Medical Countermeasures for Thermal & Radiation Burn Injuries
FY14 Advanced R&D Priorities

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Burn Injuries – Thermal & Radiation

IND Detonation & Mass Casualty

Thermal Burn Injury
- Line-of-site to detonation (flash burns)
- Secondary fires (conventional burns)

Cutaneous Radiation Injury
- Exposure to radioactive fallout
- Direct exposure to beta-radiation ("beta burns")
Concept of Operations (CONOPs)

Primary Triage (RTR1, RTR2, RTR3)

Assembly Centers (AC)

Medical Centers (MC)

Evacuation Centers
Timeline Post-Detonation

Goals: first 72 hrs

Thermal Burns:
- Prevent infection
- Prevent conversion of deep partial thickness to full-thickness

Cutaneous radiation injury
- Prevent infection
- Mitigate latent damage

Goals: after 72 hours

Thermal Burns
- Debridement / excision
- Temporary grafting, if necessary
- Conclusive wound care

Cutaneous radiation injury
- Debridement / excision
- Conclusive wound care

Field Care Products
Compatible w/ Triage Sites

- Ease of administration
  Topical creams, bandages, etc.
- High therapeutic index required
  Poor diagnostics, worried well patients
- Robust storage, easy deployment
  Controlled room temperature, etc.

Definitive Care Products
Compatible w/ Hospital Care

- Expertise required to administer
  Surgical grafting, intravenous, etc.
- Low therapeutic index acceptable
  Better diagnostics and patient monitoring
- Low storage requirements
  Frozen, cryopreservation, etc.

Current Focus
Addressing the Treatment Bottleneck

**Current Situation**
- **Patients at risk**
- **Limited capacity**
  - Practitioners
  - MCM availability
  - Infrastructure
- **Narrow window for treatment**

**Goal**
- **Expand capacity**
  - Expand practitioner scope - Ease of Use
  - Improve MCM availability / surge capacity
  - Reduce length-of-stay in hospital
- **Expand timeframe**
  - Temporizing strategies
  - Efficacy even with delayed treatment
• ** Expedite first treatment / temporize wound  
  — Increase early throughput, expand treatment window  

• ** Reduce hospitalization / labor burden  
  — Minimize hospitalization and burden-of-care  

• ** Ease-of-Use  
  — Expand end-user scope to non-burn surgeons & other practitioners  

• ** Delayed efficacy  
  — Still effective when treatment is delayed beyond standard-of-care timeframe  

• ** Commercially sustainable  
  — Sufficient day-to-day clinical use to sustain market presence  
    • Additional / broad indications (soft tissue wounds, diabetic ulcers, etc.)  
    • Cost-competitive  **AND** lower cost of burn care  

• ** Surge capacity  
  — Production can be surged based on warm-base manufacturing  

• ** Robust storage / shelf-life  
  — Facilitate availability (managed inventory), commercial sustainability
**Key Considerations**

- **Address characteristics that expand use timeframe & capacity**
  - Ease of Use
  - Ability to ‘Temporize’
  - Reduce Burden

- **Create sustainable (& de facto) preparedness via managed inventory**
  - Commercial Viability
  - Multiple Indications
  - Amenable to UMI or VMI

- **Recognize CONOPS: Focus on Definitive Care**
  - Debridement / excision
  - Deter DPT/ FT Progression
  - Reduce Demand for Autograft
  - Conclusive Wound Care
  - Lower Overall Cost of Burn Care

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**Learn More**

- **Refer to previous special instructions:** BARDA-CBRN-BAA-12-100
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