Reflections on the Tsunami and Fukushima Response and After-effects a Year Later

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OPEO/ASPR/DHHS

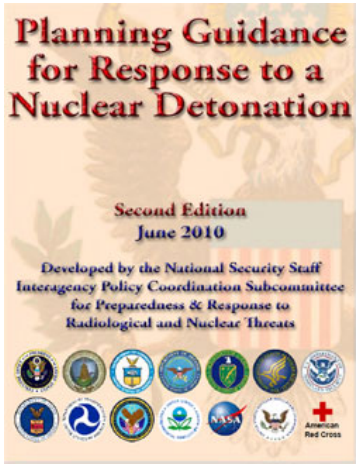
Presentation is the opinion of the presenter and does not represent DHHS or USG conclusions or policy.

Outline of presentation

- Rad/nuc preparedness provided solid starting point
  - Tools that work “just-in-time”
- Unique situation- major nuclear disaster managed in “real-time”.
  - Multiple disaster
  - Sophisticated expertise available from beginning
- Multi-expert team working on site
  - Time/distance/shielding- in sovereign country on opposite side of the world
- Lessons observed- personal opinion
- Consequences and opportunities

Rad/nuc preparedness

- Scenarios for which DHHS playbooks had been done
  - Radiological dispersal device (local damage and radiation)
  - Nuclear detonation- Nat'l Planning Scenarios and LLNL/DHS updated urban models (plume)
- Planning Guidance for Response to a Nuclear Detonation
  - Multi-agency- OSTP lead
- Just-in-time medical management
  - REMM
- Background information and education
  - CDC, ASPR
- National Level Exercises and national issues
  - KI distribution
  - NPP in 2011



Structural, radiation and medical response zones

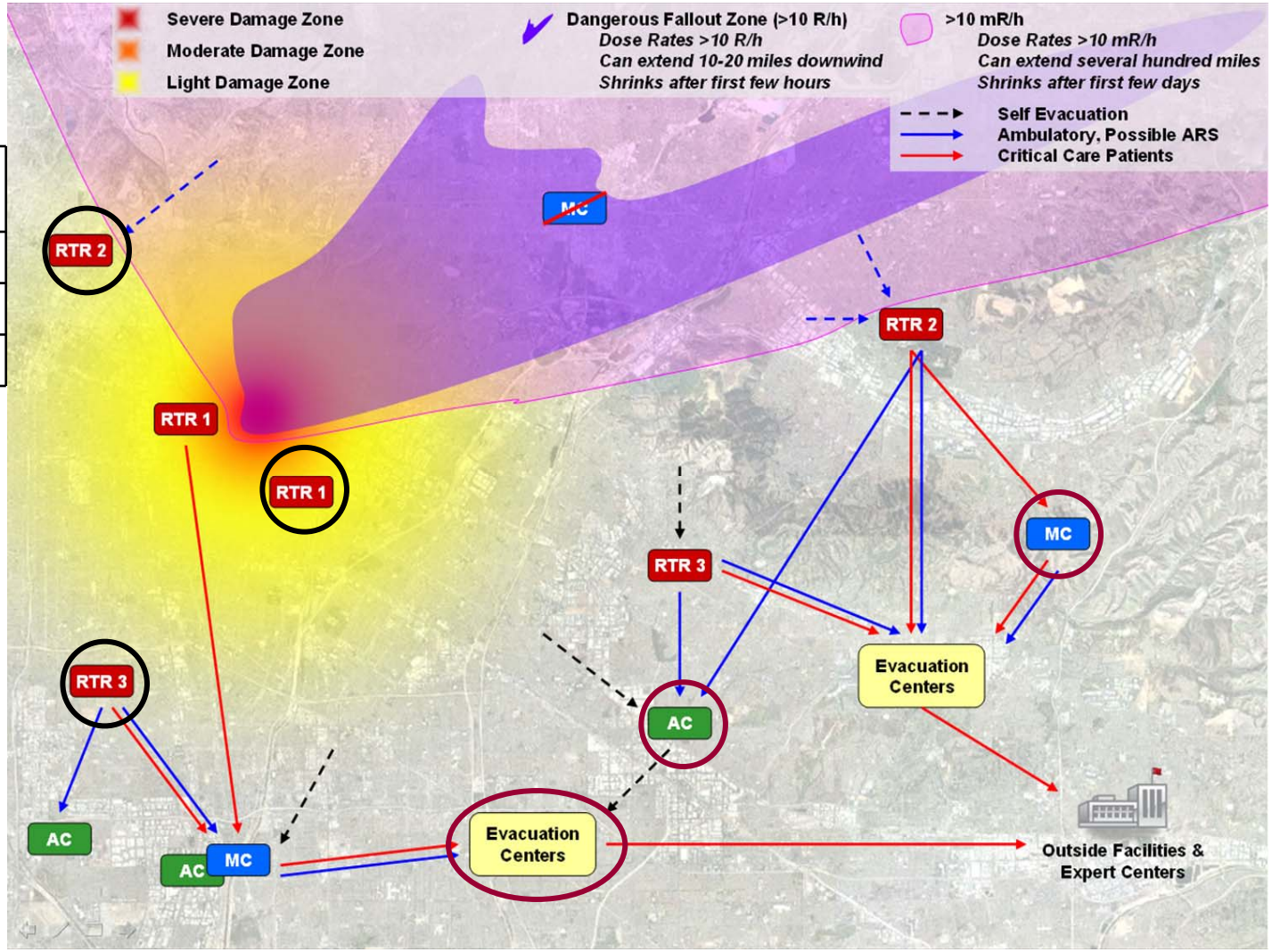
(based on situational awareness)

ASPR
ASSISTANT SECRETARY FOR PREPAREDNESS AND RESPONSE

Site	Radiation	Physical damage
RTR 1	√	√
RTR 2	√	0
RTR 3	0	0

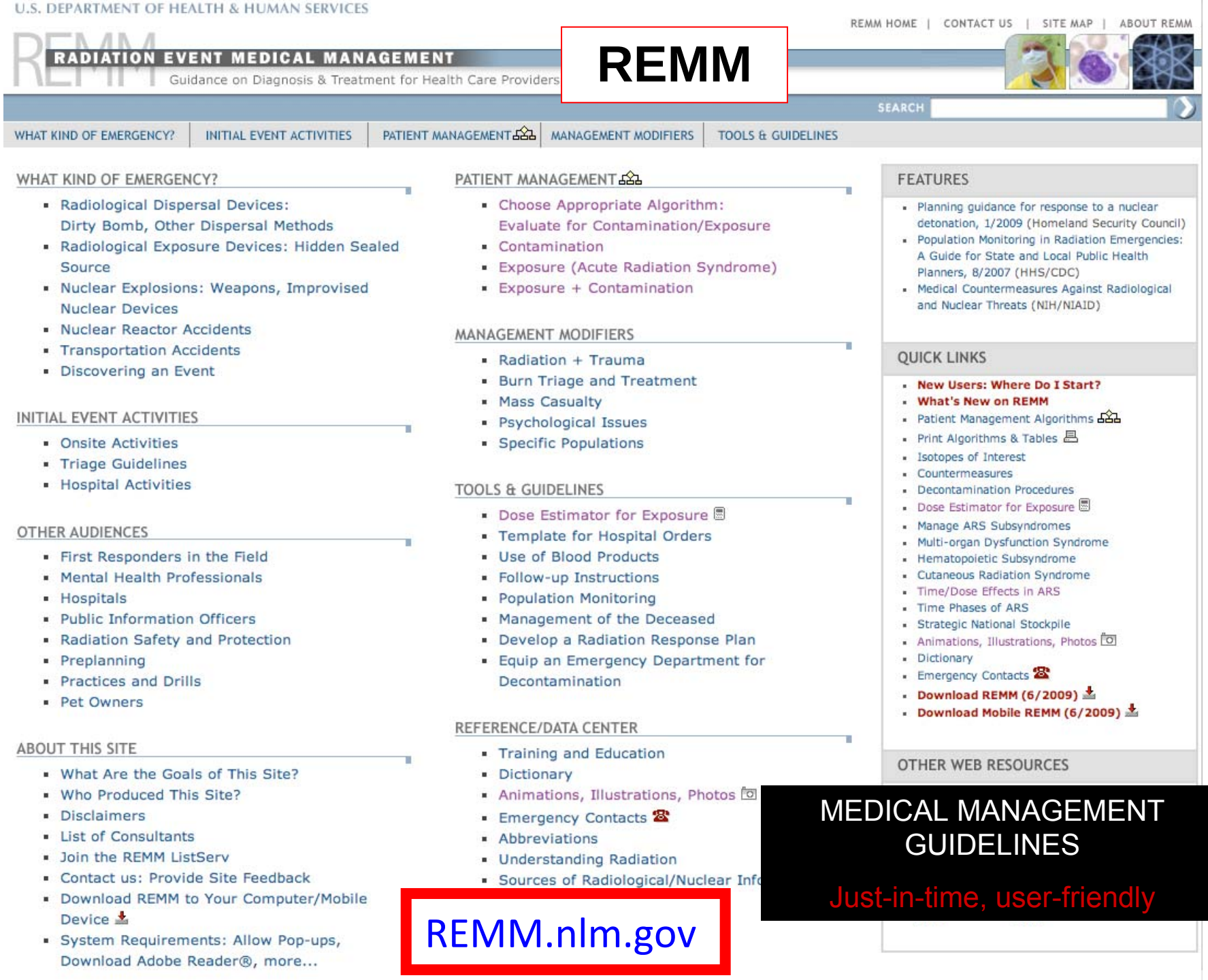
Site	Predetermined site
MC	Medical care
AC	Assembly center
EC	Evacuation center

MedMap system



State and Local Planners Playbook: Action Steps (phe.gov)

- Sequential guidance to coordinate the medical response to a nuclear detonation
- Detailed **time-phased**, **sector-oriented** approaches to response activities with linked **references**.
  - General Readiness Planning and Emergency Management
  - Emergency Medical Services (EMS)
  - Health and Facility Response, Public Health
  - Medical System Response
  - Evacuee Medical Care and Fallout-related Illness
  - Recovery

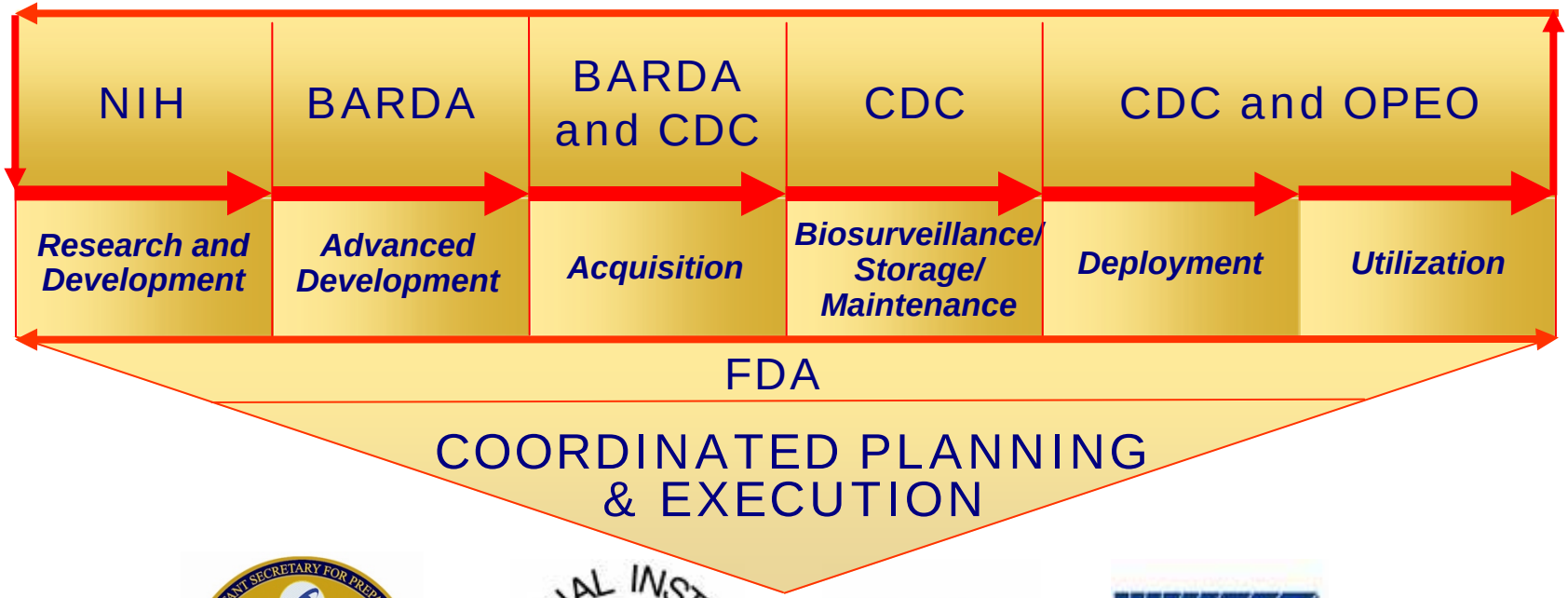

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
REMM HOME | CONTACT US | SITE MAP | ABOUT REMM
REMM
RADIATION EVENT MEDICAL MANAGEMENT
Guidance on Diagnosis & Treatment for Health Care Providers
REMM
SEARCH
WHAT KIND OF EMERGENCY?
INITIAL EVENT ACTIVITIES
PATIENT MANAGEMENT
MANAGEMENT MODIFIERS
TOOLS & GUIDELINES
WHAT KIND OF EMERGENCY?
Radiological Dispersal Devices: Dirty Bomb, Other Dispersal Methods
Radiological Exposure Devices: Hidden Sealed Source
Nuclear Explosions: Weapons, Improvised Nuclear Devices
Nuclear Reactor Accidents
Transportation Accidents
Discovering an Event
INITIAL EVENT ACTIVITIES
Onsite Activities
Triage Guidelines
Hospital Activities
OTHER AUDIENCES
First Responders in the Field
Mental Health Professionals
Hospitals
Public Information Officers
Radiation Safety and Protection
Preplanning
Practices and Drills
Pet Owners
ABOUT THIS SITE
What Are the Goals of This Site?
Who Produced This Site?
Disclaimers
List of Consultants
Join the REMM ListServ
Contact us: Provide Site Feedback
Download REMM to Your Computer/Mobile Device
System Requirements: Allow Pop-ups, Download Adobe Reader®, more...
PATIENT MANAGEMENT
Choose Appropriate Algorithm: Evaluate for Contamination/Exposure
Contamination
Exposure (Acute Radiation Syndrome)
Exposure + Contamination
MANAGEMENT MODIFIERS
Radiation + Trauma
Burn Triage and Treatment
Mass Casualty
Psychological Issues
Specific Populations
TOOLS & GUIDELINES
Dose Estimator for Exposure
Template for Hospital Orders
Use of Blood Products
Follow-up Instructions
Population Monitoring
Management of the Deceased
Develop a Radiation Response Plan
Equip an Emergency Department for Decontamination
REFERENCE/DATA CENTER
Training and Education
Dictionary
Animations, Illustrations, Photos
Emergency Contacts
Abbreviations
Understanding Radiation
Sources of Radiological/Nuclear Info
FEATURES
Planning guidance for response to a nuclear detonation, 1/2009 (Homeland Security Council)
Population Monitoring in Radiation Emergencies: A Guide for State and Local Public Health Planners, 8/2007 (HHS/CDC)
Medical Countermeasures Against Radiological and Nuclear Threats (NIH/NIAID)
QUICK LINKS
New Users: Where Do I Start?
What's New on REMM
Patient Management Algorithms
Print Algorithms & Tables
Isotopes of Interest
Countermeasures
Decontamination Procedures
Dose Estimator for Exposure
Manage ARS Subsyndromes
Multi-organ Dysfunction Syndrome
Hematopoietic Subsyndrome
Cutaneous Radiation Syndrome
Time/Dose Effects in ARS
Time Phases of ARS
Strategic National Stockpile
Animations, Illustrations, Photos
Dictionary
Emergency Contacts
Download REMM (6/2009)
Download Mobile REMM (6/2009)
OTHER WEB RESOURCES
REMM.nlm.gov
MEDICAL MANAGEMENT GUIDELINES
Just-in-time, user-friendly

HHS Public Health Emergency Medical Countermeasures Enterprise

Science based: Content & Process

Science → Products → CONOPS→ Playbooks → Diagnosis &Treatment Tools → Network of SMEs → Constant improvements

Goal- When disaster hits- we help you with "WHAT DO I DO!!!"



US Embassy Tokyo
March 2011

Multiple disaster *

- 1300 km of coastline damaged
- 15,852 deaths
- 3287 missing
- >300,000 left homeless
- $210B in damage to buildings and infrastructure

* Science 335:1164, 2012

Liaison on site with- DOE, NRC, DOD, USAID, DOS,

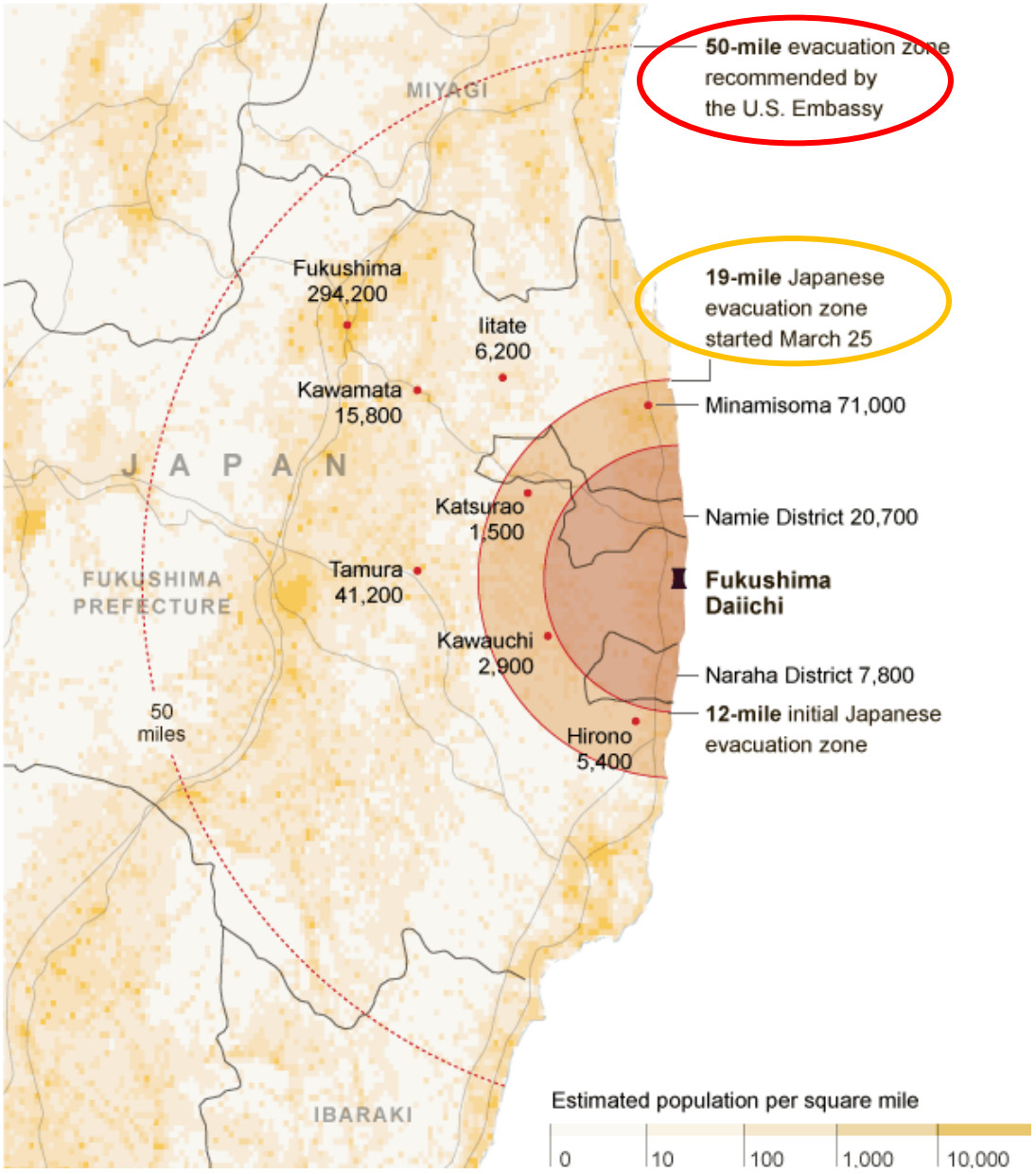
Challenge of: Time-distance-(shielding)

Tokyo time

- 0100-0300 Emails and communication- with Washington including reach-back (CDC, A-Team)
- 0600- 0700 Discussion of key issues with OPEO (ASPR/DHHS)
- 0830- 0930 DCM- led embassy update meeting
- 0930- 1030 Ambassador lead brief/discussion
- 1030- Various meetings within Embassy
- 1100- Working Groups- at various Japanese ministries
- 1400-1500 Communications/web meeting
- 1500-1600 Health/medical meeting
- 1800- 1930 Daily summary- Ambassador
- 2130- 2230 SOC/CDC- conference call

Evacuation zones differ and dynamic as situation changed

Issues different for Japan and those from other countries living in Japan



Courtesy- Steve Simon

Communication- Social Media (Jana Telfer, CDC)
Question and answer sessions- at American Chamber of Commerce in Japan (and US Embassy)

Mike Noska (FDA), Steve Simon (NCI-DCRG), Norm Coleman (NCI, HHS)

Required sophisticated yet clear answers-
Audience well-prepared, apprehensive, skeptical and appreciative of expertise and opportunity.

Tracking the Fukushima Radionuclides

Naohiro Yoshida[1] and Jota Kanda[2]

Charts to be shown
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Science 336:1115, 2012

Fukushima's doses tallied

Studies indicate minimal health risks from radiation in the aftermath of Japan's nuclear disaster.

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Report of UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) Nature 485: 423, 2012

Experts agree that there is unlikely to be a detectable rise in thyroid cancer or leukaemia, the two cancers most likely to result from the accident. "There may be some increase in cancer risk that may not be detectable statistically," says Kiyohiko Mabuchi, who heads Chernobyl studies at the National Cancer Institute in Rockville, Maryland. In Cherno-

One Year After the Devastation, Tohoku Designs Its Renewal

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Science 335: 1164, 2012

Nature 483:143, 2012

NEWS SPECIAL

Japan's worst-ever nuclear accident displaced more than 100,000 people. Many could now safely return home. Yet mistrust of the government prolongs their exile.

Nature 483:138, 2012

Growing Distaste for Nuclear Power Dims Prospects for R&D

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Science 336: 1220, 2012

Issues…..

FUKUSHIMA MELTDOWN

Commission Spreads Blame for 'Manmade' Disaster

Science 337: 1143, 2012

Nature 483: 144, 2012

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What are some of the lessons identified- **personal opinion**

- Japan response was extraordinary for such an enormous disaster.
- Fear of radiation predominated world discussion.
- Radiation can be measured. Units difficult for public to understand.
- Concept of radiation-induced cancer risk complex.
- Need to understand concerns and need for clear but not overly simplified communications and presentations.
- Decisions need to be made in real-time based on partial information as incident takes time to play out.
  - Medical-decision model: Experts work closely with decision-makers on site, decide, communicate and modify as needed (with reach-back experts) (Science 332: 1379, 2011; DMPHP in press)
- Pre-existing relationships among experts helps
  - e.g., WHO, IAEA, NCI and within USG (Rad/nuc, A-Team, etc)

Opportunities to build partnerships and friendships

TOMODACHI

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