



COVID-19 Special Investigation Report: The Economic Impact of COVID-19 on the Health Care Sector in New England

Prepared August 2020



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Executive Summary

The economic impact of the COVID-19 pandemic has disrupted every component of the U.S. health care system. This report provides a topical assessment of the economic impacts of COVID-19 on health care systems, as well as their implications on long-term recovery and resilience. The report includes insights at the national and state level with a focus on FEMA Region 1 – Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

- **Economic Impact on Health Care Systems:** Two main factors are driving the economic disruption across the U.S. health care system: (1) excess costs associated with COVID-19 treatment and safety, and (2) revenue loss from reductions in non-COVID-19 medical services. Several factors, including loss of employer-sponsored insurance and fear of COVID-19 infection, have prevented individuals from seeking and utilizing medical services. As a result, many health care systems have experienced economic losses equating to more than half of baseline revenue. Service curtailments, furloughs, and layoffs have been common tactics to mitigate economic losses. Certain health care delivery systems are especially vulnerable, including rural hospitals, nursing homes, and community health centers. Economically vulnerable health care facilities are considering more extreme actions such as consolidation and closure. Permanent closures would have catastrophic effects on health care access and local economies. The extent to which the ongoing economic disruptions will lead to permanent closures and layoffs remains uncertain.
- **Government Assistance:** The federal government plans to provide \$175 billion in emergency funds to health care providers aimed to offset the expenses and revenue loss associated with COVID-19. Federal and state governments have also provided targeted relief to health systems disproportionately impacted by COVID-19. For states in FEMA Region 1, current government relief only covers a portion of the massive losses sustained by the U.S. health care system.
- **Adaptations in Health Care Systems:** Health systems have decentralized care, rapidly adopted telehealth technologies, and implemented COVID-19 safety precautions in order to encourage medical service utilization. Many of these adaptations will shape the future landscape of the U.S. health care system.

Recommendations:

- Identify and prioritize vulnerable health care facilities and populations
- Retain and advance technology gains in telehealth and pandemic mitigation response
- Provide financial assistance to individuals experiencing loss of health insurance and economic hardship to access essential medical services
- Build on improved efficiency in safety, workflow, patient handling, and decision support
- Invest long-term in public health infrastructure and workforce for (1) more equitable, prevention-focused health systems and (2) improved emergency preparedness across the federal, state, and community levels

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COVID-19 Special Investigation Report: The Economic Impact of COVID-19 on the Health Care Sector in New England

1. Introduction

The COVID-19 pandemic caught many nations of the world underprepared to respond swiftly and effectively to minimize disease spread across borders. With a globally dependent economy, the United States was not spared in contending with a paralyzing nationwide public health emergency. FEMA Region 1 is situated in close proximity to the country's epicenter in the early phases of the pandemic, while also having the third most affected state in the U.S. As the country and the region continues to grapple with mitigating the pandemic's systemic effects, the health care sector is undergoing major changes.

Halting disease spread through social distancing and concurrently treating an affected population has overtaxed the U.S. health care system. Health care systems face unique challenges posed by the pandemic both in terms of treating COVID-19 patients and non-COVID-19 patients, while also keeping their staff safe.

The heightened and sustained state of operations during COVID-19 has caused tremendous strain on the health care sector and created an abundance of economic stressors.

The heightened and sustained state of operations during COVID-19 has caused tremendous strain on the health care sector and created an abundance of economic stressors. The pandemic has necessitated a persistent reliance on the health care sector while simultaneously halting the primary means by which health care systems generate revenue: elective procedures. State health care systems in FEMA Region 1 find themselves in an economic Hobbesian Dilemma borne of a pandemic response by an ill-prepared nation that is ongoing. This is a Wicked Problem which can be construed as: how do health care systems in

FEMA Region 1 plan to transition to more resilient and fiscally sustainable operations while still responding to the ongoing pandemic.

The pandemic has exposed vast fault lines spanning across all aspects of the U.S. health care system at national, regional, state and community levels – from large urban hospitals to small rural health clinics. The ongoing U.S. COVID-19 response reinforces the need to reexamine the design of health care systems and the prioritization of public health as a key element of economic security. In the COVID-19 recovery efforts, there is an opportunity to address long known limitations in funding and resourcing of health care across the U.S.

This report contextualizes rapidly evolving information from a broad range sources – including FEMA-sponsored qualitative interviews with key stakeholders in Region 1 – to provide a landscape of (1) the economic impacts of COVID-19 on health care systems (2) government assistance efforts, (3) adaptations in the health care system, and (4) recommendations for the long-term recovery and resilience of health care systems in Region 1.

For the purposes of this report, the definition of a health care system is derived from the National Bureau of Economic Research (NBER) Center of Excellence. The NBER defines health system “based on three types of arrangements between two or more health care provider organizations: (1) organizations with common ownership, (2) contractually integrated organizations (e.g., accountable care organizations), and (3) informal care systems, such as common referral arrangements. Systems include organizations combined horizontally (e.g., a hospital system) or vertically (e.g., a multihospital system also owning physician practices and post-acute care facilities).”¹

2. Economic Impact on Health Care Systems

Hospitals and supporting health systems in all states have played a crucial role in caring for populations affected by the COVID-19 pandemic. To blunt the surge in COVID-19 cases and prevent hospitals from exceeding their capacity, federal, state, and municipal governments implemented various forms of stay-at-home orders, which disrupted the utilization of many medical services. This poses a unique challenge for health care systems. They must continue operations under the threat of COVID-19, while at the same time absorbing massive economic losses from slowdowns in revenue-generating services. This section highlights how these economic losses manifest and permeate through various components of the health care system. This section predominantly reports on community hospitals (i.e. nonfederal, short-term general, and specialty hospitals whose facilities and services are available to the public).² Community hospitals play a central role both in the COVID-19 response and in the U.S. health care system as a whole. As of 2018, there were 194 community hospitals in Region 1 (MA: 75, ME: 34, CT: 32, NH: 28, VT: 14, RI: 11).³ This section also reports on unique problems experienced by rural hospitals, long-term care facilities, and community health centers.

2.1 COVID-19 Related Expenses

Hospitals in COVID-19 hot spots have seen operating costs rise to treat hospitalized COVID-19 patients. In April 2020, expenses per patient discharged from U.S. hospitals increased by an estimated 59% from the previous year.⁴ Increased spending on COVID-19 safety provisions is a new expense that adds substantially to hospitals' operating costs. For example, costs associated with PPE were estimated to be about \$2.4 billion over the March 2020 to June 2020 time period.⁵ Hospital CEOs in Vermont and Maine stated that the cost of PPE has increased approximately 25%, and the cost of certain items like surgical masks have been volatile and increased dramatically.⁶ Prior to the pandemic, these hospitals would pay about 3.5 cents per mask, since March the cost of a single use surgical mask has fluctuated between 35 cents and \$1. This is further complicated by the uncertainty of the supply chains ability to delivery items, such as masks, at the dates agreed upon by the vendors when purchased.⁶

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In FEMA Region 1, the expenses related to COVID-19 treatment are higher in states that have experienced surges in COVID-19 cases and hospitalizations such as Massachusetts, Connecticut, and Rhode Island. However, expenses related to COVID-19 safety precautions (i.e. PPE, additional staff, infectious disease management training, and facility modification) are ubiquitous across Region 1 states, even for states that have yet to experience a substantial surge in COVID-19 cases such as Vermont, New Hampshire, and Maine.⁶ Additional expenditures for COVID-19 safety exceeding \$100 million per month in larger health care systems such as Level 1 hospitals.⁷ Such precautions, and the associated expenses, are necessary so long as the threat of COVID-19 persists. However, these additional expenditures give hospitals and health systems less leeway in mitigating economic loss.

2.2 Revenue Loss from Slowdown in Non-COVID-19 Medical Services

In April 2020, inpatient revenues in the United States dropped 25% on average from the previous year, while outpatient revenues dropped about 50% from the previous year.

The largest driver of economic loss in health care systems is revenue loss from cancelled or postponed non-COVID-19 medical services such as elective surgeries, radiology, and outpatient visits. A May 2020 poll revealed that about 48% of Americans said that they or a family member postponed or skipped medical care due to the COVID-19 outbreak.⁸ The revenue loss associated with canceled medical services accounts for the largest portion of economic losses in U.S. hospitals over the March 2020 to June 2020 time period, about \$161.1 billion⁵. In April 2020, inpatient revenues in the United States dropped 25% on average from the previous year, while outpatient

revenues dropped about 50% from the previous year.⁴ Even emergency room utilization show similar trends. In the ten weeks following declaration of the COVID-19 emergency, emergency room visits in the U.S. declined 23% for heart attack, 20% for stroke, and 10% for hyperglycemic crisis.⁹

Individual states in FEMA Region 1 share similar accounts of economic loss tied to non-COVID-19 medical services. Commonly reported across each of the New England states is at the commencement of stay-at-home orders health care systems immediately lost 50% or more in revenue due to the suspension of elective surgeries and services.^{10,11,12,13}

Fears surrounding COVID-19 have contributed to individuals avoiding or delaying medical services.^{14,15} However, the loss of employee-sponsored insurance (ESI) related to COVID-19 job loss has also created a major barrier for individuals to afford medical services.¹⁶ A May 2020 Kaiser Family Foundation report estimated that 27 million people could lose their ESI following COVID-19-related job loss.¹⁷ The same report estimates about 57% of those losing ESI would be eligible for Medicaid coverage in states that expanded Medicaid under the Affordable Care Act (all Region 1 states expanded Medicaid)^{17,18} – leaving a substantial portion of the population at-risk of being uninsured during the pandemic. Additionally, the economic impact of COVID-19 exacerbates pre-existing financial barriers to care such as high out-of-pocket costs, further preventing patients from seeking medical services.

Fears surrounding COVID-19 have contributed to individuals avoiding or delaying medical services.

Experts expect that avoided or delayed care will exacerbate chronic disease and mental health conditions, which will likely hinder recovery and resilience in communities.¹⁴ In two qualitative interviews, interviewees from a hospital association in Rhode Island and a non-profit organization in Connecticut both expressed concerns over long-term consequences of avoided and delayed care in their patient population.^{19,20} Current estimations of the economic impact of delayed or avoided care do not fully account for the downstream population health implications of disrupted medical treatment.

2.3 Layoffs and Furloughs

Massive revenue loss has led to service curtailment and temporary closures in affected health care systems. Inevitably, these changes coincide with furloughs and layoffs in the health care workforce.²¹ In the month of April 2020, the U.S. health care sector lost 1.4 million jobs.^{22,23} The majority of furloughed employees provide services that have slowed down or been suspended due to COVID-19 – for example, dentist offices, physician offices, outpatient care centers, and specialty practices providing elective procedures.²² After the largest spike in COVID-19 related job loss in April, the health care sector regained 312,000 jobs in May and 358,000 jobs in June, signaling furloughed employees returning to work.^{24,25} However, employment in nursing care facilities continued to drop both months.^{24,25} The portion of furloughs and layoffs in the health care sector that will translate to long-term unemployment remains uncertain.

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Major layoffs in the health care sector are occurring across all states in FEMA Region 1.^{26,27,28} This spike in unemployment in health care has major implications for FEMA Region 1 as the health care sector is a major employer in all six states. Health care jobs account for at least 12% of total employment in each of the Region 1 states.²⁹ These numbers do not account for the other jobs reliant on the health care sector – especially in hospitals that are large employers. For example, the Hospital Association of Rhode Island reported in a qualitative interview that many of the hospital staff reductions occurred in food service and housekeeping workers.²⁰ The secondary economic impact of these layoffs and furloughs will certainly amplify the existing economic hardships in the communities where these hospitals and health systems reside.

2.4 Potential Consolidation and Permanent Closures

The short-term adaptations that health care systems make now in response to the COVID-19 pandemic will likely translate to long-term changes in the health care landscape. Extreme cases of these long-term changes will arise as health care systems contemplate consolidation or permanent closure.³⁰

... issues with health care affordability may arise in the long term.

Primary care physicians and some clinical specialties in private practice or affiliated with larger health care systems (i.e. radiology, oncology and offsite imagery) are at points of financial extremis where they may be vulnerable to closures and consolidation of services. A Massachusetts Health Policy Commission (MHPC) survey on estimating the impact of COVID-19 survey indicates that 40% of primary care providers, 40% of offsite medical and procedural support

and 12% of behavioral health practices in Massachusetts considered consolidating with other practices or a larger hospital system.³¹ Fewer competing health care practices due to consolidation may translate to higher health care costs in certain services.³² Thus, issues with health care affordability may arise in the long term.

Permanent closures pose an even more serious threat. Closures of health care facilities exacerbate issues with health care access, especially in urban and rural areas that are already underserved. The MHPC survey indicates that 23% of primary care providers, 42% of offsite medical and procedural support and 22% of behavioral health practices in Massachusetts actively considered closing their practice.³¹ The consequences of permanent closure are even more concerning for larger health systems such as hospitals.

Entire communities rely on the economic stability of large hospitals and health systems for their local economy and employment.

In addition to the literal life-saving aspect of health care, the health care sector is an economic engine. For example, the health care sector is the largest source of jobs in Maine. In many rural counties, health care makes up a disproportionately higher share of overall employment.³³ There are currently 36 hospitals serving communities throughout Maine, including 33 non-profit general acute care hospitals, two private psychiatric hospitals, and one acute rehabilitation hospital, providing more than 22,000 full-time equivalent jobs. About 16 of the 36 hospitals, are “Critical Access Hospitals” (CAH).³³ CAH designation is designed to reduce the financial vulnerability of rural hospitals and improve access to health care by keeping essential services in rural communities.³³

... the health care sector is an economic engine.

Maine hospitals are expected to lose \$600 Million in the 2020 fiscal year due to the COVID-19 pandemic. Maine has received \$340 Million in federal support as of June 2020 to offset the impact to the health care system, but there remains a tremendous economic burden due to loss of revenue.⁶ Until there is an effective vaccine or successful containment strategy of non-pharmaceutical interventions, the health care system anticipates waves of community infection from COVID-19.

2.5 Vulnerable Health Care Systems

Certain types of health care facilities operate at much slimmer margins than large hospital systems, and thus are less equipped to weather the economic disruptions caused by COVID-19. Nationally, the median funds-on-hand for hospitals and health care systems is roughly 53 days, while more vulnerable hospitals and health care systems in the 25th percentile for operating margin have as little 7 days of funds for operations.³⁴ Underserved and vulnerable populations often rely these same health care systems for critical services. This section examines three health systems particularly vulnerable to the economic impact of the COVID-19 crisis: rural hospitals, long-term care facilities, and community health centers.

Rural Hospitals

Rural hospitals run tight, in some cases even negative, margins. In 2017, at least one-quarter of the rural hospitals in Vermont and Maine operated at a loss.³⁵ Without Federal support, rural hospitals will fail, and so will the communities they support. There are currently 40 rural hospitals in Region 1 with Critical Access Hospital designation, predominantly concentrated in Maine, New Hampshire, and Vermont (ME: 16, NH: 13, VT: 8, MA: 3, CT: 0, RI: 0).³⁶

Rural health care settings are often the economic anchors of their community . . .

Rural health care settings, are often the economic anchors of their community and sometimes region; for example, in Vermont, 12 of the states 14 hospitals are the economic anchor of their community.³⁵

If rural hospitals close, the impact to a community could be catastrophic. In terms of health outcomes, rural hospitals are critical for providing time sensitive care such as trauma care, emergency obstetrics, critical care, cardiac care, and stroke care. Many patients would not survive the journey to a flagship hospital, even when taking a life-flight or riding in an ambulance, due to the

distance. Also relating to the distance, family members would not be able to visit and advocate for family members in hospitals or skilled nursing facilities. Patients receiving dialysis or cancer treatment may not be able to afford the time, transportation, or short-term housing while receiving necessary care located far from their homes.

Beyond patient outcomes, rural hospital wellbeing is crucial for small businesses to expand, and for encouraging young people to stay or move to small communities. One person interviewed in a FEMA sponsored analysis of the economic impact of COVID-19 said, “How can I recruit young talent to move here (rural New England town), if there isn’t a near-by hospital with obstetric care, or pediatricians? They won’t come, and I can’t blame them.” Closure of a community’s sole hospital is estimated to reduce per capita income by 4% and increase unemployment by 1.6% in that community.³⁵ Each hospital job supports two additional jobs, and every \$1.00 spent by a hospital supports approximately \$2.30 of additional business activity in the community.³⁵ The ripple effect and negative population health impacts of the closure of rural hospitals cannot be overstated. One such ripple is that when a sole, acute care hospital in a county closes there is a 19.3% decline in physician supply, including primary care.³⁵

Long-Term Care Facilities

Long-term care facilities are vulnerable during the COVID-19 pandemic . . .

Long-term care facilities provide residential care for individuals who can no longer perform everyday activities on their own; they include nursing homes (also known as skilled nursing facilities) which are facilities particularly focused on providing long-term medical care.^{37,38} Long-term care facilities are vulnerable during the COVID-19 pandemic both due to the susceptibility of their older resident population to COVID-19 and the economic consequences. Long-term care

facilities have emerged as hotspots for COVID-19 deaths across the United States.³⁹ In each of the FEMA Region 1 states, over 50% of deaths have been in long-term care facilities.⁴⁰ This issue is most pronounced in Rhode Island where about 82% of COVID-19 deaths occurred in long-term care facilities as of late June.⁴⁰

As the threat of COVID-19 persists, long-term care facilities must remain adequately staffed and supplied with protective provisions. Additional spending on staffing, protective equipment, and technologies to reduce COVID-19 risk have substantially increased operating costs for long-term care facilities, particularly for nursing homes.^{42,43} Many nursing homes have stopped admitting new residents to mitigate the risk of COVID-19 transmission, resulting in lost revenue in addition to higher operating costs.^{42,43} As of 2017, there were 915 certified nursing homes in Region 1 (MA: 399, CT: 223, ME: 100, RI: 83, NH: 74, VT: 36).⁴¹

Community Health Centers

Community health centers are health care delivery systems that provide affordable health services – particularly for preventative health – to underserved populations in both urban and rural areas.⁴⁴ Community health centers play a critical role during the COVID-19 pandemic; they serve the populations that have been disproportionately impacted by COVID-19, specifically lower-income patients and patients who are racial and ethnic minorities.⁴⁵

The economic disruption to community health centers has implications for health systems across Region 1.

Amidst the COVID-19 pandemic, community health centers transformed into sites for COVID-19 testing for these high impact populations.⁴⁶ Despite their revamped services for testing and virtual visits, community health centers have still experienced a substantial drop in patient visits – about a 43% reduction compared to pre-COVID-19 baseline.^{46,47} Estimates indicate that the slowdown in patient visits roughly translates to 30% reduction in revenue.⁴⁶ The economic disruption to community health centers has implications for health systems across Region 1.^{48,49} As of 2018, there was a total of 889 community health center sites in Region 1 (CT: 290, MA: 276, ME: 156, VT: 72, RI: 52, NH: 43).⁵⁰

Many community health centers across the U.S. have temporarily closed down to remain afloat amidst slowdowns in patient visits. Connecticut, one of the first COVID-19 hotspots in Region 1, had 73% of the community health centers in the state temporarily shut down as of May 8, 2020 – the highest percentage in the country.^{46,47} Temporary closures of health care systems to this extent pose a serious problem for continued pandemic response, as they reduce health care access in underserved areas.

2.6 Factors Contributing to Uncertainty

Whether or not cost-saving adaptations will prevent permanent service curtailments, layoffs, and closures remains uncertain. A combination of external factors will influence the extent in which the short-term economic disruptions to health care systems become permanent.

First, long-term economic disruptions to health care systems will depend on the duration and magnitude of the COVID-19 pandemic. The future economic impact of COVID-19 is inextricably linked to how successful governments, public health entities, health systems, and the American public are in controlling the spread of COVID-19. Future surges in COVID-19 and subsequent shutdowns would be detrimental to the economic sustainability of health systems. Practices considering permanent closure will likely not fiscally endure another quarantine period without substantial support.

Second, the economic recovery of health care systems will depend on the public’s ability to return to health care facilities and utilize medical services. Some economists predict only moderate gains as states reopen because patient confidence in health care sector is even more fragile than in other sectors of the economy.^{51,52} Additionally, major financial barriers such as loss of employer-sponsored insurance may discourage individuals from seeking care. However, improvements in COVID-19 safety protocol and infrastructure, the expansion of telehealth services, and expanded health insurance coverage may influence the public’s willingness to utilize medical services.

Third, the economic recovery of health care systems requires effective government relief efforts. Sufficient and equitable government relief efforts are needed to support the health systems that (1) are at high risk of insolvency, (2) serve a community with limited alternative options for health care services, and (3) provide critical services for controlling COVID-19 such as treatment and testing.

A combination of external factors will influence the extent in which the short-term economic disruptions to health care systems become permanent.

3. Government Assistance

The federal and state governments have passed stimulus packages to assist the health care systems in offsetting their massive economic losses. A common theme has emerged across different health care systems: federal and state stimulus funding only covers a small portion of economic losses. This section examines the general and targeted relief funds, as well as their shortfalls, for health care systems at the federal and state level as of June 2020.

... federal and state stimulus funding only covers a small portion of economic losses.

3.1 General Government Assistance

Congress passed the multiple COVID-19 relief bills that included \$175 billion in grants for health care providers.⁵³ The relief payments reimburse hospitals and other health care entities to assist with health care-related expenses and lost revenue attributable to coronavirus.⁵⁴ As of June 2020, about \$3 billion of federal provider relief funds have been disbursed to states in FEMA Region 1 (MA: \$1.5B, CT: \$629.6M, ME: \$317.8M, NH: \$303.7M, VT: \$161.0M, RI: \$141.1).⁵⁵

... hospitals with a smaller portion of patients paying with private insurance received far few relief funds ...

The original formula in the Coronavirus Aid, Relief, and Economic Security (CARES) Act used to disburse funds to hospitals allocated more money to providers with larger shares of private insurance revenue. As a consequence, hospitals with a smaller proportion of patients paying with private insurance – such as safety net hospitals – received far fewer relief funds per hospital bed compared to those with higher proportions of patients paying with private insurance.⁵⁶ Safety net hospitals, which have received fewer general federal relief funds, often operate

at slimmer margins compared to private hospitals – while at the same time they treat underserved minority populations that have been disproportionately hospitalized for COVID-19.^{56,57} The Department of Health and Human Services eventually announced they would distribute additional funds to safety net hospitals and Medicaid and CHIP providers in June to address this disproportionate allocation.⁵⁸

The federal stimulus packages also plan to allocate \$150 billion for payments to of more flexible funds to state, local, and tribal governments for responding to COVID-19.⁵⁹ Many state governments in Region 1 have leveraged this funding to further supplement support for struggling health care systems. For example, Vermont proposed using \$300 million of the \$1.25 billion in federal funds to bail out the state’s health care systems to prevent collapse.⁶⁰ State governments have also provided their own supplemental relief

to their state’s health care systems. For example, Massachusetts supplemented relief to hospitals and health systems with \$800 million in funding in April – half allocated to and half allocated to the 28 safety net hospitals in the state.⁶¹ Such state-level interventions tailor funding to unique needs in the state’s health systems that federal programs did not cover.

3.2 Targeted Government Assistance

Rural Hospitals

The Department of Health and Human Services provided an additional \$10 billion in aid to providers in rural hospitals, clinics, and health centers across the country.⁶² Rural health systems operate on very slim margins and are among the highest risk of shutting down due to slowdowns in medical service utilization. Government relief funds are keeping many rural health systems afloat.

Nursing Homes

The U.S. Department of Health and Human Services plans to distribute \$4.9 billion in aid to nursing homes thus far.⁶³ However, this amount of aid provided by the HHS is well below the \$15 billion in federal funds that advocates anticipate nursing homes will need to weather the pandemic.^{42,64}

Community Health Centers

Federal government relief funds targeted for community health centers currently totals to around \$1.98 billion.⁴⁶ This funding supports efforts to ramp up COVID-19 testing capacity as well as compensating for revenue loss. The \$1.98 billion account for roughly 7% of total health center revenue in 2018.⁴⁶ However, the relief only covers a portion of the estimated 30% of lost revenue due to the slowdown in patient visits during the COVID-19 pandemic.⁴⁶

4. Adaptations in Health Care Systems

Federal assistance has been helpful but has only marginally blunted the economic losses endured during the first four months of the pandemic with minimal prospect of having an enduring benefit.^{65,66} Health care systems have been adapting to offset the remaining economic losses in other ways. This section will describe tactics that health systems have implemented to weather the economic disruption caused by COVID-19. Broadly, these adaptations have manifested through changes in workforce and operations.

Dynamic adaptations to ensure clinical services amidst declining economic viability for every affected community arose throughout various levels and components of the health care system. Pandemic specific response adaptations may find permanent places in emergency response planning documents, incident command procedures or substantively alter fundamental structure and functioning of health care systems. These expedient adaptations to the health care systems workforce management techniques, facilities, and delivery of services are in need of examination to determine what is critical to health care system strengthening and resilience may endure beyond the pandemic experience based on benefits of capabilities long desired but only born of extreme necessity.

4.1 Changes in Workforce

Health care systems needed to make rapid changes to their workforce both to increased demand for services related to COVID-19 and prevent layoffs. To meet this demand, personnel were drawn from private staffing agencies, external workers from the military and volunteer organizations, and repurposing staff members deemed non-essential.

These sudden addition of new or repurposed staff required immediate administrative needs such as rapid credential verification, onboarding procedures, and distance learning training for COVID-19 specific procedures. In some cases, hospitals created new positions like Personal Protective Equipment Coordinators, COVID-19 Staff Coordinators and COVID-19 Data Managers. Repurposing existing staff members provided needed capability with minimal retraining requirements and no onboarding. All of these adaptations require expenditure of hospital resources to deploy the supporting technologies or create new staffing capabilities.⁶⁷

Repurposing existing staff members provided needed capability with minimal retraining requirements and no onboarding.

Hospitals may also be required to maintain a measure of surge capacity by state policy in expectation of recurrence of COVID-19 waves in the future.⁶⁸ Another possible ramification is the regional downturn may create migration of health care workers in and out pandemic affected states introducing an uncertainty in available health care workforce or alter pricing models for on-demand services (home health aides, visiting nurses, per diem staff).⁶⁹

4.2 Loss of Individual Health Insurance

As millions of workers lost jobs or were furloughed, a commensurate drop in employer-sponsored insurance will result in the newly unemployed enrolling in Medicaid, purchasing individual coverage, or remaining uninsured. Estimated numbers of newly uninsured in a worst-case scenario of 25% unemployment for Region 1 respectively are projected to be extensive (MA: 721,000, CT: 351,000, NH: 139,000, ME: 131,000, RI: 103,000, VT: 63,000).^{70,71} Medicaid and Affordable Care Act as safety-net

Estimated numbers of newly uninsured in a worst-case scenario of 25% for Region 1 respectively are projected to be extensive.

coverage resources are providing relief as intended, however states will likely incur increased fiscal burden as enrollment dramatically increases. Both the CARES Act and Families First Act addressed specific aspects COVID-19 related costs of testing and treating, obviating barriers to care for COVID-19 infections. However, there remains concerns of surprise medical costs due a lack of clarity of covered services and reimbursement processes.⁷²

4.3 COVID-19 Safety to Reestablish Non-COVID-19 Medical Service Utilization

Critical to recovery to any revenue-generating endeavor is reliable consumer confidence. The health care systems of FEMA Region 1 must provide reassurance to consumers of health care services that the conduct of elective surgeries, delivery of acute care and emergency services and health care facilities will not result in negative health outcomes. FEMA Region 1 recovery planning must include the ability to reliably scan, detect and monitor for COVID-19 outbreaks, particularly in high-risk occupational environments where consumer-risk is similarly high. While it is generally assumed under quarantine conditions health care systems executed safety protocols expertly, the return to pre-pandemic operations and elective surgery caseloads will engender increases in expenditures to prevent COVID-19 spread to patients and employees. Prevention, detection, and mitigation of hospital-borne COVID-19 infections must be budgeted for throughout all phases of state led reopening of health care systems and construed as part of normal operations.

... the return of pre-pandemic operations and elective surgery caseloads will engender increases in expenditures ...

Equally critical to re-establishing patient confidence is ensuring employee-employer confidence through provider liability protections. The CARES Act and Public Readiness and Emergency Preparedness (PREP) Act both provide a certain level of protection but leave open to interpretation liability concerns requiring the burden of proof on health care providers or entities. States in FEMA Region 1 acted quickly to address liability gaps the CARES Act and PREP Act did not address exposure to burdensome civil actions. Concern regarding time limits of these protections may require modification due to extended duration first wave of the pandemic or recurring outbreaks in the near future.^{73,74}

The ability to respond to a novel pathogen while adapting continuity of clinical services during an active pandemic revealed pre-pandemic vulnerabilities in health care delivery while promulgating reactive responses. The ingenuity and creative problem solving health care professionals demonstrated under extraordinary circumstances serve as cornerstones to re-establishing patient confidence going forward. Instituting infectious disease mitigation solutions, modifying workflows to maintain care plans and developing new processes to salvage revenue streams can help define paths to recovery and improving FEMA Region 1 health care systems.

The uncertainty of COVID-19 progression through the human populace will require continued implementation and possible expansion of infectious disease prevention practices. Persistent use of standoff distance between point of care and patients must remain. Beyond the advances in telehealth to reduce the need for physical interactions, health care systems and providers will need to actively employ the use of physical barriers with the addition of remote patient monitoring within health care facilities and possibly as outpatients in home settings. Examples from the VT and NH intensive care unit settings for COVID-19 patients include expedient use of existing off-the shelf commercial video camera equipped tablets permitted staff and family members to remotely attend to patients medical and social needs with minimal physical contact. In Massachusetts, plexi-glass patient isolation stations for exams are being integrated in clinical workflows [68].

Offsite testing will remain an element of the COVID-19-specific health care systems countermeasures to prevent community spread and protect health care worker employee pools. Preparations for future outbreaks could emulate practices used in other countries that include the construction of dedicated infectious disease wings or expanding negative pressure facilities and the personnel needed to staff a previously non-existent capability [75]. Examining clinical specialties and support services that do not

utilize telehealth technologies could also open up new economic opportunities. Planning for these modified new COVID-19 prevention resources will rely on both government and industry to develop, resource and eventually monetize COVID-19 prevention through insurance reimbursement approaches.

Offsite testing will remain an element of the COVID-19-specific health care systems . . .

4.4 Decentralizing Treatment with Telehealth

The sudden onset, rapid pace of COVID-19 transmission and need to limit patient exposure impaired state health care systems ability to deliver their typical wide range of services. Adapting quickly, certain clinical specialties amenable to the use of telehealth and other mobile health technologies expedited deployment to address the services gap incurred by stay-at-home orders. In all FEMA Region 1 states longstanding telehealth policy restrictions or approval processes were obviated or waived to permit the use of innovative audio, video and screening technologies to maintain continuity of services and limit exposure.^{76,77} Many of these approaches scaled up with some effort as both patients and providers navigated simultaneous deployment, implementation and use.

Minimizing the need for patients and clinical staff to be physically collocated for the purpose of examinations or assessments manifested in innovative forms across the New England region. Utilization of a variety tools to screen patients via voice or electronic communications with screening decision support modalities such as chatbots, interactive voice response systems or call screening centers and staff specifically trained to assess patient communications COVID-19 symptomology.^{78,79} “Forward triaging” drastically reduces possible routes of disease transmission, increases provider efficiency through appropriately focused COVID-19 related care, and potentially accelerates use of use of telehealth technologies.

This type of “forward triage” through telehealth screening tools opens up expansion of at-home outpatient care through remote means. A broad range of clinical services including, but not limited to, chronic care management, non-urgent acute care visits, well visits, reported the ability use telehealth services during the pandemic.⁸⁰ Most notably, behavioral health services were uniformly well received by both patients and providers.^{81,82}

Behavioral health services provided through telehealth modalities ensured a degree of continuity of services . . .

Special consideration for community-level behavioral health needs are warranted given the fragile state of the mental health provider workforce which was understaffed and often overworked before the pandemic throughout the region. Behavioral health services provided through telehealth modalities ensured a degree of continuity of services, while bridging existing gaps in clinician availability, essentiality extending the reach of behavioral health care resources. Chronically persistent levels of

depression and anxiety across vulnerable populations in lower social economic status were at levels where health care capacity habitually have been able not meet the needs across FEMA Region 1. Roughly 57% of individuals in Massachusetts residents surveyed as a part of the 2018 Massachusetts Health Reform Survey indicated they could not secure access to behavioral health services when needed.⁸³ Other FEMA Region 1 states have documented similar levels of mental health resource limitations, especially in more rural locations.

Telehealth will remain beyond the pandemic, however, most health care systems or providers do not have digital health strategy in place forcing ad hoc implementation to maintain services. Concern for reimbursement for new or modified digital service delivery is warranted from providers, while representing an economic opportunity for government entities in partnership with industry to further develop and codify. Patients’ willingness to adopt telehealth services is poised to fundamentally change traditional health care delivery models. Advancing telehealth capabilities is one of the few positive economic and health care systems strengthening opportunities that public-private partnerships should seize upon in throes of crisis response and recovery.^{52,77,84}

Advancing telehealth capabilities is one of the few positive economic and health care systems strengthening opportunities . . .

5. Recommendations

5.1 Prioritizing Vulnerable Health Care Systems

This report highlights the unequal burden that the U.S. health care system has placed on vulnerable individuals and communities during the pandemic. A critical step in the short term is to continue to identify and direct proportional financial assistance to the high-risk, high-impact health care systems – in other words, the facilities and programs that are at higher risk of closing down and would have a significant impact if closed. Examples of how current relief efforts target broad categories of high-risk, high-impact systems were featured in this report: rural hospitals, nursing homes, and community health centers. Additionally, there may be other types of vulnerable health care delivery systems that must be systematically identified and prioritized as well.

Identifying the health care facilities with the highest risk and highest impact will assist in more effective resource allocation. For example, potential impact can be assessed by anticipating the widespread effects of a health care facility closure in terms of health care access, local population health and health disparities, local economy, and COVID-19 response capacity.

Identifying the health care facilities with the highest risk and highest impact will assist in more effective resource allocation.

Creating a framework to identify the most vulnerable health facilities is an initial step for an equitable and effective distribution of funds. Funds can be disbursed proportional to the needs of individual health facilities, and more importantly, the needs of the communities they reside in. Prioritizing health equity is essential for long-term recovery and resilience. It will protect the most vulnerable populations from falling further behind during a pandemic that has been fueled by the disparate health in the U.S.

5.2 Retaining and Advancing Gains in Telehealth

As previously mentioned, behavioral health services delivered through telehealth expanded greatly during the pandemic. Behavioral health services are historically in demand under normal circumstances. Quarantine, social distancing, unemployment, social unrest, illness and loss of family all occurring

simultaneously create a perfect storm for communities already contending with mental health challenges. The need for mental and behavioral health services exceeds resources on hand by way of providers, beds in treatment facilities, and access to social safety nets of in-person social networks. Behavioral telehealth should continue to be an option for patients and providers. Equitable access to telehealth throughout FEMA Region 1 will require investments in broadband and cellular

The need for mental and behavioral health services exceeds resources on hand . . .

infrastructure to ensure that all populations, specifically those vulnerable to the health impacts of COVID-19, can participate. Use of technology to support forward triaging of suspected cases of COVID-19 infections will remain standard operating procedure and should be viewed as an investment opportunity to advance capability.

5.3 Increasing Utilization of Medical Service: Expanding Coverage for Medical Care and Subsidizing COVID-19 Safety Measures

In order for health care systems to mitigate continued economic losses, relief efforts must address the financial barriers and safety concerns preventing patients from utilizing medical services.

Government provided funds to expand coverage of essential medical services should help patients return to health care facilities. Financial assistance can be provided to individuals who have deferred medical care due to loss of employer-sponsored insurance due to COVID-19 and high out-of-pocket costs.⁸⁵ Such measures would encourage the utilization of essential medical services during the pandemic. The increase in utilization would help health care systems stay open through the pandemic and improve population health overall.

Restoring patient confidence in the health care system is a strategic imperative for FEMA Region 1 states. Proactive engagement with communities and patients will need to communicate COVID-19 risk mitigation plans hospitals, community health centers and other components have instituted. Similarly, health care system employees will need assurances occupational health and safety standards for infectious disease control will be addressed through reliable access to PPE and job security for employees who become infected. Employee-employer liability protections will be a pivotal issue to address at all levels of government.

Restoring patient confidence in the health care system is a strategic imperative for FEMA Region 1 states.

5.4 Investing Long-term in Public Health Infrastructure

Public health departments as pandemic preventative response and recovery resources are another set of vital capabilities to be reimagined. Expansion of the public health workforce is essential to recovery planning – filling gaps in critical roles such as COVID-19 testing coordinators, contact tracing staff, health communication specialists to inform the public and industry on COVID-19 mitigation practices, and public health data specialists to analyze and interpret data trends. Commensurate with these workforce-centric investments is the need for technologies to make appropriate use of voluminous health data generated to inform public health decision support capabilities.

In creating a health care system that prioritizes on reactive medical services for sick patients, the U.S. has under-resourced public health. By underinvesting in preventative public health capabilities, the economic fragility of the U.S. health care system has been exposed in the current pandemic response. Building a more resilient health care system will require a comprehensive systems analysis. A systems analysis should consider four core areas: (1) funding to address chronic under-investment in public health, (2) prioritization of prevention over reactive responses to current and future health crises, (3) a uniform approach aligning services and capabilities across national, state and community-level public health entities, and (4) a committed approach to expanding and compensating the public health workforce.⁸⁶

Building a more resilient health care system will require a comprehensive systems analysis.

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