

Situation Summary:

At the heart of every hospital is the basic desire to care for the sick and injured who walk through the door. To continue doing so even in the event of natural or human-caused emergencies, Berwick hospital must be prepared to assist the public regardless of the circumstances. Ensuring our ability to do so will require the implementation of a comprehensive Enterprise Continuity Management (ECM) plan, as an integral part of its overall Strategy Map.

The ECM plan will define the policies, procedures, responsibilities and actions that the hospital will take before, during, and after any emergency situation, including direction and control, notification, and evacuation and sheltering, addressing the organization's ability to provide adequate medical care in the event of disaster and mass-casualty events, and to identify hazards to information technology, facilities and personnel, along with risk analysis, countermeasures and post-crises recovery. Also included will be plans regarding security, communications, traffic flows, visitors, media, evacuation/ relocation, pharmaceuticals and training.

Implementation of the ECM Plan incorporates the following priorities into a course of action:

Save Lives

Manage building evacuations; fire suppression; hazardous materials release response; search and rescue; medical aid; communications; and utility stabilization.

Protect Hospital Property

Perform building inspections; establish facilities security; shelter, food and water.

Restore Operations

Secure vital patient and hospital business records; safeguard research; reoccupy buildings or relocate space; obtain emergency recovery supplies through mutual aid arrangements.

Meet Community Needs

Provide available space to external agencies (Red Cross, Governor's Office of Emergency Services, etc.); assist adjacent healthcare organizations, as well as neighboring residents.

This memo will summarize the major risks associated with maintaining continuity of operations in the event of an environmental, human-caused or natural catastrophes or mass-casualty. Included will be an outline of the basics of a continuity plan to cope with such a scenario.

Key Problem:

A review of Berwick Hospital's current ECM plan reveals that preparations for maintaining operations during emergency events is inadequate to meet contemporary standards. Since promulgation of the current plan several years ago, a considerable number of additional legal statutes and health care industry standards have been enacted mandating an extensive upgrade of the hospital's continuity and disaster recovery plans, including regulations issued by:

- ◆ The Health Care Portability and Accountability Act of 1996 (HIPAA, 2006)
- ◆ Joint Commission on Accreditation of Healthcare Organizations (JCAHO, 2006)
- ◆ Sarbanes Oxley (SOX)
- ◆ Federal Information Security Management Act (FISMA)

Action Plan:

Toward the goal of developing a robust ECM plan, the Continuity Management Office has initiated a risk assessment to identify any foreseeable risks to human, information, or capital resources that the system faces. Subsequent to evaluating the risks, the ECM plan will be generated to establish policies and procedures for responding to an emergency or other occurrence, and to provide reasonable assurance that operations will remain effective and efficient, that assets will be safeguarded, and that the hospital complies with all applicable laws, regulations and policies.

A. Outline of Action Plan - Berwick's ECM plan will include four phases:

1) **Mitigation and Preparedness Phase** – A risk analysis is underway to identify critical business functions, processes and applications and to understand the potential impact to the business if a disruptive event occurs. Hazards and risks will be evaluated to determine the weighted importance of each potential hazard, the likelihood of its occurrence, the ability of the enterprise to recover, recovery cost, and the identification of a countermeasure for each risk.

a) Risks & Vulnerabilities: There exist three categories of risk. Every potential event in each of the three categories of probability, risk, and preparedness will be evaluated.

i) Issues to be considered for probability include, but are not limited to:

- (1) Known risk
- (2) Historical data
- (3) Manufacturer/vendor statistics

ii) Issues to be considered for risk include, but are not limited to:

- (1) Threat to life and/or health
- (2) Disruption of services
- (3) Damage/failure possibilities
- (4) Loss of community trust

(5) Financial impact

(6) Legal issues

iii) Issues to be considered for preparedness include, but are not limited to:

(1) Status of current plans

(2) Training status

(3) Insurance

(4) Availability of back-up systems

(5) Community resources

b) Probability and Preparedness: Using the templates shown below, suggested by the American Society for Healthcare Engineering (ASHE, 2000), each department will evaluate risk probability and preparedness. The procedures entail multiplying the ratings for each event in the area of probability, risk and preparedness. The total values, in descending order, will represent the events most in need of organization focus and resources for emergency planning.

EVENT	PROBABILITY				RISK					PREPAREDNESS			TOTAL
	HIGH	MED	LOW	NONE	LIFE THREAT	HEALTH/ SAFETY	HIGH DISRUPTION	MOD DISRUPTION	LOW DISRUPTION	POOR	FAIR	GOOD	
SCORE	3	2	1	0	5	4	3	2	1	3	2	1	
Tornado													
Severe Thunderstorm													
Snow fall													
Blizzard													
Ice Storm													
Earthquake													
Temperature Extremes													
Drought													
Flood													
Epidemic													
EVENT	PROBABILITY				RISK					PREPAREDNESS			TOTAL
ENVIRONMENTAL EVENTS	HIGH	MED	LOW	NONE	LIFE THREAT	HEALTH/ SAFETY	HIGH DISRUPTION	MOD DISRUPTION	LOW DISRUPTION	POOR	FAIR	GOOD	
							TION	TION	TION				

SCORE	3	2	1	0	5	4	2	2	1	3	2	1	
Electrical Failure													
Generator Failure													
Transportation Failure													
Fuel Shortage													
Natural Gas Failure													
Water Failure													
Sewer Failure													
Steam Failure													
Fire Alarm Failure													
Communications Failure													
Medical Gas Failure													
Medical Vacuum Failure													
HVAC Failure													
Information Systems Failure													
Fire, Internal													
Flood, Internal													
Hazmat Exposure, Internal													
Unavailability of Supplies													
Structural Damage													
Information Technology Assets, including:													
(a) computing facilities													
(b) computer hardware and systems software													
(c) enterprise network electronics, transport, and ISP access													

(d) telecommunications equipment, software, and purchased service													
(e) databases, electronic media and files													
(f) computer programs													
(g) computer execution and operation's procedures													
(h) documentation													

EVENT	PROBABILITY				RISK					PREPAREDNESS			TOTAL
	HIGH	MED	LOW	NONE	LIFE THREAT	HEALTH/SAFETY	HIGH	MOD	LOW	POOR	FAIR	GOOD	
							DISRUP-TION	DISRUP-TION	DISRUP-TION				
SCORE	3	2	1	0	5	4	3	2	1	3	2	1	
Mass Casualty Incident (trauma)													
Mass Casualty Incident (medical)													
Mass Casualty incident (hazmat)													
Hazmat Exposure, External													
Terrorism, Chemical													
Terrorism, Biological													
Infant Abduction													
Hostage Situation													
Civil Disturbance													
Labor Action													
Bomb Threat													

- c) Information, Training & Exercises: As part of the Preparedness Phase, procedures will be developed for increasing employee and patient awareness of possible emergency situations and for training on their emergency roles before, during, and after a disaster. Included in the plan will be procedures to:
- i) Identify how key workers will be trained in their emergency roles during non-emergency times.
 - ii) Identify a training schedule for all employees.

- iii) Identify the provisions for training new employees regarding their disaster related roles.
- iv) Identify a schedule for exercising all or portions of the disaster plan on a semiannual basis.
- v) Establish procedures for correcting deficiencies noted during training exercises.

2) **Response phase** – In order to anticipate response activities needed to deal with medical issues, containment of hazardous materials releases, assessment of building damage, etc., risk mitigation templates will be incorporated into the ECM plan. The templates will be used during training sessions and drills, so that all personnel are familiar with procedures to mitigate the various risks. Below are examples of templates for each of the three major areas of risk - Natural, Human-Caused, Environmental.

- a) Natural Risks - example: These risks are usually associated with weather related events: earthquakes, flooding, high winds, severe storms, tornado, fire, high winds, snow storms, and ice storms.

Risk / Threat	Preventative Measures
Earthquakes	<ul style="list-style-type: none"> • Move large and heavy objects to the fall to prevent injury (from falling on people.) • Equipment tie-downs are used on all critical computer equipment. • Emergency power is available on-site. • Earthquake construction guidelines have been adhered to so that damage can be minimized. • Critical data and vital records should be backed up and sent offsite for storage. • Staff should be trained in Earthquake evacuations and safety.

- b) Man-Made Risks - example: Bomb threats, vandalism, terrorism, civil disorder, sabotage, hazardous waste, work stoppage, and computer crime.

Risk / Threat	Preventative Measures
Staff Productivity	<ul style="list-style-type: none"> • Alternate sources of trained employees have been identified • Proper training and necessary cross-training is conducted

Risks	<ul style="list-style-type: none"> Files are backed up and procedures are documented The work areas are comfortable and safe
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c) Environmental Risks - example: These risks are usually associated with exposures from surrounding facilities, businesses, government agencies, etc.

Risk / Threat	Preventative Measures
Hazardous Materials Plant	<ul style="list-style-type: none"> There is a nightly backup of data processing electronic record and that backup is stored off-site The off-site backup facility is a sufficient distance away from this facility An alternate site has been identified for use in the event that this facility is unusable

3) **Recovery phase** – The aim of the recovery phase is to restore the affected area to its previous state. Procedures will be established to restore hospital functions to pre-event conditions and secure insurance to cover physical damage to the complex. The recovery phase starts when the immediate threat to human life has subsided.

a) Recovery efforts are primarily concerned with actions that involve rebuilding destroyed property, re-employment, and the repair of other essential infrastructure. An important aspect of effective recovery efforts is to document those contingency and continuity measures in the ECM plan that worked well, and to update the plan to include lessons learned.

b) The hospital's administrators and legal counsel will work with Berwick's insurance representative to determine current versus desired coverage. Desired coverage will be based on the weighted risks relative to recovery costs, as calculated during the Risk Analysis portion of the Mitigation and Preparedness Phase, and should include sufficient insurance to cover real and personal property (insured "to value"), legal costs, demolition, reconstruction, permits, temporary location, moving, and additional staff/overtime expenses.

B. Preparing the Enterprise Contingency Management Plan - Documenting the ECM Plan is anticipated to take approximately six months and will be conducted in three segments:

- 1) **Initiation and Documentation Review.** Key contributors to the plan, such as department heads, will be identified and the scope of the ECM plan will be finalized and reviewed for compliance with all industry and regulatory guidelines.
- 2) **Plan Construction.** Based on findings obtained during the Risk Assessment, the first draft of the new or revised ECM plan will be drafted by the ECM project team. This draft consists of a basic plan which defines the purpose, situation and assumptions, concept of operations, authorities and references.
- 3) **Plan Implementation.** The draft plan will be submitted to the Chief Operating Officer for distribution to a review committee to ensure its compliance with the hospital's strategic goals, as well as with all industry standards and regulatory requirements. The Continuity Manager will meet with key personnel and officials to obtain initial feedback on the plan. We then make final updates to the draft plan and coordinate its contents with all appropriate parties. The finalized ECM plan will then be presented to the Chief Operating Officer for adoption and distribution. The plan will be considered fully implemented once training and emergency drills have been conducted with all personnel.

Business Impact:

The key to developing an cost-effective ECM plan is to identify the hospital's critical business functions and supporting information technology and support functions necessary to meet the recovery objectives outlined in the Financial Perspectives portion of the Strategy Map.

Our emergency response must be immediate, and business recovery within 48 hours. In the healthcare environment, the critical business functions are not likely to be Emergency Medicine, Surgery, and Orthopedics since they are not particularly technology dependent, especially during the triage period.

Assumptions that are used toward mitigating business impact will be documented using a risk management matrix similar to those shown in the Mitigation and Preparedness Phase, above. The worst case scenario will be planned for; obviously, if the medical center is so badly damaged that it cannot provide any medical care at the primary site, business recovery is not a priority. If only part of the medical center is damaged or is disabled, business recovery planning could enable the setting up of another function such as Laboratory or Pharmacy in either a different part of the medical center or close by. Some critical business functions have to be located in close patient proximity while others can be offsite.

The following are the critical business functions at Berwick Hospital:

- Admitting/Registration.
- Dietary.
- Finance.
- Human Resources.
- Laboratory.
- Managed Care/Reporting.
- Materials Management.
- Outpatient Clinics.
- Order Processing.
- Patient Accounting/Billing.
- Patient Care Services.
- Payroll.
- Pharmacy.
- Plant Services.
- Radiology.
- Respiratory Therapy.

The ECM plan will include the following in its Business Impact Analysis:

- Description of business function.
- Employees and locations.
- Hours of operation and peak periods.
- Internal/External dependencies.
- Potential financial impacts if quantifiable.
- Computer applications needed for business function.
- Platforms applications run on.
- Hardware location.
- Terminals/PCs needed to perform function.
- Terminals/PCs needed in disaster mode.
- Telecommunications/voice requirements for recovery.
- Telecommunications/network/data requirements for recovery.
- Special forms.
- Special supplies.
- Special equipment.
- Space/physical resource requirements.
- Key vendors.
- Normal transaction volume for function.
- Vital electronic records.
- Vital records in other forms.
- Backup procedures for vital records.
- Critical documentation needed to process.

Conclusion:

A comprehensive enterprise continuity management plan will prepare the organization for unforeseen circumstances that would otherwise totally disrupt the delivery of healthcare services. Properly planning for such an event can build confidence in the organization, and can safeguard the assets of the institution. Seizing the initiative to plan for a disruption of services will enable the Berwick Hospital complex to maintain continuity of patient care.

This memo has summarized the major risks associated with maintaining continuity of operations in the event of an environmental, human-caused or natural catastrophes or mass-casualty, and has presented an outline of a continuity plan to cope with such a scenario. Funding for preparing the ECM plan, inaugurating training and conducting semi-annual drills is requested.

References:

- ASHE (2000). American Society of Healthcare Engineering. Hazard Vulnerability Analysis. Retrieved 23 January 2007 from http://www.premierinc.com/quality-safety/tools-services/safety/topics/disaster_readiness/downloads/30_HazVulnAnalysis_ASHE.doc
- HIPAA Academy (2006). Hospital: HIPAA Compliance Services & Tools for Security. Retrieved 22 January 2007 from <http://www.hipaaacademy.net/compliancesolutions/HIPAASecurityComplianceSolutionForHospitals.html>
- HIS (2004). U.S. Dept of Homeland Security - Recurring Pitfalls in Hospital Preparedness and Response Recurring Pitfalls in Hospital Preparedness and Response. Retrieved 24 January 2007 from <http://www.homelandsecurity.org/newjournal/Articles/displayArticle2.asp?article=101>
- JCAHO (2006). Joint Commission on Accreditation of Healthcare Organizations. Emergency Preparedness. Retrieved 22 January 2007 from http://www.jointcommission.org/PublicPolicy/ep_home.htm
- Johns Hopkins Institutions (2006). Disaster Recovery Plan. Retrieved 23 January 2007 from <http://it.jhu.edu/etso/dr/drplan.html>