Electric Infrastructure Security Council

LOCAL PUBLIC HEALTH SECTOR BLACK SKY GUIDEBOOK V 1.0

ABSTRACT

The Local Public Health Black Sky Guide reflects collective input from numerous states, regional, county, tribal and city health departments for planning resilience and cross-sector coordination needed for long duration, multi-region power outages. This peer-reviewed document is designed as a resource for the Local Public Health community addressing critical Black Sky resilience needs for maintaining public health and safety.   John Lile V1.0 Reviewed 27th March 2019

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Role of the EPRO Local Public Health Sector Black Sky Guidebook

This Guidebook is designed to provide an evolving framework for recommended guidelines to manage risks of long duration, multi-region power outages associated with emerging "Black Sky" hazards.

This Guidebook will be consistently updated and reviewed using the EPRO Local Public Health Sector Steering Committee process through consultation with sector professionals and managers. This Guide contains the latest consolidated school of thought on the unique challenges posed by wide area, long duration outages. It provides guidelines to help individual entities strengthen their won resilience measures, develop focused operational plans and assess external support needed to address these severe hazard scenarios.

Sector Background

There are approximately 43,000 people employed in the 2,800, city, county, metropolitan, district and tribal health departments across the United States. Organizationally, local health departments may report to state (centralized), or independent boards of health (decentralized), at the county and city level. They are tasked with efforts to prevent, detect and reduce the effects of chronic disease, detect disease outbreaks and foodborne illness and develop emergency plans to respond to and recover from bioterrorism, natural disasters, pandemic disease and declared public health emergencies. According to the National Association of County and City Heath Officials (NACCHO), Local Health Departments perform ten (10) essential public health services. These services are:

1. Monitor health status to identify and solve community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships and action to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of healthcare when otherwise unavailable.
8. Assure competent public and personal healthcare workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

Since September 11, 2001, funding for Public Health Emergency Preparedness (PHEP) has come from the U.S. Department of Health and Human Services (HHS), Centers for Disease Control (CDC) and the Office of the Assistant Secretary for Preparedness and Response (ASPR) for planning, response and recovery by local health departments.

 Public Health officials at the state, local and tribal level are the primary points of contact for health surveillance, monitoring and laboratory services for the Centers for Disease Control (CDC). Automated disease reporting system have been set up in each state to conduct epidemiological surveillance programs to track disease outbreaks and risk assessment. The CDC has developed an electronic surveillance reporting system to create standards for the collection, management, transmission, analysis, access and

disseminate data. The National Electronic Disease Surveillance System (NEDSS) is used by public health for syndromic surveillance to detect disease patterns and deaths.

The CDC utilizes a nationwide, integrated electronic and communications system for the distribution of health alerts, prevention guidance, national disease surveillance and laboratory reporting. The Health Alert Network (HAN) is a collaboration between the CDC, local public health and national public health organizations.

Hospitals are not directly supervised by the federal government or considered a part of local public health. However, in an effort to strengthen local response, HHS' Health Resources and Services Administration (HRSA) started the National Bioterrorism Hospital Preparedness Program (HPP). The aim of the program has been to improve hospital capabilities and surge capacity. Hospital and public health agencies have similar goals of ensuring that people are healthy but the focus of hospitals is the individual and public health's focus is the community.

Using funds provided by ASPR, states department of health organized regional Healthcare Coalitions which evolved from the Hospital Preparedness Program (HPP). The HPP's were established to build the hospital abilities to respond to mass casualty events such as terrorism. As the program grew and by way of mass casualty responses such as Hurricane Katrina, HPP expanded to include other agencies including local health departments, Emergency Medical Services, Fire, and Emergency Management Agencies and changed focus from terrorism to helping healthcare systems prepare for all hazards and threats. The Healthcare Coalitions main goal is to make every effort to ensure healthcare systems are not interrupted during disasters. Most health care services are diverse, competitive and often have different objectives. One objective that all health services have is to improve a patient's outcome. The HCC works to build partnerships through Planning, Organizing, Equipping, Training, and Exercising to obtain that objective.

There are 470 Coalitions across the U.S. with 28,000 members.

 In an emergency, the local departments can request medications and medical equipment from the Strategic National Stockpile (SNS) a national repository of critical medical supplies and equipment.   Local public health may request assets from the SNS program if local and state assets are depleted. Local health departments will establish vaccine clinics or medicine distribution sites commonly called points of dispensing (POD'S) to perform rapid mass prophylaxis. The local health department is responsible to develop local plans to receive and distribute of SNS supplies. In 72 metropolitan areas the CDC established the City Readiness Initiative to improve the distribution of SNS assets.

 Additionally, local health departments assist NGO's such as the Red Cross by co-locating Functional and Access Need Shelters in General Community Shelters. Local health nurse provides medical assistance to clients in the shelter who need general care. Environmentalist from the health departments perform daily safety inspections to ensure conditions in the shelter meet health standards.

Surge capacity for local public health is dependent upon volunteers from the Medical Reserve Corps and local organizations.

A Black Sky event will impact local health departments in their ability to maintain disease surveillance, perform functional and access need sheltering, cold chain storage of vaccines, situational awareness and

prophylaxis of the community. The local public health sector will be identifying strategies to deliver health services during the Black Sky event.

Sector Black Sky Environment

Local Public Health will be impacted by a Black Sky event in the following manner: (1) the ability to maintain situational awareness and disease surveillance will be impacted by the lack of redundant communications; (2) securing sufficient staff by health department employees; (3) the ability to notify and obtain sufficient volunteers to assist in staffing Functional and Access Need Shelters; (4) maintenance of vaccines at appropriate temperatures; (5) addressing environmental concerns that will impact the health and safety of the community and monitor and record natural death surge due to the emergency .

Sector Model Overview

The model for the Local Public Sector will be the coordination of resilience strategies across city, tribal, county, state and federal departments aimed at maintaining the health and safety of communities. The key will be to develop plans to build redundant communications for situational awareness, establish contact with the public and transportation to deliver vital emergency response and services.

Sector Model Graphic

Tiered Organizations Structure and Funding for Local Health Preparedness Activities
U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness
Center for Disease Control and Prevention Office of Public Health Preparedness and Response
State and Regional Departments of Health
County, City and Tribal Health Departments

Sector Black Sky Strategic Mission Statement

It is the mission of the Local Public Health Sector to help people access needed healthcare perform disease surveillance, ensure food safety, determine environmental impacts and vector control, conduct fatality management and provide mass rapid prophylaxis to promote the health and safety of the community.

Black Sky events of long duration over multiple regions will greatly impact the delivery of mission essential health functions such as maintaining cold chain storage and the viability of vaccines and medications, ensuring food safety, maintaining disease surveillance and responding to disease outbreaks. It will be the goal of the Local Health Sector to prepare for and respond to Black Sky events by working closely with their ESF-8 partners to maintain service within the scope of their capabilities. It will be critically important to detect and treat outbreaks caused by food borne disease and provide safe sheltering for disaster victims.

Sector Black Sky Strategic Mission Priorities Matrix

The strategic mission of local public health will be to gain situational awareness of the severity of the Black Sky event and begin disease surveillance to protect the health and safety of the community as soon as practical.

Phase	Priority	Mission
Preparedness/Mitigation	1	Secure generators to maintain Cold Chain Storage
Preparedness/Mitigation	2	Identify and contact critical staff/ scheduling
Preparedness/Mitigation	3	Identify methods to carryout Disease Surveillance
Response	4	Establish communications with state and local EOC
Response	5	Establish contact with state SNS Coordinator
Response	6	Establish contact with Red Cross for FAN Sheltering
Response	7	Establish Environmental Food Safety Inspections

Black Sky Assumptions

The situational assumptions for the Local Public Sector during a Black Sky event will be as follows:

- Generators that support the operation of the health department may not have sufficient fuel for long-term power outages. Contracts for resupply will be critical to negotiate and secure.
- Generator power will be necessary to maintain constant temperatures in order to guarantee the viability of vaccine and medications.
- The Department will need sufficient staff to report for duty to conduct disease surveillance, environmental health and staff POD operations.
- Functional and Access Needs (FAN) Shelters will need to be established to care for the most fragile citizens.
- Environmental inspections will need to be performed at general populations shelters for disease surveillance and control.
- Fatality management will need to be monitored and processed for those who die from natural causes.

Black Sky Decisions Overview

 Health Directors and Preparedness staff will have to determine if they have sufficient employees available to carry out the primary emergency functions of sheltering, disease surveillance, environmental inspections and establishing Points of Dispensing (POD's) for rapid mass dispensing. The Director will need to establish communications links with the Emergency Operations Center (EOC) and notify volunteers if their services are needed to help respond to a surge in health needs. They must also determine if they

have a sufficient cache of health and medical materials needed to perform essential functions. An assessment of necessary supplies will need to be made, and if not sufficient, a request for SNS assets will need to be made to the CDC.

Black Sky Decisions Matrix

Phase	Priority	Decision
Preparedness/ Mitigation	1	Cold Chain storage of vaccine
Preparedness/ Mitigation	2	Establishing of FAN Shelters (opening and Closing)
Preparedness/ Mitigation	2	Obtaining health and medical assets from SNS
Response	3	Environmental Inspections
Response	4	Setting up Points of Dispensing (POD)

Sector Black Sky Situational Awareness Overview

Local Public Health Sector is dependent upon the situational awareness the state, county, city or departmental Emergency Operations Centers (EOC) can provide pertinent information to trigger activation of their All Hazards Plan. Departments will need to know the extent and possible duration of the power outage in order to scale their response. Emergency Managers should brief each Emergency Support Function (ESF) about the impact on their area of responsibility.

Priority Information Requirements Matrix

Information	Source	Priority	Confidence Level
Location and extent of outage	ESF-12 or EOC	1	HIGH
Expected duration	ESF-12 or EOC	1	HIGH
Anticipated Shelter/ Locations	ESF-6 or EOC	1	HIGH
Need to activate POD operations	ESF-8 OR EOC	1	HIGH
Food, water, fuel, generators	EOC	1	HIGH

Sector Initial Actions

Upon determining that power outage will be of long duration, the Health Director will implement the department's All Hazard Response Plan. Immediate determinations of the department's operational status will need to be assessed and staff notifications, if possible, will need to begin. Staff will need to determine the status of vaccine storage refrigerators to ensure temperatures of the vaccine remain constant. The ESF-8 representative from the health department will report to the EOC to receive the situational briefing. The health department's emergency team will activate the department's COOP and assess the essential operational functions that can be performed under emergency conditions.

Sector Initial Actions Matrix (V3)

Priority	Initial Action	Desired/Required Outcome
1	Establish Situational Awareness	Needs requirements
2	Activate AHP and COOP, notify staff/ scheduling	Perform essential functions
3	Establish FAN Shelter	Mass Care
4	Assess health and medical resources	SNS request and delivery
5	Disease surveillance	Outbreak and vector control
6	Establish POD's	Mass Prophylaxis

Internal Sector Requirements

The Local Public Health Sector focus is on Community Health and will develop systems to maintain disease surveillance and disease control. The sector will need to examine communication systems that are redundant or can be shielded from Black Sky impacts. Communications will be necessary at all levels of operations to obtain situational awareness, staff notifications, disease surveillance and obtaining support for the staffing of FAN shelters and mass dispensing of medications. Shielded generators and sufficient fuel storage and sources for resupply of fuel will be paramount to continuing services.

Internal Sector Requirements Matrix

Phase	Priority	Requirement
All	1	Establish communications with EOC and associated ESF's
All	1	Obtain situational awareness
All	1	Establish communications with staff for assignment
All	1	Initiate AHP and COOP

External and Cross Sector Dependencies Overview

The Local Public Health Sector will have interdependencies with the Federal, State, Communications, NGO, Healthcare, Electric and Water Sectors. Public Health Directors will need to communicate with the other sectors to gain situational awareness and determine the sectors' needs for health and medical assistance. Federal and State government policy makers will need to interact with public health personnel to coordinate the delivery of needed medical equipment and supplies. Public health will be dependent upon government leaders for guidance, direction and support to develop and execute Public Health Orders and Emergency Declarations providing expanded authority for quarantine and obtaining resources from other jurisdictions.

Public health will be a key partner with NGO's in providing staffing for Functional and Access Needs Shelters and providing non-acute care for general community shelters.

The Communications Sector will be critical in maintaining all public health functions.

Local Public Health Sector will be dependent upon the Electric and Water Sectors to restore utilities to key facilities and communications systems.

External and Cross Sector Requirements Matrix

Requirement Area	Priority	Requirement
Manpower	1	Staffing for disease surveillance, environmental health, sheltering and POD operations
Transportation	1	Movement of critical medical materials and medications
Backup Power	1	Maintain communications, preserve vaccine and medications
Security	1	Asset protection/ POD security
Communications (Physical)	1	Coordination of staff, resources and mission
Water	1	Potable water for shelters, staff, public
Food	1	Food for first responders, shelters and public

Sector Specialized Resource Requirements Overview

Communications will be dependent on the ability to restore voice and data operating systems. In order for the systems to operate, there must be a source of electrical energy either from restored power systems or from emergency generators. Obtaining or storing sufficient fuel to operate emergency generators is a key requirement in securing the operation of the Sector. Fuel for emergency generators and transportation of personnel and supplies is critical to this sector.

Describe those specialized resources requirements that are unique to this sector by phase.

Sector Commodity Specific List Matrix

Phase	Commodity	Estimated Quantity	Potential Source
All	Fuel	60-day supply	Contract Vendors
All	Shielded emergency generators		Contract procurement

Sector Black Sky Communications Overview

Local Public Health is dependent upon communication capabilities to alert staff, conduct disease surveillance to report local, state and federal epidemiologists and provide situational awareness during declared health emergencies.   Situational awareness and disease surveillance are key components to making operational decisions and developing strategies to protect community health.

Sector Communications Matrix

Phase	Communications Requirement	Coordinated Cross Sector Element

response	Voice and data systems, TTY, NEDSS, HAN, WebEOC, ReadyOPS	Coordinate with all sectors

Sector Black Sky Assessment Tool (s) Overview

Disease Surveillance will be assessed to provide Epidemiologist and Public Health Planners and Preparedness Coordinators with patterns of disease outbreaks to counter the effects of the disease on the population.

Public Health Planners and Preparedness Coordinators will need to assess the population of general shelters to determine the number of individuals who have Functional and Access Needs.

Local Public Health will need to assess the amounts of medications dispensed to determine the assets needed to resupply for the next operational period. There must be strict accounting for all medications dispensed and reported to the CDC.

Sector Black Sky Planning Requirements (On-going)

Local Public Health is generally better prepared because of the investment made by state and federal governments in recent years in preparedness planning. Most health departments have staff dedicated to plan for health emergencies and continuity of operations plans (COOP). Black Sky events need to be added to their COOP to ensure operational capabilities for a long duration power outage. Current All Hazards and COOP planning has not incorporated the long-term effect that an extended power outage would have on their operations. A whole new and expanded effort should be made by health departments to anticipate their resilience investments and operational needs.

Sector Best Practices Matrix (On-going)

Area of Operations	Recommendation	Expected Improvement
Communications	Protect key communication systems	Situational awareness for establishing sheltering and POD's
Planning	Address Black Sky events in COOP	Awareness and course of action
Training	Increased awareness by employees for personal and organizational preparedness	Organization competence

Integrated and Shared Planning Actions

Black Sky event planning should be integrated into every jurisdiction's Emergency Operations Plans and training on the plan should be conducted by the Local Emergency Planning Committee (LEPC). LEPC's are formed to do whole community, cross sector planning to address both manmade and natural disasters. Planning activities should include awareness of the circumstances and consequences of a Black Sky event, resilience planning and investments and community restoration after an event.

Planning and Coordination Actions Matrix

Response Area	Shared Planning Requirement/Interface Point	Cross-Sector(s) ID
Preparedness	Awareness and development of All Hazards Plans and COOP to include resilience investment and planning by all sectors	All

Sector Black Sky Resilience Considerations Overview

The Local Public Health should review the capabilities of all current communications needs and ensure the capacity of emergency generators to operate for a long duration power outage. Contract should be secured from vendors who would be able to supply fuel in an emergency and place the agencies on a priority list.

Resilience Initiatives Matrix

Initiative Title	Initiative Description/Cost	Expect Outcome
COOP development	Planning for Black Sky events to be include in COOP/ time investment	Awareness and preparedness
Training	Awareness by all employees	Operation competency

Sector Black Sky Regulatory Impacts and Issues Overview

Providing critical fuel supplies for emergency generators to power agencies responsible for providing the health and safety of the community should be made available on a priority basis.

Sector Regulatory Matrix

Area of Operations	Issue	Recommended Solution/Resolution
Fuel	Fuel for operate emergency generators	Priority access by agencies responsible for the public health and safety

Sector Black Sky Essential Critical Infrastructure (MC) Overview

The most essential infrastructure for the Local Public Health Sectors is the voice and data systems used to alert staff, gain situational awareness, conduct disease surveillance and provide mass medication dispensing for disease control in the community. These mission elements cannot be achieved without emergency power from emergency generators. Fuel for generators and vehicles are a critical need for continuity of operations. An investment in shielded generators is a resilience investment that should be considered. Additionally, priority contacts for fuel delivery should be procured from capable vendors.

Sector Critical Infrastructure Matrix

Element	Function
Communications	HAN, WebEOC, Websites, NEDSS, ReadyOPS, Voice and data for public health
Fuel	Supply Emergency generators and vehicles

Sector Black Sky Specialized Skill Training Requirements Overview

Primary skills needed to build resilience in response to a Black Sky event is a general knowledge of the consequences and impacts of the event and strategies to prepare, mitigate and recover from the event.

Training should be provided to all employees.

Sector Specialized Skill Training Requirements Matrix

Phase	Position/Skill	Training/Certification Requirement
All	Preparedness training and awareness	none

Annex A – Assessments (On-going)

Sector Overall Resilience Assessment

The Local Public Health Sector will need to assess the following areas to provide the situational awareness need to address community health during a Black Sky event:

- Disease Surveillance will be assessed to provide Epidemiologist and Public Health Planners and Preparedness Coordinators with patterns of disease outbreaks to counter the effects of the disease on the population.

- Public Health Planners and Preparedness Coordinators will need to assess the population of general shelters to determine the number of individuals who have Functional and Access Needs.

- Local Public Health will need to assess the amounts of medications dispensed to determine the assets needed to resupply for the next operational period. There must be strict accounting for all medications dispensed and reported to the CDC.

Resilience activities	Actions
Disease surveillance	Epidemiology of disease patterns
Establish Functional Needs Sheltering co-located in General shelter	Medical staffing needs for FAN sheltering
Mass Rapid Prophylaxis	Assess and establish of POD's for protection of the community

Annex B – Regulatory Issues Detail Statements (On-Going)

Issue Statement 1: All of the regulatory recommendations listed in the Regulatory Sector Matrix can be authorized under current statutes by state regulator agencies, city, county or state officials.

The primary resilience issue for the Local Public Health Sector is emergency acquisition of fuel for both emergency generators and departmental vehicles. Fuel distributors and service stations should be required to purchase and maintain shielded generators to maintain point of sale capability to provide fuel to critical organizations that have responsibility for protecting the public health and safety. If supplies are limited, these agencies should be given first priority to purchase fuel.

This action would have to be addressed by State General Assemblies and local governing bodies who have the authority to take broad legislative action. There will be a need to work with the Retail Federation and Chambers of Commerce to impress the need for such action and determine the number of retailers and distributors would be affected by the legislation and the potential cost.

The resilience investment made by the businesses will improve the service to their customers and will quicken the response and recovery from a Black Sky event. Given a five-year schedule of implementation, the outlay of expenditures should be affordable. General Assemblies may be willing to provide tax breaks or incentives to businesses due to the impact their actions would have in building resilient communities.

Planning and training for such actions would be cross sector involving Federal, State and Private Sector.

Annex C – Communications Requirements

Communications Requirement 1:
- The Local Public Health sectors depend on landline, cell phone, voice and data devices to transmit needed communications for situational awareness and contact with the public.
- Explicit Model:
    - Local public health must be able to communicate with volunteers in local communities, as well as communicating with partner organizations and local/state and federal governments.
    - Local Public Health must be able to communicate with local, state and federal Health agencies for assistance and situational awareness.
    - Local public health must be able to communicate with volunteers, other health departments and the state department of health.
    - Some local health departments do have backup communication in place.
    - Interoperability of radio and data system are available in some jurisdictions.
    - Format is to be determined.
    - Priority will be established in coordination with partners within the sector and within the governmental sectors.

Annex D: Resilience Requirements by Layer

Identify requirements for each phase, including both (A) Generic required elements for all Black Sky hazards, and (B) Hazard-specific required requirements. Note, however, that many requirements will exhibit heavy overlap among sectors, with many infrastructure sectors, and their partners, requiring the same resilience measures.

Area	Phase	Black Sky Generic	Black Sky Hazard Specific	Notes/ Status
Emergency Communication	All	WebEOC, HAN, ReadyOPS, NEDESS	BSX	
Cross-sector situational awareness, coordination and decision support requirements				
Emergency Fuel	All	Fuel for generators	Vendor Contracts	
Operational Fuel (e.g., natural gas) Requirements				
Operational Fuel (e.g., natural gas) Requirements				
Emergency Generators (Black Sky hazard-hardened, designed for long duration continuous operation)	Response and Recovery	Generators with fuel storage capacity	Shielded generators with 60-day fuel capacity or contract vendor	
Protective measures: Hardware, software, operational procedures		Voice and data systems	Shielded components	

Health / damage assessment diagnostics:	All	Disease surveillance	Epidemiology response	
Pre-deployed, automated self-powered remote reporting to central assessment controllers				
On-site diagnostics providing easy 1st order damage assessment for an onsite, deployed restoration team				
Diagnostic tooling designed for manual use by a deployed restoration team				
Restoration / emergency tooling				
Black Sky Exercise and Training Requirements and Plans	All	COOP Planning and training	Annex developed that is Black Sky specific	