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**Development of Burn and Mechanical Trauma Medical Countermeasures**

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* Medical Countermeasures (MCMs) product life cycle:
	+ Market research
	+ Advanced R&D
	+ Procurement
	+ Continued stakeholder engagement (NHCPC)
* ASPR Priorities for building readiness for 21st century threats
	+ Strong leadership
	+ Regional disaster health response system
	+ MCM enterprise
	+ Public Health Security Capacity
* BARDA develops MCMs by forming public/private partnerships to drive innovation
* CBRN Goal is to stockpile at least one MCM for all CBRN material threats
	+ Invest in MCM to treat injury, not threat
	+ Develop MCMs for unknown threats
	+ deliver novel MCMs against bacterial/viral threats
* 52 FDA approvals, licensures, and clearances since 2009 (vaccines, other medications)
* Can acquire products before approval of FDA and insert into SNS
* Future vision:
	+ Develop alternative skin and blood products
	+ Take viral hemorrhagic fevers off the table
	+ Bend the opioids epidemic curve
	+ Use novel approaches to combat antimicrobial resistance
	+ Preparation for any threat response
* MCM Development
	+ Market research
	+ Preclinical development
	+ Clinical/Non-clinical development
	+ Filing and launch preparation
	+ Commercialization and Procurement
	+ Readiness/Stockpiling
* Thermal Burn Program
	+ Mitigate treatment bottlenecks across continuum of care for burn and blast injuries
	+ Transform current standard of care with adoptable MCMs that builds national preparedness (create sustainable products for trauma and burn surgeons; imaging systems DeepView [burn depth system] aids in triage in MASCAL, graft technology,
* Programmatic Goals
	+ Comprehensive: initial to definitive care
	+ Adoptable
* Burn Development Philosophy
	+ Holistic approach that addresses broader issue of adoption towards greater sustainability
* Thermal burns
	+ **Initial care (0-72 hours post-detonation)**: fluids/electrolytes, airway management, pain management and initial wound care, patient tracking aids, initiate nutritional support
	+ **Definitive care (73+ hours post-detonation)**: comprehensive burn wound care, aid functional recovery, donor site care management
	+ **Facts and Figures**
	+ 1% of total body surface area = 1-1.5 days of care
	+ Only 350 burn surgeons in N. America
	+ <50% accurate in burn depth assessment (non-burn specialists)
	+ 127 burn centers nationwide
* Challenges/Solutions
	+ Use of AI to image burn depth
	+ Enable autograft sparing
	+ Develop temporizing products
* Project BioShield
	+ Argentum (initial burn care)
	+ MediWound (Debridement/Excision)
	+ Avita (ReCell) (Autograft Sparing)
* Burn Blast Kids
	+ First 72 hrs of event
	+ Delivered at site or make-shift facilities by state through SNS resources
	+ Used by first responders for delivery of care and triage considerations
	+ 30 pallets, care for 500 people for 24 hours
* Analysis of three events (Boston Marahon Bombing, 9/11, OKC Bombing)
	+ Burn injuries made up 5-11% of all reported injuries
* Revamped Burn Blast kit based on needs of SMEs
	+ Create a poly-trauma acute care kit (adult/peds),
	+ Forward deplolyed/integrated into Regional Disaster Health Response System
		- Quick access for state/loclal control, preoduct rotation via VMI
	+ SNS Burn Blast Kits
		- Revamped based on recommendations
		- Would arrive within 24 hours from warehouse
* New technologies
	+ Imaging/communication devices
* Challenges
	+ Loss of patient data
	+ Fracture Management (detection and triage, stabilization, X-Ray bottlenecks)
	+ Peer communication (situational awareness, telemedicine, consults)
	+ Need faster triage (Develop ultrasound imaging solution, decision-assist devices)
* Communication
	+ Develops a web and phone app
		- Synchronous and asynchronious peer to peer consultation among peers
		- Repository and dashboard for capability data
		- Vertical horizonal flow of information through state coalitions to state, to EOC, to federal level
		- Horizontal flow of information in Rx community
			* Stat guidance
			* Procedure consults
			* Transfer availability
			* Training modules