ACUTE CARE CENTER
CONCEPT OF OPERATIONS TEMPLATE

A SYNTHESIS OF BEST POLICIES AND PRACTICES

A PLANNING GUIDE FOR THE DISTRICT OF COLUMBIA
DEPARTMENT OF HEALTH
EMERGENCY HEALTH AND MEDICAL SERVICES ADMINISTRATION

PREPARED BY

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ACC INTRODUCTION

Background

The District of Columbia Department of Health (DOH), Health Emergency Preparedness Administration (HEPRA) has identified the need for technical assistance with the development of an Acute Care Center Concept of Operations Plan (ACC CONOP) template. Originally conceived and developed under the direction of the U.S. Army Soldier and Biological Chemical Command's Biological Weapons Improved Response Program, the concept of operations for the Acute Care Center was "to be a supplement to the existing health care system in managing the overwhelming number of casualties that most likely would result from [acts of terrorism carried out by the use of weapons of mass destruction]."[1] As natural biological threats (pandemic influenza, SARS, etc.) have captured the public's attention, agencies charged with safeguarding the public's health have begun to recognize the key role that ACCs will play in their response to these types of events as well.

The purpose of this project is to provide the District of Columbia's Department of Health with a template that will aid in the development of a comprehensive and prescriptive response plan. This template incorporates best practices research and the unique characteristics of the District to provide an optimal approach to identifying appropriate locations, providing for adequate supply and staffing levels, and ensuring efficient operations.

ACC INTRODUCTION

Research

Several reports, policies and practices were used to synthesize the "best practice" activities outlined in this document. The *Rocky Mountain Regional Care Model for Bioterrorist Events,* the *Modular Emergency Medical System: Concept of Operations for the Acute Care Center*, and the District Response Plan were principle guiding documents. Braintree Solution Consulting reviewed plans and reports from national research institutes including the CDC, AHRQ, and other academic centers. This document is a work in progress and information is continuing to be gathered and verified from a variety of sources.

It should be noted that the ACC template contained in this document can only be fully vetted through a practice exercise.[2] Grants to support these activities may be obtained through HRSA and Urban Area Security Initiative funding.

[1] S. Skidmore, W.T. Wall, and J.K. Church, *Modular Emergency Medical System: Concept of Operations for the Acute Care Center*, May 2003, v.
[2] S.J. Phillips and A. Knebel (eds.), *Mass Medical Care with Scarce Resources*, AHRQ Publication No. 07-0001 (Rockville, MD, 2007), p. 91.

ACC Concept Overview

General Description

In the wake of a major pandemic or bioterrorist event, emergency public health managers will be responsible for providing medical care to thousands if not hundreds of thousands of causalities. Even when elective surgeries and non-critical inpatient services are discontinued in local hospitals and health centers, it is expected that the District's public health system will be overwhelmed by casualties and a significant number of psychosomatic ("worried well") cases. The ACC concept was developed in direct response to such a scenario.

As an auxiliary medical treatment facility, the ACC concept was developed in conjunction with the Modular Emergency Medical System (MEMS) designed by the Department of Defense Domestic Preparedness Program. The ACC template which appears in this document is designed to help the local healthcare system cope while it is temporarily overwhelmed by a surge of patients. Therefore, the most basic function of the ACC is to augment the surge capacity of the District's emergency public health plan.

- This guide defines surge capacity as the ability of a health care system to rapidly expand beyond normal services to meet the increased demand for qualified personnel, medical care and public health in the event of a bioterrorism or other large-scale public health emergency or disaster.[3]

Under MEMS, the ACC supplements and augments the surge capacity of Neighborhood Emergency Health Centers (NEHCs) and hospitals. However, unlike an Alternative Care Site (ACS) which simply seeks to expand surge capacity, the ACC does not act as a primary triage medical facility. The ACC is a post-triage medical unit with altered standards of care, treating mainly those cases which are deemed severe enough to warrant palliative rather than curative treatment.

As a modular facility, the ACC can be set up quickly and easily dismantled once this surge has passed. This document provides a template which is flexible enough for use in many different public health emergency scenarios.

ACC Concept Overview

ACC Rationale

Hospitals routinely deal with surge by going on bypass or rerouting patients to other hospitals. However, a bioterrorist event or a pandemic could severely stress the system and overwhelm these traditional surge procedures. There are two results that can be expected from the inadequacy of these routine surge capacity systems:

- Medical care and access to medical care might become seriously compromised.
- The quality or the standards of medical care might have to change to meet the greatest good.[5]

[3] *Addressing Surge Capacity in a Mass Casualty Event*. AHRQ Publication No. 06-0027 (Rockville, MD, 2006).
[5] Ibid.

The ACC is designed to meet these challenges by establishing a simple system that rapidly expands inpatient acute care facilities, integrates medical resources, and provides massive casualty management to a large population of severely ill patients.

ACC CONCEPT OVERVIEW

Limitations of Care

The ACC concept is based on the assumption that the District's limited medical resources will have to be rationed until significant mutual aid or federal resources arrive.[6] To aid patient survival, the ACC must be set up quickly and maximize these resources by streamlining its level of care to provide the maximum good to the greatest number of people: 'Rather than doing everything possible to save every life, it will be necessary to allocate resources in a different manner to save as many lives as possible.'[7]

This is best accomplished by limiting ACC care to the following treatment areas:

- antibiotics
- hydration
- bronchodilators
- pain management

There are several reasons for limiting the level of care at the ACC:

- The primary focus on these four treatment areas simplifies the logistics of setting up these centers and reduces the amount of supplies and equipment the District will need to cache.
- Hospitals have better access to the resources required to treat critically ill patients. These resources include cardiac monitors, oximeters, ventilators, free-flowing oxygen, intravenous pumps, and invasive monitoring equipment.
- Hospitals have better access to staff (i.e. respiratory therapists, critical care, emergency, surgical nurses, and physicians) experienced in resuscitation and care of critically ill patients. It is more efficient to concentrate these trained individuals in one location.
- Providing a selective level of care minimizes the ethical decisions healthcare providers would need to make when only a limited supply of advanced care technology is available.
- This limited supply of equipment also eliminates healthcare providers' dependence on technology to provide mass care.
- A free-standing ACC facility faces a number of logistical barriers that prohibit the use of certain specialized hospital functions. For instance, an ACC established in a school gymnasium, community field house, or hospital cafeteria will likely not have necessary access to free-flowing oxygen, medical air to drive ventilators, or specialized electrical outlets required to provide certain critical care-level therapies and basic supportive care.
- Streamlining the care provided at the ACC will allow healthcare providers of various backgrounds to follow pre-established treatment guidelines.
- Recommending that an ACC be able to provide the same level of care that can be offered by a hospital places an unrealistic burden on the District to provide unlimited resources (i.e. money, equipment, and personnel) to an ACC.[8]

[6] Skidmore, p. 6.
[7] *Altered Standards of Care in Mass Casualty Events*, AHRQ Publication No. 05-0043 (Rockville, MD, 2005), p. 2.
[8] Skidmore, pp. 6-7.

- In a mass casualty situation, healthcare workers will provide care to as many victims as possible, but individualized treatment plans may be rare or nonexistent. Advanced lifesaving technology and treatment options will likely either be unavailable or unfeasible due to a lack of specially trained medical personnel.

ACC Concept Overview

Patient Cohorting

In general, the ACC is designed to treat victims of a pandemic or bioterrorist attack in need of inpatient care. However, within this group there may be patients affected in ways which may or may not make them good candidates for an ACC. The exact specifications of who should be directed to an ACC should be a matter for emergency health planners to decide and would most likely depend on the type of agent/pathogen and the extent to which the surge exceeds routine hospital capacity. According to the Department of Defense Biological Weapons Improved Response Program, the ACC should treat 'patients who need inpatient treatment but do not require mechanical ventilation, and those who are likely to die from an illness…'[9] Whatever decision is taken regarding the type of patients to be accepted for treatment at an ACC, the restriction of patient type serves two purposes:

- It enables the ACC to follow a streamlined approach to patient care. Similar patient types will require similar treatments which follow pre-established critical pathways or clinical practice guidelines.

- In situations where isolation is desirable but impractical, cohorting patients with similar infections/exposures from the same disease in one location limits exposure of non-infected persons.[10]

ACC Concept Overview

Challenges to Successful Implementation

Recent studies have identified several potential challenges to successful ACC implementation.[11] It would be useful to anticipate and address these potential issues during the planning stage. The following potential problems have been deemed the most significant:

- Regional, state, and local planning authorities lack clear guidance on a delineation of roles and responsibilities
- There may be conflicting institutional allegiances in the convergence of multiple actors which have not traditionally worked together (health care providers, hospitals, regional planners, emergency managers, local health departments, District health departments, etc.)
- The lack of inducements to create, drill, and execute the plan
- Health professional licensing and credentialing issues
- Lack of funding

ACC Operations

ACC Site Activation

[9] Skidmore, p. 4.
[10] Ibid.
[11] See especially: Phillips and Knebel (eds.), pp. 78-79.

Local or regional (as opposed to institutional) level emergency public health management must decide whether, when, and where to activate the ACC plan based on medical systems capacity and the expected surge resulting from the specified agent/pathogen threat.[12]

The expected surge will be based on the following factors:

- The volume of cases
- Time as a function of the volume of cases
- The complexity of cases involved [13]

Each agent/pathogen has a unique surge signature, depending on such factors as the number of people initially infected, the incubation period, the duration of the illness, lethality, communicability, and various other intangible factors, such as the notoriety of a given agent/pathogen which will affect the number of psychosomatic ("worried well") cases presenting at local hospitals and NEHCs. The ACC should be activated if the expected surge factors exceed routine medical systems capacity by pre-specified figures.

ACC OPERATIONS

Communications

Communications are a vital component to any properly functioning emergency public health system. Former Assistant Surgeon General Edward Baker commented in December 2001:

> …the major public health challenges since 9/11 were not just clinical, epidemiological, technical issues. The major challenges were in communication. In fact, as we move into the 21st century, communication may well become the central science of public health practice.[14]

It is important to have a pre-planned communications structure in place before the ACC activation decision is made. Ideally there will be a unified command communication system that can coordinate not only the activation of an ACC (or multiple ACCs) but also enable emergency public health management to apply consistent and responsive approaches to care in a fast moving and constantly shifting environment.

- **Health Alert Network (HAN)**

  One such integrated communications approach is the Health Alert Network (HAN), which has been developed by the Centers for Disease Control and Prevention (CDC): "HAN is a nationwide program that establishes the communications, information, distance learning, and organizational infrastructure for a new level of defense against health threats."[15]

  The District is currently in the process of reorganizing HAN. Once complete, it is anticipated that the network will link high level agencies (DOH and CDC) to local medical facilities such as hospitals and clinics.

[12] Phillips and Knebel (eds.), p. 82.
[13] *Addressing Surge Capacity in a Mass Casualty Event*. AHRQ Publication No. 06-0027 (Rockville, MD, 2006).
[14] S.V. Cantrill, S.L. Eisert, P. Pons, and C.E. Vinci, *Rocky Mountain Regional Care Model for Bioterrorist Events*, (August 2004), p. 61.
[15] Phillips and Knebel (eds.), p. 83.

- **Health Emergency Coordination Center (HECC)**

  Situated within the Department of Health, the HECC is the District's command and control facility for all public health emergencies.

- **Emergency Operations Center (EOC)**

- **EOC Joint Information Center (JIC)**

- **WebEOC**

- **Alert DC**

  The Alert DC system uses the Roam Secure Alert Network to inform the public during a major crisis or emergency. The system delivers simultaneous public alerts via the following methods:

  - e-mail
  - cell phone
  - pager, BlackBerry
  - wireless PDA (Palm, etc.)

  This system can alert the public with real-time updates, instructions on where to go, what to do, or what not to do, who to contact and other important information.

ACC OPERATIONS

Risk Communication Considerations

Emergency planners should consider the following risk communication categories as a supplement to effective ACC operations:

- Risk Communication [16]
  - Actively informs the public about the health emergency "…first, to provide knowledge and understanding of the situation at hand, second to enhance trust and credibility between the public and responders, and third to encourage constructive dialogue" [17]
  - Provides the public with appropriate action guidelines (if any such action is deemed necessary)
  - Minimizes confusion and anxiety
  - Limits the burden placed on health systems by those who will seek out such information on their own and thus increase the surge capacity need

- Health Information Communication
  - Answers specific questions and concerns through call centers and hotlines

[16] For a comprehensive guide to risk communication see: B. Reynolds, *Crisis and Emergency Risk Communication* (Atlanta, 2002).
[17] Cantrill, p. 62.

- Minimizes the calls received elsewhere in the public health system

It is of paramount importance that all emergency communications with the public be accurate, frank, and current. Indeed, the public should be viewed as a partner and ally during a health emergency rather than "the problem to be managed."[18] Any public perception that emergency communications are inaccurate, vague, or out of date will not only be counterproductive to the goals of risk communication theory but may also add to the general burden on health systems by creating an atmosphere of mistrust:

- Rumors and hearsay will fill perceived information vacuums
- The public may become uncooperative, adversarial, confrontational, or even mutinous

Psychological stress associated with a public health emergency will likely have a significant impact on how the public interprets and comprehends communications. There are four major risk communication theories which define and attempt to overcome specific psychological obstacles which may be expected in a public health emergency:

- Mental Noise Theory
  - In highly stressful emergency situations, people often find it difficult to hear, understand, and remember information.
  - Communications should therefore be brief, clear, and concise.

- Trust Determination Theory
  - In highly stressful emergency situations, people often question whether communicators are: caring, listening, empathetic, competent, open, honest, hard working, and expert.
  - Trust may be established by 'demonstrating compassion, empathy, conviction, courage, hope, and optimism.'[19]

- Negative Dominance Theory
  - In highly stressful emergency situations, people often fixate on negative information over positive information.
  - It is suggested that every negative statement be followed by three positive statements
  - Granting some element of control to the public through positive statements which encourage action may be effective.

- Risk Perception Theory
  - In highly stressful emergency situations, lay person perceptions often differ from expert perceptions, creating pre-existing discrepancies in understanding of the threat at hand and its prognosis.
  - Those in a position of leadership need to be sensitive to this perception gap in communicating with the public.

ACC OPERATIONS

Communications Reliability

[18] Cantrill, p. 62
[19] Ibid., p. 63.

Communications failures can adversely affect the overall success of the ACC. Therefore any emergency communications system of which the ACC is a component should seek to incorporate redundant (backup) capacities. Emergency planners may wish to consider some of the following possibilities in establishing the system:

- Dedicated land lines
  - Requires a pre-selected ACC in order to install the proper wiring
  - Secure communication

- Cellular phones
  - Highly mobile
  - Battery life dependent
  - Cellular network dependent (may be overloaded during a crisis)
  - Semi-secure communication

- Handheld 2-way radios
  - Highly mobile
  - Battery life dependent
  - Non-secure communication

- FM/AM radio broadcasting
  - One way communication capacity
  - Widespread dissemination of information
  - Non-secure communication

- Local HAM operators
  - Two way communication capacity
  - Non-secure communication

ACC OPERATIONS

Alerting the Public about the ACC

Emergency health managers may wish to mention the activation of the ACC in communications with the public. Although the ACC is a post-triage facility and therefore not to be used for primary treatment, public awareness of the patient distribution process and the reasoning behind it can be of benefit to overall emergency health systems effectiveness.

However, public communications should avoid specifying the location of any ACC for several reasons:

- Securing the ACC site may become more problematic
- The ACC may become inundated with non-triaged patients seeking general treatment

Possible rationale (not recommended) for publicizing the location of the ACC:

- Despite best efforts, the public will inevitably learn the location of the ACC through word of mouth
- If the public health system breaks down and becomes disorganized or chaotic under severe conditions, emergency public health managers may wish to redefine the purpose of the ACC in terms of simple surge capacity augmentation.

- Under this scenario, the ACC would become a general medical resource to casualties of a pandemic or bioterrorist attack, much like an Alternative Care Center.

Whatever decision is taken, there are various ways to alert the general public, including:

- reverse 911
- public access
- public service announcements
- emergency broadcast system
- community resource officers in neighborhoods

Worried Well:
"To prevent an unnecessary surge of worried well patients, Stephen Cantrill stressed the importance of proper communication of risk. Brad Austin added that hospitals could interact with local mental health systems to create a system to take care of these individuals. The University of Pittsburgh Medical Center Health System has developed a psychological SWAT team for the acutely anxious, quarantined people with cabin fever, and for staff (for example, cooks or custodians) who have become mutinous as a result of misinformation."[20]

Emergency officials will communicate with the medical community during preplanning activities and during recognition of an event to assure healthcare workers that their safety and the safety of their families has been planned for and that prophylaxis and/or protection will be provided. It will be crucial to have accurate and timely dissemination of information to medical professionals to decrease their risk and concern of becoming secondarily infected and to encourage them to continue caring for patients.

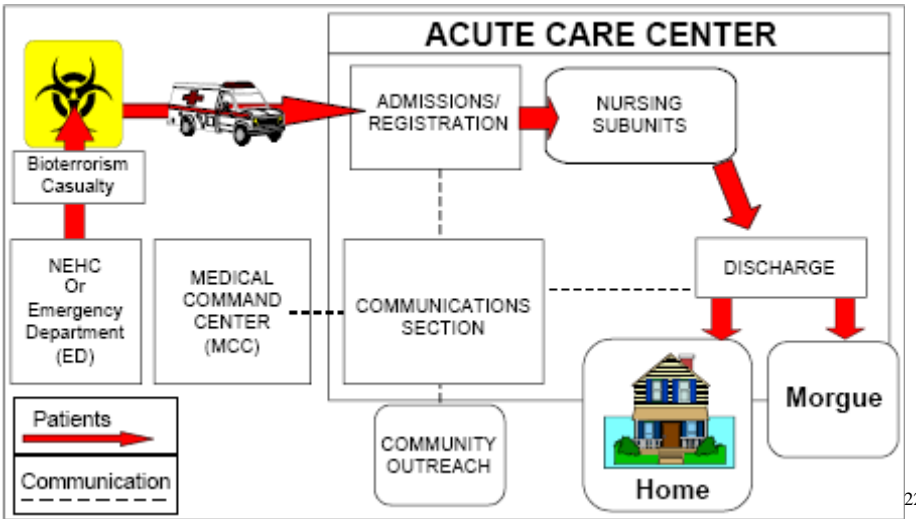
- Physicians, nurses, and other licensed medical personnel will need to be quickly credentialed following pre-established policies. This function is best carried out by the office of emergency management of the respective community, in conjunction with local sponsoring hospitals, before staff arrive at the ACC itself.
- Preplanning and sensitive surveillance systems are vital in reducing the impact that a bioterrorist event will have on the District. The better the surveillance system and preplanning, the more likely the ACC will have a positive impact and outcome following the event.[21]

ACC OPERATIONS

Patient Distribution

[20] *Optimizing Surge Capacity: Hospital Assessment and Planning*. AHRQ Publication No. 04-P008 (Rockville, MD, 2004).
[21] Skidmore, pp. 2-3.

Casualties of either a bioterrorist attack or a pandemic will first arrive at the NEHC or Hospital ED for triage. NEHC and Hospital EDs will notify the Medical Command Center (MCC) which will determine where these patients will be admitted (ACC or Hospital). The MCC will advise the Casualty Relocation Unit (CRU) and/or ambulances of the determined admission location and will alert the ACC of the number of incoming patients expected and other pertinent logistics such as how many patients require transfer by stretcher versus wheelchair.



[22]

ACC Operations

Admissions Procedures

Incoming ACC patients should be directed to the admissions/registration area. The Patient Care Coordinator (PCC) should rapidly evaluate and assign a nursing subunit bed to each patient, who should be given an admissions packet that includes preprinted standing admission orders.[23]

- The ACC is not designed to provide initial evaluative services and as such the admissions/registration area is to be used only for logging patients into the tracking system and assigning them to nursing subunits. Non-triaged patients who arrive at the ACC will be redirected to either an NEHC or a hospital.

[22] Skidmore, p. 13.
[23] See Appendix B for an example of such standing orders.

Best Practices:
Paper Based Documentation
"Given the extraordinary conditions that will exist to require the use of [ACCs] for patient care delivery, only modest means for patient care documentation should be expected to be used. Electronic medical records are not likely to be available or practicable, particularly given the learning curve associated with their use and the dependence on technology that may not be operable. Rather, simple paper-based charting will be required. Forms for patient records (including nursing notes and flow sheets), patient tracking and discharge planning should be prepared in advance; there should be an adequate supply of such forms, as well as clipboards and pens."
– Phillips and Knebel (eds.), p. 90.

The Internal Patient Transportation Unit (IPTU) will coordinate with the Patient Care Coordinator (PCC) and transfer patients to their assigned nursing subunits. Upon arrival at the nursing subunit, a physician will complete and customize each patient's standing admission orders based on his or her assessment.

Standard inpatient procedures will prevail but will follow a more streamlined and scaled down approach consistent with the limited care options available at the ACC. Medical clerical personnel in each nursing subunit will process the physician's standing orders, while the RN will verify implementation. Nurses will complete an admission assessment and initiate the plan of care for each patient.

ACC OPERATIONS

Plan of Care

A standardized plan of care should be developed in advance for each agent/pathogen likely to be encountered. The following plan of care / agent matrix provides several suggested biological agent specific therapies:

Bioterrorist Agents and Plan of Care Matrix [24]

Agent	Chemotherapy (Rx)	Chemoprophylaxis (Px)	Comments
Anthrax (weaponized/inhalation)	Ciprofloxacin 400 mg IV q 8–12 h	Ciprofloxacin 500 mg PO bid x 4 wk If unvaccinated, begin initial doses of vaccine (0, 2 wk, 4 wk)	Potential alternates for Rx: gentamicin, erythromycin, and chloramphenicol
	Doxycycline 200 mg IV, then 100 mg IV q 8–12 h	Doxycycline 100 mg PO bid x 4 wk plus vaccination (0, 2 wk, 4 wk)	
	Penicillin 2 million units IV q 2 h		PCN for sensitive organisms only

[24] Skidmore, Appendix G.

Tularemia	Streptomycin 30 g/kg IM divided BID x 10–14 d Gentamicin 3–5 mg/kg/d IV x 10–14 d	Doxycycline 100 mg PO bid x 14d Tetracycline 500 mg PO QID x 14 d	
Venezuelan Equine Encephalitis	Supportive therapy: analgesics and anticonvulsants prn		
Botulinum Toxin	DoD heptavalent equine despeciated antitoxin for serotypes A–G (IND): 1 vial (10 mL) IV CDC trivalent equine antitoxin for serotypes A, B, E (licensed)		Skin test for hypersensitivity before equine antitoxin administration
Staphylococcus Enterotoxin B	Ventilatory support for Inhalation Exposure		

In the event of an influenza pandemic, it is suggested that the ACC plan of care follow a supportive or palliative therapy, which may include the provision of IV fluids.

In all cases, plan of care options should be developed and carried out under the direct supervision of a physician.

ACC OPERATIONS

Guidelines for Patient Discharge or Death

There must be a pre-established criteria used to guide patient transfer and discharge decisions in order to maximize the number of ACC beds available for additional admissions.

- It should be noted that the need for patient discharge procedures is largely dependent on the presenting agent/pathogen. In the case of high lethality agents/pathogens, the ACC will likely administer palliative rather than curative care in which case very few if any patients are expected to survive to discharge status.

Where discharge is appropriate, case managers and social workers will assist in planning for at home assistance and care. This will include referrals to psychological services and human relief services as well as necessary follow-up. Patients should receive pre-printed agent-specific discharge instructions along with a starter pack of any agent-specific medicines they may still require.

The deceased will be transferred by the IPTU to the ACC temporary morgue, which is responsible for tagging the remains, processing the records, and securing any personal effects.

ACC OPERATIONS

Pediatric Considerations

The treatment of children can cause special requirements or needs for a facility:

- Having adequate number of pediatric supplies.
- Having in place pediatric decontamination equipment and protocols.
- Having developed an effective response plan to manage large numbers of children.
- Having staff skilled at assessing young, non-verbal children.
- Taking care of children while wearing personal protective equipment.
- Creating systems for identifying, tracking, and reuniting children with their families.

ACC OPERATIONS

Threats to Patient Flow and Optimal ACC Performance

As with any ad-hoc system, the ACC will be subject to unforeseen operational difficulties. Planning experts have always held that "a battle is won or lost before the first shot is fired." This is certainly a sentiment appropriate to the planning and transformation of a commonly used facility - such as a school - into an efficiently and effectively functioning ACC. But while planners cannot always predict every scenario that may unfold once a facility begins operations, it is clear that a few threats to optimal functioning exist and bear mentioning. While the following is by no means an exhaustive list, some of the potentially undermining factors – or "dysfunction multipliers" - to ACC operation include:

- Ambient noise within the ACC due to poor acoustics and extensive use of bull-horns
- The possibility of early arrivals at the ACC or others who arrive at the facility in unanticipated ways (especially when Staging areas are used). Early arrivals can disrupt staff orientations and greeting/registration functions and cause bottlenecks. Unanticipated arrivals can have a similar effect on bottlenecking and, like early arrivals, can also lead to public disruption [Lesson learned from Philadelphia flu clinic 10-7-05]
- Most if not all of the staff will be unfamiliar with the layout of the building
- Unruly and/or disruptive patients (intentional and unintentional)
    - The ACC should establish clear rules of acceptable behavior for patients, staff, and family members to handle such issues [35]
- Poor visibility for patient flow staff and others directing client traffic
- Poor verbal or written communications among staff and their interaction with patients
- Separation of spouses/family members/friends that cause stress and their movement through the facility in ways that congest halls or exacerbate patient frustrations/stresses

[35] Phillips and Knebel (eds.), p. 91.

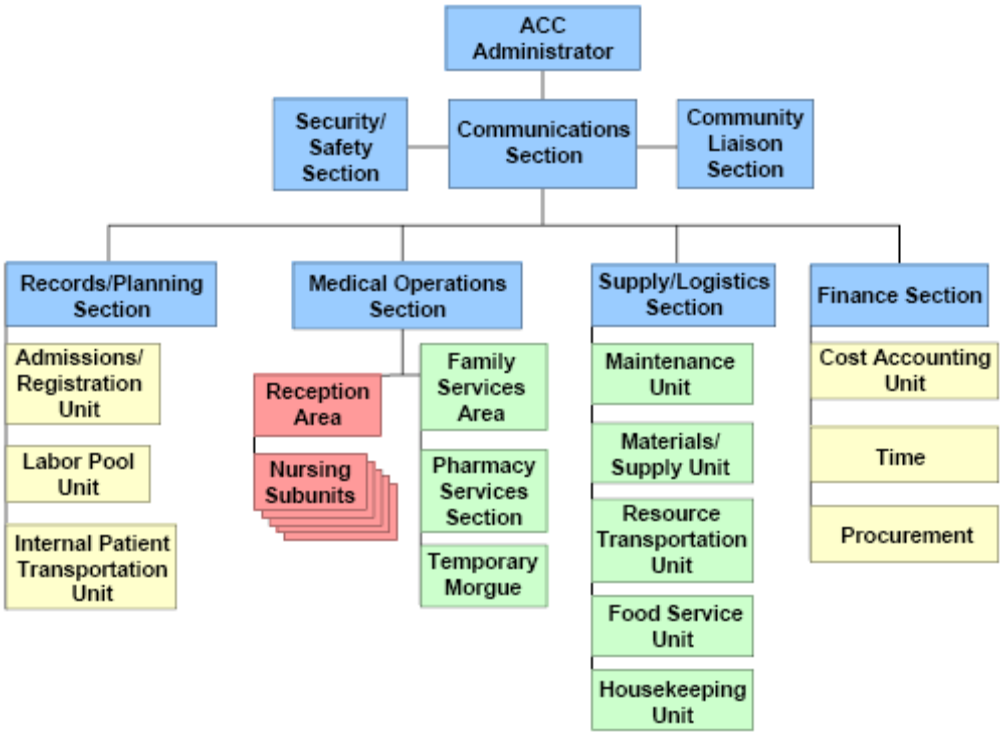
ACC ORGANIZATION AND OPERATION

Command and Control Structure

Every ACC plan must include a minimal number of stations and essential functions. However, while core functions should be incorporated into ACC site planning it is not essential in every case that every function also have a physical "station" at which the service function is delivered. Indeed, it has been found that if the balance of stations-to-open floor plan space is too far on either side, the efficiency of the facility can be compromised, slowing the flow of patients. It is therefore imperative to determine the absolutely necessary functions requiring their own physical station from those that do not – where staff performing the service function can "float" among the patients at the ACC providing services on a case by case basis. Even in these latter circumstances it is important to prepare areas where these floating staff can take clients out of the queue so that disruption in the flow is minimized.

The following ACC command and control structure was developed by the nationally recognized Incident Command System (ICS) and the Hospital Emergency Incident Command System (HEICS). Each section (both administrative and functional) under the ACC Administrator should have a director who is responsible for day to day management. This command and control structure offers a template for a locally determined ACC organizational structure that will fit into the existing local emergency command system. The type of agent used and resulting illness will determine the precise composition of the ACC.

ACC Command Organization [36]



[36] Skidmore, p. 8.

ACC ORGANIZATION AND OPERATION

Management Level Descriptions

ACC Administrator

- Should be physically based in the Communications Section (CS)
- Responsible for the command and control functions of the entire ACC, including all of its sections and functional units
- Ensures the highest level of efficiency given constraints of staff and equipment
- Facilitates and manages communication flows into and out of the ACC
- Issues status/situation reports to Medical Command Center (MCC) or community's OEM that reflect real time patient and staff information

Communications Section (CS)

- Serves as the onsite communications and administrative hub of the ACC
- Maintains a log that documents all activities including operational problems, bed status, and staffing status
  - Ideally, the log will take the form of a pre-planned standardized electronic information system capable of supporting patient tracking, clinical management, and departmental administration. Pre-existing hospital information systems may be transferable to the ACC setting, but emergency planning officials must make this assessment in advance.
- In addition to providing an office location for the ACC Administrator, all ACC sectional directors as well as the Casualty Relocation Unit (CRU) will have a desk within CS in order to better coordinate actions and communication
- Must have sufficient space for computers.
  - Laptop computers offer greater mobility and their small size may be ideal if space is limited.
- Must have a dedicated telephone and communication system to receive and transmit MCC and supporting hospital requests. The ACC should also have one or more unlisted phone numbers available only to authorized emergency personnel.
- Data port and/or additional phone jacks are needed for fax machines or computer networking functions
- All ACC offices, staff workstations, administrative areas, and nursing subunits must have dedicated internal telephone lines directly connected to each other and the CS
- Mobile battery powered two way radios may be an effective means of communication and could provide a backup if other communication systems fail
- Mobile phones may provide a substitute for hardwired communications systems but networks may be overloaded or unavailable in an emergency
- In general, telephone communication systems should remain intact in the event of a bioterrorist attack. However, if the bioterrorist attack is accompanied simultaneously by an infrastructure attack, alternatives may become necessary.
  - If resources are limited, runners can be used to pass simple messages between workstations, sections, and external facilities.
- If available, a public address or intercom system can instantly relay announcements fit for public consumption. Some intercom systems may be able to select the location/s where the message will be heard in order to transmit more private communications.
- Ambulance services may require a Communications Base which provides a direct radio link with the CRU (Casualty Relocations Unit). The Communications Base should be

located either within the CS or somewhere near it to avoid impacting the space if a high volume of ambulance traffic is likely.

Security/Safety Section

- The ACC must have 24/7 security
- The number of access points and the nature of the facility will determine the requirements for security staff
- All security personnel must wear identification badges which are clearly visible
- All ACC access points should be guarded by an adequate number of security personnel who must check the ID of anyone wishing to enter the facility
- Certain high-risk areas, such as the pharmaceutical dispensary, medical supply areas, family areas, and the temporary morgue, should have dedicated security personnel on guard at all times
- Local law enforcement will play a large role in the ACC security plan

Best Practice:
Hurricane Katrina 2005
It is always helpful to have real security personnel (off-duty hospital or mental hospital security staff would be ideal) who have previous experience dealing with patients but any uniformed person (such as ROTC cadets) 'makes patients and staff feel safe and keeps out troublemakers.'
– Phillips and Knebel (eds.), p. 90-92.

Community Liaison Section

- Composed of a community liaison director and one or more community liaison assistants
- While the ACC administrator establishes and maintains communication with the community's OEM, the community liaison director responds to community concerns that affect the ACC and its mission
- Responsible for media communications
- Acts as a point of contact for the community
- Coordinates public message with the hospital and NEHC

ACC Organization and Operation

Functional Unit Descriptions

Records/Planning Section

- Admissions/Registration
  - Staffs the admission/registration area with a patient care coordinator (PCC)
    - The function of the PCC is critical, similar to that of a nursing supervisor operating in a traditional hospital setting.
    - The PCC will be located in the Records/Planning Section but has support functions across the ACC.
    - The PCC maintains awareness of nursing staff and bed availability and directs patients to the nursing subunits accordingly.

        - Manages all paperwork generated in the ACC
        - Keeps track of all inpatients, including walk-ins who do not arrive from a hospital's ED or the NEHC.
        - Responsible for keeping patient status up to date
            - Patient registration
            - Patient treatment
            - Patient disposition
    - Labor Pool
        - If staffing permits, a Labor Pool Unit Leader may be appointed
        - Responsible for keeping staffing status up to date
        - Maintains a staffing log which records the presence or absence of all available ACC personnel, including spontaneous volunteers
    - Internal Patient Transportation
        - Transports patients from registration/admission area to their assigned nursing subunit bed.
        - Transports the deceased from their assigned nursing subunit bed to the temporary morgue
        - May also need to assist with bed/patient transport in other capacities due to unforeseen logistics

Medical Operations Section

Directed by a physician, the Medical Operations Section is responsible for all clinical areas of the ACC and every patient under its care. Responsible for maintaining strict infection control procedures and the overall sanitary condition of the ACC to protect staff, visitors, and patients.

- Nursing Subunits
    - The ACC is divided into 250 bed pods consisting of 5 nursing subunits containing 50 beds each. The number of 250 bed pods in an ACC will be predetermined by emergency planning personnel, though it must be stressed that building size will be a crucial limiting factor.

Best Practices:
Nursing Subunit Setup Process
To achieve maximum resource efficiency:

- The ACC can begin accepting admissions only after the first 50 bed nursing subunit is fully functional (including all core staff, equipment, and supplies).
- When the first nursing subunit reaches 70%-80% capacity patients should begin to be directed to the next nursing subunit until all 5 subunits of the 250 person pod are at 70%-80% capacity.
- After the 250 bed pod reaches 70%-80% capacity, admissions can distribute patients evenly across that pod until reaching full capacity.
- When the first 250 bed pod reaches 50%-60% capacity (just before the fifth and final nursing subunit of the first pod is opened), the second 250 bed pod should be nearing completion
- When the first subunit of the second 250 bed pod is finished, it can begin accepting patients.
- The process continues according to the same pattern until each 250 bed pod of the ACC reaches full capacity.
- The Medical Operations director controls the opening of all subunits and pods

– Skidmore, pp. 14-15.

- Pharmacy Services
  - Forecasts, orders, dispenses, stores, and maintains accountability of the pharmaceuticals needed to operate the ACC
- Family Services
  - Provides a separate area where families can go to relax.
  - Provides counseling services for patients, staff, and family members
    - Requires specialized counseling and social services staff
  - FS is a beneficial but non-vital ACC component
    - Emergency planning must decide whether to have a family services unit if resources and space permit
- Temporary Morgue
  - Records personal data of the deceased
  - Tags the remains
  - Inventories and secures personal effects
  - Arranges for transfer to mortuary facility
  - Temporarily stores remains until they can be sent to mortuary facility

Supply/Logistics Section

Responsible for all ACC services and support, including obtaining and maintaining the facility, equipment, and supplies.

- Maintenance
  - Procures, repairs, tracks, and maintains all equipment and the physical plant of the ACC
- Materials Supply
  - Forecasts, orders, stores, and maintains accountability of equipment and supplies necessary for ACC operation in coordination with Resource Transportation.
- Resource Transportation
  - Moves all supplies and equipment within the ACC
  - Delivers supplies from the external facility
- Food Service
  - Provides food for patients and staff
  - May also provide food to visitors/family members if sufficient resources are available.
  - Food preparation area must be separate from patient areas
- Housekeeping
  - Cleans and disinfects the ACC
    - May coordinate cleaning procedures with Medical Operations

Finance Section

The creation of the Finance Section is at the discretion of the ACC Administrator if sufficient resources are available.

- Cost Accounting
  - To accurately account for the costs of running the ACC in order to prepare for later impact analysis and reimbursement

STAFFING THE ACC

General Requirements

A staff consisting of physicians, nurses, respiratory therapists, non-licensed patient care providers (nursing assistants), medical clerical personnel, maintenance or facility technicians, and civilian volunteers is required to operate the ACC.

Precise numbers of each type of personnel will be dependent on the type of agent/pathogen threat. The number of casualties expected to survive versus expire will dictate the allocation of medical staff. For example, an agent/pathogen illness with a low fatality rate that results in a large number of patients requiring acute inpatient care might indicate a need for more registered nurses. Conversely, an attack with an extremely potent agent that has a high fatality rate might indicate a need for fewer registered nurses because the patients' condition would deteriorate quickly, resulting in death.[37]

The following table lists the recommended ACC staffing plans for three potential patient illness categories, as necessary given the nature of the agent/pathogen.

Minimum Staff Requirements per 12-Hour Shift for Each 50 Bed Nursing Subunit [38]

Class	Infectious	Non-infectious	Quarantine
Physician	1	1	0
Physician extender (PA/NP)	1	1	0
RNs or RNs/LPNs	6	6	2
Health technicians	4	6	1
Unit secretaries	2	2	1
Respiratory Therapist	1	1	0
Case Manager	1	1	0
Social Worker	1	1	1
Housekeepers	2	2	1
Lab Personnel	1	1	0
Medical Asst/Phlebotomy	1	1	0
Food Service	2	2	2
Chaplain/Pastoral	1	1	1
Day care/Pet care	0	0	1
Volunteers	4	4	4
Engineering/Maintenance	0.25	0.25	0
Biomed-to set up equipment	0.25	0.25	0
Security	2	2	2
Patient transporters	2	2	0

[37] Skidmore, p. 4.
[38] Adapted from *Modular Emergency Medical System: Concept of Operations for the Acute Care Center*, May 2003.

Total Staff Required	**32.5**	**34.5**	**16**

While volunteers are a critical staff component to the ACC, they may not be willing to perform certain functions (colostomy care, diaper changes, etc.) and as such there must be a clear expectation set out from the beginning establishing exactly 'who is going to do what'.[39]

STAFFING THE ACC

Staff Recruitment

The ability to recruit staff depends on the scale and geographic range of the public health emergency. Generally speaking, the more geographically widespread the event, the more difficult it will be to find available medical personnel. Staffing the ACC with medical personnel from the afflicted area will be a challenge for a number of reasons:

- Local medical personnel will already likely be inundated by patients in their routine medical settings [40]
- Normally available local medical personnel will not necessarily make themselves available in the event of a bioterrorist attack or pandemic outbreak, fearing for their own safety and/or the safety of their families
- The locally afflicted environment may be chaotic and normal systems may not function

It must then be assumed that the majority of ACC staff will have to come from sources outside the afflicted area.[41]

Finding an adequate number of medical professionals to staff an ACC requires creative preplanning. There are several methods which can provide ACC staff:

Regional Hospital Alliance – "The Pot-Luck Approach"

- Each participating hospital pre-designates a small contribution of medical personnel which in aggregate provides an ACC with a full level of staffing.[42] The alliance must be organized to balance the number and ratio of required medical personnel categories: physicians, nurses, social workers, administrators, etc. The small number of staff required from each participating hospital will minimize impact on normal functionality.

Emergency Systems for Advance Registration of Volunteer Health Professionals (ESAR-VHP)

- Helps to address the issues of medical personnel verification and credentialing.[43]
- Provides a simple way of identifying large numbers of properly credentialed medical personnel in a given region.

Mutual Aid Agreements

- The District should negotiate mutual aid agreements with Virginia and Maryland that specify where additional staff may be obtained while awaiting the arrival of federal resources.

[39] Phillips and Knebel (eds.), p. 92.
[40] Cantrill, p. 35.
[41] Skidmore, p. 19.
[42] Phillips and Knebel (eds.), pp. 88-89.
[43] Ibid.

Regional MOUs and Executive Orders

- MOUs with Virginia and Maryland and presidential, congressional, or mayoral orders which free physicians and other medical personnel from specific aspects of District health professional licensing requirements should be prepared and ready to sign in the event of a bioterrorist attack or other such public health emergency.[44]

Inactive Medical Personnel Registry

- A registry of currently non-practicing healthcare practitioners, such as those who are licensed but retired or are working in an alternative line of work, or otherwise inactive but who would be able to provide medical expertise in the event of a public health emergency.

Medical Reserve Corp (MRC)

- "In 2005, more than 1,500 MRC members were willing to deploy outside their local jurisdiction on optional missions to hurricane-affected areas with their state agencies, the American Red Cross, and HHS."[45]

Faith-Based Community and Community Health Workers

- May provide a dedicated source of volunteers

STAFFING THE ACC

Staff Orientation and Training

Orientation and training is necessary for staff to operate effectively within the ACC. The effectiveness of this training will play a significant role in the overall success of the ACC. At the very least, all staff members should receive some basic training which covers the mission of the ACC, a building orientation and walk-through, the command structure and organization breakdown, and standard ACC operating procedures and any non-routine specifications therein. Ideally staff should receive this training before their first shift but it is possible that an abbreviated or impromptu on-the-fly orientation may become necessary.

[44] See appendix for sample executive orders.
[45] Phillips and Knebel (eds.), p. 88.

Best Practices:
Job Action Sheets
"Job Action Sheets are a simple method for assigning and identifying roles and responsibilities for all personnel. They are straightforward job description checklists outlining critical activities for a specific job position. Disaster situations are unpredictable and extremely variable. These aspects, coupled with staff turnover, excitement, anxiety, and feelings of urgency or haste may confuse even experienced personnel. Roles are easily forgotten in the urgency of the moment. Job Action Sheets are used in addition to the extemporaneous training to teach staff what to do; when to do it, and to whom they report. To ease the burden of memorizing protocols, each staff member is issued a sheet that prioritizes a detailed description of the critical actions necessary for successful performance."
- Skidmore, p. 22.

All orientations should be given by the appropriate manager. In the case of clinical staff the PCC or the pod manager will give the orientation. Non-clinical (administrative) staff will receive their orientation from their respective unit manager.

As a minimum, training must cover the following points:

- Information on the agent and treatment modalities
- Personal protective measures, including infection control measures (handling and disposing of infectious waste, agent-specific transmission prevention measures, etc.)
- Standard operating procedures
- Standard reporting procedures
- Response to outside requests for information
- Patient confidentiality

At the end of the first 12 hour ACC shift, new staff may not have the opportunity to attend a formal orientation for various reasons (ie. the high workload, the chaotic situation, etc). In this case, it is suggested that the relief staff arrive 30 minutes early in order to shadow those staff whose shifts are about to end, thereby transferring as much on the job training as possible before taking over full responsibilities.

Given the novelty of the ACC setting and its unique circumstances, many of the skills and know-how developed by the first staffing shift will be cutting edge and possibly exemplary. These skills will be invaluable to the staff sent to replace the first shift. Effective knowledge transfer between shifts, especially between the first and second 12 hours of operation, will be critical.

STAFFING THE ACC

Staffing Recruitment Considerations

Emergency planners may wish to provide ACC staff with onsite or nearby housing, especially as many will come from outside of the area.

The following table lists some general considerations for staffing and their relevant state, local, and institutional jurisdictions.

Jurisdictional Considerations for Staff Recruitment [46]

	State	Local	Institution
Establish legal authority to utilize out-of-state licensed personnel	X		
Establish supervision criteria for volunteer and out-of-state licensed personnel	X		
Establish/maintain list of retired individuals who could be called upon to staff	X	X	X
Availability of prophylaxis for employees and volunteers (? and their families) to guarantee workforce availability	X	X	X
Communication of institutional workforce plan in advance to employees			X
Develop, test and maintain emergency call-in protocol		X	X
Expectation and capacity for flexibility in roles	X	X	X
Establish linkages with community resources (e.g., hotel housekeeping)		X	X
Address specific needs of employees (transportation, single mother, pets)			X
Implement a reverse 911 or notification system for all employees			X
Establishment of institutional policies for credentialing of non-employees			X

MEDICAL EQUIPMENT AND SUPPLIES

Supply Cache Plans, Requirements, and Contingencies

Medical equipment and supplies must be predetermined and cached in advance as normal medical supply chains will likely be strained or nonfunctional during a public health emergency.[47] The cache should be stockpiled in a fixed location where it can be transported to the chosen ACC site when required.[48]

The *Rocky Mountain Regional Care Model for Bioterrorist Events* developed supply and equipment lists for three cache levels:

Level I – Hospital Augmentation Cache ($20,000)

- Bare minimum of supplies (cots, linens, masks, gowns, gloves, etc.)
- May be used to increase institutional capacity
- Does not include pharmaceuticals

Level II – Regional Alternative Care Site Cache ($100,000)

- More complete set of supplies restricted to long shelf life items
- Does not include pharmaceuticals

Level III – Comprehensive Alternative Care Site List (Cost Unknown)

[46] Skidmore, pp. 19-20.
[47] Phillips and Knebel (eds.), pp. 85-87.
[48] Cantrill, pp. 33-34.

- Complete set of items needed for an ACC 50 bed nursing subunit
- Includes oxygen supplies
- Includes both long and short shelf life items
- Does not include pharmaceuticals

The Level III Comprehensive ACC Medical Cache is the only of the three which meets the full medical supply needs of a 50 bed nursing subunit (excluding pharmaceuticals). As such, it is highly recommended that the District seek to implement the Level III Comprehensive cache in developing the ACC concept of operations.

- It is important to recall that the ACC is not designed to provide a comprehensive standard of care. Even the Level III Comprehensive list (despite its name) is general and not agent/pathogen specific. It was developed in order to provide a level of supply coverage commensurate to the standard of care to be expected of an ACC, not a hospital.

MEDICAL EQUIPMENT AND SUPPLIES

Comprehensive Level III Medical Cache Supply List

The Comprehensive Level III medical cache consists of four supply categories:

- Equipment
- Patient-related consumables
- Administrative consumables
- Oxygen/respiratory equipment

Equipment Considerations for 50 Bed Nursing Subunit [49]

Equipment	Infectious	Non-Infectious	Quarantine
Beds/Cots (with extra)	52	52	52
Chairs correlation with staffing level	12	12	4
Desks correlation with staffing level	6	6	2
Fax Machine	1	1	?
Housekeeping Cart with supplies	1	1	1
Internet email Access	1	1	1
IV Poles	50	50	0
Linens (sheets/pillows/pillow cases/hand towels/bath towels)	100	100	100
Patient Commodes	4	4	1

[49] Adapted from *The Concept of Operations for the Acute Care Center*, the U.S. Army Soldier and Biological Chemical Command (SBCCOM), May 2003.

Pharmacy Carts	2	2	1
Privacy Dividers	25	25	25
Refrigerators (food/meds)	3	3	1
Stretchers	2	2	0
Supply Carts	3	3	1
Telephones	5	5	5
Treatment Carts	2	2	0
Washing Machine	1	1	1
Wheelchairs	2	2	1

Patient-Related Consumables for 50 Bed Nursing Subunit

Item Description	Calculations of Quantities	Total Item Count	Unit of Issue	Total UoIs Required
Alcohol pads (multiple widespread use)	2-4 Boxes per 24 hours	14-28	Box	1 Box
Catheters, intraosseous module blue (pediatric use)	May use 1/day max.	6-7/wk of 1 standard size	Each	7 Each
Intermittent IV access device (lock)	50 pts initially (first day) then 10%	250/wk	50/Box	5 Boxes
IV catheters, 18g with protectocath guard	40% of pts req IVs	150/wk	50/Box	3 Boxes
IV catheters, 20g with protectocath guard	40% of pts req IVs	150/wk	50/Box	3 Boxes
IV catheters, 22g with protectocath guard	10% of pts req IVs	25/wk	50/Box	0.5 Boxes
IV catheters, 24g with protectocath guard	10% of pts req	25/wk	50/Box	0.5 Boxes
IV fluid bags, NS, 1000cc (required by 60% of patients)	(50% of pts(25)/day x 3L/pt)x	315 L/wk	12/Case	18 Cases
IV fluid bags, D5 1/2NS, 1000cc (required by 40% of patients)	(50% of pts(25)/day x 3L/9t)x	210 L/wk	12/Case	18 Cases
IV start kits	Same # as intermittent access device	60	25/Box	2.5 Boxes
IV tubing w/ Buretrol drip set for peds	10% peds/wk	25/wk	20/Case	1.25 Cases
IV tubing w/ standard	Same # as intermittent	250/wk	48/Case	5 Cases

macrodrip for adults				
Needles, Butterfly, 23g	10% peds/wk	25/wk	50/Box	0.5 Boxes
Needles, Butterfly, 25g	10% ped/wk	25/wk	50/Box	0.5 Boxes
Needles, sterile 18g	1 box/day	7 boxes/wk	100/Box	7 Boxes
Needles, sterile 21g	1 box/day	7 boxes/wk	100/Box	7 Boxes
Needles, sterile 25g	1 box/day	7 boxes/wk	100/Box	7 Boxes
Saline for injection 10cc bottle	50 bottles/day	350 bottles/wk	24/Box	14.5 Boxes
ABD bandage pads, sterile	10% pf [ts/day = 5 pads/day+35 pads/wk	7 boxes/wk	50/Box	7 Boxes
BandAids	1 box/day	7 boxes/wk	50/Box	7 Boxes
Basins, bath	20 pts/day	140/wk	100/Case	1.5 Cases
Bathing supply, prepackaged (e.g., Bath in a Bag™)	50 pts every day	350/wk		350
Bedpans—regular	40 pts/day initially then 10%	65/wk	50/Case	1.25 Cases
Toilet Paper	25 rolls/day	175 rolls/wk		175 Rolls
Blankets	50 pts/day; changed daily	50/day or 350/wk		350/Week
Carafes—1 liter (for variety of uses)	30/day	210/wk		210/Week
Cart, supply	3/unit (1 for IVs;1 for Pt.)	3/unit		
Chux protective pads (many uses)	3/pt q3hrs = 24 chux/pt/day x 50 pts + 1200/day	8400/wk	50/Box	168 Boxes
Cots (have extras available to replace broken equipment)	50/unit plus 2 extra	52/unit		52/Unit
Curtains, privacy (wheeled)	25 (every other bed)	25/unit		25/Unit
Diapers—adult	10/day	70/wk	72/Case	1 Case
Diapers—infant	8/day/infant x 5 infants/day	280/wk	144/Case	3 Cases
Diapers—pediatric	5/day/ped x 5 peds/day = 25/day	175/wk	144/Case	1.25 Cases
Emesis basins	100/wk	100/wk	250/Case	0.5 Case
Facial tissue, individual patient box	1 box/pt/day	350 boxes/wk	200 Boxes	1.75 Cases

Feeding tubes, pediatric—5 French	10/wk	10/wk	10/Box	1 Box
Feeding tubes, pediatric—8 French	10/wk	10/wk	10/Box	1 Box
Foley Catheters—16F Kits (includes drainage bag)	>50% of pts wk	100/wk	10/Case	10 Cases
Gloves non-sterile, small/medium/large (latex and non latex)	6 boxes/day	42 boxes/wk	100/Box	42 Boxes
Goggles/face shields, splash resistant, disposable	6 boxes/day	42 boxes/wk	100/Box	42 Boxes
Gown, splash resistant, disposable	3/staff/shift = 36/day	252/wk	Box	42 Boxes
Mask, N95, for staff (particulate respirator)	36/day	252/wk	210/Case	1.2 Cases
Gown, patient	75/day	525/wk		
Mask, 3M 1800 for patient	150/day	1050/wk		
Gauze pads, non-sterile, 4x4 size,	400/day	2800/wk		
Hand cleaner, waterless alcohol-based	1 per handwash station/day x	28/wk	25 Bottles/Case	1 Case
Paper Towels	25 rolls/day	175 rolls/wk		175 Rolls
Lubricant, Water soluble		1-2 boxes wk	25 Boxes	0.5 Boxes
Medicine cups, 30ml, plastic	2/pt/day = 100/day	700/wk		700/Week
Morgue Kits	Tularemia: 15pt/day mortality	300/wk		300/Week
Nasogastric tubes—18F		25/wk	50/Case	0.5 Cases
OB Kits		1/wk		1/Week
Pen lights		12/unit	6/Box	2 Boxes
Povidone-iodine bottles, 12 oz	2/day	14/wk	48 Bottles	0.25 Cases
Restraints, Extremity, soft—adult		25/wk	48/Case	0.5 Cases
Sanitary pads (OB pads)	2 women/wk; 10 pads/day	20 pads/wk	12 Pads	2 Boxes
Sharps disposal containers—2	2-4/wk/unit	2-4/wk	20/Case	0.25 Cases

gallon				
Sheets, disposable, paper, for stretchers & cots	100/day	700/wk		700/Week
Syringes, 10cc, luer lock	4 boxes/wk (100 ct box)	400 wk	100/Box	4 Boxes
Syringes, 3cc, luer lock, w/ 21g 1.5" needle	200/day	1400/wk	100/Box	14 Boxes
Syringes, catheter tip 60cc		25/wk	50/Box	0.5 Boxes
Syringes, Insulin	4/day	28/wk	100/Box	0.25 Boxes
Syringes, TB	2/day	14/day	100/Box	0.4 Boxes
Tape, silk—1 inch	12/day	96/wk	12 Rolls/Box	8 Boxes
Tape, silk—2 inch	6/day	42/wk	12 Bolls/Box	3.5 Boxes
Toilet tissue	25 rolls/day	175 rolls/wk		175 Rolls
Tongue depressor		2 boxes/wk	500/Box	2 Boxes
Tubex™ pre-filled syringe holders	1 per staff member plus	12/sub-unit	50/Case	0.25 Cases
Urinals		50/wk	50/Case	1 Case
Washcloths, disposable		10/pt/day	3500/Wk	3500/Week
Water, bottled 1 liter (for mixing ORT)	1/patient	200/wk		200/Week
Water container, 1 gallon potable		125/wk		125/Week
Drinking cups				
Diagnostic Supplies				
Glucometer		1 per unit	Each	
Glucometer test strips		2 bottles/wk	50 Strips/Viles	2 Viles
Probe covers for thermometers	4 boxes/day	28 boxes/wk	20/Box	28 Boxes
Protocol unit (or other brand), 02 sat monitor, thermometer, BP, HR		4 per unit	Each	
Protocol unit, disposable plastic	200/day	1400/wk		

BP covers				
Single Use Shielded Lancets	25/day	175/wk		1 Box
Stethoscopes		12/unit	Each	12

Administrative Consumables for 50 Bed Nursing Subunit

Item Description
Pens—Black ballpoint
Pens—Red ballpoint
Stapler
Staples
Tape
Tape dispenser
Paper clips
Paper punch (3- or 5-hole based on chart holders)
Chartholders/Clip boards
File Folders—letter size, variety of colors
Namebands for Identification and Allergies
Batteries—9V
Batteries—AA
Batteries—C
Batteries—D
Clipboards
Chalk or white boards
Dry-erase markers
Chalk
Trashcans and liners
Flashlights
Plastic bags for patient valuables
Floor lamps
Table lamps
Lightbulbs
Plain paper
Filing cabinets—rolling
Black permanent markers
Yellow highlighter markers
Time cards
Generic sign-in, sign-out forms
Pre-printed admission Order forms
Blank physician order forms
Multidisciplinary progress notes
Nursing flowsheets
Admission history & physical forms (include area for Nrsg Hx)
Death certificates/Death packets

Oxygen and Respiratory-Related Equipment Considerations for 50 Bed Nursing Subunit

Item Description	Quantity
Bag-Valve-Mask w/adult and peds masks—adult 1600 ml reservoir	1
Cascade gauge for oxygen cylinders	14

Catheters, suction	20
Connector, 5 in 1	8
Cylinder holders for E Cylinder oxygen tanks	4
Mask, oxygen—nonrebreather, pediatric	10
Mask, oxygen—nonrebreather, adult	20
Nasal cannula, adult	40
Nasal cannula, pediatric	10
Regulator, Oxygen (Flow meter)	14
Suction unit—Collection System	2
Suction unit—Portable	1
Suction unit Battery	1
Tank, Oxygen "E" cylinder (700 L O_2)	4
Tank, Oxygen "H" cylinder (7000 L O_2)	10
Tubing, oxygen—with connector	40
Tubing—suction, connector	10
Tubing, suction, 10F	10
Wrench, Oxygen tank	2
Yankaur Suction Catheter	10
Intubation equipment with oral airways/ET tubes; adult & peds	1 set
Ventilators	1

MEDICAL EQUIPMENT AND SUPPLIES

Medical Supply Considerations

Modular Caching

As the above medical supply cache was developed for a standard 50 bed nursing subunit it is logistically useful for the physical cache to be stored according to following modular specifications:

- Five 50 bed nursing subunit caches should be stored in a single container to simplify transport to the ACC, which itself is divided into pods each containing five 50 bed nursing subunits.
- Each 50 bed nursing subunit cache should itself be stored in a separate container to facilitate breakdown and distribution to the nursing subunits once the full cache arrives

Non-Cache Considerations

The *Rocky Mountain Regional Care Model for Bioterrorist Events* study investigated the possibility of using an 18-wheel semi-trailer truck stocked with medical equipment and modified to serve as a stand

alone highly mobile medical facility. This would have the potential of providing a higher level of care at an ACC, but was considered cost prohibitive at an estimated cost of $2.4 million per truck.[50]
Other rapidly deployable self contained medical units include:

- The Air Force Small Portable Aeromedical Rapid Response (SPEARR)
- Expeditionary Medical Support (EMEDS) [51]

A Note of Caution

Mobile medical facilities 'can be a significant asset in an austere environment with essentially no infrastructure' but the facility must be truly self-sufficient with full wrap-around capabilities 'to avoid becoming part of the burden on the requesting community.' In the aftermath of Hurricane Katrina (2005) mobile medical units suffered from logistical challenges and 'proved to be less useful than originally planned.'[52]

PHARMACEUTICALS

Supply List

While pharmaceuticals are an essential component to the ACC mission, preparing a supply list of pharmaceuticals to be used in an ACC is challenging. Many pharmaceuticals have treatment specific indications, making it difficult to prepare a single list which is both comprehensive and flexible enough to address the wide range of agents/pathogens likely to be seen in a bioterrorist attack or pandemic.

Furthermore, patients arriving at an ACC are not all alike. Comorbidities may be apparent. Some drugs are more effective in certain situations than others. Faced with limited resources, the selection of which drugs will be available in an ACC should be determined by local emergency planning management. Ultimately, compromises will have to be made.

Ideally the ACC should be supplied with medicines relating to:

- Acute hemodynamic support
- Acute respiratory therapy
- Pain control and anxiolysis
- Antibiotic coverage
- Behavioral health
- Chronic disease management [53]

The following list of stock medications for each 50 bed nursing subunit has been developed by identifying the most likely presenting symptoms resulting from the most likely agents/pathogens. Therefore, this list is not agent/pathogen specific. Additional consideration was given to each drug's flexibility in action, its treatment applications, and its use across all age populations. The precise quantities shown rely on an estimate of the percentage of patients in a 50 bed nursing subunit who might require that medication. In most cases, quantities are based on the maximum allowable daily adult dosage.

[50] Cantrill, p. 29.
[51] Ibid.
[52] Ibid.
[53] Phillips and Knebel (eds.), pp. 87-88.

Pediatric dosing is also provided where appropriate. All dosing is on an as-needed basis (PRN) except for antibiotics. The chart below assumes that each 50 bed nursing subunit will contain 80 percent adults and 20 percent pediatrics at full capacity.

Supply of Pharmaceuticals Required for Each 50 Bed Nursing Subunit [54]

Drugs	% of pts requiring drug	1 day	1 week
Antibiotic CDC push pack	**100%**	**50 daily doses medication for all 50 patients**	**350 daily doses**
Promethazine (Phenergan) Dosing: 12.5–25 mg q4–6hr (IV/IM/PR) Maximum dose: 200 mg/day Pediatrics: 0.25–0.5 mg/kg/dose q6h 25 mg/vial; 50 mg/suppository	**100%** **60%**	**320 vials** (8 vials/pt/day x 40 pts) **40 suppositories** (4 suppositories/day x 10 pts)	**2,240 vials** **210 suppositories**
Digoxin (Lanoxin) Maintenance dose: 0.25 mg/day Loading dose: 1 mg/day divided QID (assume 1 pt requires loading dose & 4 pts require maintenance dose per day) 0.25 mg/tablet	**10%**	**8 tablets** (1 loading dose of 4 tablets + 4 maintenance doses)	**56 tablets**
Furosemide (Lasix) (Assume 4 pts/day require maintenance dose of 40 mg PO BID & 1 pt/day requires acute therapy of 100 mg IV BID) 40 mg tablets 100 mg/vial	**20%**	**8 tablets** **2 vials**	**56 tablets** **14 vials**
Diphenhydramine (Benadryl) Dosing: 25–50 mg IV/IM/PO q6h Pediatrics: 1 mg/kg IV/IM/PO q6h 50 mg/vial 12.5 mg/5 cc	**75%**	**80 vials** (4 vials/pt/day x 20 pts) **400 cc or 14 fluid ounces** (80 cc/pt/day x 5 pts)	**560 vials** **100 fluid ounces**
Lorazepam (Ativan) Dosing: 2 mg IV/IM q6hr	**70%** **75% for all**	**48 vials** (4 vials/pt/day x 12 pts)	**336 vials**

[54] Skidmore, Appendix F.

Pediatrics: 0.05 mg/kg/dose q6h 2 mg/vial			
Nitroglycerin SL 0.4 mg Dosing: 1 tab SL q5 min	**10%**	**1 bottle**	**1 bottle**
Insulin NPH & Reg Dosing: individualized (Assume 30 units/pt/day of NPH, 70/30 & Regular) 10 cc vials (100 units/cc)	**6%**	**1 vial of NPH & Regular**	**1 vial of NPH & Regular**
Albuterol MDI Dosing: 6 puffs QID with spacer Nebulizer: 1 u dose QID Multidose dispenser Unit dose for nebulizer	**40%**	**12 MDI**	**12 MDI**
Aspirin 325 mg Dosing: 325 mg/day for platelet inhibition (cardiac & TIA)	**10%**	**1 bottle**	**1 bottle**
Morphine Sulfate Dosing (titrate to effect): 5 mg IV/IM/SC q4h (0.1 mg/kg in 2-4 mg increments) Pediatrics: 0.1 mg/kg/dose 10 mg/vial	**50%**	**100 vials** (4 mg or 10 mg) (4 vials/pt/day x 25 pts)	**700 vials**
IV Fluids Dosing: 4 liters/pt/day Normal saline or D5W .45% NS 1 liter bags Dump out half the IV bag for peds or use volutrols	**50%** (assumes the other 50% would use oral rehydration therapy)	**100 liter bags** **60 liters of NS** **40 liters of D5W.45%**	**700 liter bags** (Assume 60% of pts are given NS and 40% of pts are given D5W .45% NS; therefore, need 420 bags NS and 280 bags D5W .45% NS)
Acetaminophen Dosing: 1 g q4h Pediatric: 15 mg/kg q4h (elixir volume based on a 32 kg child) 500 mg/tablet 160 mg/5 cc	**100%**	**480 tablets** (12 tablets/pt/day x 40 pts) **60 ounces of elixir** (3 oz/day x 20 pts)	**3,360 tablets** **420 ounces of elixir**

Spacers for Albuterol MDI 1 per pt	**40%**	**12 spacers**	**84 spacers**
Oral rehydration packets Oral rehydration therapy (ORT) is a primary mode of treatment for dehydration in mass casualty situations. One packet makes 1 liter	**50%**	**100 packets** (4 liters/pt/day x 25 pts)	**700 packets**

PHARMACEUTICALS

Obtaining a Pharmaceutical Supply

Obtaining a pharmaceutical supply is problematic from a number of standpoints. Pharmaceuticals (such as those seen in the above list) may be provided under the Strategic National Stockpile in which case their delivery to the ACC should be coordinated under the development of a comprehensive response plan such as MEMS. However, the District of Columbia should avoid any undue reliance on outside sources as Department of Defense guidelines indicate that 'communities should expect to be self-sufficient for up to 72 hours' following a bioterrorist attack or pandemic outbreak.[55]

Preparing an ACC pharmaceutical cache would appear to be an obvious solution but the caching of a dedicated supply of pharmaceuticals involves numerous logistical considerations such as refrigeration (pharmaceuticals have various temperature storage requirements), stock rotation (some pharmaceuticals expire more quickly than others), and legal controls. In the end, this may not be a feasible solution.

The District may wish to consider negotiating a supply agreement with pharmaceutical suppliers and local pharmacies in advance.

Best Practices:
Obtaining a Local Pharmaceutical Supply
"An initial starting point for emergency planners is to perform a survey of area hospital pharmacies, community pharmacies, and area/regional pharmacy warehouses. Planners should identify all possible sources for obtaining necessary drugs, as well as the volume available from each source." "For each source, a phone number that provides 24-hour access to the appropriate authorized individual(s) must be obtained. A mechanism for the emergency acquisition of large quantities of supplies as well as one for the distribution of these medications to hospitals, NEHCs, and ACCs will be required. Law enforcement agencies may be a possible resource for picking up and delivering the pharmaceutical supplies, especially as they provide a secure mechanism for doing so."
- Skidmore, pp. 23-24.

[55] Skidmore, p. 23.

- It may become necessary to provide security for pharmaceutical suppliers if public panic ensues or is deemed imminent.

- Before use, pharmaceuticals should be inspected to ensure that the drugs have not surpassed their active shelf-life or have not been adversely affected by storage conditions (refrigerated storage accommodations may be required for certain medications).

ACC SITE SELECTION
General

It is strongly recommended that potential ACC sites be visited in person to examine physical characteristics and overall suitability. It is also recommended that emergency planning officials negotiate usage agreements with potential ACC facilities so they can be designated in advance of a mass casualty event.

ACC SITE SELECTION
Location / Hospital Proximity

The proximity of an ACC site to a hospital will have a major impact on costs and overall efficiency. Onsite resource requirements of an ACC increase in direct proportion to its distance from a supporting hospital. The ACC will function more efficiently and require fewer specialized resources if the facility is located near the supporting hospitals in the affected area. Therefore, the ACC should be set up as close to its supporting hospital as possible, allowing for more efficient patient transferring and laboratory and diagnostic resource sharing.[56]

ACC SITE SELECTION
Overall Size

Best practices require a minimum of 40,000 to 48,000 square feet for a standard 250 bed ACC.[57] These minimum ACC space requirements are based on the needs of the following functional areas:

- Communications
- Admissions/Registration
- Nursing subunits
- Multipurpose family/visitor area
- Multipurpose staff area
- Pharmacy medication preparation
- Supply storage and distribution
- Staff workstations
- Support services (storage, bathrooms, utility)
- Food services
- Maintenance
- Transportation dispatch and equipment
- Secure area (for patient valuables, deceased persons' belongings)
- Temporary morgue

[56] Skidmore, p. 15.
[57] Ibid.

ACC SITE SELECTION

Configurations

The 1000 bed ACC required in the District need not be located in a single building. It may be advantageous to spread the 1000 bed capacity among two (each with two 250 bed pods) or four (each with one 250 bed pod) geographically diverse ACC sites within the District.[58] There are several configurations worth considering.

Centralized Configuration
The centralized ACC configuration calls for a single large scale ACC of 1000 beds. The space minimum for a single centralized 1000 bed ACC would require 160,000 to 192,000 square feet, assuming proportional scalability. Ideally the single ACC configuration would be centrally located to ensure accessibility.

Advantages

- The high volume centralized ACC configuration is well suited to a bioterrorist attack which deploys a highly lethal but relatively static or non-communicable pathogen (such as anthrax) and which causes numerous casualties within a concentrated central area (i.e. the Metro, the Mall, the Capitol, etc.)
- Patient transport to the ACC from a single bioterrorist event source will be easier to coordinate logistically
- Supplying and readying the facility will be less logistically complex
- Opportunities for greater efficiency and lower costs under the principle of scaled economies

Disadvantages

- The very large size (>160,000 square feet) required by the centralized configuration will restrict the pool of buildings in the District that are available for consideration for ACC conversion as only a few buildings will satisfy the minimum space requirements; having fewer options may adversely affect the ACC designation and selection process
- In the case of geographically widespread casualties resulting from a communicable agent/pathogen, the centralized facility may be difficult to access from all areas of the city
- May not be ideal if the nature of the pathogen necessitates quarantine, isolation, or non-isolation patient cohorts. Treating all patients in the same facility may not allow for a sufficient division of illness groups.

Decentralized Configuration
Another possibility is to divide the single 1000 bed ACC into four 250 bed ACCs or two 500 bed ACCs.

Advantages

- In the event of a city wide pandemic of a communicable pathogen, whether caused by bioterrorism or otherwise, a decentralized ACC configuration with several locations may present a more readily accessible option to geographically diverse populations.
- The smaller size requirement may provide emergency planners with more potential ACC sites to choose from which will assist in the ACC designation and selection process

[58] The minimum recommended size for an ACC is 250 beds.

- Having more than one ACC location may be better suited to patient illness cohorts (quarantine, isolation, non-isolation)

Disadvantages

- Coordinating patient transport to several ACC facilities from a single bioterrorist event source will be logistically challenging
- Supplying and readying each site will be more logistically complex

Neighborhood / Community Based ("It Takes a Village") Configuration [59]

During the DC Pandemic Influenza Medical Surge Capacity Tabletop Exercise (6/28/07), a number of participants strongly suggested that surge augmentation facilities would benefit from a community level design which relies on outside medical supply sources but which is driven by local actors working for and on behalf of their own neighborhood. This system may be based on the 39 pre-existing DC neighborhood clusters currently used for budgeting, planning, service delivery, and analysis purposes. Under this configuration, the ACC would become just one part of a comprehensive community based public health emergency response which might also include food distribution, child day care, etc.

Advantages

- Transporting patients to and from Hospitals, NEHCs, and ACCs would become largely unnecessary as all patients would be treated within their immediate neighborhood
- While only a third of available medical personnel are expected to show up for a serious public health emergency, the community based configuration is expected to achieve a much higher rater of staff participation because of its local nature. It is assumed that there is a greater incentive for local staff (such as retired nurses, physicians, police officers, etc.) to participate when:
    - staff know they will be 'taking care of their own'
    - leaving for work does not mean leaving a sick family member far away
- Local know-how and 'connections' will be helpful in obtaining supplies, facilities, etc.

Disadvantages

- Communities may have disparate resource capacities. Level of care may not be the same across the District.
    - The Grass is Always Greener Syndrome: The system will break down if patients ignore community boundaries and seek care in neighboring communities where resources are perceived to be more abundant or of a higher quality.
    - In desperate situations, one community may raid supplies from a better resourced neighboring community.
    - Perceptions about race and equal access to services may create difficulties both during and after the emergency.
- The configuration assumes the local community is willing and able to put together a logistically complex plan responsible for the health and safety of everyone in their neighborhood.
- Transient groups (homeless) may not know where to go for help.
- This configuration has not been vetted in the literature and the plan of operations is still vague.

ACC SITE SELECTION

[59] This configuration is a major departure from most ACC concept of operations literature.

Accessibility

Access Points

- The admissions/registration area should be located on the ground floor with a wheelchair accessible entrance.
- The reception entrance must be clearly signed (in both English and Spanish) and should be visible from all approaches.

Parking

- The main car parking lot should be well lit and situated as close to the main entrance as possible.
- The main car parking lot should be used for patients, their relatives, and ACC staff.
- The curb by the front entrance of the building should be well marked with appropriate signage and should be designated as a loading zone for ambulances and buses that drop off and pick up patients.
- The parking lot must also contain designated parking areas for the following categories
    - Police vehicles
    - Logistical re-supply vehicles
    - Ambulances that are not in use
    - Taxis and private vehicles to pick up patients (including those with limited mobility)
    - Family and other visitors
- A separate security patrolled parking lot should be reserved for ACC staff

ACC Site Selection

Layout

Design Overview

- Ideally, the nursing subunits should be centrally located and easily accessible from the admissions area.
- Logistical support and communications offices should be arranged around the periphery of the nursing subunits or on the upper floors of the building. They should have access to the nursing subunits but should not impair the clinical functions of the ACC.
- Rooms must have adequate space for personnel and equipment to enter, exit, and maneuver.

Traffic Patterns (Patients and Supplies)

- It is important to have rapid access to every area with a minimum of cross-traffic
- Close proximity between the admissions area and the nursing subunits will assist in managing high volume intake periods.
- Visitor and patient routes to public areas should avoid passing through clinical areas in order to assure patient privacy.
- All workstation and functional offices should be located where they do not impede patient flow or patient care.

Bed Spacing

- There should be at least 2 feet of floor space between all beds
- There must be enough room to allow for routine care and patient/staff access
- The space between the head of each bed could conveniently be used to store disposable/non-disposable medical supplies. Modular plastic bins or similar storage solutions would be ideal.

Best Practices:
Lessons from Hurricane Katrina 2005
Beds within the nursing subunits should be organized in a grid system which 'allows clinicians to make rounds and know exactly where to find a patient (e.g. bed A4)'
- Phillips and Knebel (eds.), p. 92.

Medical Gas / Oxygen Provisions

- It is expensive and logistically complex to supply medical gases in any facility.
- If it is decided to provide medical gases (oxygen) at an ACC, which will most likely not have pre-existing internal medical gas lines, emergency planners should consider developing a multiple branch-line system which pipes oxygen directly to each nursing subunit. Portable cylinders may prove useful in establishing a temporary liquid oxygen manifold system. It is recommended that emergency planners involve a biomedical engineer in the setup of any such oxygen delivery system.

ACC SITE SELECTION

Infrastructure

Doorways and Corridors

- Doors should be wide enough to easily accommodate wheelchairs and wheeled stretchers as well as any intravenous poles that may be attached.
- Corridors should be wide enough to allow two-way traffic of stretchers.

Electricity Supply

- Must be surge protected to protect computers and electronic equipment
- Medical equipment and computers must have access to emergency power
- If not present on site, emergency generators and uninterruptible power supply (UPS) units should be included in the ACC supply list
- Ideally, would have specialized electrical outlets required to provide critical care-level medicine

Heating and Air Conditioning

- Must have climate control

Lighting

- Clinical areas must have adequate artificial lighting in order to perform procedures, assessments, and other forms of direct patient care.
- Natural sunlight can minimize patient and staff disorientation.

Floor Coverings

- Must be durable, non-slip (no carpeting) , and impermeable to water and bodily fluids

Hand Wash Facilities

- If water is available, hand washing basins should be readily accessible to patient care areas at the ratio of one basin for every 10-25 beds

- If water is not available, alcohol-based hand cleansers should be distributed
- A combination of these methods would also be effective

Refrigeration

- The facility must have onsite refrigeration capabilities or it should have an electrical supply sufficient to power temporary refrigeration units

Storage Capacities

- Must have space sufficient to unload and distribute the incoming supply cache
- Ideally, the facility should have a secure loading zone area which can accept large scale shipments of medical supplies, equipment, and food
- Must have space sufficient to temporarily store bio-hazardous waste

ACC SITE SELECTION

Site Security

Many facilities can be secured with adequate law enforcement personnel. However, security personnel may be in short supply during a pandemic or bioterrorist attack scenario for numerous reasons. Choosing a building which is easily securable may reduce the number of security personnel required and/or enhance security performance.

The following site characteristics would be helpful:

- Secured entrances and exits
- Adequate outdoor flood lighting
- In addition to the standard outer security perimeter, a building which can easily accommodate an inner security perimeter would be useful in separating the nursing subunits and administrative sections from the admissions/registration area
- The ability to lockdown the facility

ACC SITE SELECTION

Potential Site Categories

Rocky Mountain Regional Care Model developed an ACC site selection matrix tool to assess the suitability for ACC conversion of a variety of facilities.[60] Ideally, an ACC should approximate the same level of service and functionality as a hospital. With this in mind, the tool allows the user to make a direct quantitative assessment of the most important criteria necessary for a properly functioning ACC. See appendix C for details.

Emergency public health planners may wish to consider the following facilities for ACC conversion:

Schools

High schools and middle schools generally offer a better layout with more on site facilities than elementary schools.

[60] See Appendix C.

Potential Advantages

- Schools have parking lots, long wide corridors, large separated classrooms, private administrative offices, and other immediately available resources such as tables and chairs and offer an ideal physical structure that can meet most clinical needs.
- Schools also have cafeterias, bathrooms, lounge facilities, backup generators, shower facilities, public address systems, laundry facilities, loading ramps, and communication links.
- Considering that most high schools are public facilities, they may be easier to commandeer in an emergency. It will likely be easier to negotiate standing usage agreements as well.

Potential Disadvantages

- When needed, they may have a school population present, which can complicate logistics (evacuation of school will mean an influx of parents; may need to wait until each child has left the building before any inpatient services can begin)
- There may be a lasting stigma attached to any future use of a building which has been used as an ACC where communicable pathogens/agents were potentially present. This effect will likely be amplified because children are involved. Parents may be hesitant to send their children to a school which has been an ACC. Additional decontamination measures may be necessary to satisfy the community of the building's safety.

Enclosed Large Scale Spaces (Convention Centers, Sports Arenas, etc.)

Potential Advantages

- Easily identifiable and well known to the public
- Large gathering space sufficient to accommodate high volume traffic
- Pre-existing public transportation links and large parking areas
- Offer the possibility of centralizing the ACC into one large facility (may or may not be appropriate)
- Have food preparation areas, large capacity restrooms, backup generators, climate control, public address systems, and advanced communication links, such as satellite and broadcasting capabilities.
- Sports arenas have laundry and shower facilities in their team locker rooms

Potential Disadvantages

- Securing the site and all of its areas may be challenging because of the large size
- Large potentially uncontrollable central space may be susceptible to stampeding in the case of a riot or general panic

Hotel Conference Rooms

Potential Advantages

- Has access to beds, tables, and chairs
- Large open space
- Climate control, backup generators, various amenities, large storage space, access to laundry facilities, kitchens, and large capacity restrooms.

Potential Disadvantages

- Private hotels may not be willing to serve as an ACC and may be difficult to commandeer in an emergency.

- Patients and stretcher traffic may find it difficult to access the conference room from the hotel entrance.

Churches / Religious Spaces

Potential Advantages
- Easily identifiable and well known to the public
- May have large event halls

Potential Disadvantages
- Layout may not be ideal. Pews may obstruct the flow of patients / staff and limit the utility of the main worship area
- Churches already provide an important function in a time of crisis and they may be needed by the community to offer support for those affected

University Gymnasiums

Potential Advantages
- May already be situated near a university hospital
- Large open space
- Likely to have shower facilities
- Has access to extra man power (university athletic teams)

Potential Disadvantages
- May not be willing to serve as an ACC site unless it is a public institution

Veterinary Hospitals

Potential Advantages
- Will likely have preexisting medical facilities (sterile environments, medical gas pipelines, medical equipment, electrical capacities, etc.) which can easily be converted for human purposes.[61]

Potential Disadvantages
- Readying the facility will likely require evacuating all animals on site
    - Finding a temporary shelter for all animals on site may be a challenge

ACC GUIDELINES SPECIFIC TO THE DISTRICT OF COLUMBIA

General Demographics

HRSA has set a critical benchmark for all States to establish a system that allows for the triage, treatment, and disposition of 500 adult and pediatric patients per 1 million population who suffer from acute illness or trauma requiring hospitalization from a biological, chemical, radiological, or explosive terrorist incident. HRSA also requires that States establish a response system that allows for the immediate

[61] Phillips and Knebel (eds.), p. 93.

deployment of 250 or more additional patient care personnel per million population in urban areas, and 125 or more additional personnel per million in rural areas" [62]

Demographics of the District of Columbia

Table 1 below was developed by the DC Office of Planning using Census and employment data for the District. It is specific to the boundaries of the District's eight Wards and includes all types of employees in the District during the day (federal, DC government, private sector, etc.) as well as an average annual rate of visitation by tourists. It is notable that Ward 2 would absorb a disproportionate number of employees and visitors who reside outside of the District.

Table 1 Estimated Daytime Population (Including Workforce) for Washington, DC

Residential population (Census 2000)	572,000
Total employment (COG 2000 forecast)	678,000
DC residents in labor force (Census 2000 Supplementary Survey)*	-294,000
Tourists (Annual 2000 figure divided by 365 from DC Convention & Visitors Association)	53,000
Daytime Population	**1,009,000**

Prepared by DC Office of Planning/State Data Center

* DC residents working outside DC are obviously excluded; those working in DC are excluded because they are already counted in the residential population.

Disabled Populations

Accessibility for all populations is a key component of site and staff selection for an ACC. First, the site must provide access to populations with disabilities that limit mobility (i.e., wheelchair bound populations). Second, staff must be able to assist populations with disabilities that inhibit their ability to perform essential tasks such as read and complete standardized forms and/or navigate the patient flow paths of the ACC (i.e., blind or deaf populations). Table 2 provides an estimated breakdown by Ward of the disabled populations of DC. The ward specific populations presented in Table 2 are an estimated percentage of the disabled population and are compiled using datasets from the 2000 US Census Bureau decennial survey and the American Community Survey (ACS) provided by the DC Department of Planning. These percentages have been estimated due to the fact that some parameters of these sources exhibit slight variations with regards to population groupings. For example, the disabled population dataset groups populations by ages 5-15, 16-64 and 65 and over; whereas the 2000 Census Survey uses the following groupings 5-17, 18-24, 25-34…65+ for population totals. In addition this information is provided by census tract. Braintree has been asked to provide ward specific information, thus we have attempted to translate census tract boundaries into the corresponding District of Columbia Wards. However, as some census tracts overlap ward boundaries it is challenging to develop an accurate assessment of the disabled populations by ward. Therefore the estimates in Table 2 represent BSC's best efforts to synch the information provided in these datasets. The methodology used is illustrated below. We recommend that the appropriate department prepare a more accurate survey prior to developing any specific plans.

Age groupings:

[62] *Optimizing Surge Capacity: Hospital Assessment and Planning*. AHRQ Publication No. 04-P008 (Rockville, MD, 2004).

To overcome the incongruities highlighted above, BSC converted the 2000 Census Survey age groupings to match the disabled population dataset age groups. The following list illustrates the calculations used to correct these incongruities:

- Calculations for Ages 5-15" – The grouping "Ages 5-17" represents 13 distinct ages and the grouping "Ages 5-15" represents 11 distinct ages. Each age is 7.7% of the total group (100/13). The population total for "Ages 5-17" was multiplied by 84.7% (7.7*11) to calculate the population for "Ages 5-15"
- Calculations for "Ages 16-64" – The population total "Ages 5-17" was multiplied by 15.4% (7.7*2, the remainder of distinct ages from the previous calculation) and the results were added to the age groupings that included ages 18-64.

Geographical Boundaries:
To overcome the challenges posed by census tracts that overlap ward boundaries BSC divided the population of the offending census tract by the number of overlapping wards and added the results of this division to the appropriate ward. All census tracts that overlap ward boundaries overlap a maximum of two ward boundaries. Thus all calculations for this conversion were total population/2.

Defining Disabilities [US Census Bureau]
The US Census Bureau defines disability as, "a long-lasting physical, mental, or emotional condition… [that] can make it difficult for a person to do activities such as walking, climbing stairs, dressing, bathing, learning, or remembering. This condition can also impede a person from being able to go outside the home alone or to work at a job or business." The Census Bureau has identified six categories of disability. The relevant dataset for DC highlights four of these categories; sensory limitations, physical limitations, mental limitations and employment limitations. The following list provides definitions for each category included in the DC population tables.

- Sensory limitations – "blindness, deafness, severe vision, or hearing impairment."
- Physical limitations – "a condition that substantially limits physical activities such as walking, climbing stairs, reaching, lifting, or carrying."
- Mental limitations – "a physical, mental, or emotional condition lasting 6 month or more that made it difficult to 'learn, remember, or concentrate.'"
- Employment limitation – "a physical, mental, or emotional condition lasting 6 months or more that made it difficult to 'work at a job or business.'"

Table 2 Disabled Population

Population Totals by Types of Disabilities and Age Group

	Sensory Disability			Physical Disability			Mental Disability			Employment Disability
Ward	Ages 5-15	Ages 16-64	Ages 65 and Over	Ages 5-15	Ages 16-64	Ages 65 and Over	Ages 5-15	Ages 16-64	Ages 65 and Over	Ages 16-64
1	104	1132	781	82	2814	1881	398	2275	787	7506
2	1258.5	718	835	31	1640	1585	171	1401	685	4749
3	15	488	904	11	1395	1646	169	785	620	3217
4	55	1008	1147	143	2542	3203	542	1783	1053	7948
5	110	1907	1192	71	3698	3605	531	2142	1502	7608
6	55	1261	837	97	3028	2267	381	1938	1116	5485
7	79	1188	954	198	3890	2929	670	2255	1047	8385
8	206	1350	622	247	3950	1498	919	2282	540	7922

Ward Totals

Ward	Sensory Disabilities	Physical Disabilities	Mental Disabilities	Employment Disabilities	Total Disabilities
1	2017	4777	3460	7506	17760
2	2812	3256	2257	4749	13074
3	1407	3052	1574	3217	9250
4	2210	5888	3378	7948	19424
5	3209	7374	4175	7608	22366
6	2153	5392	3435	5485	16465
7	2221	7017	3972	8385	21595
8	2178	5695	3741	7922	19536

DC Department of Planning
2000 US Census Bureau Decennial Survey
2000 American Community Survey - US Census Bureau

Appendix A

Sample Emergency Legislative Orders (Colorado)

Draft Gubernatorial Orders

Notes on Use: Directly authorizes hospitals to cease admissions and transfer patients. **Provides that hospital emergency departments may determine on their own, without central direction from CDPHE, whether they have reached capacity to examine and treat patients.** Authorizes hospital emergency departments to resume admissions when they have determined that they have the capacity to do so. The pertinent provisions are contained in paragraphs 2 A and B. Declares that this order does not conflict with EMTALA.

EXECUTIVE ORDER 1.1

Ordering Hospitals to Transfer or Cease the Admission of Patients to Respond to the Current Disaster Emergency

Pursuant to the authority vested in the Office of the Governor of the State of Colorado, and pursuant to relevant portions of the Colorado Disaster Emergency Act, § 24-32-2100 et seq., C.R.S. (2001), I, Bill Owens, Governor of the State of Colorado, issue this Executive Order as follows:

1. Background and Need

On ____, 200_, acting pursuant to § 24-32-2104(8), the Governor's Expert Emergency Epidemic Response Committee ("Committee") determined that an emergency epidemic exists in the State of Colorado [or name county]. I issued Executive Order _____, dated _____, 200_, declaring the existence of a Disaster Emergency, pursuant to C.R.S. § 24-32-2104, in the State of Colorado and activating the State Emergency Operations Plan.

Acting in accordance with C.R.S.§ 24-32-2104(8)(d), and the State Emergency Function (SEF) #8 provisions of the State Emergency Plan, the Committee has found that:

A. An emergency epidemic exists infecting or exposing a great number of people to disease, agents or toxins;

B. The number of persons seeking medical treatment at hospitals may far exceed the capacity of any given hospital;

C. Hospitals who have reached capacity may need to cease admitting patients. Hospitals may also need to transfer such patients to a separate facility without first stabilizing the medical condition of the patient or obtaining the individual's written or informed consent for such transfer.

D. The transfer of patients from hospitals that have reached capacity to other specified care facilities will combat the current epidemic and promote the public health.

Therefore, pursuant to C.R.S. § 24-32-2104(8)(e)(II), the Committee has advised me that when a hospital has reached capacity for examination and treatment of patients, an executive order authorizing those hospitals to transfer or cease admission of patients or perform medical examinations of persons is a reasonable and appropriate measure to reduce or prevent the spread of the disease, agent or toxin and to protect the public health.

Under normal circumstances, the federal Emergency Medical Treatment and Active Labor Act (EMTALA), 42 U.S.C. § 1395dd, requires hospitals receiving Medicare funds to provide appropriate medical screening to determine whether a patient has an emergency medical condition. EMTALA also

prohibits a hospital from transferring a patient with an emergency medical condition unless and until that condition has been stabilized. Thus, in normal circumstances, the purpose of EMTALA is to prevent hospital emergency departments from "dumping" patients who are unable to pay. EMTALA further provides that:

> Any individual who suffers personal harm as a direct result of a participating hospital's violation of a requirement of this section may, in a civil action against the participating hospital, obtain those damages available under the law of the state in which the hospital is located ….
>
> 42 U.S.C. § 1395dd(d)(3)(A).

Finally, EMTALA states:

> The provisions of this section do not preempt any State or local law requirement, except to the extent that the requirement directly conflicts with a requirement of this section.
>
> 42 U.S.C. § 1395dd(f).

C.R.S. § 24-32-2104(8)(e)(II) specifically empowers the Governor, upon the advice of the Committee, to order hospitals "to transfer or cease admission of patients or perform medical examinations of persons."

When the Governor declares a disaster emergency in response to an emergency epidemic, C.R.S. § 24-32-2111.5(2) provides in pertinent part that:

> The conduct and management of the affairs and property of each hospital, physician … or emergency medical service provider shall be such that they will reasonably assist and not unreasonably detract from the ability of the state and the public to successfully control emergency epidemics that are declared a disaster emergency. Such persons and entities that in good faith comply completely with board of health rules regarding the emergency epidemic and with executive orders regarding disaster emergency shall be immune from civil or criminal liability for any action taken to comply with the executive order or rule.

2. Mission and Scope

This Executive Order orders the following:

A. For the duration of the emergency epidemic or until instructed by the Colorado Department of Public Health and Environment (CDPHE), at any time when a hospital has determined that its emergency department has reached capacity to examine and treat patients, the hospital is authorized to cease admissions and transfer patients without determining whether a patient has an emergency medical condition and without first stabilizing the medical condition of the patient or obtaining the individual's written or informed consent to refuse such transfer. At any time when such hospital emergency department has available capacity, the hospital shall resume patient screening and admissions.

B. I am issuing this Order to give hospitals flexibility to manage their emergency patient caseload in the most efficient and effective manner to meet the present emergency epidemic.

C. Hospitals complying in good faith with this Executive Order shall be immune from civil or criminal liability under state law pursuant to C.R.S. § 24-32-2111.5 (2).

D. This Executive Order does not conflict with the purposes of EMTALA. In normal circumstances, EMTALA is intended to prevent the denial of treatment for lack of a person's

ability to pay. The present epidemic is an emergency, and I am authorizing hospitals to transfer or cease admitting patients so as to provide an opportunity for a greater number of people to receive care at separate facilities. Therefore, it is my intent that EMTALA does not preempt the provisions of the state's Disaster Emergency Act or this Executive Order.

E. Further, it is my intent in issuing this Executive Order that hospitals who comply will be immune from liability under state law. In normal circumstances, if a hospital does not observe the requirements of EMTALA, that statute provides a private civil remedy to individuals for "damages available under the law of the state in which the hospital is located …." By invoking the immunity provisions of C.R.S. § 24-32-2111.5 (2), it is my intent that the Disaster Emergency Act provisions be the "law of the state" for purposes of any future private action under EMTALA. Since there is no liability under state law, it is my intent that there are no "damages available" under state law that can be recovered under EMTALA against any hospital that complies with this Executive Order.

3. Duration

This Executive Order shall expire thirty (30) days from the date of its signature, unless rescinded or extended by Executive Order.

Given under my hand and
The Executive Seal of the
State of Colorado, this ___
Day of _____, 200_.
Bill Owens, Governor

Notes on Use: Authorizes the seizure of named drugs from "outlets" (as defined in the pharmacy statutes.) Embargoes the supply of the named drugs in the possession of the outlets. Exempts from seizure those supplies that CDPHE regulation requires certain facilities and organizations to keep for chemoprophylaxis of their employees.

EXECUTIVE ORDER 2.0

Concerning the Procurement and Taking of Certain Medicines and Vaccines Required to Respond to the Current Disaster Emergency

Pursuant to the authority vested in the Office of the Governor of the State of Colorado, and pursuant to relevant portions of the Colorado Disaster Emergency Act, § 24-32-2100 et seq., C.R.S. (2001), I, Bill Owens, Governor of the State of Colorado, issue this Executive Order as follows:

1. Background and Need

On ____, 200_, acting pursuant to § 24-32-2104(8), the Governor's Expert Emergency Epidemic Response Committee ("Committee") determined that an emergency epidemic exists in the State of Colorado [or name county]. I issued Executive Order _____, dated _____, 200_, declaring the existence of a Disaster Emergency, pursuant to C.R.S. § 24-32-2104, in the State of Colorado and activating the State Emergency Operations Plan.

Acting in accordance with C.R.S. § 24-32-2104(8)(d), and the State Emergency Function (SEF) #8 provisions of the State Emergency Plan, the Committee has found that:

A. An emergency epidemic exists infecting or exposing a great number of people to disease, agents or toxins;

B. Medicines and vaccines administered to infected or exposed people may combat or prevent the spread of the epidemic;

C. The necessary medicines and vaccines are in the possession of registered prescription drug outlets for retail and wholesale distribution, and

D. Public health officials and authorized disaster emergency personnel should control the supply and administration of these available supplies of the medications and vaccines to combat the emergency epidemic.

Therefore, pursuant to C.R.S. § 24-32-2104(8)(e)(I), the Committee has advised me that the procurement and taking of sufficient supplies of medicines and vaccines is a reasonable and appropriate measure to reduce or prevent the spread of the disease, agent or toxin and to protect the public health.

During the continuance of any state of disaster, the Governor is authorized by C.R.S. § 24-32-2104(7)(d) to "commandeer or utilize any private property if the governor finds this necessary to cope with the disaster emergency." C.R.S. § 24-32-2111 provides for compensation for property so taken. C.R.S. § 24-32-2111.5 also provides for compensation for property commandeered or otherwise used in coping with a declared emergency epidemic.

2. Mission and Scope

This Executive Order orders the following:

A. For purposes of this Executive Order, the term "outlet" shall have the same meaning as defined in C.R.S. § 12-22-102 (23), as follows: "any prescription drug outlet, hospital, institution, nursing home, rural health clinic, convalescent home, extended care facility, family planning clinic, wholesaler, manufacturer, or mail vendor, other than a pharmacist, that has facilities in this state registered pursuant to [§ 12-22-120] and that engages in the dispensing, delivery, distribution, manufacturing, wholesaling or sale of drugs or devices." "Prescription drug outlet" shall mean "any outlet registered pursuant to [§ 12-22-120] where prescriptions are filled or compounded, and are sold, dispensed, offered, or displayed for sale," as provided in C.R.S. § 12-22-102(30.2).

B. Except as provided in paragraph E of this Order, people acting under the direction of the Executive Director or Chief Medical Officer of the Colorado Department of Public Health and Environment (CDPHE) or the director of a local health department, law enforcement officers, National Guard troops or any other person authorized by the State Emergency Plan (hereinafter referred to as "authorized disaster emergency personnel") are authorized to seize the following medicines or vaccines from any outlet:

1) [name drug]

2) [name drug]

C. Effective immediately, outlets are ordered to embargo all supplies of [name drug] and to cease the sale or other distribution of [name drug] until further notice.

D. Upon the request of any authorized disaster emergency personnel, outlets are ordered to turn over their entire supply of [name drug] or so much of it as may be requested.

E. CDPHE regulations require local public health agencies, hospitals, managed care organizations, regional emergency medical and trauma services advisory councils and the CDPHE itself to store supplies of antibiotics to be used as chemoprophylaxis for all employees of these organizations in emergency epidemic situations. All such supplies are exempt from this Order and not subject to seizure.

F. Authorized disaster emergency personnel shall keep records of the quantities of [name drug] seized from each outlet.

G. Upon cessation of the emergency epidemic or at a sooner time as determined by the governor, outlets shall be compensated for the seized medicines or vaccines, as provided by C.R.S. 24-32-2111 and 2111.5.

3. Duration

This Executive Order shall expire thirty (30) days from the date of its signature, unless rescinded or extended by Executive Order.

Given under my hand and
The Executive Seal of the
State of Colorado, this ___
Day of _____, 200_.
Bill Owens
Governor

Notes on Use: Authorizes physicians and nurses who hold a license in good standing issued by another state or who have an unrestricted inactive Colorado license to practice under the supervision of a Colorado licensed physician or nurse to meet the current emergency epidemic.

COLORADO EXECUTIVE ORDER 4.0

Concerning the Suspension of Physician and Nurse Licensure Statutes to Response to the Current Disaster Emergency

Pursuant to the authority vested in the Office of the Governor of the State of Colorado, and pursuant to relevant portions of the Colorado Disaster Emergency Act, § 24-32-2100 et seq., C.R.S. (2001), I, Bill Owens, Governor of the State of Colorado, issue this Executive Order as follows:

1. Background and Need

On ____, 200_, acting pursuant to § 24-32-2104(8), the Governor's Expert Emergency Epidemic Response Committee ("Committee") determined that an emergency epidemic exists in the State of Colorado [or name county]. I issued Executive Order _____, dated _____, 200_, declaring the existence of a Disaster Emergency, pursuant to C.R.S. § 24-32-2104, in the State of Colorado and activating the State Emergency Operations Plan.

Acting in accordance with C.R.S. § 24-32-2104(8)(d), and the State Emergency Function (SEF) #8 provisions of the State Emergency Plan, the Committee has found that:

A. An emergency epidemic exists infecting or exposing a great number of people to disease, agents or toxins;

B. There is a shortage of physicians and nurses licensed to practice in Colorado to treat the number of infected or exposed;

C. Physicians and nurses who are licensed in another state or who have inactive Colorado licenses are available and willing to treat infected or exposed people;

D. Use of all physicians and nurses, including those without a Colorado license, is necessary to combat the current epidemic.

Therefore, pursuant to C.R.S. § 24-32-2104(8)(e), the Committee has advised me that suspending physician and nurse practice statutes to enable more physicians and nurses to treat exposed and infected persons is a reasonable and appropriate measure to reduce or prevent the spread of the disease, agent or toxin and to protect the public health.

In non-emergency circumstances, a person practicing medicine must possess a license to practice in Colorado issued by the Board of Medical Examiners. C.R.S. § 12-36-106(2). However, a Colorado license is not required for the "gratuitous rendering of services in cases of emergency." C.R.S. § 12-36-106(3)(a). In general, a person may not practice as a practical or professional nurse unless licensed in Colorado by the Board of Nursing. C.R.S. § 12-38-123(1)(a). Nursing assistance in the case of an emergency is not prohibited. C.R.S. § 12-38-125(1)(c).

During the continuance of any state of disaster, the Governor is authorized by C.R.S. § 24-32-2104(7)(a) to suspend the provisions of any regulatory statute or the regulations of any state agency if strict compliance with the provisions of the statute or regulation would in any way "prevent, hinder, or delay necessary action in coping with the emergency."

C.R.S. § 24-32-2111.5 (2) requires that the "conduct and management of the affairs and property of each physician [and] health care provider… shall be such that they will reasonably assist and not unreasonably detract from the ability of the state and the public to successfully control emergency epidemics that are declared a disaster emergency."

2. Mission and Scope

This Executive Order orders the following:

A. The provisions of the Medical Practice Act and the Nurse Practice Act that require Colorado licensure to practice medicine or nursing are hereby suspended for those physicians and nurses in compliance with paragraph B below.

B. Physicians and nurses who can demonstrate that they hold an unrestricted license in good standing issued by another state, or whose license in Colorado is inactive and unrestricted, are authorized to practice medicine or nursing in Colorado for the purposes of combating the current epidemic so long as the unlicensed physician or nurse:

1) practices under the supervision of an identified Colorado licensed physician or nurse;
2) provides care only relating to the current epidemic as directed by the supervising physician or nurse; and
3) volunteers and provides services without charge to the State of Colorado or any patient or victim.

C. As provided in C.R.S. § 24-32-2111.5(2), health care providers that comply in good faith with the terms and directives of this executive order shall be immune from civil or criminal liability for any action taken to comply with this executive order. This immunity also applies to the supervisory activities provided by a physician or nurse under paragraph 2 B. of this Order.

3. Duration

This Executive Order shall expire thirty (30) days from the date of its signature, unless rescinded or extended by Executive Order.

Given under my hand and
The Executive Seal of the
State of Colorado, this ___
Day of _____, 200_.
Bill Owens
Governor

Notes on Use: *Authorizes Colorado licensed physician assistants and EMTs to practice outside of their normal supervision but under the supervision of another physician to meet the emergency epidemic.*

COLORADO EXECUTIVE ORDER 5.0

Concerning the Suspension of Certain Licensure Statutes to Enable More Colorado Licensed Physician Assistants and Emergency Medical Technicians to Assist in Responding to the Current Disaster Emergency

Pursuant to the authority vested in the Office of the Governor of the State of Colorado, and pursuant to relevant portions of the Colorado Disaster Emergency Act, § 24-32-2100 et seq., C.R.S. (2001), I, Bill Owens, Governor of the State of Colorado, issue this Executive Order as follows:

1. Background and Need

On ____, 200_, acting pursuant to § 24-32-2104(8), the Governor's Expert Emergency Epidemic Response Committee ("Committee") determined that an emergency epidemic exists in the State of Colorado [or name county]. I issued Executive Order _____, dated _____, 200_, declaring the existence of a Disaster Emergency, pursuant to C.R.S. § 24-32-2104, in the State of Colorado and activating the State Emergency Operations Plan.

Acting in accordance with C.R.S. § 24-32-2104(8)(d), and the State Emergency Function (SEF) #8 provisions of the State Emergency Plan, the Committee has found that:

A. An emergency epidemic exists infecting or exposing a great number of people to disease, agents or toxins;

E. There is a shortage of physicians and nurses licensed to practice in Colorado to treat the number of infected or exposed;

F. Colorado licensed physician assistants and emergency medical technicians are available and willing to treat infected or exposed people;

G. Under current statutes and rules, Colorado licensed physician assistants and emergency medical technicians can only practice in association with or under the supervision of physicians by prior agreement.

H. Use of all Colorado licensed physician assistants and emergency medical technicians without these practice limitations is necessary to combat the current epidemic.

Therefore, pursuant to C.R.S. § 24-32-2104(8)(e), the Committee has advised me that suspending certain regulatory statutes to enable more Colorado licensed physician assistants and emergency medical

technicians physicians to treat exposed and infected persons is a reasonable and appropriate measure to reduce or prevent the spread of the disease, agent or toxin and to protect the public health.

The Medical Practice Act authorizes a physician to delegate to a licensed physician assistant the performance of acts that constitute the practice of medicine, but prohibits such physician from supervising more than two physician assistants at any one time. C.R.S. § 12-36-106(5)(a) and (b)(I).

The Emergency Medical and Trauma Services Act authorizes emergency medical technicians to perform duties subject to the medical direction of a physician in accordance with rules adopted by the Colorado Board of Medical Examiners. C.R.S. § 25-3.5-203(1)(a). Under Board Rule 500, a physician advisor must be responsible for a specific emergency service agency and individuals.

To respond to the current emergency epidemic, physician assistants and emergency medical technicians should be available and able to practice under the supervision of any licensed physician to afford treatment to the greatest number of infected individuals.

During the continuance of any state of disaster, the Governor is authorized by C.R.S. § 24-32-2104(7)(a) to suspend the provisions of any regulatory statute or the regulations of any state agency if strict compliance with the provisions of the statute or regulation would in any way "prevent, hinder, or delay necessary action in coping with the emergency."

C.R.S. § 24-32-2111.5 (2) requires that the "conduct and management of the affairs and property of each physician [and] health care provider… shall be such that they will reasonably assist and not unreasonably detract from the ability of the state and the public to successfully control emergency epidemics that are declared a disaster emergency."

2. Mission and Scope

This Executive Order orders the following:

A. The provisions of C.R.S. § 12-36-106(5)(a) and (b)(I), C.R.S. § 25-3.5-203(1)(a) and Section 3.2 of Rule 500 of the Board of Medical examiners are hereby suspended.

B. Colorado licensed physician assistants and emergency medical technicians physicians are authorized to perform the professional services for which they are licensed under the supervision of any Colorado licensed physician when providing care to individuals affected by the current emergency epidemic.

C. As provided in C.R.S. § 24-32-2111.5(2), health care providers that comply in good faith with the terms and directives of this executive order shall be immune from civil or criminal liability for any action taken to comply with this executive order. This immunity also applies to the supervisory activities provided by a physician under paragraph 2 B. of this Order.

3. Duration

This Executive Order shall expire thirty (30) days from the date of its signature, unless rescinded or extended by Executive Order.

Given under my hand and
The Executive Seal of the
State of Colorado, this ___
Day of _____, 200_.
Bill Owens
Governor

EXECUTIVE ORDER 6.0

Concerning the Isolation and Quarantining of Individuals and Property in Response to the Current Disaster Emergency Epidemic

Pursuant to the authority vested in the Office of the Governor of the State of Colorado, and pursuant to relevant portions of the Colorado Disaster Emergency Act, § 24-32-2100 et seq., C.R.S. (2001), I, Bill Owens, Governor of the State of Colorado, issue this Executive Order as follows:

1. Background and Need

On ____, 200_, acting pursuant to § 24-32-2104(8), the Governor's Expert Emergency Epidemic Response Committee ("Committee") determined that an emergency epidemic of _____ exists in the State of Colorado [or name county]. I issued Executive Order _____, dated _____, 200_, declaring the existence of a Disaster Emergency, pursuant to C.R.S. § 24-32-2104, in the State of Colorado and activating the State Emergency Operations Plan.

Acting in accordance with C.R.S. 24-32-2104(8)(d), and the State Emergency Function (SEF) #8 provisions of the State Emergency Plan, the Committee has found that:

A. An emergency epidemic of _____ exists infecting or exposing people to this disease;

B. [Name of disease] poses a serious threat to the public health and may cause death;

C. [Name of disease] is highly contagious;

C. To prevent the further spread of [name of disease] and protect the public health, it is necessary to isolate all individuals infected with the disease or to quarantine all individuals exposed to the disease.

Therefore, pursuant to C.R.S. § 24-32-2104(8)(e), the Committee has advised me that isolating and quarantining individuals are reasonable and appropriate measures to reduce or prevent the spread of the disease and to protect the public health.

Powers of Colorado Department of Public Health and Environment

C.R.S. § 25-1-107(1)(b) empowers the Colorado Department of Public Health and Environment (CDPHE) to "establish, maintain, and enforce isolation and quarantine, and, in pursuance thereof and for this purpose only, to exercise such physical control over property and the persons of the people within this state as the department may find necessary for the protection of the public health."

C.R.S. § 25-1-114(1)(a) states that it is unlawful for any person to "willfully violate, disobey, or disregard the provisions of the public health laws or the terms of any lawful notice, order, standard, rule, or regulation issued pursuant thereto…." C.R.S. § 25-1-114(4) provides that violation of such an order is a misdemeanor punishable by a fine of not more than one thousand dollars, or by imprisonment in the county jail for not more than one year, of both.

Powers of Local Boards of Health

Local boards of health have existing statutory powers to combat infectious disease epidemics. Local boards may isolate infected persons. C.R.S. §§ 25-1-637 to 640. Local boards can also establish quarantines areas. C.R.S. § § 25-1-631 to 634. Local boards are also empowered to take measures to prevent the spread of infectious disease. C.R.S. § 25-1-645.

2. Mission and Scope

This Executive Order orders the following:

A. Definitions. As used in this Executive Order,

(1) "Communicable period" means the time during which an infectious agent may be transferred directly or indirectly from an infected person to another person.

(2) "Incubation period" means the time interval between initial contact with an infectious agent and the first appearance of symptoms associated with the infection.

(3) "Infectious agent" means an organism that is capable of producing infection or infectious disease.

(4) "Isolation" shall mean the separation, for the period of communicability, of infected persons from others in such places and under such conditions as to prevent or limit the direct or indirect transmission of the infectious agent from those infected to those who are susceptible to infection or who may spread the agent to others.

(5) A person has "notice" of a fact when:

(a) He or she has actual knowledge of it; or
(b) He or she has received a notice or notification of it.

(6) "Quarantine" shall mean restriction of the activities of well persons who have been exposed to a case of communicable disease during its period of communicability to prevent disease transmission during the incubation period if infection should occur.

B. People Subject to Isolation. The Executive Director or Chief Medical Officer of the CDPHE or a local board of health shall immediately isolate all persons known to be infected with _____ for the period of communicability. All people subject to such isolation shall comply with the directions of the CDPHE or local board of health.

C. People Subject to Quarantine. The Executive Director or Chief Medical Officer of the CDPHE or a local board of health shall order the quarantine of any person who has been exposed to an infectious agent or was present at [name location] on [date] at [time]. Such people shall be subject to the terms of quarantine when they have received notice of the order.

D. Restriction of Quarantined People. Any such quarantined person shall:

(1) be confined to his or her home, and may not leave those premises for any purpose except as directed by the Executive Director or Chief Medical Officer of the CDPHE or a local board of health; or

(2) be confined to any other location designated by the Executive Director or Chief Medical Officer of the CDPHE or a local board of health; and

(3) not put himself or herself in contact with any person not subject to quarantine other than a physician or other health care provider.

E. Restriction of People Not Subject to Quarantine. No person, other than a person authorized by the Executive Director or Chief Medical Officer of the CDPHE or a local board of health, shall enter a quarantined premises or have physical contact with any quarantined person.

F. Exceptions to Quarantine Restrictions. No person subject to the quarantine order may leave the premises to which he is confined unless permitted by the Executive Director or Chief Medical Officer of the CDPHE or a local board of health.

G. Enforcement of Quarantine. Pursuant to state and local emergency operations plans, local law enforcement officials shall enforce the provisions of this quarantine order. [I have also called out the National Guard to respond to the current Disaster Emergency. While acting under call of the governor, an officer or member of the Colorado National Guard acts as a Peace Officer, Level III under C.R.S. §18-1-901(3)(l)(III). I am directing the National Guard to assist local law enforcement in enforcing this quarantine order.]

H. Violation of this Quarantine. Any person who violates this quarantine order may be subject to prosecution by the District Attorney for prosecution under C.R.S. § 25-1-114(4) or may be subject to civil fines for violating an order of a local board of health as provided in C.R.S. § 25-1-633 or 646.

I. Care of Quarantined People. Observance of this quarantine is vital to protect the public health. At the same time, compliance with the quarantine may pose a hardship to some people. I direct the Office of Emergency Management and local emergency management agencies to coordinate private or public efforts to take reasonable measures to provide adequate food, clothing, necessities or medication and medical care to quarantined people and people living in the household of any quarantined person who is affected by the quarantine.

3. Duration

This Executive Order shall expire _____ days from the date of its signature, unless rescinded or extended by Executive Order.

Given under my hand and
The Executive Seal of the
State of Colorado, this ___
Day of _____, 200_.

Bill Owens
Governor

Appendix B

Sample ACC Admission Orders [63]

Patient Name/Stamp_____
Date_____

1. Antibiotic:

Cipro 500 mg po bid Pediatric Dose:
Other:
Doxycycline 100 mg po bid Pediatric Dose:

2. Allergies:

Doxy (TCN) Cipro PCN (penicillin) MSO4
Phenergan Sulfa
Iodine/Contrast Dye Other:

3. IVF:

0.9%Normal Saline D5W .45% NS
rate = ____cc/hr Saline lock

4. IVF Bolus (Pediatric dose: 20cc/kg):

250 cc/hr 500 cc/hr 1000 cc/hr other_____

5. Oral Rehydration:

100 cc/hr 200 cc/hr 500 cc/hr
other_____ (may be administered per family or volunteer)

6. Oxygen:

_____liters/minute via nasal cannula
OR
_____ % via facemask

7. Diet:

Regular Diabetic Fluids Other:

8. Vital signs per routine

9. Routine I&O

10. Foley catheter PRN if no urine output in four (4) hours. Discontinue PRN. Once discontinued, if patient does not void in 8 hrs, replace Foley catheter and notify MD.

11. Routine home medications (if provided by patient or family):

[63] Skidmore, Appendix A.

12. Acetaminophen:

ADULTS = 1000 mg PO q4h PRN for temp >101.5 or pain

PEDIATRICS = ____ ml q4h PRN (15 mg/kg/dose; 160 mg/5 ml)
(Note: a 70 lb child = 32 kg x 15 mg = 480 mg = 3 tsp or 15 ml)

13. Phenergan:

ADULTS = 12.5–25 mg IM/IV/PR q6h PRN
PEDIATRICS = ___mg IM/IV/PR q6h PRN (0.25–0.5 mg/kg/dose)

14. Albuterol:

MDI with spacer: 2–4 puffs q2–4h PRN
OR
Nebulized unit dose q2h PRN

15. Diphenhydramine (Benadryl):

ADULTS = 25–50 mg IV/IM/PO q6h PRN
PEDIATRICS = ____mg IV/IM/PO q6h PRN (1 mg/kg/dose)

16. Lorazepam (Ativan):

ADULTS = 1–2 mg IV/IM q6h PRN
PEDIATRICS = ____mg IV/IM q6h PRN (0.05 mg/kg/dose)

17. Morphine Sulfate (titrate to effect):

ADULTS = 2 mg IV/IM/SC q5 min PRN (max. dose: 15 mg in 4h)
PEDIATRICS = 0.1 mg/kg/dose IV/IM/SC q5min PRN
(max.dose: 10 mg in 6h)

18. Naloxone (Narcan):

ADULTS = 2 mg IV q2min PRN (weight >20 kg)
PEDIATRICS = ___mg IV q2min PRN (weight < 20 kg: 0.1 mg/kg/dose)

19. Other:

Aspirin: 325 mg Other: po qday

Nitroglycerin: 0.4 mg 1 tablet SL q5min PRN (if SBP> or = 90 mm Hg) until chest pain-free or ___ tablets given

Insulin: Regular ___u SQ qAM NPH___u SQ qAM
Regular ___u SQ qPM NPH___u SQ qPM
Insulin 70/30 ____u SQ qAM
Insulin 70/30 ____u SQ qPM

Furosemide (Lasix): 20 mg 40 mg 60 mg 80 mg
Other: PO/IV qday or BID

Digoxin (Lanoxin):
Maintenance = 0.125 mg 0.25 mg Other: qday PO
Loading = 0.5 mg PO one dose only now
Other: follow with 0.125 mg 0.25 mg PO
Other: one time 8 h later

20. Labs (if available):
CBC UA BMP (aka Chem 7) Dig level Other:

21. X-rays (if available):
CXR

22. Social services for discharge planning

23. Victim Assistance Referral

MD Signature:_____Date_____Time_____

RN Signature:_____Date_____Time_____

Appendix C

Acute Care Center Site Selection Matrix Tool [64]

Potential Sites:	Aircraft Hangers	Churches	Community or Recreation Centers	Convalescent Care Facilities	Convention Facilities	Fairgrounds	Government Buildings	Hotels/Motels	Meeting Halls	Military Facilities	National Guard Armories	Same Day Surgical Centers/Clinics	Schools	Sports Facilities / Stadiums	Trailers / Tents (Military and other)	Other
Infrastructure																
Doors/corridors adequate size for gurneys																
Floors																
Loading dock																
Parking for staff and visitors																
Roof																
Toilet facilities/showers (#)																
Ventilation																
Walls																
Total Space and Layout																
Auxiliary spaces (Rx, counselors, chapel)																
Equipment/supply storage area																
Family area																
Food supply and prep area																
Lab specimen handling area																
Mortuary holding area																
Patient decontamination areas																
Pharmacy area																
Staff areas																
Utilities																
Air conditioning																
Electrical power (backup?)																

[64] S.V. Cantrill, S.L. Eisert, P. Pons, and C.E. Vinci, *Rocky Mountain Regional Care Model for Bioterrorist Events*, (August 2004), TAB-1

Potential Sites:	Aircraft Hangers	Churches	Community or Recreation Centers	Convalescent Care Facilities	Convention Facilities	Fairgrounds	Government Buildings	Hotels/Motels	Meeting Halls	Military Facilities	National Guard Armories	Same Day Surgical Centers/Clinics	Schools	Sports Facilities / Stadiums	Trailers / Tents (Military and other)	Other
Heating																
Lighting																
Refrigeration																
Water (hot?)																
Communication																
Communication (# phones, local/long distance, intercom)																
Two-way radio capability to main hospital																
Wired for IT and internet access																
Other Services																
Ability to lock down facility																
Accessibility/proximity to public transportation																
Biohazard and other waste disposal																
Laundry																
Ownership/other uses during disaster																
Oxygen delivery capability																
Proximity to main hospital																
TOTAL RATING/RANKING (Largest number indicates best site)																

Rating Scale
5 Equal to or same as hospital.
4 Similar to that of a hospital, but has SOME limitations (I.e. quantity/condition).
3 Similar to that of a hospital, but has some MAJOR limitations (I.e. quantity/condition).
2 Not similar to that of a hospital, would take modifications to provide.
1 Not similar to that of a hospital, would take MAJOR modifications to provide.
0 Does not exist in this facility or not applicable to event.