

Biomedical Engineering

Facility Name

Business Continuity Plan Example

Acknowledgements

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# Section I: General

The function of the Business Continuity Plan is to assist impacted areas with ensuring that critical business functions are maintained, restored or augmented to meet the designated Recovery Time Objective (RTO) and recovery strategies outlined in the areas’ business continuity and business resumption plans.

With the command/HICS structure, the Business Continuity Operations Branch will lead BCP activities to:

1. Facilitate the acquisition of and access to essential recovery resources, including business records (e.g., patient medical records, purchasing contracts).
2. Support the Infrastructure and Security Branches with needed movement or relocation to alternate business operation sites.
3. Coordinate with the Logistics Section Communications Unit Leader, IT/IS Unit Leader and the impacted area to restore business functions and review technology requirements.
4. Assist other branches and impacted areas with the restoring and resuming of normal operations.

# Section II: Department Overview

This business continuity plan (BCP) is intended to be implemented when there is an event that disrupts normal business operations. Plan activation is described in Section III: Activation.

This plan defines the mission critical services and processes and procedures to ensure they can be continued and/or recovered when normal operations are not viable.

This BCP was developed in conjunction with the <Insert facility name> emergency planning effort. In developing this plan and all associated procedures, checklists and forms, the continuity between the <Insert facility name> and the associated departments can be ensured. Note that in order for the plan to be effective, exercises and trainings of this plan must be carried out by <Insert facility name>’s Biomedical Engineering department on an annual basis. Additionally, updates to the plan and all associated checklists, forms and procedures will be made on an annual basis in concert with the Office of Emergency Preparedness.

For purposes of this plan and all associated procedures, checklists and forms, an event is defined as any planned or unplanned situation that disrupts the normal operations of the department.

Biomedical Engineering provides preventative maintenance and testing of equipment, allowing staff to diagnose and fix any issues. This is mission critical for ensuring the safe use of medical devices is a critical service that clinical areas are dependent on to deliver safe care.

This plan describes the procedures for continuity or, if needed, contingencies for the recovery of services at an alternate location. Strategies for continuing operations when key services are unavailable are detailed on page X.

# Section III: Activation

In an event that disrupts normal operations and impacts essential operations of the Biomedical Engineering department, measures are to be taken to prepare and pre-position resources to ensure continuity of mission critical services and processes. An algorithm of considerations and decisions are illustrated in the table below.

The Hospital Command Center (HCC) responds to events that can impact the ability of <Insert facility name> to perform its normal daily functions. The HCC is comprised of personnel with the knowledge and authority to provide support to the Emergency Response and Recovery activities.

<Insert algorithm>

**NOTE: If your unit cannot operate and/or there is a life safety issue, go directly to Evacuation Procedures located in the Department Disaster Plan.**

# Section IV: Department Requirements

This section of the BCP includes the Biomedical Engineering Department’s mission critical services and processes, personnel, alternate operating location(s). This information is to be completed and maintained by Biomedical Engineering Department Director, unless otherwise noted.

This plan will remain accessible to staff at all times in the Disaster and Emergency Response Manual (DERM) located in the administration suite.

Updates are to be made in coordination with the Office of Emergency Preparedness.

## Mission Critical Services and Processes

For purposes of the BCP, we only used processes deemed mission critical for continuity of the Biomedical Engineering department.

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| **Mission Critical Service/Process** |
| **RECOVERY TIME 0 – 2 HOURS** |
| Provide and maintain medical equipment |
| Service medical equipment systems (Hogs, Fetal Monitoring, Nurse Call) |
| Maintain surgical equipment |
| Maintain laboratory equipment |
| Patient monitoring |
| Code Blue system monitoring |
| Maintain respiratory equipment |
|  |

## Interdependencies

To perform mission critical services, the Biomedical Engineering department on the following internal and external services:

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| --- | --- | --- | --- |
| **Dependency** | **Service** | **Actions if Service is Unavailable** | |
| Pharmacy | Medication orders [example] | * [insert actions when Pharmacy is unavailable] | |
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| Mission Critical Equipment and Supplies During activations, the On-Duty Manager/Supervisor in coordination with the Biomedical Engineering Department Command staff will assess the Biomedical Engineering department’s Essential Equipment and Supplies and report the status to the Hospital Command Center (HCC) as requested. During this process the following steps will be taken:   * Document status of major equipment or critical supplies and how long they can operate with present supply of vital consumable materials. * Take inventory of current equipment and supplies and create a resupply list. * Check condition of storage or onsite stockpiles to determine the level of damage.  |  |  |  |  | | --- | --- | --- | --- | | **Quantity** | **Description** | **Quantity** | **Description** | |  | IBG machine |  | Ice machine | |  | Computer |  | Paper | |  | Water and steam |  | Refrigerator | |  | ABG Syringes |  | Tools | |  | Carts |  | Service manuals | |  | Laptop |  | Test equipment | |  | Radios |  | Supplies/cables | |  |  |  |  | |  |  |  |  | | | |

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## Vendors/Resources Call List

| Company | Point of Contact | Phone Number | Emergency contract in place?Y/N |
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## Mission Critical IT Applications

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| **Mission Critical Applications** |
| **RECOVERY TIME 24-48 HOURS** |
| Four Rivers – Service & Asset Management |
| Aeroscout |
| Nurse call |
| Philips Telemetry |
| Hogs |
| Philips Bedside Monitors |
| Standalone management applications |
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## IT and Communications Downtime Procedures

Administrative responsibility of the downtime procedures resides with each department. Department responsibility includes maintenance of the downtime procedures, which specifies the alternative processes that are to be activated to assure continuity of clinical and other services during a downtime event. The downtime procedures are to be reviewed and tested, at minimum, on a yearly basis.

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| Downtime Procedures Checklist (example) | |
| **Computer & Network**  **Disruption**  **Computer & Network**  **Disruption continued** | * Activate the downtime procedures. * MD will handwrite orders on manual order sheets. * Pharmacy orders will be faxed. * Stat or Urgent orders will be called to ancillary departments. * Downtime requisitions will be used for non-stat orders. Record all pertinent data on the downtime form. For example:   + Exam Start Time   + Exam Completed Time   + Initials * List specific telephone instructions to be given to patients or other parties. (What exactly would you want people who speak to the patients say about the situation? Write this down so that everyone is saying the same thing.) * Charts are located in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A runner/courier will need to walk to this location to retrieve patient charts for the rest of the day. * Keep track of exams that were entered just prior to the system going down. These exams should be checked when the system comes back up to make sure the information was not lost. * If a patient schedule has been printed prior to the disruption, the schedule can be used to track patients throughout the day. If a schedule was not printed prior to the disruption, Departmental Staff will not be sure who is scheduled for this day. List specific telephone instructions to be given to patients or other parties. (What exactly would you want people who speak to the patients say about the situation? Write this down so that everyone is saying the same thing.) * As long as phones are working, telephone instructions can be provided to patients or other parties. * Labs will be ordered on paper and hand-delivered to the Lab Department. * Registration will be tracked on paper until systems are restored. |
| **Recovery** | * Registration forms will be manually typed into system. * Any new lab orders should be put into the Lab system. All paper orders during disruption will be stored in the patient charts. * Any patient families (or other parties) who were waiting for information from patient charts or other systems will be called. * Any dictation that was held due to the disruption should now be dictated into the restored system. |
| **Downtime Procedures for Telephone Disruption** | * Department will immediately activate the downtime procedures for telecommunications. * Department will locate the personal cell phone listing kept within their department and initiate the cell phone call tree. * If possible, the main department phone number(s) will be transferred to one of the remote sites for message taking. * The designated operator will be provided with a contact list of cell phone numbers. This designated operator will triage calls as they come in from patient families, etc. to the correct party. The message should be:   + “Good Morning (afternoon). Would you kindly provide me with your name and phone number? We are currently experiencing a telephone outage. I will communicate your message to the correct division/individual and they will return your call. Our Telecommunications Staff is working on a resolution to the disruption.” |
| **Recovery** | * Telephone Operator who has been taking calls will be alerted that main phone systems are back up and running. * Fax machine will be checked for any queued messages and to make sure there is enough paper in machine to print all stored messages. * Any patient families (or other parties) who had tried to contact the department will be called. |

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| Mission Critical Vital Records Vital Records are documents that have been pre-identified as critical to the continued operations of the Biomedical Engineering department, including those of significance to legal and financial rights of the organization.  Personnel will be deployed during an emergency to ensure the protection and ready availability of references, records and information systems needed to support essential functions under the full spectrum of emergencies. Personnel and locations of vital records have been identified before an event in order to have full access to use records and systems to conduct essential functions during a crisis event. |

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| **Record Number** | **Record Type** | | **Location** | | **Record Name/Function** | |
|  | Paper | |  | | Manuals | |
|  | Electronic | |  | | Backup for Rivers | |
|  | Paper/Electronic | |  | | Parts listing | |
|  | Paper | |  | | List of temporary supplies | |
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## Personnel

The personnel listed in the table below are those that have been deemed essential to their specific unit/department in maintaining mission critical services and operations.

The personnel listed below are also included on the Call Tree Notification, and are to be notified of BCP activation as determined on the Call Tree Notification.

### BIOMEDICAL ENGINEERING Business Continuity Response Team Roles

**Departmental Recovery Team Leader**

Each department has identified its Departmental Recovery Team Leader. It is the role of this individual to work with the HCC to minimize the impact to departmental operations by resuming and recovering critical functions to the service levels and within the Recovery Time Objectives defined in this Business Continuity Plan. If the team leader is unavailable, identify who is serves in the back up role.

| Last Name | First Name | Home Phone | Cell Phone | Title | |
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| Loss of Staffing | |
| **Manager** | * Evaluate current staffing levels. * Activate your call list and notify employees as to plan activation and determine availability. Have staff report to department. * Notify human resources, managers, union representatives and other key personnel as to status and plan implementation. * Explore alternative staff resource options. If needed:   + - Identify similar core competencies that exist     - Request staffing needs update from the labor pool to sustain essential functions.     - Secure contract staff or borrow from another facility.     - Cross train staff with similar competencies by educators. * Evaluate immediate and ongoing staff needs based on existing and predicted levels of human resources available. * Identify contractors or other staff options that may alleviate problems resulting from staff loss. * Assess flexible leave options that would allow employees to address family needs while continuing to support the employing organization through a flexible work plan where feasible. * Assessment of union issues surrounding overtime issues and sharing of responsibilities among workers. * Evaluation of potential health and safety issues that might arise through diversion of staff to new job roles and loss of critical staff in various operational positions.   + Finalize contingency staffing schedules. * Prepare and implement contingency staffing schedule |

# Section V: Department Continuity and Recovery

Following the occurrence of an event adversely impacting the ability to operate, decisions regarding continuity and/or recovery of operations and patient care will be made. The decision will be based on the results of the damage assessment, the nature and severity of the event and other information supplied by staff, emergency responders or inspectors. If the department experiences major damage, loss of staffing, a dangerous response environment or other problems that severely limit its ability to meet needs, the Incident Commander, in consultation with department leadership, may relocate operations.

## **Initial Actions**

* Document current unit census.
* Notify employees of BCP activation.
* Determine how long you can operate in current state.
* Assess need to close down department and/or relocate services.
* Communicate status, including resource needs, closure requirements and staffing shortages to Hospital Command Center (HCC).
* Communicate need to close down and/or relocate services to HCC.
* Evaluate ongoing staff needs based on existing and predicted levels of human resources available.
* Implement alternative staff resource options, including contractor staffing options that may supplement staffing needs (i.e., runners).
* List specific telephone instructions to be given to patients or other parties. *(What exactly would you want people who speak to the patients say about the situation? Write this down so that everyone is saying the same thing.)*

# **If Event Impacts Departments**

* Determine from Command Center which departments have been affected.
* Have each team member reach out to their respective areas, inquire regarding status (Mission Critical First - Imaging (MRI/CT) ICU, Lab, Surgery, Telemetry)
* Assign biomed staff test functionality of all medical equipment, based on their area of expertise (IV pumps v.s. Imaging) throughout the hospital based on criticality, and make needed repairs.
* Test functionality of autoclaves and sterilization equipment. (Prior to testing autoclaves, ensure that they have been properly cleared of any biomedical contamination that may have been left behind during the move/evacuation.)
* Prioritize who goes where, and testing of equipment. For example, how do you prioritize which CT if you have multiple CT’s?
* Have vendors check the structural integrity of booms holding all mounted medical equipment. What are the locations of mounted equipment.
* Assess the integrity of the equipment & report back
* Identify any medical equipment that is missing.
* Determine what equipment is damaged beyond repair and will need to be replaced.
* Determine what specialized equipment needs to be inspected and recertified by vendors prior to use (e.g., anesthesia machines)
* Determine estimated time to get medical equipment inspected and repaired.
* If patients are moved or evacuated, alert Materials team about equipment that was sent with patients

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## Loss of Corporate Services

Each department depends on corporate services to operate. Department responsibility includes maintenance of the downtime procedures, which specifies the alternative processes that are to be activated to assure continuity of clinical and other services during a downtime event. The procedures are to be reviewed and tested, at minimum, on a yearly basis.

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| --- | --- |
| **Loss of Power** | * Outlets served by the emergency generator are identified by red outlets. * Open curtains and drapes to take advantage of natural or off-site lighting, as applicable. * Turn off “unnecessary” electrical equipment to reduce load on generator. Also turn off any equipment that may have been running when the power went out. * Unplug all medical equipment to protect against possible power surges when power is restored and power testing occurs. Coordinate with Facilities around power restoration. |
| **Loss of HVAC** | * Notify Facilities. * Should there be a failure of any equipment or portion of the HVAC system that cannot be corrected by the Engineering/Maintenance person on duty. * Consider relocating the patients. * Use fans, if available. * Keep blinds, curtains, drapes, etc. closed in areas of building that receive direct sunlight. * Open doors and windows, if possible, to take advantage of available breezes. * Avoid activities that may excite patients or require physical exertion. * Keep patients out of direct sunlight. * Turn off lights as well as other heat-producing appliances whenever possible. * Provide plenty of liquids for patients and staff. * Monitor vital signs of patients and staff. |
| **Loss of Water** | * Determine ability to obtain bottled water from outside sources. * Use waterless hand cleaner where possible. |

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## Alternate Location

<Insert facility name>’s overall business continuity recovery strategy is based upon using existing internal resources for recovery of services and operations impacted by a disruptive event, whenever possible.

In an event where a primary the Biomedical Engineering Department location is deemed to be inoperable or unsafe, the Biomedical Engineering Department Director, or designee, will initiate unit closure procedures and activate the alternate location which may provide full or limited operational capability.

* Collect all supplies and equipment as directed
* Inventory cables and equipment; coordinate with materials the ordering of additional or replacement equipment as needed
* Arrange transportation of equipment with Logistics
* Lock and secure all areas of closed department
* Gain access to power and plug in/prepare necessary equipment
* Move test equipment, spare equipment, and office equipment.
* Arrange supplies for maximum usage
* Configure and test medical equipment

NOTE: Relocation will be coordinated with the Hospital Command Center and/or the campus Emergency Operations Center, as appropriate.

**Conditions for consideration:** Space for equipment, records, and supplies, decontamination of waste capability, climate control, water, steam, large open space.

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| |  |  | | --- | --- | | **🞎 Full Operational Capability** | **🗹Limited Operational Capability** | | **Address: Tent, Office Space, or Warehouse** | | | **Contact Number/s: ###-###-####** | | | | | |
|  | | | |
| **🞎 Full Operational Capability** | **🗹 Limited Operational Capability** |
| **Address:** | |
| **Contact Number/s: ###-###-####** | |
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| Department Closure Checklist | |
| **Manager** | * Coordinate with EOC: criteria to shut down, location of alternate location, set up, supplies needed, and I.T. accessibility. * Notification of closure and relocation site with exact date/time to staff and departments. * Determine staff schedule that correlates with patient needs in alternate location.   **Equipment and Supplies**   * Request par level for supplies and determine essential needs for alternate site. * Collaborate and gather supplies to include vital records to record care. * Contact EOC to have transport brought to loading area for supplies. * Designate staff to load supplies in appropriate vehicles with inventory of those being relocated. * Collaborate with I.T. areas for computer access, application availability and areas in need.   **Communication**   * Notify critical departments of relocation.   **If BioMed Shop is Inaccessible or Destroyed**   * Check computerized database to determine which equipment is lost (Who can access the database?) * Do not dispose of unsalvageable equipment. Everything must be inventoried and evaluated for insurance purposes. * Consider the need for 24/7 operations (ratio of staff to available testing devices will inform schedule) * Identify critical pieces of equipment and reorder or obtain from an alternate source (e.g. Defib Tester, Monitoring Equipment Tester (e.g. EKG), electrical safety tester, vital signs tester, anesthesia equipment tester, Lab tachometer tester and Imaging testing, suction unit or blower * Order additional testing equipment and arrange for urgent delivery |

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| Relocation Checklist | |
|  | **Transportation**   * Contact alternate site in route to relocation site. * Relocate to alternate site.   **Alternate Location**   * Designate location for record collection and privacy with specified personnel. * Designate staff to unload equipment/supplies and equipment to designated areas. * Designate area for staff breaks and rest periods. * Maintain appropriate area for food storage and preparation for patients and staff. * Separate areas for toileting and showering of patients/staff. * Post signage. * Ensure security of building with IC, Maintenance and local law enforcement agencies. * Provide breaks and rest periods to staff. * Re-evaluate staff schedule and needs per shift and adjust per patient needs. * Assign staff to return and inventory equipment placing back into appropriate areas. * Assign staff to patient care areas. |

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| Relocation Checklist (cont.) | |
| **Manager** | * Collaborate with I.T., Business Office and Admissions: assignments of data entry not captured at alternate care site to be inputted into EMR. * Provide all hard copy records to those designated to enter data into EMR. * Inventory medical supplies in each patient care area to identify anything that should be discarded, can still be used or needs to be ordered. * Do not dispose of unsalvageable equipment. Everything must be inventoried and evaluated for insurance purposes. * Use pre-existing order lists of products and supplies for each area to inventory supplies and create resupply lists. * Identify any equipment and/or supplies currently in storage that can be used to replace missing or damaged items. * Ensure that the environmental staff has the chemicals and cleaning supplies needed to begin clean up. * Identify missing or damaged medical equipment such as point of care testing machines, ventilators, portable monitors, smart pumps, blood gas machine, ventilators, bronchoscopes, echocardiogram machines, ultrasound machines, cardiac tear testing machines, etc. * Alert supply chain team about equipment that was sent with patients when they were evacuated. * Assist Biomed team to return and reconfigure medical equipment that was moved or disconnected during the relocation Work with Biomed teams and vendors to ensure that any specialized medical equipment and systems are functioning correctly. * Work with IT and Communications to identify missing or damaged computers or communications equipment. * Work with Facilities team to ensure that all gas and suction lines are working correctly. |

## Recovery and Resumption of Mission Critical Services

Prior to returning to the primary site during the recovery phase, it is essential to determine the status of the facility and equipment. Once it is confirmed that essential infrastructure and supplies are available, services may be resumed at primary workspace/patient care unit. Preparations to initiate these actions should be taken at the earliest time possible.

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| Recovery and Resumption of Mission Critical Services Checklist | |
| **Unit Manager** | * Confirm with the EOC to validate all clear to return to facility. * Assign staff to gather supplies. * Contact IC on transport of equipment/supplies/meds, patients, staff and records. * Store equipment and parts in tent. * Find office or floor space for computer access. * Use downtown procedures for work orders. * Have carts available with tools for mobile repair. * Communicate downtime status. * Conduct lessons learned and review. * Update BCP for improvements. |

# Appendix A: Schedules

BCP Update Schedule

BCP Exercise and Training Schedule

## BCP Update Schedule

In order to ensure efficacy of the BCP it is to be reviewed and updated on the schedule as outlined below. The Biomedical Engineering Department is responsible for maintaining and carrying out the Update Schedule. Once updated, the Plan must be provided to all responsible parties and the previous version is to be gathered and destroyed.

NOTE: Following an event it will be determined whether an out-of-cycle update is required. If so, the update will be recorded and then will be revised and distributed as outlined above.

BCP updates may occur with:

* The addition of new employees or transferred employees to your department.
* The relocation of employees, supply areas or other resources.
* Changes in departmental procedures that would affect downtime procedures.
* Changes in staff or management telephone numbers, pagers, etc.
* Changes in management or reporting structure within your department.
* New computer systems to be used by your department.
* Changes in vendors that you are using.
* After an actual downtime occurs.
* Annual review.

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| **Scheduled Update** | **Plan Version** |
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## BCP Exercise and Training Schedule

The BCP will be exercised and trained on the schedule outlined below. Exercises and trainings should occur prior to the required plan update in order for the lessons learned to be reflected in the update.

Biomedical Engineering Department Director is responsible for ensuring the exercises and trainings are carried out and documented.

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| **Scheduled Update** | **Plan Version** |
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