

# USE CASE SPECIFICATION

Version 1.0

Emergency  
Management

## Version History

Version #	Date	Author(s)	Reason for Change
1.0	05/13/2020	Use Case Team - HealthTech	New
2.0	06/05/2020	Use Case Team – HealthTech	Edited per BSCC comments

# Emergency Management for Healthcare Providers, Healthcare Organizations, and Payors

## HIE Use Case Summary

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A valuable asset of a health information exchange (HIE) is the trusted, secure flow of data encompassing the entirety of the patient care continuum in near real-time. The longitudinal patient record could contain records from emergency dispatch, field care, emergency transport, emergency department (ED) care, hospital admission, discharge, ambulatory, and practitioner care. Montana's designated statewide HIE, Big Sky Care Connect (BSCC) can be leveraged during pandemics such as the COVID-19 pandemic, natural disasters, and situations activating emergency preparedness to collect and disseminate data across health sectors including but not limited to hospitals, emergency management service (EMS), urgent treatment centers, and public health. Doing so can assist in creating coordinated interventions and efficient emergency response plans relating to natural disasters, communicable diseases, and other situations warranting a collective urgent response from the healthcare community.

The potential lack of information about an individual's health during a natural disaster has been an important driver for the adoption of health information technology (HIT) and HIE. During disasters and wide-spread emergencies, displaced patients are at a greater risk of receiving inappropriate treatment due to limited access or a lack of access to longitudinal health records. These risks are amplified in situations when first responders are faced with unconscious or non-communicative patients, some with life-threatening injuries or illnesses and time is of the essence. Although Montana is one of the safest states when it comes to natural disasters, the State can still be at the mercy of wildfires, earthquakes, localized floods, tornadoes, and winter storms. Any one of these disasters could cause displaced persons that need medical attention and may not be in a position to give a full account of their medical status.

The opportunities for leveraging BSCC HIE functionalities in support of emergency management encompass daily emergency operations throughout the phases of disaster and emergency preparedness, response, and recovery. When disasters or emergencies occur, patients are often receiving care from first responders and providers with whom they likely have not had prior experiences. Therefore, access to comprehensive patient records including allergies, medications, and problem lists, will improve the quality and continuity of care in adverse circumstances for Montanans. Supporting communities as the source of truth with critical, real-time patient data during a natural disaster and/or emergency preparedness situation is an ideal application for the many use cases of the exchange of health information that have been identified by BSCC.

## User Story

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**Clinic:** Dr. Jones is a physician in an urgent treatment clinic in Montana. Her community has been afflicted by a measles outbreak due to a decline in vaccinations in recent years. A regional alert has been initiated, categorizing this as a public health emergency. Her urgent treatment clinic has been tasked as a triage and testing center and is experiencing an increased number of walk-in

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patients seeking care, many of whom with which she has not established a previous care relationship. Her clinic is a BSCC HIE participant, allowing her to access and query the HIE directly from her electronic health record (EHR). As she treats patients, she can access their medication lists, problem lists, allergies, advanced care directives, and other relevant information. Utilizing BSCC's emergency management capabilities allows Dr. Jones to save valuable time, make well-informed care decisions, and refer her patients to the appropriate level of care should they need it quickly and efficiently. Additionally, the data she contributes can be used to inform syndromic surveillance, disease tracking, and other public health reporting.

**Provider:** Dr. Smith is a primary care physician whose practice is part of a large hospital system in Montana. His patient, Mr. Jeffery, is being seen for complaints of acute onset cough and fever. Mr. Jeffery is 70 years old and has recently returned from a family vacation in Europe. He suffers from a compromised immune system after a previous battle with lung cancer. Dr. Smith recognizes that his symptoms are consistent with a new virus that has begun to spread across Europe. He flags this patient as a particularly vulnerable individual to the effects of the illness and as someone who was likely exposed. Dr. Smith orders lab tests and imaging to determine Mr. Jeffery's diagnosis.

Upon learning the results of Mr. Jeffery's tests, Dr. Smith has diagnosed him as positive, contagious, and in acute distress. Therefore, Dr. Smith has ordered Mr. Jeffery to be a direct admit to the hospital at which his clinic is affiliated so that he can receive care and be appropriately isolated to reduce disease transmission. The services and functionalities offered through BSCC HIE will enable Dr. Smith to be kept apprised of Mr. Jeffery's status throughout his hospital stay and monitor his lab and other test results that can be utilized by his current and future care management teams. BSCC will promote the sharing of data between Mr. Jeffery's care team and the Department of Public Health to facilitate syndromic surveillance, disease tracking, and monitoring.

**Hospital:** A local community hospital has become exceedingly busy caring for patients after a tornado passed through the community. The hospital adapted their triage protocols so that patients seeking emergent care can be evaluated in a timely manner. Being a participant in BSCC HIE, the hospital's ED was able to quickly exchange information with EMS and other disaster volunteers as they evaluated patients on-site. This enabled care teams to prepare in advance for the arrival of many patients, efficiently get them triaged, and order tests much quicker than if the flow of patient information was not available. Depending on the patient's acuity, the community hospital could communicate with EMS to reroute non-emergent patients to a more appropriate level of care.

The providers at the local community hospital were able to utilize BSCC HIE functionalities to better navigate the high number of patients seeking emergency care after a natural disaster. Using BSCC HIE functionality as part of an emergency management plan helps to ensure that patients are treated rapidly and effectively and ensure that all affected patients' primary care teams can provide the best follow-up care after being discharged.

**Payor:** Collaboration between providers and payors is an essential component in emergency management and response. Payors who participate in the Montana HIE, BSCC, will save time and human resources previously expended in search of clinical data to support medical claims and payor-led care management. This time savings is especially valuable during natural disasters or public health emergencies, as more patients are seeking care during these circumstances.

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During a time of crisis, the healthcare community could be faced with providing care for many patients with whom there is no previous care relationship. As such, payors will need to access medical encounter data in support of claims that were submitted for a patient from a facility that may not be contributing data to BSCC HIE. The Montana payor community may accomplish this task via BSCC HIE connection to the eHealth Exchange Hub. Additionally, health plans, including Medicaid and managed care plans, will have access to demographic data to facilitate improved collaboration and care coordination. Being able to efficiently incorporate clinical and claims data will assist payors in identifying gaps in care, profiling members, and/or creating member cohorts during disasters or spread of communicable diseases.

HIE functionalities, such as SSO and direct query technology, will enable payors to quickly and securely log in, query, and access clinical and administrative data located in BSCC HIE. BSCC's alerting services will equip payor care managers with timely information regarding their members' medical encounters enabling them to enhance care coordination and management through improved post-discharge follow-up rates.

**EMS:** Mr. Smith has been displaced from his home due to a major earthquake that has resulted in evacuation orders. There has been widespread devastation and he is one of many who have been forced to evacuate and seek refuge in a neighboring city. Mr. Smith has several co-existing conditions, including CHF. While following evacuation procedures, Mr. Smith experiences an exacerbation of CHF symptoms including dizziness, fatigue, and difficulty breathing. An ambulance was called, but when the paramedics arrived Mr. Smith was unable to relay an accurate account of his underlying health problems and medical history. As a BSCC HIE participant, the EMS team was able to query Mr. Smith's health record on-site to retrieve his problem list, current medications, drug allergies, and end-of-life choices. The vital information retrieved by EMS at this critical moment resulted in enhanced clinical decision-making in the field.

After attending to Mr. Smith's immediate needs, EMS was able to alert the receiving ED about the incoming patient's status and transmit their care report to the patient's health record to be viewed by the treating physician and primary care team.

EMS plays an integral role in the health care system, particularly during emergency and disaster response. Vital health information is often unavailable to emergency responders caring for patients during disasters which can lead to suboptimal care and patient safety concerns. The care provided by these first responders, in the field and in route to hospitals, affects patient outcomes, quality of care, and patient satisfaction.

**Public Health:** During emergency situations like the coronavirus disease of 2019 (COVID-19) or a natural disaster, Montana Department of Public Health and Human Services (DPHHS) can benefit from BSCC HIE platform's bulk query services. The platform provides up-to-date electronic patient information of a large group of displaced victims of disasters outside of their normal health systems or geographic area of service. This bulk medical information can be used at EMS centers/settings, field hospitals or alternate care facilities and medical shelters. In addition, laboratory results and admission, discharge, and transfer (ADT) alerts can be provided to Public Health through BSCC HIE to facilitate contact tracing and early identification of "hot spots." Alerts can also be sent to providers concerning laboratory results that pertain to the emergency situation. The ability to track bed availability and vaccination status can also be provided to Public Health through BSCC HIE. Finally, using the provider registry contained within BSCC HIE, Public Health can quickly identify needed providers and providers with a needed skill set to assist with an emergency situation.

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During emergency situations, the Centers for Diseases Control and Prevention (CDC) and DPHHS can utilize the BSCC HIE to identify new syndromes and circulate prevention and treatment guidelines to health care facilities and providers across the state. In addition, DPHHS can utilize the HIE platform to inform providers of vital information specific to emergency situations including COVID-19. The State might decide to designate or restrict certain patients to some identified facilities. For example, restricting the discharge of COVID-19 positive patients to designated facilities rather than any available facility will help to avoid the spread of infections. DPHHS will have access to readily available information in BSCC HIE platform for hospitals regarding the designated long-term care facilities with the capacity to admit such patients.

BSCC can deploy a notifiable condition detection tool as part of its HIE services to alert DPHHS and other public health organizations of results or conditions enabling DPHHS to predict and monitor disease spread to prevent fatalities. DPHHS can leverage the predictive analytical capability of BSCC HIE to determine disease clusters and outbreak areas and be in a better position to plan on future needs and actions.

## Key Actors

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Those who will be using the application or system; can be human or technology. Key actors include but are not limited to:

- Healthcare providers serving at hospitals, clinics, long-term health facilities, post-acute care providers, public health departments, patient centered medical homes, pharmacies, EMS, home care, hospice, as well as payors/health plans including Medicaid and Medicare.
- Platforms that support the collection and exchange of EMS data such as Patient Unified Lookup System for Emergencies (PULSE) and National Emergency Medical Services Information System (NEMSIS).

## Stakeholders

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Those who have an interest in the success of the use case. Stakeholders include but are not limited to:

- Key actors listed above.
- BSCC, Montana Medical Association (MMA), DPHHS, Montana Board of Nursing, Montana Hospital Association (MHA), as well as compliance teams representing providers, and legal teams representing providers.
- State Public Health, State and Local emergency management agencies, Veterans Affairs, Indian Health Services, Governor's Office, Local and County governments, Correctional facilities, Lab testing facilities, etc.
- Patients

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### Function/Purpose

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BSCC HIE platform will deliver complete, accurate and up-to date patient health information to healthcare professionals during emergency situations such as disease outbreaks, floods, and other natural or man-made disasters with the purpose of improving clinical decision making and patient care.

Leveraging BSCC for emergency management purposes, can provide authorized users/providers, including first responders, access to the platform to query and view electronic patient health and medication histories throughout the state of Montana as well as other state and national information exchange networks.

Emergency workers or providers that are outside an individual's established care team can access clinical care documents such as medication lists, allergies, diagnoses, lab results, and other relevant information including individual's advanced directives. Access to such information allows first responders, in an emergency situation, to augment clinical care, check for comorbidities (the simultaneous presence of two or more chronic diseases or conditions in a patient) , and alert the receiving hospital or care facility on the patient's health status before arrival. BSCC HIE will also compile the care data provided by emergency services and transmit the report directly to a patient's electronic health record. This will provide a comprehensive patient record minimizing the risk of gaps in patient care.

BSCC HIE platform will offer predictive analytics capabilities by aggregating information gathered during an emergency situation. This information could help identify clusters of a particular symptom or set of symptoms emerging within a community, hospital, or healthcare system in the state of Montana.

### Value Proposition

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- Improved daily EMS emergency response services, timelier information to EDs, and improved quality metrics
- Patients, communities, and health systems benefit from mobile integrated care in which EMS is an extension of care for non-emergencies and emergencies
- EMS agencies can expand their services model and reduce unnecessary 911 calls
- HIEs can support an expanded services/client network
- Improved disaster management (i.e., disaster medical care, patient tracking, and family reunification), individual care, continuity of care, and deployment of resources

### Financial and Business Considerations

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#### Financial considerations

The HIE will help inform ambulatory clinicians and hospitals about patients' health needs, risk of avoidable hospital readmission, and social determinants of health that contribute to frequent emergency department visits. 90/10 funding could be used as appropriate up to September 30,

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2021. Additional 90/10 funding can be explored after September 30, 2021 if qualifications can be met at that time. 75/25 funding is also an option to explore. The 75/25 Medicaid funding is more specific to the Medicaid population and is focused on ongoing operations.

At this time, no specific funding sources for emergency management through CMS are identified. However, there are several potential funding opportunities related to the current pandemic, COVID-19, including Medicare/Medicaid coverage for testing, relief fund allocation for high impact areas, special funding available for COVID testing in the rural health setting, Indian Health Services, VA, as well as federal, state, and private grants available for community health centers, Federally Qualified Health Centers (FQHC), and rural providers. Public Health can access additional funding through an updated Advanced Planning Document (APD). Through the Coronavirus Relief Fund, the CARES Act provides for payment to state, local, and tribal governments navigating the impact of the COVID-19 outbreak.

In the case of connection to the HIE, the end-user fees would be included in the participation fee that is required to be able to sign into the web portal. Many EMS providers are volunteers. For those providers that are on a volunteer basis, there might need to be an adjustment or sliding scale of fees to accommodate those providers that are run through volunteer organizations to ensure access especially during times of crisis.

DPHHS could utilize BSCC to monitor resource consumption through hospital bed utilization data derived from ADT alerts.

BSCC will enable Montana providers and public health agencies to mutually benefit from the interoperability and data sharing facilitated by the HIE. BSCC's disease surveillance, syndromic surveillance, electronic case reporting, and access to analytics support DPHHS in their efforts to detect and analyze disease trends, identify COVID-19 clusters and sentinel events, and enable the appropriate preventive measures to be deployed. The ability to identify and track disease clusters in the initial stages allows communities to mobilize a rapid response team to reduce morbidity and mortality. For COVID-19 (once a vaccine is developed), and future viruses, data can be pushed to and pulled from the immunization registry to collect and track vaccination data within a specific geographic region.

The reports generated from this wealth of data can be used in real-time for disease-related analytics and decision-making. Reporting data can be used to provide awareness into the number of ED visits related to COVID-19, identify influenza/COVID-19 hospitalizations, and improve the continuity of care for patients as they move throughout the continuum. Additionally, reports will carry with them valuable provider and patient demographic information.

BSCC can provide participants with real-time updates of COVID-19 test results through connecting labs with the HIE. During disease outbreaks, it is important that HIEs communicate reportable labs to DPHHS and public health departments in a timely manner. This service makes it possible to anticipate and monitor the spread of disease, such as COVID-19. Additionally, HIE participants can electronically transmit demographic and lab order information for the specimens sent to the State lab.

### **Business Considerations**

There are many applications in emergency management to which the HIE lends itself. No additional staff hiring, or repurposing will be needed to implement this use case beyond that of



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which the consultants, HealthTech Solutions, is already offering. Workflow re-design may be helpful for some participants. However, these can be addressed by the outreach and on-boarding team as part of the standard workflow design consulting services included.

BSCC (HealthTech) and InterSystems should be prepared to quickly set up the interfaces needed for the EMS access. BSCC has initial staff assigned to set up the interfaces needed for the EMS access.

## Upstream/Downstream Dependencies

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### Upstream Dependencies

#### Access

Access is probably the most important aspect to consider as an upstream dependency for emergency management. Nearly all the technical functionality needed for this use case is either existing or planned. However, it may be necessary to provide basic communications at temporary sites in some instances. The best solution would be to provide virtual private network (VPN) functionality that allows providers to access their own systems. However, that plan depends on providers getting this access on their own ahead of the emergency which is likely to fail to some extent. Therefore, a portal will be needed.

Also, EMS connectivity should be a goal. The use case describes EMS personnel being able to search for the patient's medical history while in the field. This capability could be provided either through connectivity to the existing EMS systems or by the provision of smartphone/tablet applications EMS technicians would use. Again, the portal could serve this purpose.

There is also the need to collect run-sheet data from EMS systems for analysis and reporting to the NEMSIS. NEMSIS is a national database used by the National Highway Traffic Safety Administration (NHTSA) office of Emergency Medical Services to collect, store, standardize and share EMS data from states nationwide. State and local jurisdictions use this information to improve the performance of their EMS. In addition, this data can also be used to support scenarios that are dependent on EMS as well as test improvements as they are made.

#### Search

Each user story relies on the ability to search the patient's history using the HIE. This is accomplished using either the portal or an EHR connected through integration to the HIE. Emergency management highlights the importance of this functionality and makes the case for greater participation by a greater variety of providers involved in the continuum of care. EMS providers need to have a way to connect and be onboarded.

#### Referral

The use case describes situations where a provider needs to send a patient directly to a hospital due to a dangerous communicable disease. The hospital needs to receive the patient with foreknowledge of the special handling that will be needed. A bed must be made ready, a team with appropriate protective equipment must be assembled, and other measures must be taken to ensure everyone's safety. This is accomplished with a referral. If the lab is posted to the patient's record in the HIE and the referring physician updates the HIE, then the receiving hospital should have all the information they need to treat the patient.

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None of this is new. However, consider the speed at which this must take place to support emergent situations.

### **Electronic Lab Reporting (ELR) and Syndromic Surveillance (SS)**

There are two general types of information: Perfect and slow, or good enough and fast. Both are important. Perfect and slow is how we know we are right about something. It is how science works. However, it will not provide early warnings sufficient to navigate out of troubled waters in most circumstances. Good enough and fast is how most living things survive. It is how we avoid analysis paralysis in our daily lives and make efficient decisions. ELR is the reporting of lab confirmed diagnoses to state public health departments. It is valuable information, but it comes after the patient has been seen - often days after which is not ideal for identifying the leading edge of an outbreak. SS, on the other hand, is the chief complaint information at the time the patient was seen and is immediately available.

CDC operates a system called Biosense that collects SS data from states and directly from providers. CDC detects and tracks disease outbreaks providing important reports back to the State. This system calls for a de-identified ADT with the admitting diagnosis. The most convenient way to arrange this when an HIE is in play is to simply have the HIE de-identify the already existing ADT messages coming from providers and forward them to Biosense. This allows for the filtering and detection to be done at one place and decreases the time needed to add new watch variables during outbreaks of novel viruses.

### **Immunizations**

Providers will need access to the immunization registry data for communicable disease outbreaks such as measles. For new diseases such as COVID-19, it would also be beneficial to place antibody tests within the same context as immunizations as they, presumably, provide immunity against disease.

### **Alerts**

The use case describes the ability for the State DPHHS to issue alerts based on known conditions that are emerging in the population. In light of the current COVID-19 pandemic, providers can be alerted to positive test results immediately through BSCC HIE.

### **Speed**

In analyzing and developing this use case, the technical team determined that much of the functionality needed for Emergency Management already exists or is being planned separately. What is outstanding to make these existing features work for Emergency Management is very low-latency operations combined with temporary access at pre-designated locations. The notification/referral to the hospital for a patient carrying an infectious disease must be at the hospital within minutes. This may require more in terms of training of providers than it will in technology. However, the technology needs to stick to real-time processing as much as possible to be prepared for emergencies.

### **Downstream Dependencies**

This use case enables more effective emergency management and strengthens the public health infrastructure through the use of the HIE. A real-time accessible system can completely transform the readiness of any state.

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# Technology System Components and Services Utilization

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BSCC HIE technology will be utilized for Emergency Management by the providers of Montana. InterSystems Disaster Recovery (DR) and Preparedness should be evaluated, and a DR plan should be in place for safe recovery. Disaster Recovery sites for servers should be up and running and fully operational/tested prior to Go-Live.

## Configuration/Interfaces Required

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No additional new interfaces are required. The DR site for the solution will be configured as part of the system stand up activities.

## External Dependencies

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- Outreach and relationship building with EMS and public health providers
- Relationship building with federal, State, and local emergency management and public health agencies
- Run training, drills, and practice coordination
- Integrate with public health and CDC
- Integrate with PULSE and NEMESIS

## Legal/Policy Considerations

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### **The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act)**

- This Act specifically authorizes the Public Assistance Grant Program which provides grants for certain types of private nonprofit organizations like BSCC, with the intent to provide communities the ability to respond to and recover from major disasters and emergencies. BSCC can leverage on this act to provide grants to activate and implement its emergency management service capability.

### **Patient Protection and Affordable Care Act (ACA - 42 U.S.C § 18001 (2010))**

- The Affordable Care Act (ACA) of 2010 establishes comprehensive health care insurance reforms that aim to increase access to health care, improve quality and lower health care costs, and provide new consumer protections. The ACA supports technological innovations and health IT systems that promote patient care and improved health outcomes. Deploying an emergency management system on the BSCC platform aligns with the ACA's goal of transforming the healthcare delivery system into a value-based and patient centered model by providing accurate and timely patient medication information for making critical decisions at every point of care specifically at a much-needed medical emergency situation.

### **HIPAA (Pub.L.104-191, 110 Stat. 1936, enacted August 21, 1996, Title II)**

- The HIPAA Privacy Rule describes what information is protected and how protected information can be used and disclosed. The HIPAA Security Rule describes who is

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covered by the HIPAA privacy protections and what safeguards must be in place to ensure appropriate protection of electronic protected health information. With the assumption that BSCC will house Protected Health Information (PHI), HIPAA will determine how BSCC as a covered entity will implement safeguards to ensure the confidentiality, integrity, and availability of PHI during public health emergencies through BSCC HIE.

### **42 CFR Part 2 (42 USC § 290dd-2.)**

- The federal confidentiality law and regulations protect the privacy of substance use disorder (SUD) patient records by prohibiting unauthorized disclosures of patient records except in limited circumstances. Congress enacted the legislation in the 1970s to encourage individuals with SUDs to enter and remain in treatment.
- 42 CFR part 2 - The federal confidentiality law and regulations has been the foundation for the substance abuse treatment programs around the country. This law is very important to BSCC because it permits patient information to be disclosed or exchanged to HIE systems; however, the regulation requires that patient consent be obtained prior to the disclosure of information by substance abuse treatment programs; with some exceptions such as medical emergencies, audits and evaluations.
- During public health emergencies or disease outbreaks the risks of substance abuse becomes elevated above the usual rates, consequently 42 CFR part 2 might be needed to cover BSCC's emergency management strategy because the need to release patient information without consent might arise.

### **Emergency Management Assistance Compact (EMAC)**

- A congressionally authorized interstate mutual aid compact that provides a mechanism through which states can aid other states during emergencies. All states have joined EMAC by adopting model language into their state's statutes. EMAC addresses reimbursement, liability, compensation, and licensure issues.
- BSCC would need to familiarize with this law in order to position itself to be the vehicle through which the state of Montana can provide or receive assistance during public health emergencies through the robust services of its emergency management strategy.

### **CARES Act**

#### **Public Health Infrastructure Modernization (Public Health law 116-136)**

- The CARES Act provides funding for public health surveillance infrastructure modernization initiatives for five years through the CDC. BSCC may be able to leverage this funding for the implementation of its emergency management services.

## Assumptions

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- During the development of the Emergency Management use case, all projections are for planning and estimate purposes only.

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- During the development of the Emergency Management use case, all projections/estimates do not consider undefined business scoping elements that may be found throughout the project life cycle due to stakeholder requests, business and vendor requirements, vendor negotiations, dependencies, durations, and any lag times which may result from the actual planning and implementation process.
- Most, if not all providers, will use single sign on (SSO) and/or Direct Query capabilities.
- Enterprises belong to one or more Cross-Enterprise Document Sharing (XDS) Affinity Domains. An XDS Affinity Domain is a group of healthcare enterprises that have agreed to work together using a common set of policies and share a common infrastructure.
- Document concept in XDS is not limited to textual information.
- XDS is document content neutral, any type of clinical information without regard to content and representation is supported.
- Vendor costs have not anticipated increased costs that may occur in the future.
- Costs do not include the outreach costs which are included in the outreach/onboarding contract.
- Use case work and management is continual throughout the project. These activities will transfer to BSCC permanent staff as they are hired and trained. These are part of the operational HIE process.
- HealthTech Solutions is on a time and materials contract which states that costs not to exceed those which are identified in the contract.
- Constraints, inclusions, and exclusions are based on current knowledge as of May 22, 2020 and may change.
- Policy, legal, and regulatory as well as technical standards for interoperability changes may take place on both the state and federal level.
- Ongoing monthly interface fees are being negotiated as part of the initial HIE statement of work (SOW).
- During an emergency situation, all BSCC HIE participants will have access to their computers or mobile devices allowing access to the HIE.
- Contribution of data into the BSCC HIE will be widely accepted.

## Key Performance Indicators/Metrics of Use Case

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The following are examples of metrics that can be used to analyze the outcomes of using the

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BSCC HIE with emergency management:

### Utilization

- Number of local public health organizations that are participants in the HIE
- Number of EMS organizations that are participants in the HIE
- HIE utilization by type of emergency

### Patient Care and Treatment

- Amount of time to triage patients coming in through EMS when data is sent in advance
- Quality of care improvement during an emergency situation including:
  - Increased ability to treat patients quickly and efficiently due to having data readily available
  - Reduced errors in medical decisions made by EMS when in the field
- Patient satisfaction scores
- Number of facilities receiving timely prevention and treatment guidelines electronically, and a decrease in time to distribute the information

### Care Coordination

- Number of physicians who view patient data after an EMS event and follow up with their patients, improving patient outcomes
- Care coordination and transitions of care improvement between EMS, hospitals, and specialty care

### Community

- Syndromic surveillance, disease tracking and monitoring allows for a decrease in the spread of communicable diseases
- Data on outcomes related to trauma, stroke, and cardiac events
- Information about the underlying causes of high emergency and acute care utilization

### Payor Efficiency

- Increased accuracy and efficiency of payor staff including length of time to pay claims

## Alternative Paths

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**Do nothing.** The HIE will continue to be a support to providers regardless of action taken.

Challenges to improved collaboration between EMS and other healthcare disciplines include the historical legacy of operating in different siloes, the lack of existing opportunities for communication and operational, oppositional stances between different disciplines around scope of practice.

Strategies to improve interdisciplinary collaboration include aggressively seeking opportunities for dialogue and participation, including conversations peripheral to traditional EMS topics, the creation of partnerships with other organizations to provide combined services or at least exchange information, creating multi-agency partnerships to better align geographically with a hospital or health plans coverage area, and working with other community healthcare stakeholders to create a common vision for the full spectrum of community-based care.

MEDICAL DIRECTION AND OVERSIGHT

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Challenges to strong medical direction and oversight and leadership include a still dysfunctional job market, the underutilization of EMS physicians in system design and strategic planning, transforming educational needs for EMS physicians from emergency medicine only to new emphasis on population health, inconsistent roles of state EMS medical directors, and tension between greater physician involvement and paramedic professionalism. Strategies to strengthen medical oversight in order to promote innovation include greater support for medical directors in practice, continuously improving medical director education to meet evolving needs, incorporation of medical directors into agency decision making processes<sup>1</sup>.

### Recommendation

EMS integration should be a goal. However, it may take time to establish real-time connectivity in the field. For natural disasters likely to take place in rural areas, temporary sites can reduce the time EMS spends transporting and treating patients and increases their presence at the rescue site.

Run reports (this is information gathered on the individual patient by first responders usually on a pre-printed form or can be electronic; this is given to the receiving ED upon arrival) can still be managed either as they have been in the past, or by routing them through the HIE to providers, hospitals, State, and local agencies, NEMSIS, and other interested parties as the need arises.

NEMSIS is a national effort to standardize data collected by EMS. It provides a framework collecting, storing, and sharing data from states nationwide. This uniform dataset and National EMS Database help local, State, and national EMS stakeholders more accurately assess EMS needs and performance and support strategic planning for mobilization of EMS systems<sup>2</sup> during a time of crisis such as national disasters or pandemics like COVID-19.

There is also the Patient Unified Lookup System for Emergencies (PULSE). This is a network-of-networks model specifically for emergencies. It utilizes the subscribing jurisdiction's credentialed volunteer database to provide easy access and provides data from all connected HIEs. This is particularly useful given that HIEs tend to be regional in their patient representations. Receiving jurisdictions can receive patients from several states away and PULSE can provide vital information if the originating jurisdiction has a participating HIE or other such mechanism to provide data to PULSE.

PULSE has been mentioned in this use case as a possible key actor along with NEMSIS. PULSE is part of the Sequoia Project first developed in 2014-15. PULSE was deployed during the 2017-19 California wildfire seasons and deployed in responding to COVID-19. PULSE Enterprise intended for nationwide scalability is scheduled for release in June 2020<sup>3</sup>.

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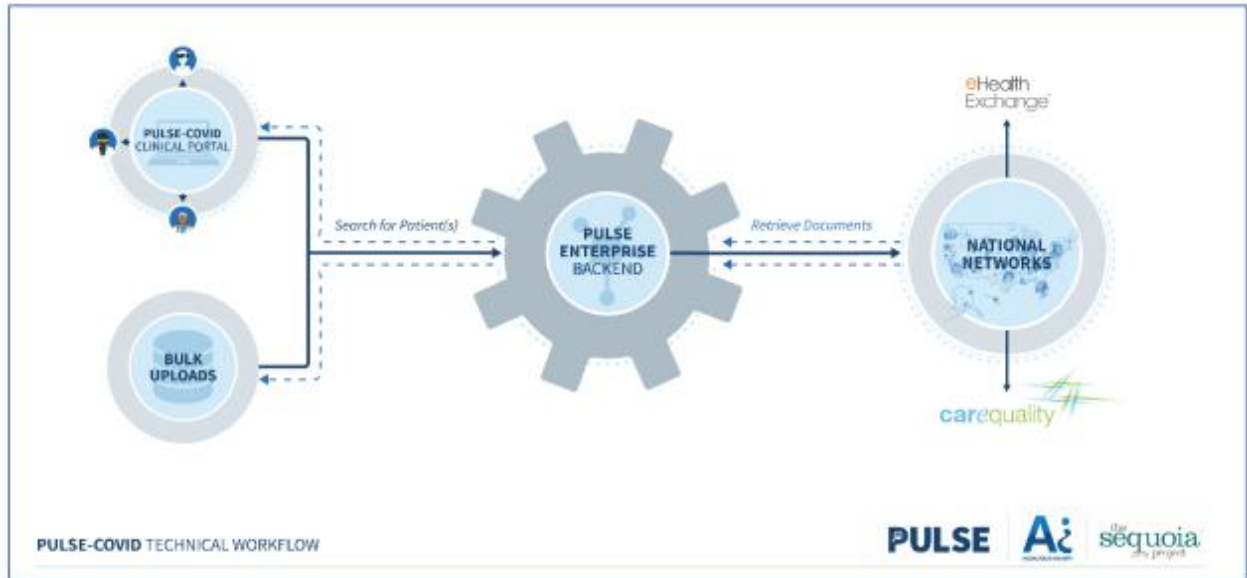
<sup>1</sup> <https://medschool.ucsd.edu/som/emergency-med/divisions/ems/Documents/Promoting-Innovation-in-EMS.pdf>

<sup>2</sup> <https://www.ems.gov/projects/nemsis.html>

<sup>3</sup> <https://sequoiaproject.org/wp-content/uploads/2020/04/PULSE-COVID-Overview-Ai.Sequoia-4.1.20.pdf>



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<https://sequoiaproject.org/wp-content/uploads/2020/04/PULSE-COVID-Overview-Ai.Sequoia-4.1.20.pdf>

This project is funded in whole or in part under a Contract with the Montana Department of Public Health and Human Services. The statements herein do not necessarily reflect the opinion of the Department.