THE RADIATION ONCOLOGIST’S ROLE IN PREPAREDNESS PLANNING

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DISCLOSURES: NONE
OBJECTIVES

After this session, attendees will be able to:

• 1-understand the importance of local hospital radiologic preparedness
• 2-understand the components of a hospital radiation plan
• 3-understand the important and unique role of the radiation oncologist
WHY PREPARE?-1

- INCREASING LIKELIHOOD OF AN EVENT
- PUBLIC EXPECTS MEDICAL SYSTEM WILL BE READY-BIOLOGIC AND CHEMICAL PREPARATION IS READY
- RESPONSES ARE FIRST AND FOREMOST LOCAL
- SYSTEM(HOSPITALS, ROADS,ER’S) NOT READY
WHY PREPARE?-2

- OTHER HEALTH CARE PROVIDERS NOT COMFORTABLE WITH RADIATION ISSUES
- COORDINATED LOCAL RESPONSE CAN OCCUR WITH PREPARATION
- RADIATION ONCOLOGIST NATURAL CHAMPION FOR THIS EFFORT
- MANY HOSPITAL DISASTER PLANNING EFFORTS LACKING IN THE RADIATION COMPONENT
today’s presentation

- Event likelihood
- Our hospitals and infrastructure
- Hospital plan and team
- Connecticut pilot
- Role of radiation oncologist
LIKELIHOOD OF AN EVENT

- TERRORISM IS GROWING WORLDWIDE
- HIGH PROBABILITY OF RETURNING TO OUR SHORES
- RADIOACTIVE SOURCES READILY AVAILABLE
- SPREADING FEAR AND PANIC, DISABLING OUR SYSTEMS, GETTING OUR ATTENTION, LOSS OF LIFE
WE HAVE HAD AN EXPLOSION IN BOSTON. THIS MIGHT BE A DIRTY BOMB. IF YOU EXPERIENCE HEADACHE, NAUSEA, OR FATIGUE, PROCEED AT ONCE TO THE NEAREST MEDICAL FACILITY.

(simulated story)
CHALLENGE OF AN EVENT

- ACCIDENT, INCIDENT, TERRORIST ACT
- LARGE DEMAND ON HEALTHCARE FACILITIES
- VICTIMS POTENTIALLY EXPOSED AND/OR CONTAMINATED
- “WORRIED WELL”
- MEDICAL AND PUBLIC HEALTH ISSUES
RADIATION INJURY

- EXPOSURE
  - Acute Radiation Syndrome
    - Hematopoietic/ GI/ CNS/ Cutaneous Subsyndromes

- EXTERNAL CONTAMINATION

- INTERNAL CONTAMINATION
SYSTEM READINESS

- ER’S OVERCROWDED
- HOSPITALS FULL
- LIMITED CAREGIVERS
- ROADWAYS CONGESTED
- POPULATION EASILY AND QUICKLY PANICKED

- NOT SO READY!!
Nation's Emergency Care System Is Fragmented, Unable To Respond To Disasters, Says Institute Of Medicine

- only a tiny fraction of federal funding for emergency preparedness since 9/11 has been spent on medical preparedness
- increasing responsibilities of hospital emergency departments, which are caring for patients without medical insurance and for insured patients unable to access their physicians
ER STRESSORS
IOM REPORT 6/06

- ER VISITS GREW BY 23% 1996-2003
- # ER’S DECLINED BY 425, BEDS BY 198,000
- ER’S CROWDED BY LACK OF INPATIENT BEDS (PTS BOARDED)
- AMBULANCES FREQUENTLY DIVERTED
- POOR EMS COORDINATION
- SHORTAGE OF SPECIALISTS TO TAKE ER/TRAUMA CALL
- LITTLE OR NO SURGE CAPACITY
- SUPPLIES LACKING FOR PEDIATRIC EMERGENCIES
Transportation issues

- US Dept of Transportation

INCREASING CONGESTION IN CITIES
Highway Congestion-1
Federal Highway Administration

INCREASING HOURS OF DELAY IN CITIES
Highway congestion - 2
Federal Highway Administration

REASONS FOR MORE CONGESTION

- Bottlenecks: 40%
- Traffic Incidents: 25%
- Bad Weather: 15%
- Work Zones: 10%
- Poor Signal Timing: 5%
- Special Events/Other: 5%
US National Guard

- EQUIPMENT SHORTAGE
- Demands of wars since 9/11 strain National Guard's efforts
- By Bryan Bender, Globe Staff | September 2, 2005
Health Care Providers Not Well Informed

- Physicians, nurses do not know much about radiation issues
- ER physicians happy to manage patients but want knowledgeable radiation colleagues with them
- General fear about staff and facility contamination and exposure
- Lack of understanding of difference between exposure and contamination

- Compelling rationale for local hospital radiologic preparedness team
ER physician response

“We are not taking any radiation patients—we don’t have enough shielding!”
DEVELOP HOSPITAL PLAN

- Radiologic preparedness component of hospital disaster plan
- Needs radiation “champion” to develop plan in collaboration with ER/Trauma and hospital disaster planning committee
- Utilize sample plans available
- Collaborate with state/regional/local officials
Radiologic Disaster Plan

Components-1

- Roles of health care providers
- Basic care concepts
- Initial contact, assessment, decontamination
- Medical stabilization
- Documentation of history
- Exposure recognition/clinical dosimetry
Radiologic Disaster Plan Components-2

- Classification and triage
- Specific procedures based on levels of exposure/mixed injury
- Dealing with internal contamination
- Maintaining security
- Imaging
- Surgery/OR
Radiologic Disaster Plan Components-3

- Radiologic team-decontamination, screening, monitoring
- Equipment
- Psychosocial issues
- Maintaining a safe environment
- Specific roles for team members
- References
- Forms for documentation
Radiologic Disaster Plan
Components-4

- Handling biological samples
- Toxicity grading systems
- Local, regional, national contacts
- Telephone/beeper notification system for deployment
- Drills
- Post event review
## Cutaneous System

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Degree 1</th>
<th>Degree 2</th>
<th>Degree 3</th>
<th>Degree 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erythema</td>
<td>minimal and transient</td>
<td>moderate; isolated patches &lt; 10cm²; not more than 10% of body surface (BS)</td>
<td>marked; isolated patches or confluent; 10-40% of BS</td>
<td>Severe²; isolated patches or confluent; &gt;40% of BS</td>
</tr>
<tr>
<td>Sensation/Itching</td>
<td>pruritus</td>
<td>slight and intermittent pain</td>
<td>moderate and persistent pain</td>
<td>severe and persistent pain</td>
</tr>
<tr>
<td>Swelling/Edema</td>
<td>present; asymptomatic</td>
<td>symptomatic; tension</td>
<td>secondary dysfunction</td>
<td>total dysfunction</td>
</tr>
<tr>
<td>Blistering</td>
<td>rare, with sterile fluid</td>
<td>rare, with hemorrhage</td>
<td>bullae with sterile fluid</td>
<td>bullae with hemorrhage</td>
</tr>
<tr>
<td>Desquamation</td>
<td>absent</td>
<td>patchy dry</td>
<td>patchy moist</td>
<td>confluent moist</td>
</tr>
<tr>
<td>Ulcer/Necrosis</td>
<td>epidermal only</td>
<td>dermal</td>
<td>subcutaneous</td>
<td>muscle/bone involvement</td>
</tr>
<tr>
<td>Hair loss</td>
<td>thinning, not striking</td>
<td>patchy, visible</td>
<td>complete and most likely reversible</td>
<td>complete and most likely irreversible</td>
</tr>
<tr>
<td>Onycholysis</td>
<td>absent</td>
<td>partial</td>
<td>partial</td>
<td>complete</td>
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</table>
Development of a statewide hospital plan for radiologic emergencies

- Nicholas Dainiak, M.D., Domenico Delli Carpini, Ph.D.,
- Michael Bohan, B.S., Michael Werdmann, M.D.,
- Edward Wilds, Ph.D., Agnus Barlow, M.S.,
- Charles Beck, B.S., M.S., M.A., David Cheng, M.D.,
- Nancy Daly, M.S., M.P.H., Peter Glazer, M.D.,
- Peter Mas, M.S., Ravinder Nath, Ph.D., Gregory Piontek, B.S., M.S.,
- Kenneth Price, M.P.H./C.H.P.,
- Joseph Albanese, Ph.D., Kenneth Roberts, M.D.,
- Andrew L. Salner, M.D., Sara Rockwell, Ph.D.
HOSPITAL RADIOLOGIC PREPAREDNESS TEAM

- Radiation oncologists
- Medical physicists
- Radiation safety officer (health physicist)
- Radiologists
- Nuclear medicine personnel
- Dosimetrists
- Other trained radiologic staff
HOSPITAL RADIOLOGIC PREPAREDNESS TEAM

- Organized with team leader(s)
- Deployable and on-call for after hours deployment
- Readily available and calibrated survey meters, portal monitors, protective gear
- Knowledgeable of hospital disaster plan
- Drills completed with ER/Trauma colleagues
SPECIALISTS NEEDED

- ER
- TRAUMA
- HEMATOLOGY
- GI
- INFECTIOUS DISEASE

- CHAMPION, DEVELOP PLAN, DRILL, DEPLOYMENT
CT Radiation Response Planning Committee

- Developed “Connecticut Model Radiation Emergency Manual for Hospitals”
- Manual approved by state committees and ultimately CT Public Health Preparedness and Advisory Committee
- Working to educate first responders
- Working with bioterrorism tiers on preparedness, drills
- Endorses ASTRO pilot project efforts
ASTRO pilot project

- Radiation Emergency Assistance Center/Training Site (REAC/TS) - Oak Ridge, TN
  - Medical Management of Radiation Emergencies
ASTRO pilot -I

Objectives

- Each hospital in CT will have radiation preparedness as part of its disaster plan
- Radiation Oncologists will be educated about this issue, become experts, educators, and champions in their institution/community
- Radiation Oncology staff (physics, dosimetry, therapists) will be educated and involved
- Each hospital will have a plan for deploying staff for survey, decontamination, monitoring, safety
ASTRO pilot -II

- Small subcommittee developed 90 minute teaching set for radiation oncologists/staff based on REAC/TS course; also developed 45 minute talk that trained radiation oncologists could deliver to ER, general medical, nursing, and other hospital colleagues
- Educational products reviewed by Task Force members, REAC/TS staff, CT committee
- Final draft developed after broad input
ASTRO pilot -III

- 2 pilot lectures and 4 scheduled lectures for radiation oncologists/staff in CT
- Attempt to identify 1 radiation oncology “point person” in each hospital to assume responsibility for plan development
- Additional talks scheduled as needed in an attempt to reach each and every hospital with radiation oncology
- Survey of all attending to assess content and effectiveness of training instrument
- Follow up survey with point persons to assess effectiveness of project and whether it is meeting its desired outcomes
ASTRO pilot in Connecticut

RESULTS

- Radiation oncologists and their staff very interested
- 80% hospitals represented at 6 scheduled talks
- All hospitals reached with 4 extra talks
- All hospitals involved in enhancing their disaster plan
Radiation Oncologist Role-

- Develop team and deployment protocol in each hospital, and DRILL
- Develop protocol for radiation incidents with ER/trauma planning team
- Educate team on radiation incidents/manual
- Oversee deployment of team if incident occurs
- Participate in screening, monitoring, decontamination
- Participate in triage of mixed injuries
Radiation Oncologist Role-II

- Help to identify isotope, quantify dose, assess risk for each patient
- Advise physician on diagnostic and therapeutic strategies
- Consult with hematologist concerning growth factors, other therapies
- Advise on short and long term risks and treatment strategies
- Educate staff, media, public on nature of exposure and risk
Radiation Oncologist Role—III

- Develop screening strategy for “worried well”
- Provide conduit for information from State agencies concerning radiation issues to Hospital Incident Command System and staff
- Serve as media expert for questions and answers
- Assure safe environment in the hospital
DRILL EXERCISE

salnernucraddrill.wmv
Lessons from Hurricane Katrina
August 2006

- Local providers may be on their own for 4-5 days after a disaster
- Medical Volunteers and Federal personnel will ultimately arrive, may serve in harm’s way and perform care outside their specialty
- Disaster victims may be triaged and housed in large centers (stadiums), transported all over the country for medical care and housing
Many good resources

- REMM- remm.nlm.gov
- CDC-http://www.bt.cdc.gov/radiation/
- DHS- http://www.dhs.gov/xpreppresp/programs/
THE THREAT OF A NUCLEAR/RADIOLOGIC EVENT IS REAL!

ALL EVENTS ARE LOCAL! NEED COORDINATED LOCAL RESPONSE IN A SYSTEM THAT IS ALREADY STRESSED

RADIOLOGIC RESPONSE TEAM AT EACH HOSPITAL CAN HELP AND IS ESSENTIAL IN COMPLETING THE PREPAREDNESS EFFORTS OF OUR HOSPITALS
SUMMARY 2

- RADIATION ONCOLOGIST NATURAL TEAM LEADER/CHAMPION
- COORDINATION IN HOSPITAL AND COMMUNITY NEEDED
- RADIATION INJURY IS TREATABLE
- MORAL IMPERATIVE FOR US TO CONTRIBUTE TO OUR HOSPITAL AND COMMUNITY--THE RIGHT THING TO DO!
THANK YOU!

- Each of us individually is but a drop of water, together we are an ocean!