability of gains in countermeasure dispensing planning due to CRI. For instance, more detailed budget and expenditure data might enable evaluators to assess whether CRI funds have resulted in a net increase in funding or instead filled in for cuts to other funding streams. Depending on the answer, it might be difficult for jurisdictions to fund the full range of PHEP activities (including countermeasure dispensing) if CRI funds were removed.

4.5. CONCLUSION

The funding provided by CRI appears to have enabled new capacities in local health departments. As a result of CRI, there appears to be more dedicated staff time directed to countermeasure dispensing, which has helped speed up planning activities. The funding has also

[1] According to a survey of public health funding conducted by the National Association of City and County Health Officials (NACCHO) (2007), more than 90 percent of local health departments receive the majority of their preparedness funding from CDC either directly or through their states.

enabled purchase of new equipment and systems to help jurisdictions prepare to conduct countermeasure dispensing operations. The funding also appears to have had secondary benefits, both in terms of enabling shared resources at the state level and removing distractions from public health professionals responsible for other public health functions. However, these conclusions are largely based on qualitative comparisons of observations of public health officials in CRI planning MSAs with those of officials from non-CRI MSAs as raised during our discussions and cannot be verified using available budget data. Thus, questions remain about whether the gains enabled by CRI funding would be sustainable if the CRI funding were to be removed.

5. CRI'S IMPACT ON PLANNING

As is documented in Chapter Three, data from the TAR suggest that there have been significant improvements in CRI planning among the pilot sites and other early-entrant awardees and in all functional areas. This chapter provides a more in-depth examination of CRI's impact on planning based on data from the site visits described in Chapter Two.

5.1. PRE-CRI COUNTERMEASURE DISPENSING PLANS LACKED SPECIFICITY

In assessing the impact of CRI on planning, it is helpful to begin by describing typical planning processes *before* implementation of CRI in order to provide a baseline against which to consider CRI's contributions.

In most of the CRI sites we visited, planning for mass countermeasure dispensing began under the auspices of earlier programs. For instance, the Metropolitan Medical Response System (MMRS), established in 1996 to improve preparedness for and responses to attacks involving weapons of mass destruction, required metropolitan regions to begin developing plans for countermeasure dispensing (DHS, 2008). Similarly, the SNS program required planning for countermeasure dispensing upon its creation in 1999—well before CRI (see Appendix B).

Officials at most sites also pointed to specific events or incidents (e.g., natural disasters, large public events) as an additional impetus for pre-CRI countermeasure dispensing planning. For example, one community was motivated to work on its mass countermeasure dispensing plans by its involvement in a national-level exercise. Officials at another site pointed to regular large-scale sporting events as an impetus for pre-CRI planning. In most cases, these early efforts helped public health planners establish roles and responsibilities for responders, make (often initial) connections to the emergency operations centers, develop staff contact lists, and so on.

But interviews and document reviews at the focal sites suggest that, for the most part, these early plans provided little detail on processes for dispensing medications to individuals, focusing instead on receiving and warehousing medical countermeasures. Thus, detailed floor plans, staffing plans, security assessments and plans, and operating procedures for PODs often did not exist in most sites, which meant that communities did not have a clear picture of how many people would be needed to carry out a countermeasure dispensing operation, what skills were necessary, or how they would be recruited. It also meant that few communities had identified or acquired the materials that would be needed to carry out such an operation. In one community, for example, a countermeasure dispensing exercise conducted just after the introduction of CRI revealed that, while

PODs would require thousands of copies of patient information materials, there were no mechanisms to produce them.

Finally, the inchoate state of countermeasure dispensing planning meant that exercising and training—if it was done at all—focused mostly on raising general awareness of high-risk bioterrorism agents and not on specific elements of countermeasure dispensing. Indeed, most planning and training was motivated by other programs, such as the Homeland Security Exercise and Evaluation Program (HSEEP).

5.2. CRI PRESSED COMMUNITIES TO IMPROVE COUNTERMEASURE DISPENSING PLANS

Since CRI has been implemented, participating MSAs have completed many planning tasks identified in the program guidance. The results can be seen in the specificity of the plans and training programs and in spillovers created by local-state-federal interactions.

5.2.1. CRI Sites Developed More Specific Plans

Since becoming part of CRI, most MSAs have elaborated the portions of the countermeasure dispensing plans that relate to dispensing medications to individuals. For example, officials at some sites responded to the TAR's call for detailed POD plans by using time studies (conducted during POD drills) to specify the specific activities and sequences of steps involved in dispensing countermeasures. In several MSAs, specifying this level of detail required rethinking the medical models originally used by PODs and led communities to define new, streamlined POD models (see Chapter Seven). At most sites, improving the plans also required reaching out to response partners, such as police, emergency management, public works, and others, often resulting in greater integration of local public health capabilities in emergency operations planning (see Chapter Six). One public health official summed up the situation by stating that these changes resulted in "creating" preparedness where it had not previously existed.

5.2.2. CRI MSAs Adapted Training to Plans

Discussions with officials at some (but not all) of the sites visited suggested that CRI's mandates also led them to make improvements in training and exercise plans designed to support readiness to engage in countermeasure dispensing. First, in some cases, sites made stronger linkages between training/exercise programs and their countermeasure dispensing plans. This was possible in part because the plans themselves had become more specific. These newer training programs were more focused on teaching people tasks associated with specific roles, responsibilities, and procedures that would be involved in mass dispensing operations. The newer

exercise programs focused on training to specific components of the plan, such as staff call-down procedures and dispensing models.

Second, training opportunities at many sites were rolled out to include a broader set of individuals who would be expected to play a role in a mass dispensing operation. In a few cases, this involved use of distance learning methods and virtual simulations to increase both engagement and transfer of knowledge.

Finally, training efforts evolved to support just-in-time training for volunteers at PODs. For example, sites developed job action sheets for simpler tasks, such as distributing clerical supplies, guiding people into and through the POD, and controlling traffic and flow of people and vehicles outside the POD.

5.2.3. CRI Planning Has Had Spillover Effects on Non-CRI MSAs

CRI planning has had positive spillover effects on non-CRI MSAs by setting a benchmark for public health preparedness practice. One non-CRI site we visited, for example, incorporated on its own many of the components of the CRI program into its SNS plan in an effort to maintain what it viewed as state-of-the-art public health preparedness practices. Officials explicitly cited the CRI program and the 48-hour goal as the primary motivation for these changes, which occurred during the same time as the late-entrant CRI sites were coming into the program.

There is some evidence that the extent of such spillover benefits could be potentially even larger in the future, provided better mechanisms for disseminating lessons learned and best practices among CRI and non-CRI sites. Indeed, local health department officials interviewed for this study indicated that they were not well aware of the efforts of other CRI sites, in spite of initiatives by CDC and others to facilitate information-sharing through an electronic mailing list, conferences, and Web-based video materials. This conclusion is also supported by a recent survey conducted by NACCHO (2007), which found that more than two-thirds of all local public health professionals surveyed either were unaware of or did not have the opportunity to attend DSNS-sponsored conferences and workshops.

5.2.4. Improvements Are Still Needed in the Area of Public Information and Communication

One area in which countermeasure dispensing planning might need more development is public information and communication. TAR results reviewed in Chapter Three document that communities have made progress in implementing planning tasks identified in the TAR for public information and communication. These improvements are consistent with existing HHS guidance on establishing risk communication capabilities (HHS, 2002). For example, communities reported

making efforts to coordinate public information and communication capabilities regionally during an incident to help ensure that consistent messages are delivered via the media.

However, CRI does not appear to have motivated or supported any of the focal sites to develop the critical dimension of public information and communication efforts: understanding what information the public will need to receive to decide what actions to take to protect themselves following a bioterrorist incident and evaluating whether the messages that have been developed communicate this information effectively. Literature on risk communication demonstrates the importance of pre-evaluation and assessment of the success of public information and communication efforts. If people do not understand messages, or if the messages are not providing the information that people need to make informed decisions, they are less likely to follow public health recommendations and are more likely to distrust the public response (Fischhoff, 1995). Similarly, literature on risk communication provides guidance on how to develop and evaluate risk communication materials to increase the chances that they will serve the public's needs (Morgan et al., 2002).

5.3. KEY COMPONENTS OF THE PROGRAM MOTIVATED PLANNING IMPROVEMENTS

As noted in Chapter Two, we also sought to assess the reasons behind changes in planning and preparedness reported by the sites, with an eye toward assessing CRI's contribution to these changes.

5.3.1. Local Assessment Was a Unique and Important Component of the CRI Program

As described in Chapter Three, the TAR includes extensive measures on CRI sites' progress in developing and testing plans for countermeasure dispensing. Discussions with state and local officials suggest that, while state TAR results have not been publicly released by CDC until recently and local TAR results have not been officially released (Burel, 2008; CDC, 2008a), both state and local TAR results have been used by state and local elected officials and other decisionmakers to gauge progress on planning and to establish recommendations on which steps communities should take for the next funding cycle. For example, one community reported using TAR results to inform a decision to shift its focus from developing to exercising its CRI plans. According to many respondents, this sense of accountability, when coupled with the specific goals and timelines provided in the TAR, helped jump-start countermeasure dispensing planning and keep it moving forward.

Furthermore, local public health officials from pilot and other early-entrant MSAs reported that early attention that HHS brought to the CRI mission through senior-leader briefings involving

HHS and local officials reinforced this sense of urgency and allowed them to gain high-level support from political leaders in their communities.

5.3.2. CRI Sites Have Mixed Views of Anthrax Scenario

Most local health department officials interviewed described the 48-hour scenario as valuable because of the focus it brought to planning efforts. Since so much of emergency preparedness requires all-hazards planning, there is the potential that planning efforts can become spread thin in attempts to achieve capabilities across many unrelated missions. For this reason, some noted that it was helpful to have a specific and common scenario to unite all planning efforts. This was noted as being especially true during the first steps of planning.

On the other hand, local officials from several CRI MSAs suggested that the utility of the scenario focus changes as sites' planning processes mature. According to these officials, while the scenario can be helpful at the beginning in providing a clear focus for planning efforts, the fact that it involves a seemingly unlikely event makes it difficult to get buy-in as they seek to reach out to a broader sphere of response partners as planning progresses. Specifically, as planning develops, communities see greater benefits in developing plans that address capabilities relevant for other types of disasters but not emphasized by the anthrax scenario. For example, response to a nuclear detonation would require medical surge and mass evacuation capabilities, and response to an infectious disease incident would likely rely heavily on medical surveillance and nonpharmaceutical countermeasures.

This perception was not universal, however. At least one site viewed CRI as a jumping-off point for an all-hazards approach and was moving to apply the lessons learned in CRI to other types of emergencies (e.g., dispensing potassium iodine after a nuclear accident).

5.3.3. Some CRI Sites Expressed Concern About Inflexibility in Applying Program Requirements

Some local and state officials interviewed expressed concern about the inflexibility in applying CRI program requirements. This concern was most apparent in TAR scoring, which for many items involves considerable discretion on the part of CDC program services consultants.

First, many expressed concern that overly restrictive interpretations of CRI requirements can have undesirable consequences, given other program requirements. For example, some expressed concern about being required by CRI to develop call-down lists for command structures when listing only position titles is the practice recommended by the National Incident Management System (NIMS), which leaves plans more durable over time and more flexible in the event of unexpected contingencies. Other officials expressed concern about the sheer volume of deliverables required by various PHEP-related federal programs.

Second, some expressed concern that an overly restrictive approach to CRI requirements can have negative consequences on the broader range of response capabilities required for PHEP, such as medical surge, movement and treatment of individuals exposed to radiation, and mass migrations. These officials noted that, while many of these capabilities share characteristics with mass dispensing operations, some are very distinct.

The level of concern expressed on this issue depended on two factors: the extent to which planning had progressed and interactions with the CRI program consultants. Calls for flexibility were most pronounced at sites that had already demonstrated the basic components of planning. Accordingly, concerns about the restrictiveness of the CRI assessments and scenario were much less pronounced when it was perceived that the program consultants were applying flexibility for what evidence could be used to satisfy program requirements.

5.3. CONCLUSIONS

The evidence summarized in this chapter suggests that CRI has pressed participating sites to develop more specific operational dispensing plans—particularly those planning components directly related to dispensing medications to individuals. State and local officials point to the importance of CRI's clear goals and measurement system as key drivers for improvement. However, there remains some concern about the program's focus on an anthrax scenario and the perceived inflexibility in the application of program requirements and assessments to individual CRI sites.

6. CRI'S IMPACT ON PARTNERSHIPS

Accomplishing the wide range of tasks involved in countermeasure dispensing (see Appendix B) requires public health officials to collaborate with emergency management, law enforcement, hospitals, and many others. In addition, coordination among federal, state, and local partners is required to ensure the flow of materiel from federal stockpiles to state warehouses and, ultimately, into local communities. Accordingly, the CRI program stipulates as one of its goals increased integration among key response partners. The FY 2006 CRI program guidance, for instance, requires that awardees

> coordinate planning and program implementation activities to ensure that state and local health departments, hospitals, other health care entities, and state and local public safety and emergency management agencies are able to mount a collective response featuring seamless interaction of their event-specific capabilities. (CDC, 2006, p. 61)

Given the pressures of the 48-hour timeline, these partners must be integrated into a coherent response system beforehand. As the CRI program did not place restrictions on which partners to use and how to use them, it was insightful to examine evidence of the CRI program's impacts on

- partnerships among jurisdictions and response organizations within CRI regions
- partnerships between local jurisdictions and state and federal agencies.

As with other aspects of this evaluation, our key task was not to evaluate the current level of partnerships but the CRI program's effectiveness in *improving* those partnerships.

6.1. CRI IMPROVED THE NATURE AND EXTENT OF LOCAL PREPAREDNESS PARTNERSHIPS

Even among the relatively small sample of sites visited for this evaluation, we found that CRI's impact on partnerships among local emergency response agencies ranged from considerable to minimal:

- At one site, CRI appears to have helped spur the creation of new and clarified relationships among response partners.
- At four sites, CRI appears to have helped reinforce preexisting relationships.
- In two cases, prior relationships were reasonably strong and not much improved by CRI.

The remainder of this section provides illustrations to support these conclusions.

6.1.1. CRI Strengthened Preexisting Preparedness Partnerships at Most Sites

Respondents at some sites found that CRI helped leverage new connections among local partners, such as school districts, hotels, banks, businesses, and nonprofit organizations, as well as with municipalities not previously engaged in mass countermeasure dispensing planning. At most of the sites, however, respondents provided evidence that CRI had improved the strength and quality of preexisting relationships.

At one site, for instance, at least two regional coordinating bodies involved with public health and public health preparedness preceded CRI. One, created during the late 1990s, was charged with monitoring and mitigating infectious diseases affecting multiple jurisdictions. The second body was formed by the state health department to manage implementation of CDC's PHEP cooperative agreement. This multicounty group met several times each year and included subcommittees on epidemiology, special-needs populations, pandemic influenza preparedness, and other issues. Both committees held regular meetings and provided frequent opportunities for regional decisionmakers to share information, build relationships, and make joint decisions. However, nearly every individual interviewed at this CRI site stated that the CRI program strengthened these preexisting groups' interactions. Respondents pointed to a number of specific improvements:

- While decisions about allocating CRI funds were initially made by a small group of regional stakeholders, over time, they came to involve representatives from all jurisdictions.
- Participation in TAR review sessions with CDC consultants grew from just the center city to all jurisdictions in the CRI MSA.
- A regionwide volunteer database and credentialing system was created to facilitate sharing of human-capital resources across jurisdictions.

When asked to explain CRI's impacts, respondents at most sites noted that CRI's aggressive goal of dispensing medication to the entire region within 48 hours, along with the very specific targets set out in the TAR and other program assessment tools, helped create a sense of urgency among partners that had not been there previously. Respondents also noted how having a specific scenario—aerosolized anthrax—helped garner attention from stakeholders not previously part of these regional committees by providing something very concrete to focus on. In several instances, these preexisting relationships appear to have been instigated by the need to plan for specific events, such as large conventions, public celebrations, and so on.

The importance of CRI in fostering regional integration can also be seen by examining one of the comparison cases not subject to its requirements. Here, local officials suggested that relations among first responders (public health included) are typically informal and that this has changed little over time. This contrasts clearly with CRI sites visited, where respondents said that TAR requirements and other program elements pressed them to formalize agreements through memorandums of understanding (MOUs). While these MOUs often did not create new relationships, many respondents noted that they helped increase the odds that they would continue even after existing staff have left their current positions.

6.1.2. CRI-Related Efforts to Improve Regional Integration Often Face Barriers

In spite of CRI's positive impact, respondents also pointed to important challenges in improving regional integration. Respondents in one region noted that the decision to outsource the creation of the initial CRI plan for the region to an outside entity had delayed the development of relationships. After that initial experience, the region decided (with encouragement from its CDC consultant) to move the planning function in-house, which helped create opportunities for regional actors to develop relationships through collaboration in the planning process. Second, many at the CRI site believed that resignations by key staff had slowed—though not reversed—improvements in regional integration by creating the need for new staff to become acquainted with past planning efforts and key regional partners. As noted in Chapter Four many core CRI-related tasks appear to be more likely to be accomplished if assigned to dedicated staff positions.

Additional challenges were noted by respondents at other CRI sites. First, integrating outlying jurisdictions, which are often more rural and less populated, is often difficult. While we were unable to generate a sound explanation for this in all sites, in one region, it appeared that this was due to the fact that for outlying jurisdictions the amount of CRI funding received is small and has little budgetary impact on overall finances. Second, regional integration is more difficult for decentralized public health systems, which have more separate and independent jurisdictions. However, it is not clear that centralization guarantees integration. Indeed, previous work suggests that informal relationships and structures can promote integration in most systems, whether centralized, mixed, or decentralized (Wasserman et al., 2006).

6.2. CRI HAD A MIXED IMPACT ON PARTNERSHIPS AMONG LOCAL, STATE, AND FEDERAL AGENCIES

In contrast to its clear positive impact on regional integration, CRI appears to have had mixed impacts on federal-state-local coordination. The remainder of this section addresses state-local relationships, followed by federal-local relationships.[1]

6.2.1. CRI's Impact on State-Local Relations

At two sites, CRI appears to have made strong state-local relationships even stronger. In one of these cases, strong state relationships facilitated sharing of planning practices and approaches across local health departments in the state. In the other, strong relationships led to increased sharing and coordination of planning resources between the CRI site and the state. Where CRI appeared to have little impact on local-state relationships, this seemed to stem from the fact that local health departments had strong preexisting resources and expertise and perceived less need for state assistance.

In some cases CRI's impact appeared to be limited by preexisting state-local tensions. At one site, local officials reported that staff turnover at the state health department had resulted in unclear guidance on legal and policy issues. These officials also reported that delays in state planning for a key state-level SNS function led them to develop alternate provisions to perform the functions at the local level. Officials at the state health department, for their part, reported that the CRI program's demands on their agency are unreasonable given their staffing, skills, and capacity and wished that CDC would provide more specific best practices that they could adopt. These problems notwithstanding, we did observe evidence of state-local collaboration on at least one core CRI function. Moreover, local officials believed that the problematic relationship with the state had not impeded their progress in developing the capacity and capability to respond to a CRI scenario.

Both state and local officials at another CRI site expressed concern about unclear channels of federal-state-local communication. Some local officials at the site believed that CDC should have sought to address issues of state health department capacity early in the CRI implementation process. As with the site described previously, local officials did not believe that these concerns had diminished their ability to respond to the CRI mandate.

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[1] We have not focused on federal-state relationships because they do not directly involve CRI sites.

6.2.2. CRI's Impact on Federal-Local Relations

As with state-local relationships, the quality of federal-local relationships was affected by local health departments' perceived need for assistance. In two sites, for instance, extensive interaction with CDC was viewed as unnecessary because it provided only a marginal increase in capability at the local level. By contrast, in cases in which local-level expertise was less developed, increased interaction with CDC appeared to have positive impacts, with CDC providing assistance in planning and, in some instances, helping to compensate for a perceived lack of guidance and assistance from the state health department.

The quality of the federal-local relationship was also affected by turnover among CDC program services consultants. Officials at one CRI site pointed to the fact that they had been assigned three consultants in six years as a limitation on the quality of federal-local interactions.

6.3. CONCLUSION

This chapter summarized findings from the case studies on CRI's impact on partnerships among (1) responders at the regional level and (2) federal, state, and local responders. While preexisting efforts toward regional integration were present at most of the sites, there is compelling evidence that CRI improved the quality and extent of those relationships. By contrast, the program's impact on federal-state-local relationships was mixed and appeared to depend on preexisting state-local relationships, staff turnover, and the perceived need for outside assistance.

7. CRI'S IMPACT ON DISPENSING STRATEGIES

This chapter explores whether CRI influenced the specific processes and strategies that jurisdictions are planning to use for the dispensing function. As noted in Chapter One, this is the part of the process that involves direct contact with patients.

This chapter focuses on commonly discussed strategies at the focal sites. These include strategies for streamlining PODs to increase throughput and strategies for meeting staffing and security needs at PODs. Developing a comprehensive account of dispensing strategies and evaluating their operational potential was beyond the scope of this evaluation.[1]

7.1. MANY JURISDICTIONS HAVE ADOPTED STREAMLINED POD DESIGNS

Emergency dispensing for small-scale events and events with longer timelines would likely employ a "medical" model, which normally includes

- individualized medical assessment/triage
- patient education about the agent, countermeasure, and other subjects
- documentation of patient and drug information
- use of medically trained and licensed personnel for critical functions.

By contrast, responding to a CRI-like scenario—which involves rapid dispensing of medication to an entire community—places a premium on achieving much higher patient throughputs. For instance, operating 100 PODs to serve a city of 3 million people would require each POD to achieve an average throughput of approximately 1,250 patients per hour in order to process the entire population within the 48-hour timeline.[2] Cutting the number of PODs in half, which may be necessary for practical reasons, would require a throughput of 2,500 patients per hour for 50 PODs. Jurisdictions have adopted a number of strategies designed to achieve the high throughputs required by the CRI scenario. Some of these strategies are described here.

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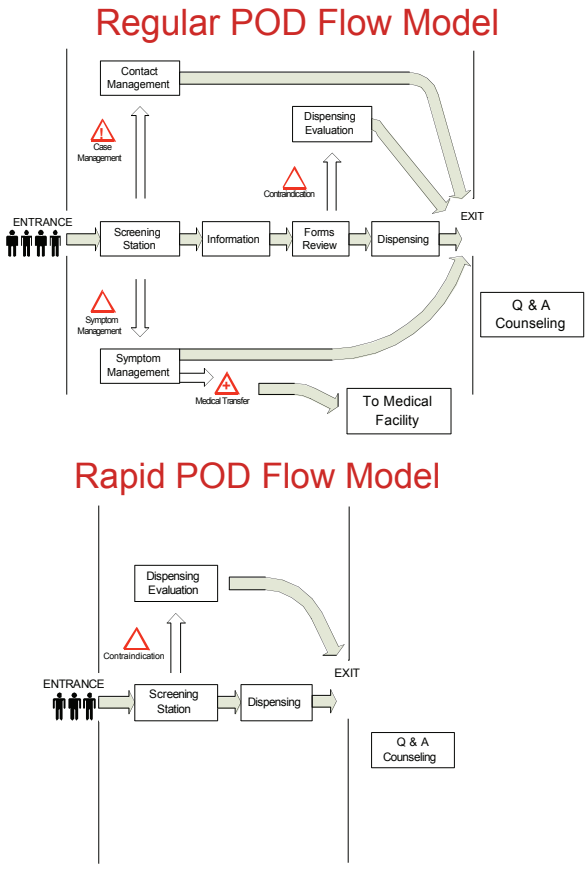
[1] See Linder (2006) for an attempt to profile exemplary alternate dispensing strategies from across the nation.

[2] This assumes 12 hours for delivery of SNS materiel, 12 hours for distributing materiel from the central receiving point to the PODs, and 24 hours for actual dispensing operations.

7.1.1. Nonmedical PODs

Finding enough trained staff and volunteers to work in PODs remains a significant challenge for jurisdictions. Finding medically trained staff is especially challenging. In response, many of the MSAs we visited have adopted more streamlined, nonmedical POD models in order to reduce the required number of medically trained staff. As an example, Figure 7.1 presents both a regular and a rapid-flow model from one CRI site. The regular model includes separate steps for screening patients, providing information, reviewing patient information forms, and actual dispensing of medications, as well as a final step for answering questions and counseling. Additional paths are included in the model for patients identified during the initial screening process as symptomatic or (in the case of a contagious agent) having been in close contact with other individuals who will need to be contacted and treated. In the rapid-flow model, by contrast, the information function is moved outside the POD process entirely and handled instead through public information strategies, while collection and review of patient information on forms is eliminated entirely. Instead, patient

Figure 7.1. Regular and Rapid POD Models Compared



SOURCE: Los Angeles County Department of Public Health. Used with permission.

evaluations are conducted during the initial screening process, with an alternate dispensing station for patients with contraindications.

In the rapid-flow model, medically trained staff are required only for handling patients with contraindications; other stations are staffed by nonmedical personnel. Officials in one jurisdiction report that a challenge in using the rapid POD model lies in convincing medically trained staff to spend less time with each patient than they would under more routine circumstances. As one put it, there is need to "beat 20 years of training" out of these staff to make the model work.

7.1.2. Many Types of Facilities Function as POD Sites

Traditionally, PODs have been located in schools, armories, and other large public facilities. Some of the CRI MSAs we visited are planning to use a broader range of facility types as locations for POD operations. Variations on this basic idea include the following:

- *Hotels and resorts:* Jurisdictions that receive large numbers of tourists and visitors plan to dispense medications at hotels and resorts.
- *Apartments, condominiums, and mobile-home parks:* At least two of the jurisdictions are planning to use (and have exercised) PODs based in condominiums, apartment buildings, and mobile-home parks.
- *Churches:* At least one jurisdiction plans for some patients without contraindications to receive medications through churches, with others reporting to more traditional POD locations, where they would receive more personalized assessments.
- *Businesses:* Other jurisdictions have considered pursuing agreements with large local worksites to dispense medications to employees at "corporate PODs."
- *Institutionalized populations:* Some plans call for individuals in prisons and nursing homes, for instance, to be given medications in these settings.
- *Airports:* At least one jurisdiction is considering, but has not pursued, dispensing medications at the local airport.

In all such plans, public health officials would transport medications to the facilities.

7.1.3. Drive-Through Dispensing

Several sites visited have either adopted or are considering adopting drive-through PODs, through which patients receive medications in their cars. Plans for drive-through PODs include the following types of locations:

- *parking lots* of schools and other facilities, often at the same site where a traditional walk-through PODs would be run indoors; one jurisdiction we visited has made arrangements with a local bank to use its parking lots for drive-through dispensing
- *highway underpasses*, providing ready access from freeways as well as shelter for those doing the dispensing
- *fairgrounds*, which provide large, open spaces and buildings for staging materials.

7.1.4. Postal Service

As directed by the CRI program guidance, pilot MSAs have considered the option of having the U.S. Postal Service deliver antibiotics to homes while individuals shelter in place. The option is designed as a supplement to—not a replacement for—POD-based dispensing, particularly as a "first-strike" option for rapid dispensing during the initial days of the 60-day antibiotic regimen. It is hoped that use of the postal option would utilize the Postal Service's existing infrastructure and knowledge of neighborhoods, limit traffic congestion, and provide public health departments with additional time to muster staff and set up PODs.

Three MSAs have recently exercised the postal option but were not included among the sites we visited. However, the five early-entrant MSAs we visited have been directed to consider this option. In our interviews, we sought to understand why uptake of the postal option has been low. The major deterrent has been security concerns. For instance, many law enforcement officials expressed special concern about the number of officers required (each postal carrier would be accompanied by a police officer). Another concern is that officers would focus exclusively on ensuring the safety of the postal carriers and not guard the medicine supply or intervene in any other criminal activity they came upon during medication delivery, a protocol that law enforcement officials viewed as unrealistic.

7.1.5. Modified Standards of Care

The dispensing options described thus far in this chapter involve significant deviations from the type of care typically provided to patients receiving medication. At least one jurisdiction we visited has developed a scalable dispensing model and tiered approach based on modified standards of care. The tiers vary depending on the scenario and need for rapid dispensing of medication. Modified standards of care include variations in who is legally permitted to dispense medications, whether individuals can pick up medications for family members, the amount of information collected, adherence to Food and Drug Administration regulations and professional practice laws, and the extent of triage or other medical evaluation. In most cases, establishing modified standards of care enables use of the nonmedical POD models.

7.2. MANY JURISDICTIONS ARE REACHING OUT TO NEW PARTNERS TO RECRUIT STAFF FOR DISPENSING

As noted earlier in this chapter, staffing PODs remains a difficult challenge in planning for a CRI scenario. Some large sites reported needing thousands of staff and volunteers to dispense medication to their entire communities within the 48-hour CRI program goal. Not surprisingly, many sites we visited reported that CRI has forced them to involve non–public health personnel in their dispensing strategies.

7.2.1. Other Government Employees

Discussions with CRI officials at several sites revealed efforts to recruit employees from non–public health governmental agencies for dispensing operations. One jurisdiction, for instance, has thousands of government employees who would not otherwise be involved in emergency response and whose contracts allow them to be redeployed by the mayor to serve as responders. As government employees, such staff are shielded from personal liability, thus removing one potential barrier to their participation. In response to concerns about the availability of police officers, many jurisdictions have also had some success in involving police from harbor patrol and officers retained to guard municipal buildings.

7.2.2. Staff Associated with Businesses and Alternate POD Sites

Several sites we visited are planning to use personnel who work at some of the alternate POD sites described earlier, including hotel and resort workers, employees and parishioners at churches, and so on. For example, one jurisdiction that currently plans to use schools as POD locations is considering incorporating school administrative staff and teachers as POD workers. Even when not utilizing business properties as POD locations, some CRI sites are taking steps to use private-sector employees to help staff their PODs. For instance, one CRI site we visited is working with a national business organization to recruit local volunteers. Officials at another site have entered into an MOU with several local businesses to provide private security staff during dispensing operations. Finally, another site contracts recruiting and managing volunteers to a local nonprofit organization.

7.3. CONCLUSIONS

The CRI sites visited for this evaluation have changed their dispensing strategies in response to the demands of CRI's 48-hour goal, including development of streamlined POD models and efforts to reach out to new partners to recruit staff for the PODs. While we cannot be certain that CRI *caused* these innovations, we note that many of them occurred after sites entered the CRI program and are consistent with the sort of guidance provided in the TAR and other program

documents.[3] Moreover, we could find no evidence of any jurisdiction using streamlined or nonmedical models prior to the CRI mandate, and interview respondents uniformly attributed the push to develop streamlined POD models to the CRI program. Thus, it seems extremely unlikely that these changes would have happened in the absence of CRI.

[3] Another important limitation is that these innovations, while sensible, have been subject to little rigorous evaluation to explore their implications. Spitzer et al. (2007), for instance, found that a streamlined POD model with minimal medical staff and just-in-time training for student-volunteer staff produced relatively impressive throughputs (500 patients per hour). However, the study did not address other performance criteria, such as dispensing accuracy.

8. CRI'S IMPACT ON OPERATIONAL CAPABILITIES: EXERCISES AND REAL EVENTS

Up to this point, this report has addressed CRI's impact on capacities, including resource allocation, partnerships, and the planning process. Ultimately, however, the most important indicator of the program's success lies in improvements in jurisdictions' operational capability—the ability to actually *execute* plans in response to real events. In theory, operational capabilities can be evaluated through a combination of (1) exercises and (2) responses to smaller-scale public health emergencies.

8.1. CURRENT EXERCISE-BASED ASSESSMENTS ARE LIMITED AS EVALUATION TOOLS

Exercises provide relatively frequent opportunities to observe jurisdictions' ability to execute response-related capabilities through contrived scenarios. Ranging in complexity from discussion-based formats (e.g., seminars, workshops, tabletop exercises, games) to operations-based formats (e.g., drills, functional exercises, full-scale exercises), these exercises enable jurisdictions to evaluate how well their plan works and identify where it needs improvement and potentially provide an opportunity to assess CRI's impact on preparedness (Dausey, Buehler, and Lurie, 2007). However, there are a number of factors—some specific to CRI, others more generic—that limit the utility of exercises in this evaluation (Nelson, Lurie, and Wasserman, 2007).

The first limitation is the newness of the CRI program. Based on the three-year implementation schedule for CRI, described in Appendix B, jurisdictions are not expected to engage in intensive exercising to practice, test, and improve CRI plans until their third year in the program. As a consequence, it is likely that exercise-based assessments will be available within the next year, but only for the pilot and early-entrant MSAs. Nevertheless, some late-entrant jurisdictions report conducting a significant number of exercises.

Even where jurisdictions have exercised key components of their CRI plans, they are usually not connected to clear standards and metrics that can be used to summarize and assess performance. For instance, many of the AARs for call-down exercises[1] that we examined contain helpful descriptions of the call-down processes used and bottlenecks that were identified. But few provide data on the amount of time required to conduct the call-down process, the percentage of

[1] Call-down exercises are drills designed to test an organization's ability to contact staff in order to notify and (in some cases) muster them to duty locations.

those on the call-down list actually reached, and the percentage of those reached who reported being able to report at a particular location and time.

Where exercises do result in objective and quantitative metrics, variations in the exercises themselves often complicate attempts to track changes over time and compare performance between CRI and non-CRI MSAs. For instance, we found a number of POD exercises that included quantitative metrics on throughput (e.g., number of patients processed per hour), but difficulties in recruiting large numbers of mock patients often limits the extent to which the PODs being tested were actually "stressed."

8.2. SMALL-SCALE EMERGENCIES PROVIDE A VIEW OF OPERATIONAL CAPABILITIES

Another potential data source for evaluating CRI's impact on operational capabilities lies in responses to real events that, while smaller in scale, test some of the same response building blocks that would be required (albeit on a larger scale) in a response to a CRI incident. This practice might be called *embedded assessment* (Nelson, Lurie, and Wasserman, 2007), as it seeks to embed performance assessment in fairly routine operations. For instance, one site reported handling a meningitis outbreak by dispensing Ciprofloxacin using a rapid-dispensing POD model and the Incident Command System (ICS). Another site reported that it uses seasonal flu clinics to generate time-study data and identify throughput and bottlenecks.[2]

However, it is difficult in these cases to isolate the effect of CRI from that of other public health and preparedness efforts. Many of the capabilities and capacities used, such as setting up a hotline, developing key messages, collaborating with response partners, utilizing ICS, and vaccinating or dispensing medication, are not unique to CRI. For example, all MSAs (CRI and non-CRI) are required by the PHEP cooperative agreement (see Appendix B and Chapter One) to use ICS. Indeed, one non-CRI planning jurisdiction we visited had implemented ICS as part of its required emergency planning and reported using the improved incident command for several infectious disease and food-borne outbreaks.

8.3. TOWARD A MORE EFFECTIVE APPROACH TO ASSESSING CRI'S IMPACT ON OPERATIONAL CAPABILITIES

Here, we suggest some evaluation strategies that could be used to assess operational capabilities in the near future.

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[2] This latter example shows the utility of using small-scale events not only to test capabilities, but also to empirically derive parameter values for use in planning.

8.3.1. New Metrics Could Improve the Utility of Exercise-Based Data

CDC DSNS recently announced its intention to employ standard drill-based metrics for countermeasure dispensing (CDC, undated). Assuming widespread use and proper archiving of the data, these metrics could be used to track changes in performance over time and facilitate reasonably precise comparisons between CRI and non-CRI jurisdictions. For instance, evaluators could use the metrics to compare POD throughputs over time at CRI and non-CRI MSAs to see whether improvements in CRI MSAs are greater than those in nonparticipating MSAs.

8.3.2. Mathematical Models Could Help Estimate CRI's Impacts on Operational Capabilities

Mathematical models provide a strategy for making inferences about likely responses to large-scale events based on data about staffing, response strategies, and exercises. Widely available models of POD operations (e.g., BERM [Bioterrorism and Epidemic Outbreak Response Model], RealOpt, Clinic Generator) could be used to make predictions about POD throughput based on information about the number of available staff and the steps involved in a given jurisdiction's POD protocol. Thus, provided data on staffing and POD flow models from a wide range of jurisdictions, evaluators could compare the estimates of jurisdictions' performance over time and between CRI and non-CRI participants. Development of models of other core CRI functions (e.g., distribution, warehousing) might create opportunities for further use of the models in evaluating program impact and performance.

Limited evidence on the fidelity of the models—the extent to which predicted performance corresponds to actual performance during real emergencies—remains a critical limitation to using these models for evaluative purposes. Another limitation involves difficulties in obtaining staffing and POD design data for a wide range of jurisdictions. CDC DSNS might seek to develop and maintain a central repository of staffing and POD design data, which could not only support future evaluations but also provide a mechanism for the collection, identification, and dissemination of promising practices.

8.4. SUMMARY

Efforts to assess CRI's impact on operational capabilities are limited by the absence of data on jurisdictions' ability to implement their CRI plans and by the lack of workable performance metrics. While there is some evidence from small-scale events that CRI has had an impact on response capabilities, systematic evaluations of the program's impact on operational capabilities would be strengthened by the development of new metrics and the use of models to estimate program impact.

9. KEY FINDINGS AND POLICY IMPLICATIONS

The purpose of this evaluation was to determine the extent to which CRI has improved communities' readiness to conduct mass medical countermeasure dispensing above and beyond what would have occurred in the absence of the program. Although this is an initial evaluation, because the impacts of the CRI program are still being realized and the data sets required to support evaluation activities are still being developed, the evaluation yielded several key findings. In this chapter, we summarize these findings and provide policy implications that follow from those findings.

9.1. CRI HAS IMPROVED READINESS FOR MASS COUNTERMEASURE DISPENSING

CRI appears to have improved communities' readiness to dispense lifesaving medications and other medical supplies on a large scale and under rapid timelines. Specifically, CRI has enabled jurisdictions to do the following:

- *Increase the number of staff working on countermeasure dispensing:* Data from our case studies provide evidence that CRI funding has allowed jurisdictions to increase the number of staff dedicated to countermeasure dispensing planning, either through the hiring of new staff or by freeing up existing staff to focus more time and attention on the issue.
- *Strengthen key partnerships with other responders*: CRI appears to have added to efforts to strengthen integration among local health departments and with other response disciplines (e.g., law enforcement, fire, emergency management). In most cases, there were at least some efforts to achieve this integration before CRI; however, there is evidence that CRI increased the quality and productivity of these collaborations.
- *Develop more detailed plans:* CRI has facilitated improvements in the level of detail of countermeasure dispensing plans. Before CRI, most jurisdictions had developed plans for requesting, receiving, and warehousing materiel from the SNS. However, CRI has pressed communities to develop more concrete plans for the final step of dispensing life-saving medications and other materials directly to patients.
- *Adopt more streamlined dispensing models:* Many jurisdictions have responded to CRI's aggressive 48-hour goal for full-community dispensing by adopting more

streamlined dispensing models that rely less on medically trained staff and take advantage of nontraditional venues and partners.

- *Purchase critical equipment and supplies*: CRI monies have also allowed participating jurisdictions to purchase critical equipment and supplies (e.g., mobile dispensing units, communication equipment ["PODs on wheels"]) and support such key planning activities as security assessments of potential dispensing sites, as well as helped to pay for training and exercises.

9.1.1. CRI's Funding, Clear Focus, and Accountability Requirements Are Important Drivers

A clear and consistent message from the site visits was that the CRI program's focus on a single scenario, along with the specific targets set out in the TAR tool, have provided a clear *motivation* for improving preparedness for countermeasure dispensing. Many respondents also cited the fact that TAR scores (recently released at the state level but not at the local level) have created accountability pressures and have served as a basis on which to establish planning tasks and milestones. As discussed previously, respondents also noted that the targeting of funds specifically for mass countermeasure dispensing provides the *opportunity* to respond to CRI's ambitious 48-hour goal.

9.1.2. Community Factors Affect Implementation of CRI

While the overall finding of this evaluation is that CRI has improved readiness to engage in mass countermeasure dispensing, it is also clear that the program's effectiveness is subject to a number of site-specific factors:

- *Initial level of preparedness:* CRI sites that have less developed plans and planning processes appear to respond more favorably to the program's scenario focus and clearly defined goals, as articulated in the TAR. Sites that have accomplished more planning report that the scenario focus can become constraining as they move on to all-hazards planning and seek to continue building relationships with response partners.
- *Degree of decentralization:* It appears that CRI sites in decentralized public health systems face additional challenges in developing relationships across metropolitan areas, reflecting the fact that there are more players with which to coordinate. However, we also found clear evidence that CRI can improve local partnerships even in these systems.

- *State-local relationship:* Overall, CRI's efforts to improve state-local relationships have not been as successful as efforts to improve relationships within CRI communities. In some instances, CRI's impact was limited by preexisting tensions. While we found no clear evidence that these tensions significantly impeded progress in meeting CRI goals, it also seems clear that more attention by CDC to the state-local relationship might increase the program's impact on mass dispensing planning and preparedness.
- *Staff turnover:* At nearly every site, it was apparent that the efforts, skills, and working styles of individuals affect how well CRI goals are met. In cases in which planning was being driven by single individuals, their impact is most evident when they leave their posts, which often slows down planning and preparedness efforts as jurisdictions train new program leaders.

Site-specific factors often come to the fore in TAR scoring. For example, variations in local conditions can lead to questions about what type of evidence is acceptable documentation for completing a TAR requirement. Our discussions with officials at the CRI focal sites suggest that there has been considerable variation in the application of the TAR, with some CDC consultants providing considerable flexibility—for instance, allowing jurisdictions to count activities not directly related to CRI or mass dispensing as evidence of CRI-related capabilities. In other instances, officials said that consultants took a more literal approach and offered less flexibility.

9.1.3. CRI Impacts on Other Programs and on Operational Capabilities

During site visits, we heard numerous anecdotes about the shared capabilities between CRI and other regularly occurring public health incidents (e.g., seasonal influenza, food poisoning) and emergency preparedness activities (e.g., biosurveillance, facility activation/set-up). For instance, CRI might have positive or negative spillover impacts on areas of PHEP not emphasized by the anthrax scenario, such as medical surveillance, medical surge, or mass evacuations. Similarly, to the extent that the CRI program's emphasis on preparation for distributing medical countermeasures changes the funding priorities of public health departments, it could potentially affect capabilities in other areas of public health. Given the study's primary focus on CRI and mass countermeasure dispensing, however, we were unable to provide a more in-depth analysis of these and other spillovers.

Similarly, while there is strong evidence that CRI has improved planning for mass countermeasure dispensing, we were unable to assess jurisdictions' ability to *implement* their mass dispensing plans in emergency conditions. Given the rarity of large-scale public health

emergencies, demonstrations of these operational capabilities must come largely through exercises. While most of the pilot and early-entrant planning jurisdictions we visited have fairly robust exercise programs, the lack of standardized performance metrics and standards for operational exercises limits our ability to use exercises to systematically evaluate operational capabilities.

9.2. POLICY IMPLICATIONS

Given the study's main finding that CRI has had a positive impact on the development of plans and capabilities for countermeasure dispensing, there is merit in continuing the program. Indeed, the finding that CRI has improved readiness for mass countermeasure dispensing suggests that the later entrants to the program are likely to accrue some of the same improvements in staffing, equipment, planning, partnerships, and dispensing strategies documented among the earlier program entrants.

However, the evaluation identified several aspects of the program that could be improved. Thus, we believe that a decision to continue the program would be best accompanied by specific steps to build on the program's existing strengths and to ensure the presence of measurement and evaluation tools that will allow effective program monitoring going forward. The remainder of this section describes those steps.

9.2.1. Reassess Impact and Renewal of the Program After Two to Three Years

As described in Appendix B, the CRI program is based on the planning assumption that sites require three years to build critical capacities and capabilities for countermeasure dispensing. This evaluation suggests that CRI planning jurisdictions have made progress that is consistent with this planning assumption. Future evaluations should confirm whether awardees have followed the predicted path. For example, during the next year or two, will early entrants in the CRI program complete planning and be engaged in efforts to test, exercise, and improve mass dissemination plans, and will later entrants be approaching this level of readiness?

At this point, the question of program renewal can also consider new directions for program goals, such as the following:

- Should the current CRI awardees be directed to work on a different planning scenario?
- Should efforts shift to sustaining rather than creating readiness?
- Should other MSAs be awardees of subsequent agreements?

9.2.2. Continue Development of Systems for Measurement and Evaluation

To be effective in ensuring program performance and improvement, continuation of the CRI program should incorporate ongoing development of strong measurement and evaluation tools. Arguably, the measurement tools already developed by the SNS and CRI programs (e.g., the TAR) are stronger than those for other public health preparedness and homeland security programs. Yet, further improvements are required to support a robust reevaluation of the program in the future and continuous program improvement in the meantime.

Capacity Measures. Current data on capacities (e.g., plans, staffing, equipment) are found mostly in the TAR and in a database containing budget data (PERFORMS). As noted in Appendix B and elsewhere, the categories employed in the budget data are not specific enough to support meaningful evaluation, and the usefulness of TAR data has been limited by inconsistent archiving practices. Steps to identify and employ finer-grained budget data would allow evaluators to assess the impact of CRI and other programs on key spending priorities. Similarly, current efforts to improve archiving of the TAR data will increase the utility of these data, both for episodic evaluation studies and for ongoing program monitoring and improvement.

Measures of Operational Capability. As noted in Chapter Seven, data on capabilities are scant across all PHEP programs due to the rarity of real events, lack of standard metrics, and an absence of systems for capturing information from routine proxies for core CRI-relevant capabilities. Currently, efforts are under way to roll out standard metrics of key operational capabilities for SNS, and these will also be applied to CRI.[1] In developing and rolling out these measures, it is important to incorporate an ongoing process for evaluating and fine-tuning them to ensure adequate opportunity to spot and address problems with wording, unreasonable burdens created by the measures, sources of unreliability, and so on. As with the TAR data, it is also important that data from these new measures be archived and made accessible for future evaluations, ongoing program monitoring by CDC, and process improvement by awardees.

In addition to drill-based exercises, other opportunities exist to measure operational capabilities. For instance, there are several computer-based models that allow predictions of operational capability based on capacity data (e.g., predicting throughput from staffing data and knowledge of dispensing protocol) (see, for example, Hupert et al., 2004, and Herrmann and Treadwell, 2006). These approaches could also have spillovers for CDC's broader efforts to

[1] Several of the authors of this report have been involved in the development of these capability assessments. As such, we have refrained from making recommendations about whether these efforts should continue and have limited our recommendations to efforts that should be undertaken *if* these activities are continued.

expand the evidence base on PHEP—particularly the call for efforts to explore the fidelity of drills (i.e., the extent to which they reflect performance during real incidents), exercises, and models (see Altevogt et al., 2008). Also, there are new efforts to use the tools of social network analysis to assess the extent and value of partnerships in preparedness. However, capturing the potential of these types of approaches will require stepped-up efforts to develop and validate models and measurement tools.

Assessing Cost-Effectiveness. Evaluations like this one describe what a program has accomplished, but they do not describe whether the accomplishments were worth the investments made to produce them and whether the resources might have been better used elsewhere. To help answer these questions, future evaluations could be extended to include assessments of public health risks, risk reduction, and cost-effectiveness in comparison with other public health programs. Conducting such analyses for PHEP programs, such as CRI, would require estimating the risk burden to communities from bioterrorism and infectious diseases and the extent to which resources contribute to reducing these risks. In the case of bioterrorism and pandemic influenza, estimating risks also requires addressing uncertainties about the likelihood and severity of events and assessing how terrorists might adapt attack tactics to compensate for investments in public health infrastructure.

Such analysis will require methods for assessing risks that build on recently developed models, such as the U.S. Department of Homeland Security–funded Biological Terrorism Risk Assessment, which assesses the risks posed by bioterrorism agents. However, these models are nascent, and further work is needed to validate and interpret their results and integrate them into policy and budget decisionmaking.

9.2.3. Continue Improvements in Technical Assistance and Assessment

As noted earlier, one of this study's findings is that CRI's impact depends on community factors. The guidance role played by the CRI program consultants is designed to promote customization by providing on-site assistance to awardees in crafting effective strategies for meeting program goals. Yet, as noted in earlier chapters, awardee satisfaction with technical assistance is sometimes compromised by turnover among program services consultants. CDC officials point to efforts currently under way to improve training for these consultants to ensure greater consistency, and these efforts seem worth continuing.

Special attention should also be paid to the ability of the relevant state health department to provide assistance to local health departments in meeting CRI goals. As noted in Chapter Five, while some state health departments are perceived as providing effective assistance, others are perceived as creating barriers. A careful preassessment of the nature of state-local relationships

could used as a basis for striking site-specific agreements on such things as the division of CRI-related tasks between state and local agencies, priorities for state and local actions in furtherance of CRI planning, norms of communication among federal, state, and local officials, and so on.

As noted previously, officials at many sites expressed concern about inconsistency in TAR scoring. Given wide variations in state-local public health systems, relationships with other first responders, and threat profiles, a certain degree of flexibility in TAR scoring seems warranted. Flexibility would also allow jurisdictions to address the challenges of declining funding levels for PHEP and might be especially warranted for awardees that have demonstrated strong performance in past assessments.

Nonetheless, any such flexibility must be as transparent as possible and supported by guidelines and practices that would ensure some degree of inter-rater reliability. One such approach is case-based training, in which those applying the TAR are exposed to hypothetical cases and have a chance to discuss—among each other as well as with CDC management—how much flexibility should be granted in specific (if notional) circumstances. Consultant experiences from specific sites could supply current examples for such cases. Similarly, CDC might consider using a peer-review process whereby each consultant's TAR ratings would be reviewed by at least one consultant colleague. This would induce additional information-sharing among consultants and lessen the extent to which a site's TAR rating depends on the assignment of consultants.

9.3. CONCLUSION

Preparing for mass countermeasure dispensing presents a number of difficult challenges, including the need to develop partnerships with other disciplines, nontraditional and streamlined dispensing modes, and others too numerous to mention. The evidence gathered for this evaluation suggests that CRI has helped put communities on the path to readiness to dispense lifesaving medications and supplies on a large scale and under demanding timelines.

While this study was designed to assess the impact of one program, some of its key findings might be relevant to a broader range of programs. First, CRI provides evidence that federal programs can, in fact, shape state and local priorities and leverage improvements in preparedness—this in spite of the complexities inherent in a multilevel federal system with thousands of health departments and other relevant response organizations. Second, the CRI experience points to the importance of a clear programmatic focus and accountability mechanisms in the design of homeland security programs.

Finally, while the findings of this evaluation point to positive results for the program, the study also highlights current gaps in the nation's ability to measure and assess readiness and the effectiveness of programs designed to foster and sustain readiness. These measurement gaps

should not preclude efforts to evaluate readiness. However, it is clear that continuing efforts are required to develop effective tools for monitoring and assessing the nation's investments in public health preparedness, homeland security, and disaster preparedness.

APPENDIX A: TABLES OF CRI PLANNING METROPOLITAN STATISTICAL AREAS

Table A.1. CRI Pilot and Other Early-Entrant Planning MSAs

Awardee	MSA/CRI Jurisdiction	Year of Entry
Arizona	Phoenix-Mesa-Scottsdale, AZ	2004
California	Riverside–San Bernardino–Ontario, CA	2005
California	Sacramento–Arden–Arcade-Roseville, CA	2005
California	San Diego–Carlsbad–San Marcos, CA	2004
California	San Francisco–Oakland–Fremont, CA	2004
California	San Jose–Sunnyvale–Santa Clara, CA	2005
Chicago	Chicago-Naperville-Joliet, IL-IN-WI	2004
Colorado	Denver-Aurora, CO	2004
Delaware	Philadelphia-Camden-Wilmington, PA-NJ-DE	2004
Florida	Miami–Miami Beach–Ft. Lauderdale, FL	2004
Florida	Orlando, FL	2005
Florida	Tampa–St. Petersburg–Clearwater, FL	2005
Georgia	Atlanta–Sandy Springs–Marietta, GA	2004
Indiana	Indianapolis, IN	2005
Los Angeles	Los Angeles–Long Beach–Santa Ana, CA	2004
Maryland	Baltimore-Towson, MD	2005
Maryland	Washington-Arlington-Alexandria, DC-VA-MD	2004
Massachusetts	Boston-Quincy, MA	2004
Michigan	Detroit-Warren-Livonia, MI	2004
Minnesota	Minneapolis–St. Paul–Bloomington, MN	2004
Missouri	St Louis, MO-IL	2004
Missouri	Kansas City, MO-KS	2005
Nevada	Las Vegas-Paradise, NV	2004
New York City	New York–Northern New Jersey–Long Island, NY-NJ-PA	2004
Ohio	Cincinnati-Middletown, OH-KY-IN	2005
Ohio	Cleveland-Elyria-Mentor, OH	2004
Ohio	Columbus, OH	2004
Oregon	Portland-Vancouver-Beaverton, OR-WA	2005
Pennsylvania	Philadelphia-Camden-Wilmington, PA-NJ-DE	2004
Pennsylvania	Pittsburgh, PA	2004
Rhode Island	Providence–New Bedford–Fall River, RI-MA	2005
Texas	Dallas–Fort Worth–Arlington, TX	2004
Texas	Houston–Baytown–Sugar Land, TX	2004
Texas	San Antonio, TX	2005
Virginia	Virginia Beach–Norfolk–Newport News, VA-NC	2005
Virginia	Washington-Arlington-Alexandria, DC-VA-MD	2004
Washington	Seattle-Tacoma-Bellevue, WA	2004
Washington D.C.	Washington-Arlington-Alexandria, DC-VA-MD	2004
Wisconsin	Milwaukee–Waukesha–West Allis, WI	2005
NOTE: Only the largest cities are listed. The table does not include the entire geographical area.		

Table A.2. Late-Entrant Planning MSAs

Awardee	MSA/CRI Jurisdiction Title	Year of Entry
Alabama	Birmingham-Hoover, AL	2006
Alaska	Anchorage, AK	2006
Arkansas	Little Rock–North Little Rock, AR	2006
California	Fresno, CA	2006
Connecticut	Hartford–West Hartford–East Hartford, CT	2006
Connecticut	New Haven–Milford, CT	2006
Delaware	Dover, DE	2006
Hawaii	Honolulu, HI	2006
Idaho	Boise City–Nampa, ID	2006
Illinois	Peoria, IL	2006
Iowa	Des Moines, IA	2006
Kansas	Wichita, KS	2006
Kentucky	Louisville, KY-IN	2006
Louisiana	New Orleans–Metairie–Kenner, LA	2006
Louisiana	Baton Rouge, LA	2006
Maine	Portland–South Portland–Biddeford, ME	2006
Mississippi	Jackson, MS	2006
Montana	Billings, MT	2006
Nebraska	Omaha–Council Bluffs, NE-IA	2006
New Hampshire	Manchester-Nashua, NH	2006
New Jersey	Trenton-Ewing, NJ	2006
New Mexico	Albuquerque, NM	2006
New York	Buffalo–Niagara Falls, NY	2006
New York	Albany-Schenectady-Troy, NY	2006
North Carolina	Charlotte-Gastonia-Concord, NC-SC	2006
North Dakota	Fargo, ND-MN	2006
Oklahoma	Oklahoma City, OK	2006
South Carolina	Columbia, SC	2006
South Dakota	Sioux Falls, SD	2006
Tennessee	Nashville-Davidson-Murfreesboro, TN	2006
Tennessee	Memphis, TN-MS-AR	2006
Utah	Salt Lake City, UT	2006
Vermont	Burlington–South Burlington, VT	2006
Virginia	Richmond, VA	2006
West Virginia	Charleston, WV	2006
Wyoming	Cheyenne, WY	2006
NOTE: Only the largest cities are listed. The table does not include the entire geographical area.		

APPENDIX B: COMPONENTS OF THE CITIES READINESS INITIATIVE

The CRI program consists of five key components: dedicated funding, a planning scenario, assessment at the state and local levels, and technical assistance. This appendix describes each of these components in greater detail.

B.1. CRI PROVIDES FUNDING TO STATE AND LOCAL HEALTH DEPARTMENTS

As with other monies awarded through the PHEP cooperative agreement, CRI funds are generally provided to state health departments—the awardees for the agreement—who, in turn, use the funds to support local and regional entities. CRI mandates that states provide 51 percent or more of the funds to a fiscal agent (usually a local health department) in the CRI-funded metropolitan area. Thus, the program involves a more direct funding pipeline from federal to local entities than is typically the case for PHEP programs, through which states usually have more discretion about how much of those funds to pass down to local health departments. As with the cooperative agreement, four metropolitan areas receive CRI funds directly and function, for award purposes, very much like states: New York City, Los Angeles, Chicago, and Washington, D.C.

In 2004, $39 million was made available for the CRI program, with $27 million sent to the original 21 pilot planning MSAs (see Table B.1), and $12 million was provided to the U.S. Postal Service to support collaboration on planning for at-home delivery of medical countermeasures via existing postal routes and using postal employees and vehicles. The original 21 CRI MSAs have received the same base amount of $27 million over the years. Beginning in 2005, MSAs added to the program (a total of 36 by 2006 and 72 by 2007) were awarded $200,000 each for an initial planning phase, which lasts one year. As of 2007, 490 counties have been included in CRI regions, with at least one CRI awardee in every state. Currently, a total of 72 MSAs participate in CRI, covering an estimated 57 percent of the U.S. population.

B.2. THE CRI PLANNING SCENARIO

As noted earlier, the CRI program is built around a goal of readiness to dispense countermeasures to all individuals in a metropolitan area within 48 hours of the decision to do so (CDC, 2004). This goal is derived from a specific planning scenario that all participating planning MSAs are asked to prepare for: a large-scale, outdoor aerosolized release of *bacillus anthracis*, the agent that causes inhalational anthrax. While not contagious, a challenge in responding to an anthrax attack is that by the time individuals are symptomatic, the probability of death approaches 100 percent (see, e.g., Pile et al., 1998). However, administration of antibiotics before the appearance of symptoms (usually between 48 and 72 hours) prevents occurrence of the disease. In

consultation with experts in the field, HHS determined early in the program that reaching the 48-hour goal would likely to prevent 95 percent or more cases of anthrax.

Table B.1. CRI Funding History

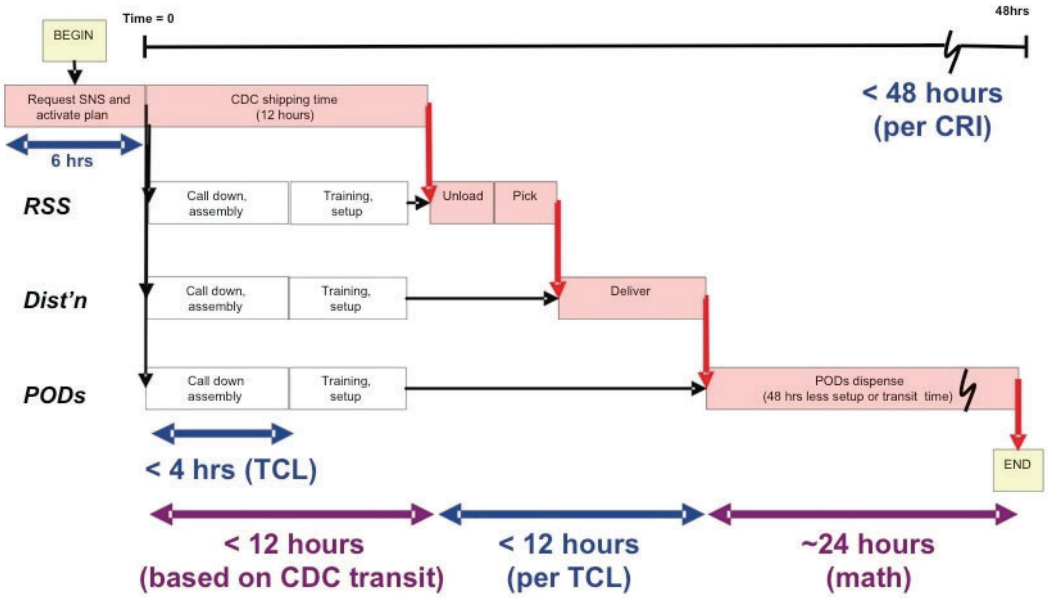
Year	Total ($ millions)	Number of Awardees
2004	27.0	21
2005	40.2	36
2006	54.8	72
2007	57.3[a]	72
2008	64.2[b]	72
2009	57.8[b]	72

[a] Data from HHS (2007).

[b] Data from CDC (2008b).

Achieving the goal of full-community dispensing within 48 hours requires a demanding set of tasks, including requesting, transporting, and receiving the medical countermeasures from the SNS; establishing PODs; distributing countermeasures to the PODs; recruiting staff; and operating PODs to dispense medications. To demonstrate the number of interdependent tasks, Figure B.1 provides a simplified representation of the SNS process. Beginning at the upper left corner, states (or local health departments working through their states) request SNS materiel from CDC. Materiel would then be delivered to a state-run medical warehouse, or RSS, facility. The materiel is then loaded onto trucks for distribution to the PODs, where medications are actually provided to individuals. (Note that the SNS distinguishes between *distribution* of medications to PODs and *dispensing* of medications to individuals.) POD facilities are often in high school gyms, armories, and other facilities. Increasingly, CRI plans call for dispensing via drive-through facilities and other nontraditional mechanisms (see Chapter Seven). According to CDC staff (Burel, 2008), there are currently over 3,500 PODs in the 72 participating MSAs.

Figure B.1. Selected Aspects of the SNS Process



NOTE: TCL = Target Capabilities List.

As noted in the figure, it is expected that 12 hours will be required between initial request of SNS materiel and delivery to the state (CDC, 2007). As much as another 12 hours might be required for distribution of the materiel from the state-run warehouse (RSS) facility to the PODs (DHS, 2007). This might leave as little as 24 hours for actual dispensing of medications to individuals. The CRI anthrax scenario also creates the need to rapidly communicate effective risk messages to an anxious public and coordinate the activities of the diverse set of response partners required to provide security, traffic control, supply-chain management, and a host of other activities.

B.3. ASSESSMENT AND ACCOUNTABILITY

Another key component of the CRI program resides in its requirements for assessment and accountability. The TAR is a tool developed by CDC to assess the extent to which a jurisdiction has completed planning in 12 core functional areas of SNS distribution and dispensing. Each area includes between five and 15 individual items, each rated on a simple scale indicating the degree

to which the awardee has completed the item.[1] Items from each of the functional areas are weighted and summed to generate an overall score. The areas (with weights) are as follows: developing SNS plan (0.03), command and control (0.10), requesting SNS (0.03), tactical communication (0.03), public information and communication (0.07), security (0.10), distribution site (0.03), inventory control (0.03), distribution (0.10), dispensing (0.24), treatment center coordination (0.03), and training/exercising/evaluation (0.10). The weights were generated by CDC DSNS staff.

Specific planning tasks within each TAR functional area are scored by CDC program services consultants based on explicit scoring guidance[2] and are based on review of documented evidence of supporting activities. This approach to assessing preparedness allows quantitative comparisons across CRI sites, functional areas, and, in some cases, across time. For the first year, assessments were conducted at baseline, 90 days, and 180 days, with annual assessments conducted by CDC and/or state health departments thereafter. To date, however, no formal studies of validity and reliability have been undertaken.

While state-level TAR results have only recently been made public (CDC, 2008a; Burel, 2008), there have been numerous reports of the local assessment results being shared with governors, legislators, county commissions, and other public officials—and of state and local SNS officials being reprimanded for poor scores.

B.4. TECHNICAL ASSISTANCE

The final component of the CRI program is technical assistance provided by CDC program services consultants. CRI is notable among CDC programs in that it provides technical assistance directly to local and regional entities, in addition to state health departments. The consultants assist in identifying resources and training opportunities. They also administer the TAR to approximately 25 percent of health departments in each CRI MSA (with the state administering the remaining 75 percent). This requires the application of considerable judgment in determining whether awardees have met specific program requirements. Further, CDC DSNS utilizes a number of venues, including educational Webcasts, guidebooks, and training classes, to share information and lessons learned from federal, state, and local perspectives.

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[1] Most items are rated on a three-point scale, where 0 indicates minimal or no progress toward completion, 0.5 partial completion, and 1 full completion. Other items are scored as either complete (1) or incomplete (0).

[2] The guidance includes verbal "qualifiers" that define varying degrees of completion and a user's guide that provides specific examples to illustrate the definitions (e.g., whether the fact that awardees can present security badges is evidence of an adequate credentialing system).

Awardees are also provided with written guidance in the form of the SNS program's *Receiving, Distributing, and Dispensing the Strategic National Stockpile Assets: A Guide for Preparedness* (CDC, 2007). This document details the core functional areas and the related capabilities required to receive, distribute, and dispense SNS materiel.

B.5. A THREE-YEAR PROGRAM CYCLE

CRI program officials at CDC report that they expect it to take approximately three years for an awardee to reach an acceptable level of readiness to meet the CRI program goal. During the first year, it is expected that awardees will begin the planning process, which usually involves reaching out to partners in law enforcement, public works, emergency management, hospitals, and elsewhere. CDC officials expect that CRI plans will be completed during the second year, with the third year focusing on testing and improving CRI plans through exercises and process-improvement efforts.

APPENDIX C: DETAILS OF THE SITE-VISIT METHODOLOGY

This appendix describes the sampling, data collection, and analysis design for our site visits.

C.1. NONRANDOM QUOTA SAMPLING WAS EMPLOYED TO ENSURE DIVERSITY ACROSS SITES

Sampling took place on two levels: (1) selection of CRI and non-CRI sites and (2) selection of key contacts within sites.

Selection of CRI Sites. Given the exploratory nature of the project and the complexity of the program, we prioritized an in-depth examination of CRI's contribution at a small number of sites over gaining a less detailed picture from a larger sample of sites. Taking such a sample at random would not be appropriate, since small, random samples are often less representative than are sampling schemes that employ researcher judgment to enforce diversity on key dimensions. This is especially true in situations such as this, in which specific sites are quite idiosyncratic. Therefore, we drew a quota sample, which involved identifying key characteristics and deliberately (nonrandomly) selecting subjects (in this case, locations) to fill quotas at each level of those characteristics (see Trochim and Donnelly, 2007). Quotas were set for date of program entry (which also corresponded approximately to MSA size) and CRI versus non-CRI locations. Judgment was also used to gain variability in the degree of centralization in state-local public health systems and geographic region.

As noted in Chapter Five, one of the non-CRI sites turned out to have independently adopted the key elements of CRI (without the added resources), making CRI/non-CRI comparisons less of a contrast than expected. This strategic focus was only discovered by the research team during the site visit and arguably may not have come out in a less in-depth design. While perhaps an extreme example, this raises the possibility that few sites are truly devoid of intervention, given awareness of the program in nearby sites.

Selection of Key Contacts at Each Site. Similarly, within locations, sampling was not random, but rather guided by an attempt to select individuals whose roles and functions are most central to CRI-related functions, including

- developing the mass prophylaxis and emergency preparedness plans
- resource allocation
- requesting SNS assets
- mobilizing sites and staff (including recruitment)

- warehousing
- distribution
- dispensing
- security
- public information and communication
- exercises and improvement efforts.

These focal capabilities, as well as the overall evaluation framework, were reviewed by CDC DSNS before field work commenced. The selection of specific individuals to represent these roles and functions depended on (1) the organizational structure of the local health department, (2) the availability of key personnel, and (3) suggestions provided by CDC and local points of contact. Most visits included meetings with between six and 16 individuals (median = 12). However, there were as few as three and as many as 22. The three-person meeting took place at the smallest site and included all of the individuals actively engaged in PHEP. The majority of those with whom we met (63 percent) were employed by health departments, followed by fire, law enforcement, and the National Guard (12 percent) and emergency management (9 percent). The others (14 percent) were from schools and departments of environment, sanitation, and transportation.

C.2. DATA-COLLECTION STRATEGIES HELPED ENSURE CONSISTENT AND TARGETED DATA COLLECTION ACROSS SITES

Since sites differed considerably in terms of MSA size, organizational structure, maturity of PHEP efforts, and available staff, the data-collection design needed to strike a balance between consistency across sites and responsiveness to local realities. Additionally, given that there was little information on which to base prior expectations for construction of protocols, the discussions were necessarily quite exploratory (see Ulin, Robinson, and Tolley, 2004).

Site visits were conducted by teams of two researchers drawn from a pool of seven team members and overlapped across sites. As a result, individuals were paired differently at different sites. The goal of these overlapping pairs was to promote a common operating procedure across sites. One team member acted as the point of contact and led discussions (taking brief notes), while the other team member provided logistic support and was responsible for taking detailed notes.

To make the most of each meeting, team members requested and reviewed key state and local documents (e.g., SNS plans, exercise and incident AARs) prior to the meetings. Review of these documents focused on (1) the main capacities and capabilities identified in the TAR and (2) change in capacity over time. A Microsoft® Excel®–based database was used to summarize

document-review findings for each site. The database was then used to customize the discussion guide to address specific events, plans, and approaches relevant to each site. In both previsit document review and visit discussion, we sought to establish timelines that identified a rough account of pre/post changes that might be due to CRI.

Where possible, meetings were held one-on-one or with small groups in order to encourage candor and avoid the potential for individuals to dominate conversations. Meetings were guided by a discussion guide (provided in Appendix E) that included the following:

- personal history of the individual(s), including background, training, position, tenure, and experiences with PHEP
- the site's achievements and challenges within the functional areas relevant to the individuals in the meeting[1]
- how these achievements and challenges changed over time (including the period prior to CRI).
- the individuals' opinions of how CRI has helped or hindered efforts in their functional areas
- the individuals' opinions of what would have been different without CRI, and their reasoning behind those opinions.

C.3. QUALITATIVE ANALYSIS FOCUSED ON IDENTIFYING THEMES RELATED TO THE IMPACT OF CRI

After each site visit, team members compared notes and vetted them for agreement among the interviewers (where disagreement persisted, this was noted). Observers were also asked to identify key themes that arose during each site visit regarding the overall impact of CRI, specific effects of CRI components (e.g., technical assistance), and affected capacities and capabilities. Team leaders compiled this information across all site visits, looking for commonalities across meetings and sites. For each theme, it was noted whether pieces of evidence from different sites or meetings supported each other or conflicted. The entire team then met to discuss this summary of evidence, striving to achieve consensus on the evidence for and against each finding.

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[1] The flow of this portion of the discussion was based on the capabilities and capacities with which the individual was familiar. Discussion topics were developed in advance for each capability and capacity. Specific attention was paid to funding, guidance, technical assistance, the TAR, the anthrax scenario, and other sources of guidance or assistance.

As noted in Chapter Two, the evaluation design included both pattern matching and pre/post comparisons within each site and between CRI and non-CRI sites. Analysis of changes was aided by a performance rubric that identified a progression of preparedness that helped organize the observation of changes over time. Pattern matching, in turn, was aided by a conceptual framework (see Chapter Three) that hypothesized the impacts of CRI components on PHEP capacities and capabilities. The analysis was conducted for most key CRI capacities and capabilities (listed in Appendix D, Table D.1). Evidence for CRI's impact was considered to be strongest where there was convergence among sources of evidence.

Whereas the specific sites are known to CDC, the notes and correspondences from each site are treated as confidential, and no finding is attributed to a specific site.

APPENDIX D: SITE-VISIT DISCUSSION GUIDE

Activities Prior to Site Visit

1. Discuss site with CDC program services consultant.

2. Contact CRI coordinator or other CRI site point of contact (per the CDC program services consultant).

    a. Provide overview of evaluation purpose, scope, and methods (see introduction to discussion guide).
    b. Secure commitment to participate in the evaluation.
    c. Ask for copies of CRI plans, AARs, and other relevant documents (or ask whether we can get these through the CDC program services consultant).
    d. Identify timeline and key informants for site visit.

3. Analyze available documents collected and available on the SharePoint® site, including CRI plans, AARs, and TAR assessments.

    a. Establish basic timeline of development of mass prophylaxis capacities/capability, including before participation in CRI.
    b. Identify critical events that might be analyzed to check for CRI impact:
        i. e.g., move from outsource planning to doing it in-house
        ii. e.g., developing a more streamlined POD model
        iii. e.g., "lesser outbreaks."
    c. As much as possible, do preliminary analysis (e.g., process tracing) to determine whether pattern of evidence is consistent with CRI influence versus influence of non-CRI factors.
    d. As much as possible, work with team to extract information needed for mathematical analysis (e.g., number of staff on call-down lists, number of PODs, etc.).

4. Recontact CRI site to confirm/update site-visit dates, times, and key informants.

5. Adapt the site-visit discussion guide (see next page) to follow up on remaining questions from the initial document analysis.

Discussion Topics for Site Visit

Project overview and consent:

- RAND is a nonprofit, nonpartisan policy research organization. We have been doing PHEP for five years, mostly for HHS Office of the Assistant Secretary for Preparedness and Response and CDC, but also for the U.S. Department of Veterans Affairs. Some states and international organizations have done lots of work on mass prophylaxis, including measurement and standards for SNS and CRI.
- Earlier this year, CDC/Coordinating Office for Terrorism Preparedness and Emergency Response contracted with us to do an external evaluation of CRI. The major policy question is whether the program has enough merit to continue as a separate entity.
- We decided that the best approach is case studies, given inconsistent data over time and given particularities of communities, etc. We selected five early-entrant MSAs to get at those sites that have had most "exposure" to the "CRI treatment." As a comparison group, we selected two late-entrant MSAs and two largeish non-CRI MSAs.
- Do oral consent:

Required: Thank you for agreeing to talk with us about public health and emergency preparedness. Before we begin, let me assure you that your responses to these questions will be held in strict confidence, except as required by law. Summary information from these interviews, together with material taken from public documents, will be presented to the Centers for Disease Control and Prevention (CDC), as part of a project evaluating the Cities Readiness Initiative. The names of the sites being contacted will be included in the reports, however, no observations or statements will be attributed to specific individuals, organizations, cities, counties or states. Study results will be made available to each site upon request.

The notes from our discussions and reports and plans we collect from you may be used in other RAND studies of public health emergency preparedness. However, if data is retained for this purpose, then individuals' names and organizations will be removed from the notes.

Your participation in this discussion is completely voluntary. We would like to have your responses to all of the questions; however, if you are uncomfortable with any question we can skip it. We estimate that the meeting will take no more than ninety minutes.

Do you have any questions about our confidentiality procedures before we begin? (If yes, respond to all questions. If no, proceed with discussion.)

- Be clear that we are evaluating CRI, not the sites. Of course, we have to look carefully at sites to get at CRI's impact. But our report's main goal will be to look at CRI's impact on sites. We will not be doing any sort of site-level report cards or other evaluations.

Discussion guide:

Use the following outline to direct the open-ended interviews during site visits.

1. Personal history.
   - Discuss interviewee's background, training, position, tenure, and experiences with PHEP

2. Tell me about [CRI site's] achievements and challenges in [functional area (e.g., public information communication)] for PHEP.
   - Base flow of this portion of the discussion on the capabilities and capacities that the interviewee is familiar with.
   - Guide discussions so that, ultimately, they cover topics listed in Table D.1.
   - Look for mention of funding, guidance, technical assistance, TAR, CRI scenario/focus, or other sources of guidance/assistance.

3. How have these achievements and challenges changed over time, and what was being done before CRI?

4. What of what you described was made possible by CRI?

5. What about CRI is helping or hindering [functional area (e.g., public information communication)] efforts?

6. Without CRI funding and structure, how would it have been different and why?

Table D.1. Topics to Cover in Open-Ended Interviews

Capacity or Capability	Topics to Cover
Resource allocation	Amount of funding Access to funding from state Affects on other sources of funding Appropriateness of uses for funding
Quality of plans	Existence and history of plans Process for updating plans Outreach to local stakeholders for planning process Review of state policies and legal issues
Quality of exercising and quality-improvement efforts	Types and number of exercises conducted Timing of exercises (when have they occurred and how have they change over time) Guiding basis for exercise process (HSEEP or other) Implementation of quality-improvement efforts Training provided to local planners on planning, conducting, and evaluating exercises
Dispensing	Status and details of plans (number of sites and staff) Time studies and modeling studies Use of streamlined model Adequacy of plan Identification and treatment of legal issues with dispensing
Mobilizing sites and staff	Existence of call-down lists/protocols Adequacy of call-down lists/protocols Exercising of call-down lists/protocols
Security	Plan Site security assessments Coordination with law enforcement Staffing Exercising
Distribution	Existence and details of the plan (including routes, flow diagrams, and number of trucks) Adequacy of distribution plan Exercising or testing of plan
Warehousing	Existence and details of plan (including staff, sites and backup sites, job action sheets, and floor plans) Adequacy of plan Exercising or testing of plan
Public information and communication	Plans Coordination/outreach with state and media communication materials and messages Training and exercises Evaluations of materials, messages, and plans Provisions for special populations Experiences
Requesting SNS assets	Existence and details of plan to request SNS Adequacy of plan Exercising of plan

APPENDIX E: CURRENT LOCAL TECHNICAL ASSISTANCE REVIEW TOOL

As noted in Chapter Two and Appendix B, TAR is a tool developed by CDC to assess the extent to which a jurisdiction has completed planning in 12 core functional areas of SNS distribution and dispensing. This appendix presents the current version of the TAR for local health departments. A similar version for state health departments is not included. Details on use and scoring are provided in Appendix B.

DIVISION OF STRATEGIC NATIONAL STOCKPILE **LOCAL TECHNICAL ASSISTANCE REVIEW**

Local Jurisdiction: _____ Review Date: _____

SNS Consultant Conducting Review: _____

Other SNS Personnel Present: _____

	Baseline Data for Review	Number	Comments
1	Local population covered by mass prophylaxis plan.		
2	Estimated hourly throughput to provide prophylaxis to 100% of the population in 48 hours.		
3	Number of Points of Dispensing (PODs) needed to cover 100% of the population.		
4	Number of PODs identified with appropriate authorization.		
5	Number of PODs with documented site specific plans.		
6	Number of POD sites with identified primary and backup management teams.		
7	Number of personnel needed to staff 100% of the POD functions for a mass prophylaxis campaign and/or medical supplies management and distribution.		
8	**Current** number of personnel available to staff POD functions for a mass prophylaxis campaign and/or medical supplies management and distribution.		

SECTION ONE: DEVELOPING A PLAN WITH SNS ELEMENTS (3%)			
1.1		**Local SNS Planning Elements are incorporated in the Local All Hazards Plan and are NIMS-compliant.**	
	1	Local SNS planning elements are incorporated into the Local All Hazards Plan and are NIMS-compliant.	
	0	Local SNS planning elements are not incorporated into the Local All Hazards Plan and are not NIMS-compliant.	
1.2		**Local SNS planning elements are updated annually based on deficiencies revealed during federal and/or state SNS Program Technical Assistance Reviews, and state/local trainings and exercises.**	
	1	It can be verified that the local SNS planning elements included in the All-Hazards Plan are updated annually.	
	0	It can not be verified that the local SNS planning elements included in the All-Hazards Plan are not updated annually.	
1.3		**Multi-discipline planning/advisory group meets annually to review and/or update the SNS planning elements in the All-Hazards Plan.**	
		☐ **Health Department** ☐ **Mental Health/Crisis Professionals** ☐ **Emergency Management Agency** ☐ **Local Office of Homeland Security** ☐ **Public Works** ☐ **Dept. of Transportation** ☐ **Law Enforcement** ☐ **Hospitals** ☐ **Emergency Medical Services** ☐ **Fire** ☐ **Dept. of Administration/Finance** ☐ **Dept. of Corrections**	☐ **Military Installations** ☐ **Tribal Nations** ☐ **Regional HHS Liaison(s)** ☐ **MMRS Representative** ☐ **NDMS Representative** ☐ **Medical Reserve Corps** ☐ **Community Emergency Response Team** ☐ **Home Health/Visiting Nurse** ☐ **Organizations servicing At-Risk Populations** ☐ **Private Business Representatives** ☐ **Volunteer Organizations** ☐ **Civic Organizations** ☐ **Professional Organizations**	**OTHER(S):** ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____
	1	The planning/advisory group includes representatives of at least 50% of the applicable agencies and institutions listed above and meeting documentation is available for review.	
	0.5	The planning/advisory group includes less than 50% of representatives from the applicable agencies and institutions listed above and meeting documentation is available for review.	
	0	A planning group has not been formed or meeting documentation is not available for review.	
1.4		**The roles and responsibilities of local agencies and/or other organizations concerning SNS planning elements are documented.**	
	1	There is supporting documentation of appropriate local agencies and/or other organizations acknowledging their roles and responsibilities concerning the SNS planning elements indicated in the Local All-Hazards Plan.	
	0	There is no verifiable documentation that local agencies and/or other organizations have acknowledged their roles/responsibilities in SNS planning elements.	

1.5		**State and local policies and procedures to support local mass prophylaxis operations and/or medical supplies management and distribution are referenced in plan:** ☐ **Process for requesting SNS assistance.** ☐ **Number of regimens that a family member can pick-up at a dispensing site.** ☐ **Unaccompanied minor.** ☐ **Minimum identification requirements in order to receive medication.** ☐ **Badging process used to identify volunteers and staff.** ☐ **Use of force guidelines for law enforcement.** ☐ **Providing prophylaxis to tribal nations (if applicable).** ☐ **Providing to prophylaxis to military installation(s) within jurisdiction (if applicable).**	
	1	All the applicable policy issues listed above have been reviewed, identified, and incorporated in the SNS planning efforts to support mass prophylaxis operations and/or medical supplies management and distribution.	
	0.5	Four to seven of the applicable policy issues listed above have been reviewed, identified, and incorporated in the SNS planning efforts to support mass prophylaxis operations and/or medical supplies management and distribution.	
	0	Less than four policy issues listed above have been reviewed, identified, and incorporated in the SNS planning efforts to support mass prophylaxis operations and/or medical supplies management and distribution.	
1.6		**Legal issues to support mass prophylaxis operations and/or medical supplies management and distribution are outlined in plan:** ☐ **Medical practitioners authorized to issue standing orders and protocols for dispensing sites.** ☐ **Personnel authorized to dispense medications during a state of emergency.** ☐ **Procurement of private property.** ☐ **Liability protection.** ☐ **Workers compensation.** ☐ **Staff compensation.**	
	1	Five or more of the legal issues listed above have been reviewed, identified, and addressed in the plan (origin citations should be included).	
	0.5	Two to four of the legal issues listed above have been reviewed, identified, and addressed in the plan (origin citations should be included).	
	0	Less than two of the legal issues listed above have been reviewed, identified, and addressed in the plan.	
SECTION ONE: Points _____ Divided by 6 = _____			

SECTION TWO: MANAGEMENT OF SNS (10%)			
2.1		**Local SNS Coordinator identified with back-up and POC information.**	
	1	The local SNS Coordinator and back-up have been identified and documented and their contact information (more than one phone number for each person) is available.	
	0.5	Only the local SNS Coordinator has been identified, or no back-up has been identified, or no POC information exists.	
	0	No written documentation exists that a local SNS Coordinator has been identified.	
2.2		**At the local level and dependent upon the placement of the activities in the local's NIMS-compliant organizational structure, the following functions have personnel (primary and backup) identified with documented contact information.** ☐ **Tactical Communications/IT Support** ☐ **Security Coordination** ☐ **Distribution Leader/Manager** ☐ **Dispensing Site Supervisor/Leader** ☐ **Inventory Management Coordination** ☐ **Hospital/Alternate Care Facilities Leader/Manager** ☐ **Public Information and Communication** ☐ **Staffing/Volunteer Coordination** ☐ **Safety Coordination**	
	1	All have been identified with contact information documented.	
	0.5	Six have been identified with contact information documented.	
	0	Less than six have been identified with contact information documented.	
2.3		**Call-down rosters for personnel identified in item 2.2 are current and updated quarterly.**	
	1	Written call-down roster exists for all listed above and is updated quarterly.	
	0.5	Written call-down roster exists for all listed above and is updated less than quarterly.	
	0	A call-down roster for all listed above does not exist.	
2.4		**Local jurisdiction conducts and documents call-down exercises of all personnel identified in item 2.2 to test response rates quarterly.**	
	1	Call down exercises are conducted quarterly and the results of these drills are documented and any identified discrepancies corrected and documented.	
	0.5	Call-down exercises are conducted less than quarterly.	
	0	No documentation exists that quarterly call down exercises were conducted.	
2.5		**SNS functions are integrated within the local Incident Command System (ICS) structure and are NIMS compliant.**	
	1	The local jurisdiction can produce for review an ICS organizational chart that integrates SNS functions that is NIMS compliant.	
	0	The ICS organizational chart is not documented.	
2.6		**The local jurisdiction has a plan to annually test and exercise notification and activation of volunteers below the local level positions identified in item 2.2.**	
	1	The local jurisdiction has a plan, has tested/exercised the plan, and has a corrective action plan to address identified discrepancies on an annual basis.	
	0.5	The local jurisdiction has a plan and has tested/exercised the plan on a less than annual basis.	
	0	The local jurisdiction does not have a plan.	
SECTION TWO: Points _____ Divided by 6 = _____			

SECTION THREE: REQUESTING SNS (3%)			
3.1		**Plan to communicate with key local officials to discuss incident to determine the need to request state assistance.**	
	1	There is a written plan for local health officials to communicate with the political leaders regarding the decision to request state assistance.	
	0	There is no written plan for local health officials to communicate with the political leaders regarding the decision to request state assistance.	
3.2		**Person(s) authorized by the local health director to request state assistance are identified in the plan with contact information.**	
	1	Personnel authorized to request are documented in the local all-hazards plan with contact information.	
	0	Personnel authorized to request are not documented in the local all-hazards plan.	
3.3		**Plans and procedures contain <u>initial request</u> justification guidelines and procedures for locals to request SNS materiel from the State.**	
	1	Plans and procedures describe SNS materiel request justification guidelines & procedures.	
	0	Plans and procedures do not describe SNS materiel request justification guidelines & procedures.	
3.4		**Plans contain procedures for re-supply requests of SNS materiel from the State.**	
	1	Plans <u>do</u> describe request procedures for the resupply of SNS materiel.	
	0	Plans <u>do not</u> describe request procedures for the resupply of SNS materiel.	
3.5		**Plans and procedures contain the request procedures for dispensing sites to request SNS materiel from the State.**	
	1	Plans and procedures <u>describe</u> local request procedures for requesting SNS materiel.	
	0	Plans and procedures <u>do not</u> describe local request procedures for requesting SNS materiel.	
SECTION THREE: Points _____ Divided by 5 = _____			

SECTION FOUR: COMMUNICATIONS PLAN (TACTICAL) (3%)			
4.1		**Tactical communication and/or IT support call-down lists are reviewed and updated quarterly.**	
	1	Local jurisdiction communication/IT support call-down lists are reviewed and updated quarterly.	
	0	There is no written documentation substantiating that communication/IT support call down rosters are reviewed and updated quarterly.	
4.2		**Communications/IT support has a job action sheet.**	
	1	A job action sheet is included in the plan and communication/IT support.	
	0	A job action sheet has not been developed.	
4.3		**Communication pathways are established between command and management locations and support agencies:** **Local EOC(s)** **Dispensing Sites** **Security** **Local Health Department (s)** **Hospitals/Alternate Care Facilities** **Transportation Resources** **State and/or Regional EOC** **RSS Location** **Regional Distribution (if applicable)**	
	1	The local jurisdiction is able to produce for review documentation (matrix/flow-chart) that delineates established communications pathways.	
	0	Document(s) delineating communication pathways between command and management locations are unavailable for review.	
4.4		**Redundant communications systems are in place and are tested quarterly to ensure communications remain available in the event primary communication systems are unavailable.** ☐ **Land-line telephones** ☐ **Ham/Amateur radio operators** ☐ **Cell phones** ☐ **UHF/VHF/800 MHz radio systems** ☐ **Satellite phones** ☐ **Web-based communications** **(E-Team, Web EOC, HAN, Workspaces, etc.)** ☐ **Email** **Emergency notification systems** **(reverse 911, 311, 211, code red, etc.)** ☐ **Fax**	
	1	The local jurisdiction has more than four communication systems in place linking management and command locations and support agencies and those systems are tested quarterly.	
	0.5	The local jurisdiction has at least four communication systems in place linking management and command locations and support agencies and those systems are tested less than quarterly.	
	0	The local jurisdiction has less than four communication systems and/or is unable to effectively communicate with all management and	
4.5		**Communication networks (equipment/hardware) between command and management locations and support agencies are tested and exercised quarterly.**	
	1	The local jurisdiction provides supporting documentation that reflects communication networks are tested and exercised quarterly and has a corrective action plan to address identified discrepancies.	
	0.5	The local jurisdiction provides documentation that reflects communication networks have been tested and exercised within the preceding 12 months.	
	0	The local jurisdiction does not provide written documentation that supports communication networks have been tested and exercised within the preceding 12 months.	
4.6		**Designated personnel (identified in item 2.2) are trained in the use of redundant communications equipment.**	
	1	The local jurisdiction can provide documentation to support that designated personnel have been trained.	
	0	The local jurisdiction is unable to document that designated personnel have been trained.	
SECTION FOUR: Points _____ Divided by 6 = _____			

SECTION FIVE: PUBLIC INFORMATION AND COMMUNICATION (PIC) (7%)			
5.1		**Local public information and communication personnel (identified in 2.2) have been trained on responsibilities associated with a mass prophylaxis campaign:** ☐ **Training opportunities are documented.** ☐ **Job action sheets have been developed.**	
	1	All of the above bullets are completed, documented, and verified.	
	0.5	One of the above bullets is completed, documented, and verified.	
	0	Local jurisdiction cannot provide verification of any of the above items.	
5.2		**Written PIC plan:** ☐ **Is part of the all hazards public information plan.** ☐ **Addresses coordination between local jurisdictions as well as with state to ensure message consistency.** ☐ **Identifies a media policy for dispensing sites.**	
	1	All the components regarding a mass prophylaxis campaign mentioned above are included in the comprehensive written PIC plan.	
	0.5	One to two of the components regarding a mass prophylaxis campaign mentioned above are included in the comprehensive written PIC plan.	
	0	None of the mass prophylaxis campaign components are present in the comprehensive written PIC plan.	
5.3		**The following PIC responsibilities appear on the job action sheet of the PIC liaison or other designated dispensing site staff:** ☐ **Coordinate information with the lead PIO and/or JIC.** ☐ **Serve as a point of contact for the media.** ☐ **Handle public information messages, methods, and materials at the POD.**	
	1	All the components above are included in the dispensing site plans.	
		One to two of the components above are included in the dispensing site plans.	
	0	None of the above are included in the dispensing site plans.	
5.4		**Messages have been developed for dispensing at the local level, including messages to:** ☐ **Prepare the public before an event.** ☐ **Direct people to the dispensing sites.** ☐ **Inform people about alternative dispensing methods.** ☐ **Help people navigate the dispensing sites.** ☐ **Provide information to people once they leave the dispensing sites.** ☐ **Ensure medication compliance.**	
	1	Messages for a mass prophylaxis campaign have been developed, completed, documented, and verified for all of the above bullets.	
	0.5	Messages for a mass prophylaxis campaign have been developed, completed, documented, and verified for three to five of the above bullets.	
	0	Messages for a mass prophylaxis campaign have been developed, completed, documented, and verified for two or less of the bullets were documented and verified.	

5.5		**Methods to disseminate the messages indicated in item 5.4 above have been developed, including:** ☐ **Methods of communication for the messages that get people to the dispensing sites.** ☐ **Methods of communication for the messages that get people through the dispensing sites.** ☐ **Alternate methods to disseminate messages in case of electrical outages.** ☐ **Development of pre-event media relationships.**	
	1	Methods for disseminating messages during a mass prophylaxis campaign have been developed, completed, documented, and verified for all of the above bullets.	
	0.5	Methods for disseminating messages during a mass prophylaxis campaign have been developed, completed, documented, and verified for two or three of the above bullets.	
	0	Methods for disseminating messages during a mass prophylaxis campaign have been developed, completed, documented, and verified for one or less of the bullets were documented and verified.	
5.6		**Materials (fact sheets, press releases, signs) or templates have been developed and cleared:** ☐ **To direct people to the dispensing sites.** ☐ **To help people navigate the dispensing sites.** ☐ **To provide information to people after they leave the dispensing site.** ☐ **On category A agents.** ☐ **On medications used for prophylaxis and treatment.** ☐ **A plan for mass reproduction and storage of printed materials.**	
	1	All of the above bullets are completed, documented, and verified.	
	0.5	Three to five of the above bullets are completed, documented, and verified.	
	0	Two or less of the bullets were documented and verified.	
5.7		**Local plan for communication needs of at-risk populations, including:** ☐ **Bullets from 5.5.** ☐ **Definition and identification of at-risk population groups.** ☐ **Development of alternate methods for disseminating information to at-risk populations.** ☐ **Development of materials that are easy to read and have been translated to top languages in the community.** ☐ **A mechanism is in place to translate information for non-English speaking, hearing impaired, visually impaired, or functionally illiterate individuals.**	
	1	All of the above bullets are completed, documented, and verified.	
	0.5	Two to four bullets are completed, documented, and verified.	
	0	One or less of the bullets were documented and verified.	
SECTION FIVE: Points _____ Divided by 7 = _____			

SECTION SIX: SECURITY (10%)			
6.1		☐ **Local level position (identified in 2.2) that coordinates the overall security issues has been trained on the specific security requirements for medical supplies management and distribution operations.** ☐ **Local security support agencies identified and oriented.** ☐ **Contact information is available for security support agencies.**	
	1	The primary and back-up have been trained, contact information documented, and support agencies have been identified.	
	0.5	The primary and back-up has not been trained, contact information documented, but support agencies have not been identified.	
	0	The local jurisdiction has not identified a security coordinator or identified security-support agencies.	
6.2		**Security plans for transportation of medical materiel have been developed.** ☐ **Escort plans for materials coming from the RSS (if applicable).** ☐ **Escort plans for materials leaving the Regional Distribution Site (if applicable).** ☐ **Escort plans for transport of materials from dispensing sites to other sites that may need materiel.** ☐ **Escort of personnel to and from site venues.**	
	1	Applicable security escort plans have been addressed and documented.	
	0	Security escort plans have not been addressed.	
6.3		**Security Plans have been developed for Dispensing Sites AND/OR Regional Distribution Site (if applicable) and include:** **1) Security and vulnerability assessment of location and facility strengths/weaknesses.** **2) Interior physical security of location.** ☐ **Security sweep prior to facility use/occupancy by staff or product.** ☐ **Establishment of law enforcement officer posts.** ☐ **Access control to locations within the facility.** ☐ **Crowd control inside the facility.** **3) Exterior physical security of location.** ☐ **Specialized unit needs (canine, explosive ordnance disposal, tactical, traffic, etc.).** ☐ **Additional physical barriers (necessity and/or identification of source).** ☐ **Additional lighting (necessity and/or identification of source).** ☐ **Staging area for personnel and vehicles.** ☐ **Vehicular traffic control (ingress and egress).** ☐ **Crowd control outside the facility.** ☐ **Access control to facility.** **4) Command and management.** **1. Establish command center for law enforcement.** **2. Determine radio channels.** **3. Ensure communication and coordination between law enforcement organizations.** **4. Establish shifts.** **5. Establish sufficient number of law enforcement officer assignments.** **5) Evacuation plans.** **6) Security breach plans.**	

	1	All of the above numbered items have been addressed and documented.	
	0.5	Two to five of the six numbered items from above have been addressed and documented.	
	0	Less than two of the numbered items above have been addressed.	
6.4		**Badging procedures are in place for all personnel responding to a public health event involving medical materiel and resources:** ☐ **Badging procedures identify by:** ☐ **Name.** ☐ **Role.** ☐ **Venue.** ☐ **Access.** ☐ **Just-in-time training on badging procedures.** ☐ **Handling of spontaneous (non pre-event identified) volunteers.**	
	1	The local jurisdiction has documented procedures that address both pre-event and spontaneous volunteers and has just-in-time training on badging procedures.	
	0	The local jurisdiction does not have any badging procedures documented.	
6.5		**Site-specific security plans have been developed for dispensing sites and/or regional distribution sites (if applicable).**	
	1	All dispensing sites and/or regional distribution sites have a site-specific security plan.	
	0.5	At least 50% of the dispensing sites and/or regional distribution sites have a site-specific security plan.	
	0	Less than 50% of the dispensing sites and/or regional distribution sites have a site-specific security plan.	
SECTION SIX: Points _____ Divided by 5 = _____			

SECTION SEVEN: REGIONAL/LOCAL DISTRIBUTION SITE (14%)
--- PF APPLICABLE ---

7.1		**Have a Regional Distribution Site (RDS) strategy that expedites the movement of medical material to the PODs and hospitals and/or alternate care facilities:** ☐ **Adequate RDS facilities have been identified to ensure rapid delivery of medical material.** ☐ **Primary and backup locations have been identified.** ☐ **Time and distance-based locations.** ☐ **Population-based.**	
	1	Strategically located RDS sites (show sites plotted on a local map) have been secured and feasible timelines for rapid movement of medical materials have been established.	
	0.5	A RDS plan is being developed but incomplete.	
	0	There is not a RDS plan that accounts for the movement of medical materiel.	
7.2		**RDS facilities reviewed and validated by State SNS Coordinator using RSS Site Survey Tool.**	
	1	All locations have been reviewed and validated by the SNS Coordinator.	
	0.5	At least 50% of all locations have been reviewed and validated by the SNS Coordinator.	
	0	Less than 50% of all locations have been reviewed and validated by the SNS Coordinator.	
7.3		**MOAs are in place for reviewed and validated RDS sites.**	
	1	The local jurisdiction has a signed MOA with all RDS sites.	
	0.5	The local jurisdiction has a signed MOA with half the RDS sites.	
	0	The local jurisdiction does not have signed MOAs with any RDS sites.	
7.4		**The following RDS Managers/staff have been identified with back-up and POC information for each RDS facility identified: (0.5 points for each position for a total of 8 points—includes both primary and backup).**	
		PRIMARY ☐ **RDS Manager/Leader** ☐ **Security Manager/Leader** ☐ **Safety Manager/Leader** ☐ **Communications / IT Manager/Leader** ☐ **Inventory Control Manager/Leader** ☐ **Shipping / Receiving Manager/Leader** ☐ **Pick Team Manager/Leader** ☐ **Quality Control Manager/Leader**	**BACKUP** ☐ **RDS Manager/Leader** ☐ **Security Manager/Leader** ☐ **Safety Manager/Leader** ☐ **Communications / IT Manager/Leader** ☐ **Inventory Control Manager/Leader** ☐ **Shipping / Receiving Manager/Leader** ☐ **Pick Team Manager/Leader** ☐ **Quality Control Manager/Leader**
7.5		**RDS Leaders/Managers and back-ups have job action sheets and have been trained in RDS Operations.**	
	1	All RDS leaders and their back ups have: ☐ A job action sheet. ☐ Trained in RDS operations. ☐ Proof of training is documented.	
	0.5	All RDS leaders and their backups have a job action sheet.	
	0	None of the RDS leaders and their backups have been trained in RDS operations.	

7.6		**Safety Manager/Leader and back-ups have job action sheet and have been trained in their RDS function.**	
	1	All Safety managers/leaders and their backups have: ☐ A job action sheet. ☐ Trained in their RSS function. ☐ Proof of their RDS function training is documented.	
	0.5	All Safety managers/leaders and their backups have a job action sheet.	
	0	None of the Safety managers/leaders and their backups have been trained in their RSS function.	
7.7		**Communications/IT Support and back ups have job action sheet and have been trained in their RDS function.**	
	1	All Communications/IT Support managers and their backups have: ☐ A job action sheet. ☐ Trained in their RDS function. ☐ Proof of their RDS function training is documented.	
	0.5	All Communications/IT Support managers/leaders and their backups have a job action sheet.	
	0	None of the Communications/IT Support managers/leaders and their backups have been trained in their RSS function.	
7.8		**Inventory Manager/Leader and back-ups have job action sheet and have been trained in their RDS function.**	
	1	All Inventory managers/leaders and their backups have: ☐ A job action sheet. ☐ Trained in their RDS function. ☐ Proof of their RDS function training is documented.	
	0.5	All Inventory managers/leaders and their backups have a job action sheet.	
	0	None of the Inventory managers/leaders and their backups have been trained in their RSS function.	
7.9		**Shipping/Receiving Manager/Leader and back-ups have job action sheet and have been trained in their RDS function.**	
	1	All Shipping/Receiving managers/leaders and their backups have: ☐ A job action sheet. ☐ Trained in their RDS function. ☐ Proof of their RDS function training is documented.	
	0.5	All Shipping/Receiving managers/leaders and their backups have a job action sheet.	
	0	None of the Shipping/Receiving managers/leaders and their backups have been trained in their RDS function.	
7.10		**Pick Team Manager/Leaders and back-ups have job action sheet and have been trained in their RDS function.**	
	1	All Pick Team managers/leaders and their backups have: ☐ A job action sheet. ☐ Trained in their RDS function. ☐ Proof of their RDS function training is documented.	
	0.5	All Pick Team managers/leaders and their backups have a job action sheet.	
	0	None of the Pick Team managers/leaders and their backups have been trained in their RDS function.	

7.11		**Quality Control Managers/Leaders and back-ups have job action sheet and have been trained in their RDS function.**
	1	All Quality Control managers/leaders and their backups have: ☐ A job action sheet. ☐ Trained in their RDS function. ☐ Proof of their RDS function training is documented.
	0.5	All Quality Control managers/leaders and their backups have a job action sheet.
	0	None of the Quality Control managers/leaders and their backups have been trained in their RDS function.
7.12		**Call-down rosters for 24/7 operations for all RDS Managers and staff/volunteers are reviewed for accuracy and tested quarterly.**
	1	Documented call down lists are reviewed for accuracy and tested quarterly and corrections to call down lists are documented.
	0.5	Documented call down lists are reviewed for accuracy quarterly.
	0	No written documentation that verifies staff call down rosters are reviewed quarterly.
7.13		**Just-in-time (JIT) training materials have been developed for each of the RDS functions to familiarize personnel working within those functions:** **☐ Safety** **☐ Pick Teams** **☐ Other functions, as appropriate** **☐ Shipping/Receiving** **☐ Quality Control** **☐ Communications/IT** **☐ Inventory Management**
	1	Training materials have been developed for each of the RDS functions.
	0.5	Training materials have been developed for 50% of the RDS functions.
	0	Less than 50% of the training material has been developed for the RDS functions.
7.14		**An inventory of material handling equipment for each RDS site should be documented along with a list of materials/supplies that need to be procured and/or delivered at the time of event.**
	1	An inventory listing containing appropriate material handling equipment is available for 100% of the RDS sites.
	0.5	An inventory listing is available for 75% of the RDS sites.
	0	An inventory listing is available for none of the RDS sites.
7.15		**An inventory of office equipment for each RDS site should be documented along with a list of materials/supplies that will need to be delivered and/or procured at time of event.**
	1	An inventory listing containing appropriate office equipment is available for 100% of RDS sites.
	0.5	An inventory listing is available for 75% of the RDS sites.
	0	An inventory listing is not available for any of the RDS sites.
7.16		**The local plan lists individuals who are authorized to sign for SNS materiel.**
	1	The local plan has identified and documented individuals who are authorized to sign for SNS materiel.
	0	The local plan has not identified and documented individuals who are authorized to sign for SNS materiel.
7.17		**The local plan addresses staff/volunteer management (for example, work breaks, shift schedules, meals/snacks, lodging, family care, etc.).**
	1	The local plan addresses staff/volunteer management and has written agreements with organizations providing services.
	0	The local plan does not address staff/volunteer management.
SECTION SEVEN: Points _____ Divided by 24 = _____		

SECTION EIGHT: CONTROLLING INVENTORY (3%)			
8.1		**Plan for Inventory Management System (IMS) in place with back-up:** ☐ **Inventory Management Software System.** ☐ **Electronic Spread Sheet.** ☐ **Paper System.**	
	1	The local jurisdiction has more than one functional inventory management system in place.	
	0.5	The local jurisdiction has one functional inventory management system in place.	
	0	The local jurisdiction does not have any functional inventory management systems in place.	
8.2		**All Inventory staff is trained in IMS functions.**	
	1	Inventory management staff is identified and training in IMS functions is documented.	
	0.5	Inventory management staff is identified but not trained in IMS functions.	
	0	Inventory management staff have not been identified and trained.	
8.3		**Chain of custody procedures are outlined in plan including the ability to track pharmaceutical lot numbers.**	
	1	Written procedures are in place.	
	0	No written procedures are in place.	
8.4		**Procedure for chain of custody involving controlled substances received from DSNS is outlined in plan.**	
	1	Written procedures are documented in the plan for the chain of custody of controlled substances from DSNS.	
	0	No written procedures are documented in the plan for the chain of custody of controlled substances from DSNS.	
8.5		**Local plan lists DEA Registrant(s) to receive materiel from DSNS requiring DEA Form 222.**	
	1	The local jurisdiction has identified and documented more than one DEA Registrant (primary and backup at least) to issue DEA Form 222.	
	0.5	The local jurisdiction has identified and documented one DEA Registrant to issue DEA Form 222.	
	0	The local jurisdiction has not identified a DEA Registrant to issue DEA Form 222.	
SECTION EIGHT: Points _____ Divided by 5 = _____			

SECTION NINE: DISTRIBUTION (10%) --- PF APPLICABLE ---			
9.1		**Distribution Manager and back-up(s) have a job action sheet and have been trained in their function.**	
	1	The local jurisdiction has identified a distribution manager and backup, has a written job action sheet regarding distribution functions, and the distribution manager and backup has received documented training in distribution functions.	
	0.5	The local jurisdiction has identified a distribution manager and backup and has a written job action sheet regarding distribution functions.	
	0	The local jurisdiction has not identified a distribution manager and backup.	
9.2		**Plan includes distribution strategy for delivery of medical materiel (such as delivery locations, routes, delivery schedule/frequency, fueling, repair, recovery, etc).**	
	1	The local plan includes a detailed strategy (mapping, frequency, routing, scheduling, etc.).	
	0.5	The local plan includes general strategy for distributing materiel.	
	0	The local jurisdiction does not have a distribution strategy in place.	
9.3		**Primary agency/organization has been assigned to distribute medical materiel and a written agreement is in place.**	
	1	Written agreements describing arrangements with agencies/organizations that will distribute materiel are in place and available for review.	
	0	The State does not have the above in place.	
9.4		**Back-up agency/organization has been assigned to distribute medical materiel and a written agreement is in place.**	
	1	Written agreements describing arrangements with agencies/organizations that will distribute materiel are in place and available for review.	
	0	The local jurisdiction does not have the above in place.	
9.5		**Resource needs have been identified and those resource needs are accessible to perform distribution activities to include:** ☐ **Number of vehicles needed.** ☐ **Number of drivers needed.** ☐ **Types of vehicles needed.** ☐ **Type and number of support personnel needed.**	
	1	The local jurisdiction has identified all the resources needed to perform distribution activities.	
	0.5	The local jurisdiction has identified at least 50% of the resources needed to perform distribution activities.	
	0	The local jurisdiction has identified less than 50% of the resources needed to perform distribution activities.	
9.6		**Dispensing sites have been inventoried to determine what, if any, Material Handling Equipment (MHE) are available for sites that are designated to receive materiel (off-loading and loading as needed such as pallet jacks, hand carts/dollies, and forklifts).**	
	1	All dispensing sites designated to receive material have been inventoried and plans are in place to support MHE needs.	
	0.5	50% of all dispensing sites designated to receive material have been inventoried and plans are in place to support MHE needs.	
	0	Steps have not been taken to identify the MHS needs at dispensing sites designated to receive materiel.	
9.7		**Just-in-time (JIT) training materials have been developed for the distribution functions:** ☐ **Chain of custody protocol.** ☐ **Security/communication procedures.** ☐ **Routing information.** ☐ **Appropriate use of material handling equipment.** ☐ **Loading and off-loading materials.**	
	1	All of the above just-in-time training materials have been developed.	
	0.5	Two to four just-in-time training materials have been developed.	
	0	Less than two of the just-in-time training materials have been developed.	
SECTION NINE: Points _____ Divided by 7 = _____			

SECTION TEN: DISPENSING PROPHYLAXIS (24%)			
10.1		**The local mass prophylaxis/dispensing plan addresses procedures for the following operational issues:** ☐ **Number of regimens of medication that can be dispensed to an individual.** ☐ **Minimum data elements that need to be collected for each unit of medication dispensed.** ☐ **Handling of symptomatic individuals.** ☐ **Handling of unaccompanied minors.** ☐ **Handling of non-English speakers / hearing impaired / visually impaired / functionally illiterate.** ☐ **Crowd control, traffic management, and security.** ☐ **Shift hours and shift change procedures.** ☐ **Established hotline/call-bank procedures or other mechanisms to address questions/concerns from the public.** ☐ **Established mechanisms to monitor adverse events.**	
	1	All of the elements listed are included in the local mass prophylaxis/dispensing plan.	
	0.5	Six to eight of the elements listed are included in the local mass prophylaxis/dispensing plan.	
	0	Less than six of the elements listed are in the local mass prophylaxis/dispensing plan.	
10.2		**Modified clinical involvement:** **The local mass prophylaxis/dispensing plan include a rapid dispensing strategy for dispensing at dispensing/POD sites.**	
	1	Rapid dispensing methods and procedures are documented in the plan.	
	0.5	Rapid dispensing methods have been identified but plans and procedures are not documented.	
	0	Rapid dispensing methods have not been identified.	
10.3		**Alternate dispensing modalities are included in the plan.**	
	1	Alternate dispensing modes and procedures are documented in the plan.	
	0.5	Alternate dispensing modes have been identified but plans and procedures are not documented.	
	0	Alternate dispensing modes have not been identified.	
10.4		**The local mass prophylaxis/dispensing plan include established criteria, authorization and procedures to alter clinical dispensing model to increase client throughput.**	
	1	Plans are in place.	
	0	Plans are not in place.	
10.5		**The plan specifies procedures for providing prophylaxis to first responders and critical infrastructure personnel.**	
	1	First responder and critical infrastructure prophylaxis plans are in place.	
	0	First responder and critical infrastructure prophylaxis plans are not in place.	
10.6		**The plan specifies procedures for providing prophylaxis to homebound and other at-risk populations.**	
	1	Homebound and at-risk population prophylaxis plans are in place.	
	0	Homebound and at-risk population prophylaxis plans are not in place.	

10.7		**There are site specific plans for each of the dispensing/POD sites that include the following information:** ☐ **MOU for use of the facility.** ☐ **Facility manager with contact information and procedures for accessing the site.** ☐ **Address and telephone numbers at the facility.** ☐ **Inventory of available office equipment on site.** ☐ **Inventory of available material handling equipment on site.** ☐ **Written floor plans/clinic flow charts (traditional and streamlined).** ☐ **Specific delivery location identified w/ plans to ensure 24/7 unblocked access by delivery trucks.** ☐ **Crowd control, traffic management, and security plans.** ☐ **Parking plan.**
	1	All dispensing sites have a site specific plan.
	0.5	50% of dispensing sites have a site specific plan.
	0	Site specific plans are not available.
10.8		**The plan specifies how the following items will be made available at every dispensing/POD site before dispensing starts:** ☐ **Drug fact sheets.** ☐ **Agent fact sheets.** ☐ **Dispensing/medical supplies.** ☐ **Name/Address/Patient History (NAPH) forms.** ☐ **Office supplies.** ☐ **Office equipment.** ☐ **Command & Control vests or other identifiers.** ☐ **Communication equipment.** ☐ **Signs (interior and exterior).** ☐ **Crowd & traffic control equipment.**
	1	Plans are in place to ensure that all of the items listed above are available at each dispensing site, at time of event.
	0.5	Plans are in place to ensure at least 75% of the items listed above are available at each dispensing site, at time of event.
	0	No plan exists.
10.9		**Core management teams with back-ups have been identified and trained for each dispensing/POD site.**
	1	Core management teams have been identified and trained for each dispensing/POD sites.
	0.5	Core management teams have been identified and trained for 50% of the dispensing/POD sites.
	0	Core management teams have been identified for less than 50% of the dispensing/POD sites.
10.10		**Personnel available to staff Dispensing/POD sites.**
	1	Personnel are available to staff 100% of the dispensing/POD sites.
	0.5	Personnel are available to staff 50% of the dispensing/POD sites.
	0	Personnel are available to staff less than 50% of the dispensing/POD sites.
10.11		**Volunteer/Staff database is maintained and current:** ☐ **There are there enough people in the database to run each of the POD sites, including shift changes.** ☐ **The database includes enough extra people to compensate for absent individuals.**
	1	Database is in place.
	0.5	Volunteers have been identified but not included in a database.
	0	Database is not in place.

10.12	**The plan includes a Job Action Sheet and Just-In-Time training materials for all dispensing/POD roles identified in the plan.**		
	May Include Common POD Roles, such as: ☐ **POD Manager** ☐ **IT/Communications** ☐ **Safety Officer** ☐ **Logistics Officer** ☐ **Greeters** ☐ **Triage Team** ☐ **Greeter/Triage Team** ☐ **Forms/Data Collection** ☐ **Dispensing Team** ☐ **Inventory Control** ☐ **Runners**	**OTHER(S):** ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____	
	1	Job action sheets and just-in-time training materials for all POD roles are documented and available for review.	
	0.5	At least job action sheets for all POD roles are documented and available for review.	
	0	Job action sheets have not been developed.	
10.13	**The local plan addresses staff/volunteer management (for example, work breaks, shift schedules, meals/snacks, lodging, family care, etc.).**		
	1	The local plan addresses staff/volunteer management and has written agreements with organizations providing services.	
	0	The local plan does not address staff/volunteer management.	
SECTION TEN: Points _____ Divided by 13 = _____			

SECTION ELEVEN: HOSPITALS AND ALTERNATE CARE FACILITIES COORDINATION (3%)			
11.1		**Process established for hospitals and alternate care facilities to be informed on how to procure emergency medical materiel.**	
	1	Documentation is available to support hospitals and alternate care facilities have been informed of procedures.	
	0	Documentation is not available to support hospitals and alternate care facilities have been informed of procedures.	
11.2		**Persons authorized to request emergency medical materiel on behalf of the hospitals and alternate care facilities have been identified and documented. Contact information is updated quarterly.**	
	1	Persons authorized to request materiel for 100% of hospitals and alternate care facilities have been identified with contact information and there is evidence the listing is updated quarterly.	
	0.5	At least 50% of points of contact for hospitals and alternate care facilities have been identified with contact information and there is evidence the listing is updated quarterly.	
	0	Less than 50% of points of contact for hospitals and alternate care facilities have been identified with contact information and the listing is not reviewed quarterly.	
11.3		**Procedures are documented in the local SNS planning for hospitals and alternate care facilities to request emergency medical materiel.**	
	1	A written process in place and included in the local SNS Planning for hospitals and alternate care facilities to request medical materiel.	
	0	A written plan is not in place for the hospitals and alternate care facilities to request medical materiel.	
11.4		**Hospitals and alternate care facilities are trained on the emergency medical materiel request procedures.**	
	1	100% of hospitals and alternate care facilities have been trained on emergency medical materiel request procedures.	
	0.5	50% of hospitals and alternate care facilities have been trained on emergency medical materiel request procedures.	
	0	None of the hospitals and alternate care facilities have been trained on emergency medical materiel request procedures.	
11.5		**Hospitals and alternate care facilities request procedures have been exercised.**	
	1	Request procedures have been exercised and can be verified for every hospital and alternate care facility and a corrective action plan addressing identified discrepancies.	
	0.5	Request procedures have been exercised and can be verified for 50% of hospitals and alternate care facilities and a corrective action plan addressing identified discrepancies.	
	0	Request procedures have not been exercised.	
SECTION ELEVEN: Points _____ Divided by 5 = _____			

SECTION TWELVE: TRAINING, EXERCISE AND EVALUATION (10%)			
12.1		**Personnel have been assigned to lead, plan and oversee public health emergency preparedness related training, exercise and evaluation (to include SNS-specific topics).**	
	1	Personnel have been assigned.	
	0	Personnel have not been assigned.	
12.2		**Local jurisdictions have a training plan that incorporates mass prophylaxis, medical supplies management and distribution, and other SNS-specific topics to include course objectives, schedule, and targeted audience for each (to include volunteers).**	
	1	The local jurisdiction has a written training plan in place that incorporates mass prophylaxis, medical supplies management and distribution, and other SNS-specific topics.	
	0	The local jurisdiction does not have a written training plan in place that incorporates mass prophylaxis, medical supplies management and distribution, and other SNS-specific topics.	
12.3		**Training plan components that are specific to mass prophylaxis and/or medical supplies management and distribution is implemented.**	
	1	The local jurisdiction has sign-in sheets and supporting documentation as evidence of training participation.	
	0	The local jurisdiction does not have documentation to support training participation.	
12.4		**The local jurisdiction has an exercise plan developed in accordance with the Department of Homeland Security Exercise and Evaluation (HSEEP) guidance that allows mass prophylaxis plans and/or medical supplies management and distribution to be tested and evaluated.**	
	1	The local jurisdiction has a written an exercise plan in place that allows medical supplies management and distribution /mass prophylaxis plans to be tested and evaluated.	
	0	The local jurisdiction does not have a written exercise plan that allows medical supplies management and distribution /mass prophylaxis plans to be tested and evaluated.	
12.5		**Exercise plan components that are specific to mass prophylaxis and/or medical supplies management and distribution.**	
	1	The local jurisdiction maintains After Action Reports, Corrective Action Plans, and performs follow up on those corrective action plans.	
	0.5	The local jurisdiction maintains After Action Reports and Corrective Action Plans.	
	0	The local jurisdiction does not maintain After Action Reports and Corrective Action Plans.	

12.6	**0.5 points for each element: 24 total points If either no RDS or no distribution: 22 total points If no RDS and no distribution: 20 points**					
	FUNCTION	**TRAINED (Annually)**	**EXERCISED (Annually) (type)**	**After Action Report**	**Corrective Action Plan**	
	Overall SNS planning elements					
	Management of SNS operations					
	Local to State requesting procedures					
	POD to local requesting procedures					
	Communications plan (Tactical)					
	Public information and communication					
	Security					
	Inventory management system					
	Dispensing					
	Hospitals and alternate care facilities coordination					
	Regional / Local RDS plan (if applicable)					
	Distribution methods (if applicable)					

SECTION TWELVE: Points _____ Divided by 29 = _____ with Regional/Local RDS
SECTION TWELVE: Points _____ Divided by 27 = _____ without Regional/Local RDS
SECTION TWELVE: Points _____ Divided by 25 = _____ without Regional/Local RDS and Distribution

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