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OFFICE OF HEALTH POLICY

CONTRACTOR PROJECT REPORT

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Value-Based Payment and Health Care System Preparedness and Resilience

Prepared for

the Office of the Assistant Secretary for Planning and Evaluation (ASPE)

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by

RAND Health Care

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Office of the Assistant Secretary for Planning and Evaluation

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ASPE Executive Summary

Over the past 20 years, Medicare and many private payers have transitioned to policies known collectively as value based purchasing (VBP). In general, these policies condition payment on quality indicators and move away from unconstrained fee for service (FFS) payment. Since the passage of the Affordable Care Act (ACA) in 2010, Medicare has used new authorities to test a variety of alternative payment models that hold providers accountable for cost and quality related to episodes of care or, in the case of accountable care organizations (ACOs), all care provided to beneficiaries. Private payers have also begun to use policies such as reference pricing and tiered provider networks in order to replace administered prices with ones that better reflect competitive influences. The overall objective of these policies has been to improve delivery system performance, improving efficiency in how medical care is delivered to make the system more financially sustainable, and to improve its contribution to population health.

The recent COVID-19 pandemic placed many stresses on the health care delivery system, tested its resilience, and exposed some vulnerabilities. Those on the front lines of treating COVID-19 faced staffing, capacity, and supply constraints. The near shut-down of non-emergency services placed some providers at financial risk as revenues declined rapidly. Carefully reviewing the many lessons learned and crafting responses to them will be important to our preparedness and resilience for meeting the challenges of future heath emergencies. Among these lessons will be how we expect providers to prepare for emergencies, and what effect various VBP policies will have on their ability to do so. The more we incentivize maximum efficiency in health care delivery's day-to-day operations, the less incentive and ability providers may have for maintaining excess capacity and investing in infrastructure that would prepare for emergencies. This tradeoff, as well as the variety of impacts different payment strategies may have on preparedness and resilience, should be considered as we move forward from the pandemic.

There are two sets of policies being developed and implemented in HHS, sometimes by separate policy entities: health care payment policies and public health emergency preparedness policies. This paper reviews several potential ways to address the tradeoffs among these policies:

- using VBP purchasing to actively incentivize preparedness among providers;
- reviewing VBP purchasing policies to mitigate conflict with public health preparedness polices;
- pursuing VBP policies to achieve maximum value and efficiency in health care delivery and facilitate preparedness through other public and private sector approaches.

The need to think critically about how to approach these policy issues and tradeoffs became apparent in light of the COVID-19 pandemic. The Office of the Assistant Secretary for Planning and Evaluation commissioned RAND to begin the process of developing a policy framework for carefully considering these issues. RAND conducted an environmental scan and a series of semi-structured conversations with 12 health care experts. RAND then synthesized the results of those discussions and the environmental scan into a set of lessons learned from the experience with COVID-19 and other disasters, a preliminary understanding of the larger relationship between VBP and disaster preparedness, response, and resilience (PRR), and a set of potential policy directions to promote PRR.

The Report points out that the relationship between VBP policy and PRR can be thought of in two ways. First, VBP may affect decisions about whether and to what extent a provider organization invests in

preparedness. Second, choices for implementing VBP also may affect the decisions made during a disaster response, the organization's ability to respond, and its ability to weather significant declines in utilization. Thus, the Report discusses VBP approaches that might, either through payment levels or through the performance indicators used, incentivize "dual use" investments that would serve day-to-day patient care and also be used to prepare for emergencies. The Report also discusses how capitated or partially capitated approaches might foster investments that facilitate resilience during an emergency. The report suggests a "preparedness in all payment policies" approach that would incorporate an assessment of the potential impact on preparedness and review possible mitigating strategies as a new component of the policymaking process

The RAND report suggests analyses based on the experience of health care providers with COVID-19 to build the evidence base for future public health emergencies. Potential analyses could explore:

- The impact of provider characteristics, such as type and size, and type of payment model on preparedness and resilience outcomes
- The extent to which providers participating in capitated payment models were better able than those under FFS or other types of VBP models to identify their most vulnerable patients and connect them with a wide array of health care and social services
- Whether institutions that invested more time and effort into meeting the Joint Commission's or CMS's emergency preparedness standards were better prepared to respond to COVID-19
- Whether and how regional planning efforts facilitated the response, and how those planning efforts could be improved going forward.

The COVID-19 pandemic has had an unprecedented impact on health, health care, the economy, and our daily lives over the past 15 months. Carefully considering the lessons learned from this experience and using them to better prepare for potential public health emergencies in the future is critical. The objective of the RAND report was to begin the process of considering how future PRR might be incorporated as we move forward with VBP policies.

Project Report

Value-Based Payment and Health Care System Preparedness and Resilience

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RAND Health Care

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About This Project Report

The coronavirus disease 2019 (COVID-19) pandemic has had significant impacts on the health care sector. Health care providers have been on the front line treating COVID-19 patients. At the same time, the health care industry has faced a severe reduction in utilization of non-COVID health services in the early stages of the pandemic, causing substantial financial impacts and prompting significant changes in the delivery of care. The response to the pandemic and its effects has varied across providers. While many factors contribute to these differences, some may be related to the different models of payment under which providers operate. As the health care industry shifts toward a greater use of value-based payment (VBP) models, which tie provider payments to performance based on cost and quality metrics with the goal of improving the quality of care and efficiency, it is important to better understand the relationship between VBP policy and health care disaster preparedness and resilience. In this report we explore issues related to VBP and health system preparedness and resiliency in an effort to inform discussions about policy options for jointly promoting value, efficiency, and preparedness in the health care system.

This research was funded by the Office of the Assistant Secretary for Planning and Evaluation (ASPE) and carried out within the Payment, Cost, and Coverage Program of RAND Health Care. RAND Health Care, a division of the RAND Corporation, promotes healthier societies by improving health care systems in the United States and other countries. We do so by providing health care decisionmakers, practitioners, and consumers with actionable, rigorous, objective evidence to support their most complex decisions.

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Summary

The COVID-19 pandemic has highlighted the need to better understand the relationship between value-based payment (VBP) and disaster preparedness, response, and resilience (PRR). While VBP programs have been used to promote higher quality health care and lower its cost, preparedness activities have typically fallen outside the scope of these programs. Additionally, as VBP increasingly supplants fee-for-service (FFS) payment throughout the health care payment system, the impacts of VBP on preparedness relative to the baseline of FFS are likely becoming more important.

To better understand this relationship, we conducted an environmental scan of the literature and 12 semi-structured discussions with experts in health care payment, VBP programs, and health system PRR. The results of those discussions and the environmental scan were then synthesized into a set of lessons learned from the experience with COVID-19 and other disasters, a preliminary understanding of the larger relationship between VBP and PRR, and a set of potential policy directions to promote PRR.

Experts identified key dimensions to be considered when thinking about the relationship between preparedness and VBP, including the type, scope, and duration of the disaster; the type of VBP model being considered; and the type of health care provider responsible for preparing for and responding to the disaster. For example, different VBP models bring different incentives. Models that are built on an FFS foundation, such as pay-for-performance or shared savings, provide little incentive to maintain excess capacity or invest in capabilities that could not be utilized and billed for on a regular basis. In contrast, models that provide capitated population-based payments give providers greater flexibility to invest in activities (e.g., improved data infrastructure) or to provide services (e.g., connections with social services) that support preparedness and response. Similarly, disasters of different types and scopes have different impacts on health systems including on the supply of and demand for health care services. Different types of disasters may also require different types of response capabilities. Given the ways these factors can complicate the relationship between VBP and preparedness, researchers and policymakers should be clear about the specific aspect of the relationship that they are discussing.

Experts suggested several different policy directions that they thought would promote preparedness. All experts felt that FFS or any payment structure where the payment level is consistent with day-to-day efficiency of operations does not do much to promote PRR. Still, they thought that almost any VBP program would improve on that baseline. Potential policy directions include the following:

- **Develop a set of preparedness quality measures and incorporate them into existing pay-for-performance programs.** By adding process measures related to preparedness,

health care providers would likely be incentivized to invest in preparedness. To implement this approach, the Centers for Medicare & Medicaid Services (CMS) or other payers would need to develop and include measures of preparedness (or resilience or community health) for providers participating in quality-measure-based VBP programs. There are substantial challenges to developing measures of preparedness and response that will need to be addressed to move in this direction.

- **Use VBP models to incentivize activities that have value for both day-to-day activities and preparedness.** There is a range of activities that could have value day-to-day and for preparedness (referred to as "dual-use activities") and that could be incentivized with VBP policy. These include investing in data infrastructure, data interoperability, and care coordination, as well as increasing use of telehealth and digital health services, increasing use of chronic disease management tools, improving infection control, having larger stockpiles of personal protective equipment (PPE) and of drugs with both routine and emergency uses (e.g., antibiotics such as ciprofloxacin that have day-to-day uses rather than drugs that would only be used in rare instances such as antitoxins for anthrax), and improving immediate bed availability. Incorporating the concept of dual use in VBP will require decisions about what specific dual-use investments or activities to incentivize through the VBP models. While the experts we talked to had ideas about activities or investments that could be considered dual use, systematic, collaborative processes involving both VBP and preparedness experts could gather and assess the full range of options.
- **Continue to move toward capitated payments.** Capitated population-based payment models were cited by experts as the type of VBP models that did the most to incentivize preparedness, as they remove the direct link between providing services and getting paid and thereby give providers greater flexibility to allocate resources in different ways, some of which may support preparedness. Additionally, with increased stability of revenue, hospitals can be more strategic about investments in preparedness and other aspects of community health. To further implement capitated population-based payment policies, action on the federal and state level is needed. Federal and state policymakers need to design these models and gain buy-in from health care providers and other stakeholders, and providers need to make quality improvements to maximize value of care delivered under the models.
- **Address preparedness outside of the health care payment system**. Many of the experts argued that the health care payment system should be used only to pay for health care services delivered to patients. They argued that building PRR into payments for day-to-day operations of health care providers was likely to promote inefficiencies that health care policymakers have traditionally sought to avoid. The experts pointed to another potential set of policies for incentivizing preparedness that address preparedness outside of the FFS or VBP payment system. These policies could be used instead of or in combination with VBP models that would promote preparedness more generally. Many of the ideas the experts suggested, such as strengthening standards and enforcement and supporting regional preparedness planning, are at least partially in place through existing health care preparedness policies and programs.

This report also identifies key gaps in our understanding of the relationship between VBP and preparedness and proposes several new areas for research and analysis. In order to build this

evidence base, we suggest that policymakers adopt a "preparedness in all payment policies" approach, in which all future evaluations of VBP models or demonstrations include at least some assessment of the impact of the model on preparedness. Even if it is decided that payment policy will not be used to support preparedness, it will still be important to understand the effects of payment policy on preparedness and resilience so that other policies or programs can be put in place if needed to leverage or counteract these effects.

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Abbreviations

APM	alternative payment model
ASPE	Assistant Secretary for Planning and Evaluation
ASPR	Assistant Secretary for Preparedness and Response
CMS	Centers for Medicare & Medicaid Services
COVID-19	coronavirus disease 2019
FFS	fee-for-service
DHHS	Department of Health and Human Services
HPP	Hospital Preparedness Program
PPE	personal protective equipment
PRR	preparedness, response, and resilience
SME	subject-matter expert
VBP	value-based payment

Introduction

The effects of the coronavirus disease 2019 (COVID-19) pandemic are broad-reaching and have significant impacts on the health care sector. Health care providers are on the front line treating COVID-19 patients, facing long hours, staffing challenges, and dealing with shortages of personal protective equipment (PPE). At the same time, some providers in the health care industry have faced a significant reduction in utilization of non-COVID health services, causing substantial financial impacts and prompting significant changes in the delivery of care, including a rapid shift to telemedicine (Bosworth et al., 2020; Chernew et al., 2020; Corlette et al., 2021; Jiang et al., 2020).

There have been many stories in the popular media and in research publications about how different health care providers have responded to the public health emergency and how they have been affected financially (Kaufman Hall, 2020; Livingston, 2020b; Melnick & Maerki, 2020; Verma, 2020). The response by, and the effects on, providers vary. While many factors contribute to these differences, some of these differences may be related to different models of payment that providers face. For example, many have noted that in the face of substantial reductions in utilization, revenue was less stable for those paid primarily via fee-for-service (FFS) and more stable for providers who receive at least some amount of capitated payments (i.e., fixed monthly payments to providers to care for a population) that are not contingent on utilization of services (Hagland, 2020; He & Masters, 2020; Livingston, 2020a). Such stability helped keep those providers afloat and potentially made them more resilient. In contrast, some have noted that FFS payment incentivized providers to return to normal levels of utilization for non-COVID-19 services more quickly than those paid through global budgets. Others have argued that health care payment policies incentivizing efficiency likely contributed to the lack of surge capacity in place to treat COVID-19 patients (Allenby & Chester, 2020; Fuller & Fernandez, 2020).

The COVID-19 pandemic has highlighted the relationship between health care payment policy and health care delivery preparedness, response, and resilience (PRR), and it raises several questions about the role that payment policy can or should play in supporting PRR. This question is particularly relevant as the industry shifts from FFS toward a greater use of value-based payment (VBP) models, as this shift offers potential opportunities to adapt or design new models with PRR objectives in mind. The Office of the Assistant Secretary for Planning and Evaluation (ASPE) contracted with the RAND Corporation to explore two broad questions:

- What lessons can be learned from the experience with COVID-19 about the relationship between VBP and health system disaster PRR and how can those be applied going forward?

- What are potential policy directions for aligning VBP and market-based payment approaches with health system disaster PPR?

At a high level, there can be tension between health care payment policy and PRR. Neither FFS nor VBP models are designed to incentivize and fund preparedness activities. The payment structure and the level of payment in these systems are intended to promote day-to-day efficiency. FFS models incentivize higher volume of services and disincentivize activities or investments that do not support the delivery of reimbursed services. VBP models tie provider payments to performance based on cost and quality metrics, with the goal of improving the quality of care and efficiency. One potential concern is whether a focus on efficiency could disincentivize health care providers and health systems from investing in PRR activities, such as building stockpiles of PPE, building surge capacity, and enhancing the ability to treat emerging infectious diseases through, for example, building negative pressure rooms. The incentives against investing in PRR equipment and training might be particularly acute for those response capabilities that are needed only in the event of a disaster, such as investments in decontamination equipment and training to address exposures to chemical, biological, radiological, or nuclear agents. This tension between efficiency and resilience is not unique to health care; rather, it is a basic engineering principle. Allenby and Chester (2020) note that efficient systems are optimized for a set of conditions, but those systems can be fragile and may not function well if there are important changes in the conditions, such as those caused by a pandemic or other disaster. Also, there is the potential for a free-rider problem, wherein individual health care providers may not invest in preparedness based on the assumption that when a disaster strikes, other providers or the federal government will step in and provide funding for these services and for necessary equipment, such as ventilators or PPE.

At the same time, some VBP models, such as those that promote population health management, could also promote PRR in a variety of ways (e.g., data infrastructure, population health management tools). The challenge, however, is that discussions about how to promote the objectives of VBP models and how to promote the objectives of preparedness programs occur separately, among different networks of experts and policymakers; how the objectives of these two related but distinct policy areas can be jointly promoted is rarely considered. As a result, there is a gap in our understanding of how payment policies that are focused on increasing the efficiency of the health care system interact with concerns about health care system PRR.

The relationship between VBP models and the ability of health care providers to prepare for, respond to, and weather a disaster is complicated and likely differs depending on the type and scope of disasters (e.g., pandemic, hurricane, wildfire, earthquake, flooding, or bomb blast) as well as the type of VBP model (e.g., pay-for-performance, bundled payments, capitation, global budget, and so on). The experience of the U.S. health care system in responding to the COVID-19 pandemic has highlighted some of these possible interactions and raised important issues that merit further study. These questions are likely to grow in importance over time, especially as

climate change increases the frequency and severity of a range of natural disasters, such as hurricanes, winter storms, and wildfires.

In this report, we explore issues related to VBP and health system disaster preparedness and resiliency in an effort to inform discussions about policy options for jointly promoting value, efficiency, and preparedness in the health care system. We consider the experience with COVID-19 but also seek broader lessons to inform potential policy directions that are relevant and useful across a range of disaster types. Our exploratory work included an environmental scan and discussions with subject-matter experts (SMEs) in payment policy, health care disaster preparedness, and health care delivery. We summarize findings from the discussions and the literature, outline ideas offered by the SMEs, highlight unanswered questions, and identify some steps that could be taken to develop potential policy directions to better align payment policy with both value and preparedness objectives.

Approach

Our approach included discussions with SMEs and an environmental scan. For the expert discussions, we developed a semi-structured discussion guide based on input from RAND SMEs and staff at ASPE. The broad topic areas covered include whether and how VBP approaches affect health care preparedness and resilience, ways in which VBP models might be modified to better support preparedness and resilience, and what other types of policies might be needed (see Table A.1 for example questions). Because our goal was to solicit a range of perspectives on the intersection of disaster preparedness and payment policy, we identified a diverse sample of experts drawn from the fields of emergency preparedness, health economics, health care delivery and system management, and payment policy. We included experts from various regions of the United States and representing different perspectives, such as different parts of the health care system, experience with different types of disasters, and different ideological perspectives about the role of the government in the health care market. From a sample of 38 potential candidates, we contacted 15 experts and 12 participated. If an identified expert was unable or unwilling to participate in a discussion, we identified another expert with similar background and perspective. Table 1 summarizes the positions and types of expertise across the 12 participants. The categories within position and expertise are not mutually exclusive. For example, an expert would be counted in both the physician and government position categories if he or she has worked in both types of jobs at some point.

Table 1. Positions and Expertise Among the 12 Participants in the Expert Discussions

	Number of participants
Position	
Economist or health policy researcher	6
Physician	4
Health system executive	3
Government	5
Expertise	
Payment policy	9
Preparedness	4
Disaster response	6

NOTE: The categories within position and expertise are not mutually exclusive, and so the totals across categories sum to more than 12.

We conducted a total of 12 expert discussions by web meeting between August and October 2020. These one-hour discussions were attended by at least two RAND researchers. The

meetings were audio-recorded, and one researcher took detailed notes. The RAND study team summarized these notes and compared them across discussions to develop a list of key points and potential policy directions for inclusion in the final report. The intent of these discussions was not to reach thematic saturation, but rather to describe the current state of knowledge more broadly.

In addition to the SME discussions, we conducted an environmental scan of academic literature using PubMed and Google Scholar in August 2020. We searched for research articles, commentaries, and reviews on the relationship between preparedness and VBP (both general VBP models and specific programs such as pay-for-performance or global budgets). We also searched specific grey literature sources, including the Health Affairs Blog and the New England Journal of Medicine Catalyst, and conducted general Google searches for other reports and news items. We were interested in both the general relationship between VBP and preparedness and specific examples related to the COVID-19 pandemic. We did not limit our search to a specific time period but focused on articles published within the last ten years. We also used a snowball sampling approach, completed forward and backward reference checks to identify related literature, and included several articles provided by experts during discussions. We updated the scan in January 2021 to include any additional articles published after August 2020. We incorporated the findings from the environmental scan into the findings from the discussions to generate a summary of the current state of knowledge about the relationship between VBP and PRR, a set of policy recommendations, and next steps for research.

Key Points from Expert Discussions and Environmental Scan

In this chapter, we synthesize what we learned from the expert discussions and the environmental scan. The insights are derived primarily from the expert discussions and, where available, are further elaborated with information from and references to the literature.

Factors Affecting the Relationship Between Value-Based Payment Models and Health Care Preparedness, Response, and Resilience

One key finding from our discussions was that any analysis of the relationship between VBP and health care PRR depends on a variety of factors, including the type, scope, and duration of the disaster; the type of VBP model; and the type of provider.

Type, Scope, and Duration of Disaster

The type of disaster (e.g., pandemic, wildfire, hurricane, earthquake, bioterrorism), the scope of disaster (e.g., nationwide versus localized), and the duration of the disaster (e.g., short-term versus long-term) all influence how VBP policy could affect PRR. Disasters of different types and scopes have different impacts on health systems and vary in their impact on the supply and demand side effects on service utilization. Different types of disasters may also require different types of response capabilities. For example, some types of disasters, including wildfires, tornadoes, earthquakes, and hurricanes, can cause disruptions in normal care processes if a hospital or other health care facility is in the physical vicinity of the disaster and either becomes inaccessible in the short term or destroyed in the long term. Other types of disasters, including pandemics and train crashes, can cause a surge of patients that need to be treated at health care facilities. Additionally, different types of disasters require different health system capabilities; a pandemic would require significant amounts of PPE and expertise in infection control or specialized medical treatment, while a wildfire could result in increased need for treatment for burns or smoke inhalation and the need to maintain routine care for people displaced by the disaster. Bioterrorist attacks could also require decontamination capabilities related to radiation or other toxic materials. The fact that different disasters require different capabilities to be prepared and respond effectively can make it difficult for providers to decide what preparedness investments to make. Planning for each possible scenario is not feasible. As a result, the preparedness field has shifted over time toward using an all-hazards approach to planning, focusing on building those capabilities that are useful across the wide range of disaster types that could occur, such as incident management and medical surge.

Disaster scope is also important when determining the impact on the health care system. Disasters can range from being very localized, like train crashes, to being spread across multiple

regions within a state or across states, like hurricanes or wildfires, to being nationwide or potentially even worldwide, like the COVID-19 pandemic. Scopes of disasters can affect the capacity of health systems to respond; for very localized disasters, neighboring health systems can be tapped to accommodate surges, while for large-scale disasters, this adaptation is often not possible.

Finally, disasters can vary in their duration. Some are acute incidents, while others last for days or weeks. Few last for months or years, as the COVID-19 pandemic has. Generally, the shorter the duration of a disaster, the less impact it has on the long-term functioning of the health system; if a health system has to stop performing elective surgery during a hurricane lasting for a few days, the impact on health outcomes and health system operations will be relatively minor. This is in striking contrast to a pandemic, where providers may be stopping elective surgeries and delaying preventive care for months, or triaging patients to lower levels of care and trying to avoid hospital care. However, there are cases where a short-duration disaster, such as a hurricane, wildfire, or earthquake, damages or destroys a facility and has long-term impacts on health care delivery in the affected area.

Focus on Preparedness, Response, or Resilience

The experts also said there could be differences in the relationship between VBP and PRR depending on whether the focus is on preparedness, response, or resilience. Preparedness generally consists of a set of activities that help health care systems ready themselves for disasters and could be specific to a certain disaster or a more general all-hazards approach. For example, this could include stockpiling supplies, building infrastructure to treat highly infectious diseases, or conducting preparedness exercises and drills to promote learning specific to certain disasters and create relationships between organizations within a community. These preparedness investments support response, or the actions required to react during the disaster and immediately after. Response could consist of treating a surge of patients or working within a community to mitigate the spread of a pandemic. Resilience was harder for many respondents to define, but they generally described it as the ability to withstand a disaster and quickly recover.

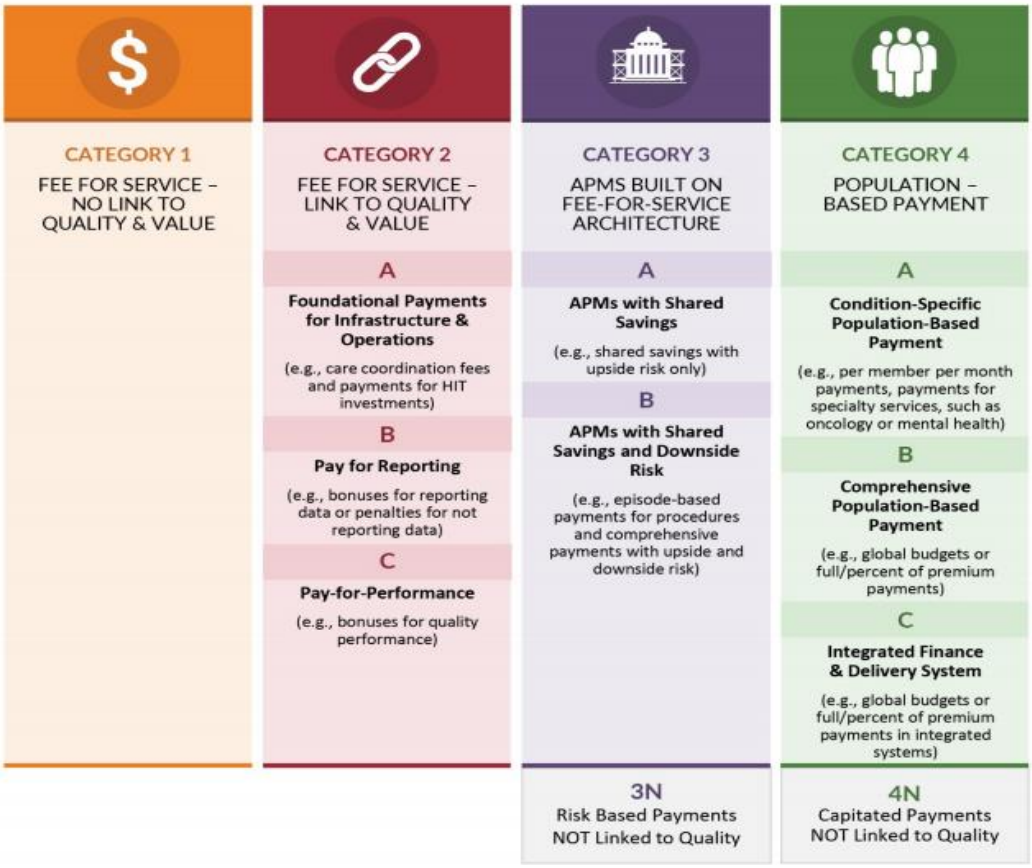
VBP policy could affect decisions about whether and to what extent a provider organization invests in preparedness, as well as decisions made during a disaster response; it could even affect the organization's ability to respond. For example, the types of care or care settings that are reimbursed can affect how a provider responds during a disaster. Without changes in reimbursement policy, the shift to telehealth during the response to the COVID-19 pandemic would not have been as substantial. In another example, the impact of FFS payment during the initial stages of the pandemic when demand for non-COVID care was reduced made it difficult for some providers to continue operations. Some experts thought that VBP models that included capitated population-based payments promoted resilience through increased financial stability and the increased data infrastructure that supported a quicker transition to telehealth.

Type of Value-Based Payment Model

Experts identified how the relationship between VBP and disaster preparedness depends on the type of value-based or market-based payment model in question. Experts discussed the general relationship between payment models involving varying degrees of capitation and preparedness and generally believed that the incentives of models such as global budgets aligned best with the goals of preparedness.

The expert discussion of different value-based models aligned well with the Health Care Payment Learning & Action Network's Alternative Payment Model (APM) Framework (2017), shown in Figure 1. In this framework, alternative payment models range from Category 1 (FFS) to Category 4 (population-based payment), with two categories in between. All experts discussed FFS models in Category 1 and their relationship to preparedness activities, noting that there was little incentive to maintain excess capacity or invest in capabilities that could not be utilized and billed for on a regular basis. At the same time, experts noted that FFS may promote resilience because it incentivizes health care providers to maintain operations and provide services during the pandemic. Other commonly cited payment models included: pay-for-performance, a model in Category 2 in which bonuses are given to providers based on performance on cost and quality measures; shared savings models, a model in Category 3 in which health systems have the potential to earn additional money if they keep overall costs of care lower than an established target while maintaining quality performance; and global budgets, a model in Category 4 in which health care providers are given a fixed amount of money per member per month to care for a population of patients. Payment experts noted that many VBP models, specifically those in categories 2 and 3, are built on an FFS foundation and so incorporate many of the same incentives and likely impacts on investments in PRR as FFS unless directly accounted for in the model (e.g., incorporate preparedness measures as performance measures in the VBP model). The experts thought that Category 4 models that use population-based payment were better able to support PRR than other models because population-based payment models give providers flexibility to invest in preparedness and financial stability in responding to a long-term disaster.

Figure 1. Alternative Payment Framework



SOURCE: MITRE Corporation, 2017, p. 3. Used with permission.

Experts did not discuss market-based payment policies in as much depth. Reference pricing was one potential policy with hypothesized negative interactions with preparedness; in a reference pricing model, payers set a standard price for a service based on existing prices in the market for that service. If the costs associated with preparedness are spread out over all everyday services that a hospital provides, and a competitor hospital is not paying for preparedness activities, that hospital will be more profitable under a reference pricing scheme. Similarly, in a competitive bidding arrangement, providers bid to provide services to patients, creating a competition for the lowest price and highest quality and potentially incentivizing providers to reduce short-term costs by not investing in preparedness. The differences between the impacts of VBP and market-based payment models on health care preparedness and resilience merit further study.

Provider Characteristics

Type of Provider

Another dimension of this relationship that some payment experts mentioned was variation by the type (both specialty and working environment) of provider in question. Providers have varying degrees of exposure to risk in VBP models and, as a result, have different incentives for both preparing for and responding to a disaster. Most experts felt that outpatient providers, such as primary care providers and specialists, were better able than hospitals to adapt to disasters with long-term impacts, such as a pandemic or large earthquake. This is because outpatient providers were thought to have a generally greater ability to offer visits via telehealth (though telehealth is not possible with some specialties). Outpatient providers may also be less affected by localized shorter-term disasters, like hurricanes, because they have the flexibility to delay or redirect outpatient appointments to other providers within their health system. Meanwhile, hospitals and long-term care facilities, such as post-acute care, had less flexibility in responding to disasters. For example, during a hurricane, hospitals can cancel elective surgeries and procedures but must continue to provide emergency care and care to hospitalized patients. Similarly, post-acute or other long-term care facilities are responsible for caring for admitted patients, even during disasters, and often receive new patients that are being moved out of the hospital to create surge capacity.

Size of Provider Organization

The size of a practice and whether or not a health care provider was part of a larger health care system were also thought to be important for understanding the relationship between VBP and preparedness. Some experts argued that smaller practices could be more agile, have more flexibility, and have greater ability to rapidly shift resources in responding to a disaster. For example, even if a smaller practice was not previously set up for telehealth, it may have been better able than a larger practice to train a small number of providers and quickly shift toward telehealth at the beginning of the COVID-19 pandemic, particularly once audio-only telehealth visits, which had quite low start-up costs, were allowed and reimbursed. It is possible, however, that the relationship works the other way, with larger providers being better resourced and equipped to quickly transition to telehealth. In another example, smaller providers are more susceptible to changes in revenue or physical damage to a single location caused by a disaster. One health system executive noted that health care providers who are part of a larger health care system may be better able to maintain continuity of care when a disaster forces a facility to close or the population to be displaced by using electronic health records and centralized appointment systems. These systems allow them to rapidly connect patients to care in system facilities in other geographic areas. Health care providers in larger systems may also rely on system-level preparedness efforts and need to devote fewer resources to preparedness at the clinic level. For

example, if a preparedness policy is set at the system level, individual clinics would not need to spend time developing their own policies.

The experience with COVID-19 offers an important opportunity to better understand the relationships among provider characteristics, VBP models, and health care response and resilience. Analyses could assess differences in performance during the pandemic and whether and to what extent different combinations of provider characteristics and payment models explain those differences.

Lessons from Experience with COVID-19 and Other Disasters

Through our discussions with experts and the environmental scan we identified various examples of interactions between VBP and preparedness that were observed during the COVID-19 pandemic. Many of these interactions were synergistic, such that the goals and mechanisms of VBP had positive impacts on PRR. The duration and scope of the COVID-19 pandemic make it quite different from more common disasters that health care systems face (e.g., hurricanes, wildfires). Still, the lessons from the response to COVID-19 are useful for illustrating and understanding how payment policy and PRR intersect and for identifying where there may be opportunities to better align these policy areas to jointly promote value, efficiency, preparedness, and resilience in the health care system.

Positive Interactions Between Value-Based Payment and Preparedness

Discussions with experts and the environmental scan highlighted that value-based models with some degree of ***capitated population-based payments provided some revenue stability during the initial phases of the pandemic*** (March to May 2020) by keeping providers afloat during a precipitous drop in demand for care due to stay-at-home orders and orders to cancel non-emergency medical appointments. In addition to providing a financial cushion that allowed providers to continue to be paid and stay in operation, this gave providers time and flexibility to pivot and implement COVID-19 mitigation strategies to safely provide in-person care for those patients in most need of it, including stricter hygiene protocols, regular testing of in-person staff, and screening for COVID-19 symptoms before appointments. Combined with increased use of telemedicine for patients with less urgent needs for in-person care, this allowed providers to improve their medium-term (2–3 months) response to the pandemic once more elective appointments were permitted and to improve resilience in the long-term, including their ability to restore total visit volume to near prepandemic levels.

Additionally, when thinking about the impacts of disasters on the financial stability of health care providers, it is important to consider how different disasters may affect either the supply of or the demand for care. Disasters can cause a decrease in the supply of available health care by damaging health care facilities (e.g., a tornado damages a hospital). They can also cause increased demand for health care (e.g., if people are hurt in the disaster and need additional care),

or less commonly a decrease in demand (e.g., the first few months of the COVID-19 pandemic, when elective procedures were canceled at many medical facilities or in the short term after a hurricane if communities have been evacuated). Capitated population-based payments were thought to be helpful in mitigating the financial effects of these short-term decreases in demand and supply, as providers would be protected if patients were choosing to not seek care or if one or more of the facilities where care is provided was damaged and capacity was constrained.

However, even in a capitated payment environment, disasters that result in reductions in service use because the supply of available care is reduced (e.g., clinics closed or destroyed) are likely to have longer-term impacts on financial stability than disasters that primarily affect short-term patient demand for care, as providers would need to spend additional resources rebuilding or restoring destroyed facilities and equipment. These costs could be substantial and have a large impact on the long-term capacity of the provider. Some disasters (such as train derailments or tornadoes) involve increases in demand because of surges of patients to medical facilities for a discrete period, with little to no damage to the facilities themselves. These types of disasters were thought by the experts with whom we spoke to have relatively little impact on the long-term financial stability of health care providers. While providers under capitation would not see increased payments for the increase in disaster-related workload, the surges in demand for care are typically relatively short-lived, and there would likely be an offsetting reduction in demand for non-disaster-related care.

Another positive synergy between VBP programs and preparedness that experts with experience responding to disasters discussed was related to the ability of health systems to modify care delivery to provide the types of services that patients needed to address issues related to the disaster. *Value-based models with some capitated payments give systems greater flexibility to provide a broader range of services that patients need—not just those that would be reimbursed under FFS.* For example, a health system with more of its reimbursement coming from VBP models could have more flexibility to connect patients with social services, such as housing support or food assistance. If the hospital were to be more connected to social services in regular practice, then they would be more prepared to connect with these services in the wake of a disaster. These services become especially important during some disasters, such as when a hurricane or tornado destroys homes and displaces residents. While experts called this out as a positive synergy, it would be interesting to explore the extent to which this was true during COVID-19.

Some preparedness experts noted that *value-based models that incentivize or reward investments in data infrastructure to improve efficiency and support measurement and population health management would also be beneficial during a disaster.* During the COVID-19 pandemic, such data infrastructure enabled providers to identify and target the most vulnerable with outreach, allowed health systems to identify trends in infection or deaths, and informed planning by systems for how to respond (Ikram et al., 2020). Additionally, having a strong electronic data infrastructure facilitated the rapid transition to telehealth for many

practices. A strong data infrastructure can facilitate a rapid response to other types of disasters; for example, providers can use health information exchanges and other interoperable systems to access patients' health care information. Some experts thought that the data infrastructure in place to support population health management was useful during the pandemic in that it helped health care systems and providers to identify their most vulnerable patients and target outreach. Health care providers and health services researchers could use the experience with COVID-19 to systematically identify and disseminate best practices for utilizing data to target outreach and services to the most vulnerable during a disaster.

In order for VBP models that hold providers accountable for delivering high quality health care to not be harmful to revenue in the setting of a disaster, it is necessary to adjust quality and spending benchmarks and payment policies to smooth revenue and maintain participation in VBP models. For example, the Medicare Advantage and Part D Star Ratings have a "disaster policy" that predated the COVID-19 pandemic and allowed plans to use the prior year measure performance if a certain percentage of their membership live in an area designated for Individual Assistance by the Federal Emergency Management Agency (Centers for Medicare & Medicaid Services [CMS], 2020a). Also, these Star Rating programs were adjusted to eliminate some data collection requirements, acknowledging that providers were operating in "extraordinary circumstances" (CMS, 2021c). More generally, many experts pointed out that flexibility to adjust policies governing health care delivery and payment during a disaster is critical to the response. For example, CMS waivers facilitated the shift to telehealth, eased the rules governing transfer to post-acute care, and supported building surge capacity (CMS, 2021a). Some experts thought that building flexibility into VBP models that would kick in when a disaster strikes would make health care providers more agile and better able to respond to and recover from a disaster. This happened during COVID-19 in an ad hoc way, but some experts felt that building the flexibility, or contingencies, into VBP contracts in a thoughtful way ahead of time could be beneficial. Additional work could explore the feasibility and likely effects of altering contracts in this way.

It has also been argued in the literature that *value-based models can foster a culture that rewards quick thinking and creative problem solving. A health system with substantial experience thinking about care with an eye toward value and quality would likely be more able to adjust care patterns during a disaster and innovate in response to emerging disasters* (McWilliams, 2020; Shinto, 2018). This innovation during the pandemic could take many forms, including aligning incentives for various providers, offering flexibility with scheduling or use of telehealth, relying on ongoing or previous collaboration between departments or facilities, and using a population health lens to think about care to be delivered (Ryu, Russell, & Shrank, 2020). However, this relationship may also work the other way, wherein only health care providers who are able to adjust care patterns participate in VBP models, and bringing more providers into these VBP models would not result in the same creative problem solving.

Negative Interactions Between Value-Based Payment and Preparedness

Experts also identified potential antagonistic or negative impacts of VBP on PRR based on their experience with responding to the COVID-19 pandemic. Global budgets and other capitated population-based payment models may provide less incentive than FFS, or VBP models based on FFS, to quickly resume services as volume does not affect payment. One expert noted that the National Health Service in the United Kingdom, which uses a global budget, was slower to get back to prepandemic volume than the United States, where the system remains primarily FFS, and volume was nearly back to prepandemic levels (Thorlby, Fraser, & Gardner, 2020).

Additionally, some experts also hypothesized that the emphasis on leanness and efficiency brought about by VBP models could lead to reduced investment in areas not immediately related to patient care. However, experts expressed little concern that value-based incentives for providers to be efficient have led to underinvestment in preparedness, particularly in comparison with FFS. One payment policy expert noted, however, that *participation in VBP models is voluntary, and so the experience to date may not reflect what would happen if these models were made mandatory*. It will be important to consider and assess the potential effects of VBP models on preparedness as participation in these models expands and perhaps becomes mandatory. Some experts further noted that the focus of VBP models on efficiency, both through incentives and the level of payment, does not support maintaining excess capacity, but neither does FFS. Some authors have argued that health care payment policies incentivizing efficiency likely contributed to the lack of surge capacity in place to treat COVID-19 patients (Allenby & Chester, 2020; Fuller & Fernandez, 2020).

At the same time, payment policy experts argued that not having excess capacity is a good thing, as they do not think it is beneficial for the health system to be inefficient in day-to-day processes in order to be prepared for a rare event. This could relate to the type of disaster; thus, providers in areas susceptible to hurricanes would likely encounter these disasters frequently enough that preparedness could be considered a part of regular operations. Other experts noted that with climate change, disasters are expected to become more frequent and may warrant a greater focus on preparedness.

While in the short-term, capitated population-based payments provide revenue stability to providers in the wake of substantial reductions in volume, in the long-term, managing financial risk is more challenging if people are not seeing the doctor for needed care (e.g., chronic disease management, preventive screenings), and there are long-term health consequences. A component of the synergy of a capitated population-based payment model with preparedness is that the providers are incentivized to provide preventive care and screenings that could reduce long-term costs, as well as provide coordinated high-quality care to those with acute needs. Models that incorporate these incentives and promote population health could lead to improved response and resilience because a healthy population is better able to help themselves and each other, and they are less likely to suffer disaster-related morbidity and mortality (Keim, 2008; Wulff, Donato, &

Lurie, 2015). While providers working under a capitated population-based payment model would likely see short-term stability in finances during a disaster, the system needs to be resilient enough to quickly resume delivery of preventive, screening, and chronic disease management care so that the care is not deferred for too long, since that could increase the need for expensive health care services in the future. If this risk is not managed in the short- or middle-term, the provider could ultimately end up with significantly higher costs for hospitalizations or other services. This revenue stability concern is likely less relevant for smaller scale or shorter duration disasters; in the case of a smaller scale disaster, patients could seek care elsewhere, and shorter duration disasters are less likely to impact rates of screening procedures, for example, as these may occur on a yearly basis or longer.

Using Value-Based Payment Policy to Incentivize and Support Health Care Preparedness, Response, and Resilience

After discussing the relationship between VBP models and preparedness and resilience with experts we turned to the question of whether VBP should be used to incentivize and support health care PRR. Experts had a variety of opinions on how best to finance and incentivize PRR. Most agreed that a mixture of different policies and programs is likely needed and that even if there were a way to create synergies between VBP and preparedness, *payment policy should not be the only lever used to support health care preparedness*. Some payment policy experts voiced strong opinions that payment policy should not be used to support preparedness activities. Some felt that disaster preparedness and response are public goods that require government support (federal, state, and local) to build and maintain optimal levels. This support could be structured similarly to a public utility, where government maintains necessary capacity and infrastructure of a publicly owned system or tightly regulates a privately owned set of preparedness providers. It would include increased funding, infrastructure, and coordination of efforts across the health care delivery system, as one expert argued that existing funding through the Office of the Assistant Secretary for Preparedness and Response (ASPR) was likely not sufficient to build and sustain health care preparedness across the country. Several experts also expressed strong concerns about using VBP policy to incentivize preparedness because it would build inefficiency into the day-to-day payment system to address rare events and would make an already costly health care system even more costly. However, others felt that there are ways that VBP models can simultaneously support value in day-to-day care and activities necessary for PRR.

Potential Policy Directions to Promote Preparedness, Response, and Resilience

To inform potential policy directions, we synthesized input from experts and the environmental scan and identified three broad approaches to addressing the relationship between VBP policies and health care PRR:

- deliberately structure VBP policies to incentivize PRR capabilities
- consider the impact of VBP policies on PRR and structure the policies so that they are not in conflict
- address PRR outside the payment system.

Within these categories, we identified several potential policy directions. In this background report, we lay out some of the potential strengths and weaknesses of specific policy directions, but further work to determine the feasibility of implementing each of these directions may be needed.

Use Preparedness Measures in Value-Based Payment Models to Incentivize Preparedness and Resilience

One way in which VBP models could directly incentivize preparedness is to incorporate preparedness or resilience measures into existing VBP models that hold providers accountable for performance on a set of measures (Pines, Pilkington, & Seabury, 2014). Currently, many health care providers receive payment through CMS's Merit-Based Incentive Payment System or other pay-for-performance models, where performance on process, outcome, and patient satisfaction measures relative to a benchmark contribute to a large portion of the payment amount (CMS, 2020b).

To implement this approach, CMS or other payers would need to develop and include measures of preparedness (or resilience or community health) in the list or menu of available measures for providers participating in quality-measure-based VBP programs. Currently, no readily usable preparedness measures exist in the database maintained by the National Quality Forum. A variety of concepts has been considered for measure development, including whether health care providers have written plans for preparedness activities, have formed relationships with local emergency medical services or fire and police departments, and have conducted preparedness tabletop or simulation exercises (Asch et al., 2005). Other potential measures could include whether hospitals have sufficient stockpiles of supplies or PPE.

Measures such as these that reflect a discrete action or are viewed as a "check box" are generally not preferred for VBP approaches; these binary measures are harder to benchmark and compare across providers and do not allow for the measurement of improvement. Continuous measures are typically used in VBP programs. However, there are substantial challenges to developing measures of preparedness and response because disasters are relatively rare, and therefore the response capabilities are not necessarily used on a routine basis; this, in turn, makes

assessing response processes, measuring response outcomes, and setting benchmarks for a successful response difficult. In lieu of an actual disaster response, structure and process measures for preparedness are likely to be the most feasible. Tabletop exercises and disaster drills provide a way to assess the ability of health care systems to respond to different types of disasters. For example, the Hospital Preparedness Program (HPP) cooperative grants require recipients to conduct and report the results of a surge capacity exercise that is designed to practice and improve their responses to an acute need for additional emergency department and inpatient beds (ASPR, 2020a).

Ideally, at least some of the potential quality measures would be "disaster-neutral" and provide markers of preparedness regardless of the type of disaster (e.g., measuring the ability to quickly set up an incident command center or communicate effectively with response partners and the public). This is in line with a shift over time in the preparedness field toward using an all-hazards approach to planning, focusing on building capabilities that are useful across the wide range of disaster types that could occur. The set of preparedness measures for use in VBP models would likely need to differ for different types of providers. For example, surge capacity measures focused on generating inpatient beds would be relevant for hospitals but not for primary care physicians. An important first step in exploring possible disaster preparedness measures would be to convene experts from the fields of health care delivery, disaster preparedness, and measure development to develop a prioritized list of measure concepts for development.

There is some evidence that quality measurement and payments to health care providers based on performance on those measures can change behavior, especially behavior related to performance on process measures (Chatterjee & Joynt, 2014; McWilliams, 2020; Mendelson et al., 2017). By adding process measures related to preparedness, health care providers would likely be incentivized to invest in preparedness. One issue that will need to be considered carefully is that adding preparedness measures will increase reporting burdens on health care providers (Casalino et al., 2016).

Use Value-Based Payment Models to Incentivize Activities and Investments That Are Beneficial Both Day-to-Day and in Disasters

Another set of policy options that directly supports and incentivizes preparedness could include using VBP models with performance metrics to support and incentivize activities and investments that are beneficial both in day-to-day operations and in helping prepare health systems for disasters (or dual-use investments). Experts noted that this option could include a wide range of activities, such as investing in data infrastructure, data interoperability, and care coordination, as well as increasing use of telehealth and digital health services, increasing use of chronic disease management tools, improving infection control, having larger stockpiles of PPE and of drugs with both routine and emergency uses (e.g., antibiotics such as ciprofloxacin that have day-to-day uses rather than drugs that are used only in rare instances such as antitoxins for anthrax), and improving immediate bed availability. However, given the relatively small

percentage of total revenue that is currently tied to VBP programs (typically less than 1 percent), the incentives would likely need to be significantly larger than they currently are to drive meaningful change. One expert suggested that VBPs could incentivize innovations that increase access to and quality of mental health care. Mental health problems typically surge during a disaster, and having better systems in place to address day-to-day mental health care needs will also be beneficial in a disaster.

One advantage of focusing on dual-use applications is that the capabilities built will likely apply broadly across a range of disaster types. For example, we have seen the value of increased use of telehealth during COVID-19, when in-person treatment was risky, and also in shorter term, more localized disaster events. One expert talked about the importance of telehealth in maintaining continuity of care for a population that was displaced by a wildfire. Similarly, as noted above, mental health issues are common across all types of disasters.

Incorporating the concept of dual use in VBP will require decisions about what specific dual-use investments or activities to incentivize through the VBP models. While the experts with whom we spoke had ideas about activities or investments that could be considered dual use, systematic, collaborative processes involving both VBP and preparedness experts could gather and assess the full range of options. Once the dual-use activities or investments are identified, there will be a need to identify or develop measures that can be used within a VBP model to incentivize them.

Move Toward Value-Based Payment Models That Have Some Capitated Payments

Capitated population-base payments are a policy direction that does not directly incentivize PRR but is expected to better support and not conflict with PRR objectives. Capitated population-based payment models in Category 4 of the APM Framework (Health Care Payment Learning & Action Network, 2017), including global budgets or per-member-per-month payments, were often cited by experts as models that did the most to incentivize preparedness, as they remove the direct link between providing services and getting paid and thereby give providers greater flexibility to allocate resources in different ways, some of which may support preparedness. Additionally, with increased stability of revenue (as in the case of global budgets), hospitals can be more strategic about investments in preparedness and other aspects of community health. With more freedom brought about by capitated population-based payments and incentives to lower the long-term costs of care, these VBP models were thought by experts to be the most likely to promote preparedness and resilience.

However, there is limited evidence to support the potential for incentivization of preparedness under capitated population-based payment models. Large-scale efforts to implement capitated population-based payments, such as the Maryland Global Budget Model and CMS's Direct Contracting Model demonstration (CMS, 2021b), are relatively new endeavors and have a small but growing base of evidence of their impact on the primary outcomes of health care utilization and costs (Roberts et al., 2018). Though preparedness was not

the focus of these models, as these models are studied further, efforts to understand their impact on preparedness and what could be done to better support preparedness would be very valuable. There is some evidence suggesting that Maryland hospitals fared better financially than hospitals nationally during COVID-19, potentially due to the global budget providing flexibility and stability (Peterson & Schumacher, 2020). Moreover, in terms of cases and deaths per capita, Maryland's ranking in the lower half of states (i.e., lower cases and deaths per capita) suggests that the global budget system has not been a hindrance to its COVID-19 response. Financially, from January to July 2020, hospitals in Maryland had inpatient revenues only 1.6 percent lower and outpatient revenues only 14.6 percent lower than during the same period in 2019, due in part to intervention by regulators to allow hospitals to charge up to 20 percent more for services (Levy, Ippolito, & Jain, 2021). In addition, as noted above, capitated population-based payment models that incentivize population health management can promote community resilience and facilitate a more effective response to a disaster.

To further implement capitated population-based payment policies, action on the federal and state level is needed. Federal and state policymakers need to design these models and gain buy-in from health care providers and other stakeholders, and providers need to make quality improvements to maximize value of care delivered under the models. Additionally, once the models are implemented, providers will also need to take steps to promote preparedness activities. These models will likely face significant challenges during implementation. Reorganizing health care providers to operate under capitated population-based payment models will require significant investment of time and other resources (ASPE, 2021). Capitated population-based payments will likely have greater uptake among primary care physicians or specialists who are part of larger health care delivery systems and will likely leave out providers unaffiliated with a larger health system. These payments can bring about greater risk for practices year over year and cause other changes in physician behavior. Smaller providers with smaller patient populations will likely have more challenges adapting to more widespread use of capitated population-based payments because the risk of health care expenditures exceeding the capitated payment cannot be spread over a large population. Additionally, if the sole goal is to increase the synergy between VBP and preparedness, a switch toward capitated population-based payment is a relatively indirect way to achieve the goal and will likely take significantly longer than other more direct ways of linking these two objectives. For example, if preparedness quality measures were included in a pay-for-performance system, hospitals would be held accountable for preparedness directly and immediately. In contrast, while capitated payments might provide short-term financial stability in the event of a disaster, the impact on preparedness through incentives to invest in data infrastructure, build relationships with social services, and improve the overall health of the population is less direct and can take a longer time to emerge.

Address Preparedness Outside of Payment System

Many of the payment policy experts and economists argued that the health care payment system should be used only to pay for health care services delivered to patients and that funding to support preparedness should be separate and not tied to patient care. The experts pointed to another potential set of policies for incentivizing preparedness that address preparedness outside of the FFS or VBP payment system. These policies could be used instead of or in combination with VBP models that would promote preparedness more generally. Many of the ideas the experts suggested are at least partially in place through existing health care preparedness policies and programs administered by ASPR or FEMA.

One suggestion from some economists was to *treat emergency response as a public good*. Compared with other health care services such as hip and knee replacement, emergency care and response to disasters were thought to be a service that was not best addressed using traditional economic supply and demand models. Additionally, planning for disasters is relatively resource-intensive, both in terms of up-front costs and costs to maintain supplies and overall readiness. One-time grants could be used to compensate facilities for investing in preparedness or to pay for services delivered during a disaster. Recurring payments to providers could help increase incentives for them to maintain readiness over time. Some federal funding for health care preparedness is available through the Department of Health and Human Services' (DHHS) HPP, which encourages the development of health care coalitions that incorporate acute care hospitals, local health departments, emergency management organizations, and emergency medical services. The pandemic highlighted the impacts of disasters on other providers, such as nursing homes, and thus suggested the importance of incorporating the broader health care system into health care coalitions and providing funding to support them. The funding for HPP, however, has declined substantially over time from a high of $515 million in 2003 to $231 million in 2019 (ASPR, 2019; Watson, Watson, & Sell, 2017).

Another option would be to ***s****trengthen standards and enforcement* by federal and other actors (for example, accreditation agencies, such as the Joint Commission) to promote preparedness activities and investments. CMS implemented a new rule in 2016 requiring all providers participating in Medicare and Medicaid to have emergency preparedness programs that include emergency plans that outline their policies and procedures, strategies for emergency communications, and approach to staff training and testing response capabilities (CMS, 2016). Effective standards and enforcement require measuring actual capabilities, likely through disaster exercises. Testing through the use of exercises is critical because having an emergency response plan in place does not necessarily mean that it can or will be implemented effectively in an emergency. The capabilities need to be practiced in order to be built and maintained. It is also important that the tests be as realistic as possible. The HPP in the Office of the ASPR at DHHS supported the development of no-notice surge capacity drills that can be used at the hospital or health care coalition level (ASPR, 2017). There are a number of ways to build on this existing

foundation. One expert suggested that more active enforcement of compliance with the standards, perhaps using unannounced inspections, could be beneficial. Developing and promoting the use of additional exercises that can be used for quality improvement and accountability are another possibility. It would also be useful to leverage the experience with COVID-19 through learning collaboratives to identify best practices and support organizations in applying them (e.g., the optimal frequency of tabletop exercises and other drills). In addition, there are opportunities to assess the impact of preparedness standards on performance during COVID-19. For example, it would be interesting to assess whether institutions that invested more time and effort into meeting the Joint Commission's or CMS's emergency preparedness standards were better prepared to respond to COVID-19.

A third option for policymakers looking to improve preparedness and response outside of the payment system could involve *increasing support for regional planning, including designating and funding regional disaster specialty facilities as the top in a tiered system*. Building on the HPP run through ASPR, which establishes and supports health care coalitions and provides incentives for hospitals to participate in planning exercises (ASPR, 2020b), the amount of funding for this planning could be increased, and additional health care entities could be included (Toner, 2017). Experts raised several concerns about the current preparedness programs that support coalition building and preparedness planning. The funding was deemed to be both too low and too unstable to accomplish its preparedness objectives (Toner, 2017). The experience responding to COVID-19 likely offers important lessons about the value of and challenges associated with regional planning and response. The surge in COVID-19 patients required a system-wide response and movement of patients, for example, from rural areas to more urban areas, to meet demands for care. It will be important to analyze whether and how regional planning efforts facilitated the response and how those planning efforts could be improved going forward.

The federal government could also *work with private companies to create incentives for preparedness through the private sector*. One avenue might be if financial institutions had a process for improving credit ratings for health care organizations that demonstrate preparedness activities or investments; another would be to lower business insurance premiums for health care organizations that demonstrate these activities. This approach may be particularly useful for incentivizing investments in infrastructure, such as retrofitting buildings to better withstand disasters including floods and earthquakes. These investments would be expected to reduce the amount of damage to facilities and allow providers to continue operations. "Resilience bonds" have been used to finance preparedness activities in other contexts; they work by transferring risk from covered entities into a capital market and then providing rebates or other incentives to entities that undertake strategies meant to reduce their risk of disaster or improve their resilience (Vaijhala & Rhodes, 2018). The government could also consider supporting a public-private market for "disaster insurance," where hospitals and other health care facilities are required to pay in and then receive reimbursements in the case of a disaster; the government could serve as a

"payer of last resort" in the case of a catastrophic large-scale disaster. Though the federal government would likely not be able to directly implement these policies, it could clear any existing regulatory barriers that prevent companies from doing this and encourage private companies to take these steps, possibly by generating evidence that could justify the financial benefits of these policies.

Conclusion

The COVID-19 pandemic has highlighted the interaction between VBP policies, which are focused on improving value and efficiency, and health care PRR. The literature and the experts with whom we spoke provided examples in which the incentives of VBP models of different types were either aligned with or could undermine health system preparedness and resilience. As we seek a better understanding of the relationship between VBP and preparedness, we must be mindful of the larger trends in and goals of implementing VBP programs. As VBP programs grow to make up a larger percentage of health system revenue and share more downside risk with providers, and as climate change brings the potential of more frequent disasters, the relationship between VBP and PRR is likely to become even more important.

Questions remain, however, about the extent to which VBP models should be used to support health care preparedness and resilience. Some of the experts with whom we spoke expressed strong concerns about supporting preparedness activities through the payment system. They worried about building inefficiency into the day-to-day system and increasing costs to patients and payers in an already expensive health care system. Other experts, however, thought payment policy should be considered in the mix of policy levers that could be used to support PRR and identified several ways that VBP models could do so. Convening a group of experts in payment policy and health care preparedness to dig deeper into these issues and make recommendations about how to proceed could be useful.

Limitations of This Report

This report provides a synthesis of expert discussions and an environmental scan. The sample of experts was purposively selected to represent diverse perspectives but certainly did not capture all of the relevant ideas and opinions. In addition, the goal of this effort was to provide an overview of the relationship between VBP and preparedness and highlight potential policy directions. Thus, this report provides a useful foundation on which subsequent policy analyses can build.

Potential Next Steps

Across all of the potential policy directions, additional research and analysis could inform the design of VBP policy responses to encourage preparedness activities. These research efforts might include additional expert discussions on targeted topics, such as the relationships between specific VBP designs and preparedness, the types of dual-use investments to incentivize, the feasibility and likely impacts of enhanced enforcement of preparedness standards, the feasibility of different ways in which VBP contracts could be altered to ensure flexibility to adjust

benchmarks when disaster strikes, or the expected impact of mandatory participation in VBP models on preparedness. For deeper dives into specific issues or policy directions, white papers could be commissioned or an expert panel could be convened to explore the topic and synthesize research into recommendations.

It would also be useful to build the evidence base with analyses based on the experience of health care providers with COVID-19. We have highlighted several potential analyses throughout this report, including the following:

- analysis of the impact of provider characteristics, such as type and size, and type of payment model on preparedness and resilience outcomes
- analysis to further explore the extent to which providers participating in capitated payment models were better able than those under FFS or other types of VBP models to identify and target outreach to their most vulnerable patients and connect them with a wider array of health care and social services
- analysis to assess whether institutions that invested more time and effort into meeting the Joint Commission's or CMS's emergency preparedness standards were better prepared to respond to COVID-19
- analysis of whether and how regional planning efforts facilitated the response and how those planning efforts could be improved going forward.

More generally, additional work could inform the development of new, or the refinement of existing, preparedness measures that can be used in VBP models. As noted above, measuring preparedness is challenging for a variety of reasons. It will take a significant effort to identify measurement targets and then develop and validate measures that could be used for payment purposes.

Another possible path forward would be to adopt a "preparedness in all payment policies" approach, such that one of the considerations when VBP policies are being developed or pilot programs are being evaluated is the expected impact on health PRR. This would be a mechanism used by policymakers to identify any potential conflicts between the payment policy and PRR objectives and possibly address them prior to widescale implementation, or to include as an evaluation criterion when evaluating the implementation. This policy direction is somewhat different from those outlined above because it focuses on changes to the policy formulation and development process, rather than a specific VBP model. Implementing this type of approach would require ongoing collaboration between policymakers focused on health care payment and those focused on preparedness. The process for incorporating preparedness considerations into payment policy development could be drawn from the process used to implement the broader "Health in All Policies" approach that calls for the consideration of health impacts as one criterion in selecting policies regardless of sector (e.g., considering the health impacts as leaders select a transportation or housing policy) (Centers for Disease Control and Prevention, 2021). This approach could be adapted as needed and could potentially be implemented immediately to quickly and systematically learn from ongoing model demonstrations that were affected by the COVID-19 pandemic.

Regardless of policy direction, it is important to acknowledge and understand the relationship among payment policy, preparedness, response, and resilience. The "preparedness in all payment policies" approach could be very valuable in this regard. Systematically assessing the impact of existing and future VBP policies on preparedness and resilience could provide evidence to fill the gaps in our knowledge. Even if it is decided that payment policy will not be used to support preparedness, it is still important to understand the effects of the policy on preparedness and resilience so that other policies or programs can be put in place if needed to leverage or counteract the effects. Implementing this would require developing a framework and associated process for assessing VBP models for preparedness implications. There are a number of ways to move this forward, including commissioning a white paper or convening an expert panel.

This report summarizing key points gleaned from the expert discussions and a targeted environmental scan highlights some of the complexities in the relationship between VBP efforts and promoting hospital PRR. We identify key gaps in our understanding of the relationship between VBP and preparedness, propose several new areas for research and analysis, and present several potential concrete next steps for interested policymakers and researchers.

Appendix. Example Questions from the Discussion Guide

Table A.1. Example Questions from Discussion Guide

Domain	Example Questions
Objectives of a high-performing health care system and preparedness	First, thinking about the U.S. health care system as a whole, how do you define high performance? What are the key objectives of the health care system? (Probe: high quality care, good patient experience/satisfaction, value, affordability, etc.) How do you define health care system preparedness to respond to and recover from a disaster? What are the key disaster preparedness objectives for a health system (e.g., ability to surge when needed)? Has this changed due to COVID-19? How so?
Value-based and market-based payment models in the context of emergency preparedness and resilience	To what extent do you think payment policy can contribute to building health system preparedness to respond to and recover from a disaster? Might these effects be particularly beneficial for some types of providers or health systems (e.g., rural systems, nursing homes, systems that treat more disadvantaged patients and have a poorer payer mix)?
Ways to improve value-based and market-based payment policies	What do you think the key challenges are in incorporating preparedness or resilience measures into value-based payment policies (e.g., reliability, validity of measures)? Are you concerned about any potential unintended consequences (e.g., focusing only on what is measured and incentivized and not all needed preparedness activities)?
Extent to which payment policy can support actions to build preparedness and resilience	Should payment systems focus only on incentivizing health systems toward improved efficiency and value and leave surge capacity and other preparedness investment considerations to other public programs (for example, the hospital preparedness program)? As you think about ways in which health system preparedness and resilience could be improved, what might be good strategies for encouraging that type of investment?

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