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### **73. REHABILITATION AFTER A CHEM/BIO INCIDENT**

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#### **SUMMARY**

After a chemical/biological incident, triage and initial treatment will need to be followed by extensive periods of rehabilitation, in respiratory, cardiac, wound care, pain and psychiatry orthopedic, stroke, spinal cord, and head injury. The areas of most concern will be dependent on the agent used. If mustard is used, rehabilitation will be similar to burn patients with the emphasis on care of the skin, respiratory function and eye care. The effects on heart muscle and therefore cardiac function will also be a priority, but this care will be similar to those with cardiac problems without a chemical/biological event. As the skin is the first barrier to infection, care of wounds will be ongoing until healed. Skin heals in a progressive, structured way, and again this will be the same without a chemical/biological event. If phosgene or choking agents were used, respiratory care will be a priority, and an ongoing rehab concern. Respiratory care will be a continuation of initial treatments, with the addition of breathing exercises to enhance the ability of remaining lung tissue to be productive. Cardiac rehab will be essential to enhance the viable heart muscle with the goal of improving cardiac output. If nerve agents are used the effects on behavior including paranoia, as well as catastrophic victim behaviors of shock, depression, helplessness, and loss of life as it was prior to the incident.

#### **INTRODUCTION**

After a chem/bio event, hospitals will be overloaded with casualties. The immediate emergency care and triage will admit the most medically needy and choices will have to be made regarding which cases will be appropriate for out patient services or Visiting Nurses Association (VNA). Decisions and plans need to address early on how out patient clinics and the VNA will be able to provide services for those who need ongoing care. The reality is that more patients will be in their home settings rather than be hospitalized. Many of the less extensively hurt will need follow up to prevent complications and to ascertain normal healing and progression to wellness. In my readings of previous papers submitted in 1998 Symposium, I discovered a lack of insight and discussion into long-term care and treatment to bring the population back to a functioning, productive society. Immediate treatment is essential, however lack of support for long-term issues could prevent development of a viable society after such an event. Education of the populous is essential: who do you think will be able to help all the casualties? Emphasis should be placed on the education of professionals now and also their essential helpers who will be doing the hands on care. There will never be enough professionals, and to empower their helpers is imperative. Do the local communities encourage entry-level medical personal? Do they provide ongoing, current education of those who will be doing the actual "hands on care"? How can communities increase now, the numbers of long-term and visiting nurse care professionals, who will be the caregivers of those in need of rehabilitation? Are there health care professionals who are able to effectively teach and educate potential caregivers?

#### **ALL PATIENTS WILL FALL INTO THE REHABILITATION CATEGORY**

Whether their needs are cardiac, pulmonary, wounds, pain, orthopedic, spinal cord, stroke, head injury or psychiatric, all patients will need follow up care.

Has Rehabilitation been addressed in any long-term program? Cardiac and pulmonary Rehab programs use a comprehensive interdisciplinary approach to achieve positive patient

outcomes. The Rehab programs help patients make lifestyle adjustments, decrease risky behaviors, maximize physical status without endangering life and reduce morbidity and mortality. Rehab is a continuous process that begins in the critical care period and extends to a life long program of lifestyle adaptation. The focus here will be on outpatient, home care and life long recovery of both cardiac and pulmonary patients. Assessments, interventions, exercises and goals are set up for individual patients to achieve positive outcomes. General guidelines for increasing physical activity include warm up exercises, pacing exercises, scheduling breaks and along with assessment of heart rhythm and rate, blood pressure and body signals (including shortness of breath, diaphoresis, fatigue, nausea, dizziness and chest pain). There is a step-by- step program suggested by the American Heart Association that is progressive for the de-conditioned patient.

Much progress has been made in healing wounds that involves new techniques and new dressings that provide a moist, undisturbed healing environment. Instruction on how to use them and what to look for in the normal progression of healing is essential to their effectiveness. Diet and nutrition of the population will be critical to their wellness. Are there uncontaminated food storage warehouses for any biological/chemical event? Where will the uncontaminated life essential water come from?

## **CONCLUSION**

As discussed, in order to bring about a productive society after a chemical/biological event, rehabilitation of possibly large numbers of patients will be essential. Planning now for such an eventuality is critical in the rebuilding of any society. As informed, knowledgeable professionals, it is your responsibility to include rehabilitation in your long-term plans for treatment of all patients after such an incident or event.

## **KEYWORDS:**

Rehabilitation, long-term care, outpatient care

## **TABLE 1. AREAS OF EXTENSIVE REHABILITATION**

### **RESPIRATORY REHAB** - will include but not be limited to:

Maximizing breathing capacity and function with medications, inhalers, nebulizers, ventilators  
Maintaining and improving functional status  
Enhancing coping skills (identifying stressors and modifying behaviors)  
Maintaining and improving nutrition  
Educating re: disease process

### **CARDIAC REHAB** - will include but not be limited to:

Maximizing cardiac function with medications, surgical interventions, and exercises  
Maintaining and improving functional status  
Focusing on risk factors including: smoking, control of BP, weight and cholesterol, increasing physical activities and managing stress

### **WOUNDBURN CARE** - maximizing wound care

Controlling vascular supply and wound stabilization to improve wound healing  
Use of different types of dressings including: film, hydrocolloidal, hydrogel, foam, calcium alginate, composite, debriding agents and impregnated gauzes  
Maintaining and improving nutrition  
Exercises to reduce immobility due to scar tissue