RADIOLOGICAL AND NUCLEAR COUNTERMEASURES PROGRAM

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Resilient People. Healthy Communities. A Nation Prepared.
Radiological/Nuclear Events

- Overall focus on injuries from:
  - Improvised Nuclear Device (IND)
  - Radiological Dispersal Device (RDD) Events

- Priority on IND-related injuries – impact predicted to be greater.

- IND event will include:
  - Infrastructure damage (response will require flexibility and adaptability)
  - Resource limitations (medical management will require complex coordination)
  - Complex spectrum of injuries (treatment will require polypharmacy)
    - Spectrum will include combined injuries of acute radiation exposure, trauma, and thermal burn
    - Spectrum of injuries changes with different scenarios
Acute Radiation Injury

Cellular Damage through Many Pathways:
- DNA Damage
- ROS pathway
- Inflammatory Response
- Stem Cell Loss
- Endothelial Damage
- Glutathione metabolism
- Bacterial Translocation
- Coagulopathy

Cell death & Differing Cell turnover rates

Leads to Manifestation in Organ systems

Blood: (Hematopoietic)
- Decrease in blood count
- Pancytopenia (Neutropenia; Thrombocytopenia)
- Severe bone marrow damage

Intestines: (Gastrointestinal)
- Mild damage
- Moderate damage
- Severe damage

Lungs: (Pulmonary)
- Pneumonitis, fibrosis

Brain: (Neurological)
- CNS damage

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Focus Areas

- Addressing gaps in preparedness for treatment of injury due to exposure of acute ionizing radiation:
  - Hematopoietic
    - Cellular therapies for Neutropenia
    - Thrombocytopenia
  - Gastrointestinal
  - Pulmonary

- Repurposing commercial products and fostering interest from sponsors

- Defining natural history of radiation injury

- Building pipeline that focuses on candidates that are truly ready for advanced development
Trajectory for the Future

- Priority focus on developing therapies to treat ARS-induced thrombocytopenia and GI injury
- Continue to emphasize repurposing for entire portfolio
- Transition portfolio to more advanced development
- Expand use of Non-clinical Studies Network for activities
  - Comprehensive model development, including development of mini-pig model as an alternative to NHPs, to facilitate repurposing efforts
  - Comprehensive look at medical management practices to inform best procedures for population-based care
- Maintain strong relationships with Enterprise partners
Interfacing with BARDA

- **Office of the Assistant Secretary for Preparedness and Response Public Health Emergency Homepage**
  - Program description, information, news, announcements
- **Medical Countermeasures.gov**
  - Portal to BARDA
  - Register, request a meeting
  - Tech Watch
- **Federal Business Opportunities (FedBizOpps) Homepage**
  - Official announcements and detailed information about all government contract solicitations. Open CBRN BAA:
    - BARDA Broad Agency Announcement: BAA-13-100-SOL-00013
  - Technical POC for Research Area #4: Radiological/Nuclear Threat Medical Countermeasures
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