

# **Overview of Army Medical Research Process, Programs and Investment Strategy**

**24 September 2003**

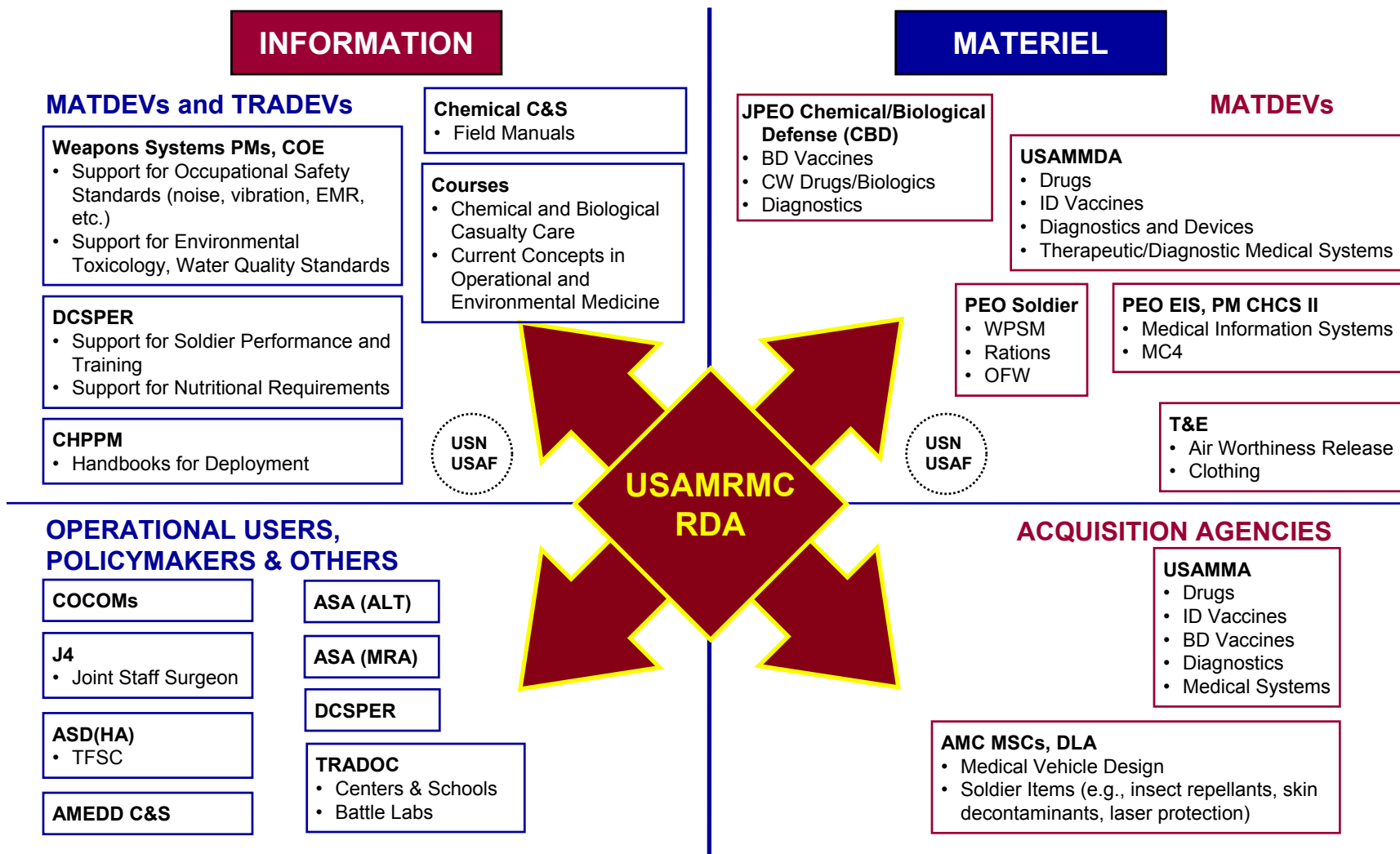


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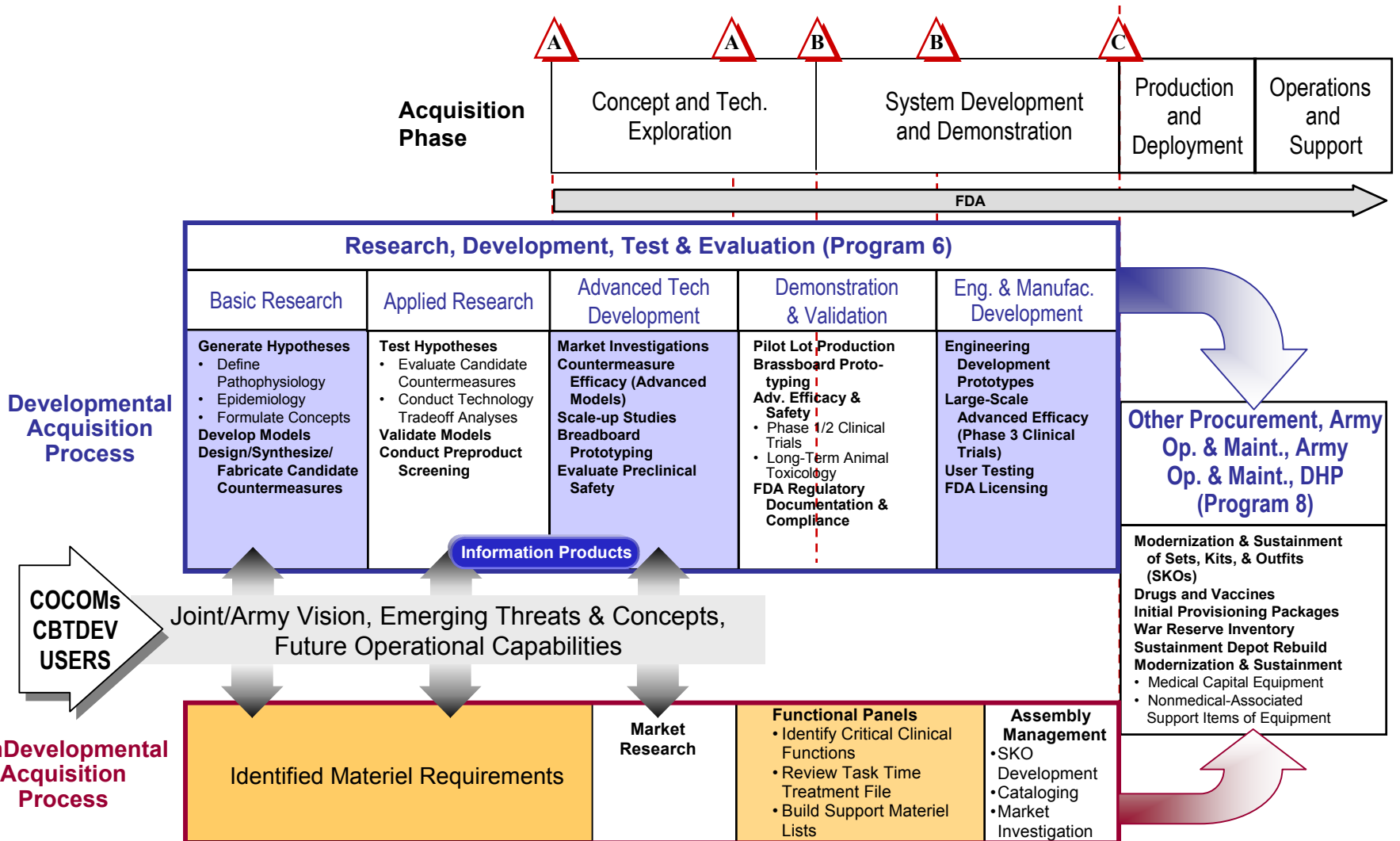
# Medical Research, Development, and Acquisition (RDA) Handoffs

## Medical RDA Support to Army and Defense-Wide Needs



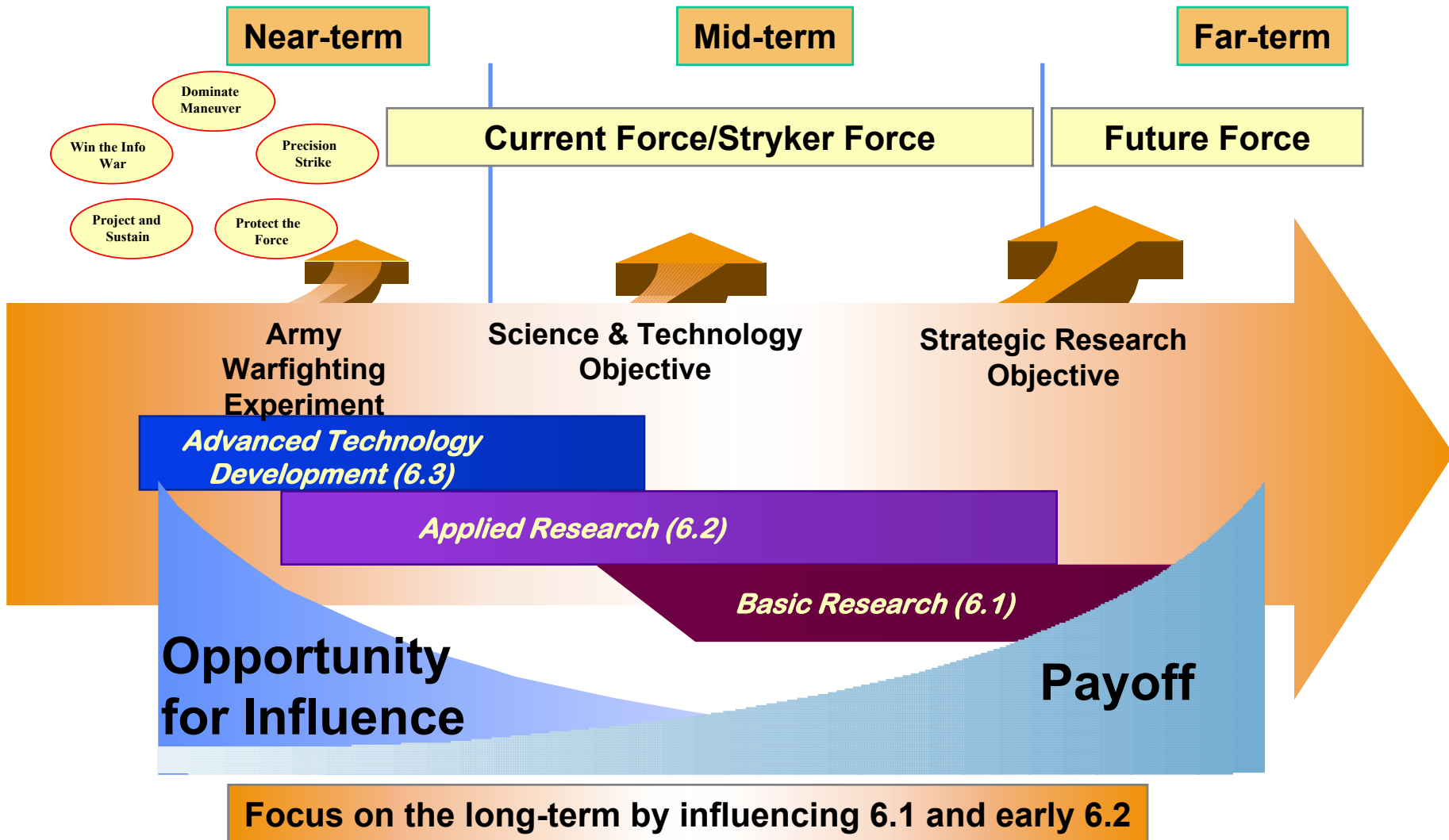


# Overview of Medical RDA Life Cycle Process



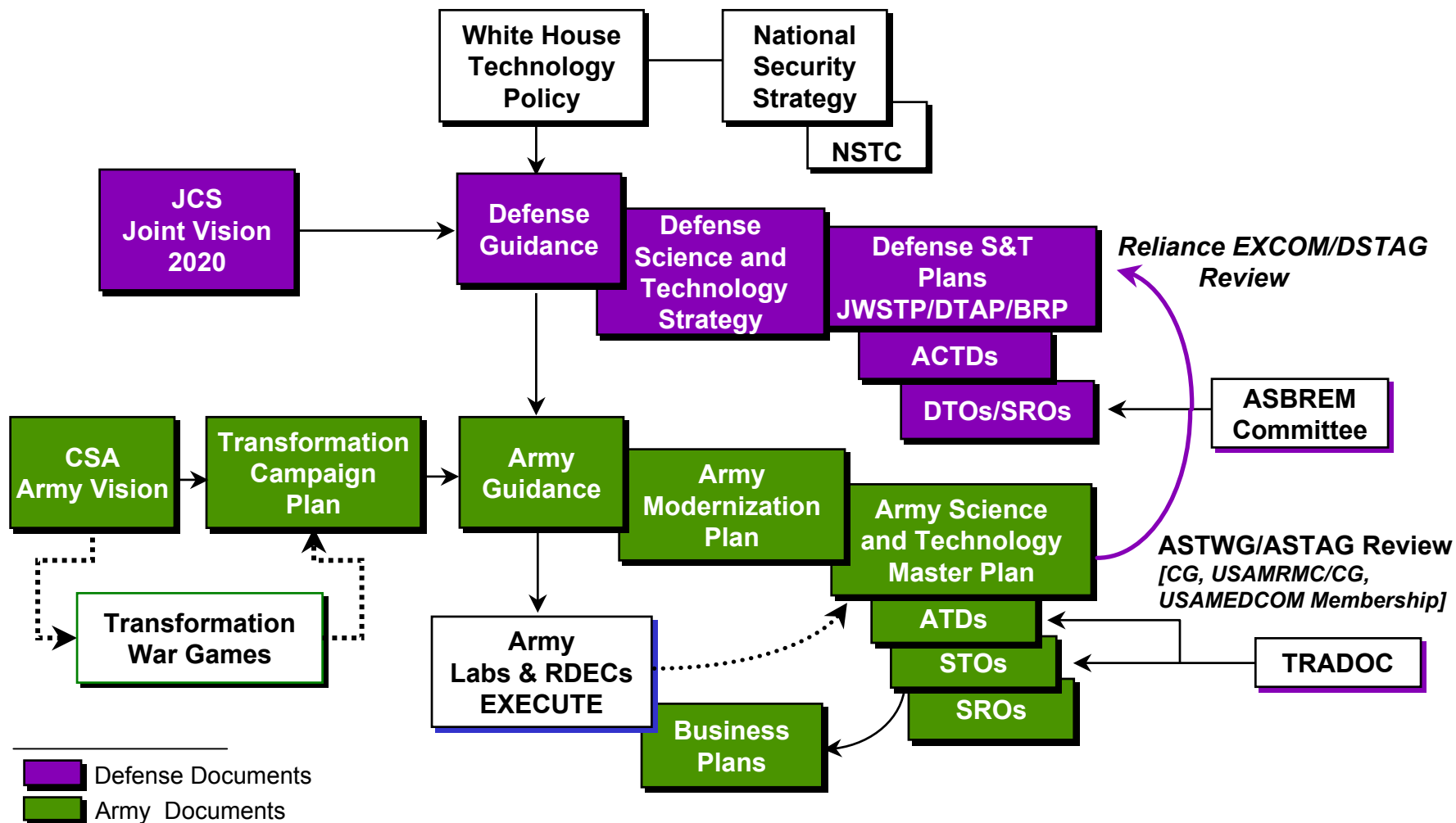


# S&T Investment Strategy





# S&T Planning

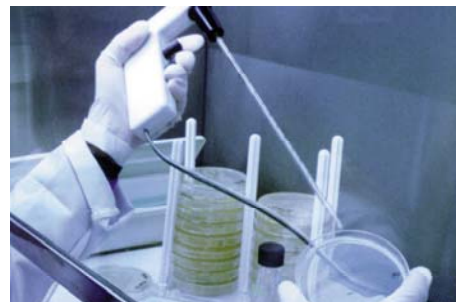




# Army Medical Research Programs



**Military  
Infectious  
Disease**



**Medical  
Biological  
Defense**



**Combat  
Casualty  
Care**



**Medical  
Chemical  
Defense**



**Military  
Operational  
Medicine**



**Medical  
Advanced  
Technology**



# Military Infectious Disease Research Program

## Program Rationale:

- ◆ Infectious diseases result in significant lost duty days and pose a threat to military operations
- ◆ Disease prevention enables mission alternatives and reduces force structure requirements
- ◆ Infectious diseases continually appear or evolve

## Program Scope:

- ◆ Vaccines and prophylactic drugs for prevention of endemic diseases
- ◆ Diagnostic tests, vector control, and global disease surveillance
- ◆ Therapeutics to optimize readiness and force effectiveness

## Major Emphases:

- ◆ Vaccines and drugs for prevention and treatment of malaria
- ◆ Vaccines for prevention of diarrheal diseases and dengue fever
- ◆ Broad spectrum, field-portable diagnostic systems

S&T Investment (\$M)							
	FY03	FY04	FY05	FY06	FY07	FY08	FY09
STO	15.1	34.0	32.9	34.3	33.8	27.3	14.8
Non-STO	35.9	26.0	29.8	30.6	32.9	40.3	54.0
<b>TOTAL</b>	<b>51.0</b>	<b>60.0</b>	<b>62.7</b>	<b>64.9</b>	<b>66.7</b>	<b>67.6</b>	<b>68.8</b>

*\*FY03 PB S&T funding*



# Combat Casualty Care Research Program

## Program Rationale:

- ◆ Effective combat casualty care is constrained by logistics, manpower, and operational environment
- ◆ Improvements in ability to reduce combat deaths (hemorrhage is a major cause of KIA) and morbidity
- ◆ Reduced medical logistics and increased mobility to maintain pace with deployed forces

## Program Scope:

- ◆ Local hemostatics and blood shelf-life extension
- ◆ Mechanisms of and reduction in organ failure secondary to trauma
- ◆ Burn and trauma management

## Major Emphases:

- ◆ Improved blood, blood products, and resuscitative fluids to enhance casualty management
- ◆ Improved local hemostatic agents
- ◆ Therapeutics to minimize post-traumatic sequelae

S&T Investment (\$M)							
	FY03	FY04	FY05	FY06	FY07	FY08	FY09
STO	10.8	15.5	15.2	8.0	0.0	0.0	0.0
Non-STO	7.8	11.2	12.5	34.2	42.7	48.0	42.2
<b>TOTAL</b>	<b>18.6</b>	<b>26.7</b>	<b>27.7</b>	<b>42.2</b>	<b>42.7</b>	<b>48.0</b>	<b>42.2</b>

*\*FY03 PB S&T funding*





# Military Operational Medicine Research Program

## Program Rationale:

- ◆ Enhance U.S. Forces' operational capability in any environment
- ◆ Minimize and mitigate materiel system health hazards
- ◆ OPTEMPO requires enhanced knowledge of soldier and unit operational capabilities and limitations

## Program Scope:

- ◆ Prevent casualties by protecting against military operational stressors and materiel hazards
- ◆ Sustain and enhance operational performance (individual and unit) under adverse conditions
- ◆ Develop performance models and criteria for use in developing operational concepts and doctrine
- ◆ Develop materiel system safety technology to support nonmedical materiel developers

## Major Emphases:

- ◆ Sustained operations and sleep deprivation
- ◆ Environmental, neuropsychiatric, and metabolic stressors
- ◆ Physical performance, fatigue, biodynamics, injury prevention, and nutrition
- ◆ Materiel system hazards

S&T Investment (\$M)							
	FY03	FY04	FY05	FY06	FY07	FY08	FY09
STO	17.8	15.6	11.9	11.2	7.4	5.9	3.9
Non-STO	11.2	22.3	28.0	29.3	34.1	36.3	39.2
<b>TOTAL</b>	<b>29.0</b>	<b>37.9</b>	<b>39.9</b>	<b>40.5</b>	<b>41.5</b>	<b>42.2</b>	<b>43.1</b>

*\*FY03 PB S&T funding*



# Medical Biological Defense Research Program

## Program Rationale:

- ◆ Threat of biological warfare (BW) agents being used against U.S. Forces
- ◆ Vaccines and pretreatments to protect U.S. Forces
- ◆ Rapid diagnostic capabilities
- ◆ Deter BW proliferation and employment

## Program Scope:

- ◆ Prevent casualties through use of medical countermeasures, e.g., vaccines and pretreatment drugs
- ◆ Forward deployable diagnostic kits
- ◆ Treat casualties, prevent lethality, and sustain operational effectiveness

## Major Emphases:

- ◆ Development of vaccines/therapies for toxin, viral, and bacterial BW agents
- ◆ Development of broad spectrum field-portable diagnostic systems

S&T Investment (\$M)							
	FY03	FY04	FY05	FY06	FY07	FY08	FY09
DTO	11.7	8.4	3.8	0.8	TBD	TBD	TBD
Non-DTO	84.9	84.4	84.2	73.8	75.0	81.4	72.1
<b>TOTAL</b>	<b>96.6</b>	<b>92.8</b>	<b>88.0</b>	<b>74.6</b>	<b>75.0</b>	<b>81.4</b>	<b>72.1</b>

*\*FY03 PB S&T funding*



# Medical Chemical Defense Research Program

## Program Rationale:

- ◆ CW threats and proliferation
- ◆ Effective medical countermeasures prevent illness and death independent of warning
- ◆ Increase operational flexibility in a CW environment
- ◆ Medical countermeasures deter CW proliferation and use

## Program Scope:

- ◆ Maintain technologic capability to meet present requirements and counter future threats
- ◆ Provide individual level prevention and protection to preserve the fighting strength
- ◆ Provide for the medical management of CW casualties to enhance survival, reduce morbidity, and preserve force effectiveness with reduced force structure requirement

## Major Emphases:

- ◆ Provide drug prophylaxes/pretreatments for chemical agent exposure
- ◆ Provide diagnostics/therapeutics for chemical agent exposure
- ◆ Provide instruction to protect and treat casualties on a chemical warfare battlefield

S&T Investment (\$M)							
	FY03	FY04	FY05	FY06	FY07	FY08	FY09
DTO	9.2	7.5	8.5	2.5	TBD	TBD	TBD
Non-DTO	29.5	33.0	32.9	40.7	43.5	44.0	45.9
<b>TOTAL</b>	<b>38.7</b>	<b>40.5</b>	<b>41.4</b>	<b>43.2</b>	<b>43.5</b>	<b>44.0</b>	<b>45.9</b>

*\*FY03 PB S&T funding*



# Medical Advanced Technology

## *(Non-traditional Research Program)*

### Program Rationale:

- ◆ Enable Force Health Protection vision (i.e., support smaller, more dispersed forces, at high OPTEMPO)
- ◆ Facilitate prevention of DNBI and sustainment of joint warfighter health through battlespacemedical situational awareness
- ◆ Enable minimally necessary treatment of trauma in far forward battlespace
- ◆ Increase access to healthcare, improve the quality of healthcare, and reduce the cost of delivering healthcare

### Program Scope:

- ◆ Apply biomedical knowledge, advanced diagnostics, simulations and effectors integrated with telecommunications
- ◆ Enhance medical decision-making, training, and treatment across all barriers
- ◆ Identify, explore, and demonstrate enabling technologies to overcome military medical technology barriers

### Major Emphases:

- ◆ Warfighter physiological status monitoring and casualty diagnosis and triage
- ◆ Clinical telemedicine applications (e.g., teleradiology, telecardiology, teleneurology, telepsychiatry, teleophthalmology, teleoncology, telesurgical mentoring, primary care support, wireless medical systems, remote home health monitoring, trauma support and access to interactive medical knowledge bases, practice guidelines and continuing medical education)
- ◆ Medical informatics technologies, including individual and aggregate predictive diagnostics, intelligent agents for search and retrieval of medical data, and wireless applications for access to medical information

	Investment (\$M)						
	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>S&amp;T STO</b>	5.0	3.7	3.7	3.6	3.1	3.0	0.0
<b>S&amp;T Non-STO</b>	0.9	2.4	2.6	4.5	5.6	6.0	9.1
<b>TOTAL S&amp;T</b>	5.9	6.1	6.3	8.1	8.7	9.0	9.1
<b>DHP</b>	3.8	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	9.7	6.1	6.3	8.1	8.7	9.0	9.1

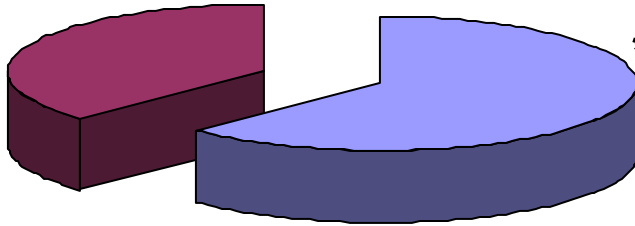
*\*FY03 PB S&T funding*



# USAMRMC FY02 Distribution of Received RDT&E Funds (as of 30 Sep 02)

**\*Extramural**

**38%**  
**\$110M**



**\*In-house**

**62%**  
**\$185M**

**Core RDT&E Program**  
**Dollars = \$295M**

**Congressional**  
**RDT&E Dollars = \$617M**

**\*In-house**

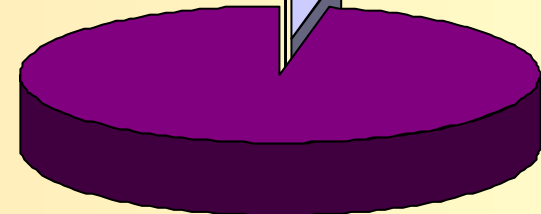
**0.08%**  
**\$0.5M**

**\*Tripler**

**3%**  
**\$18.5M**

**\*Extramural**

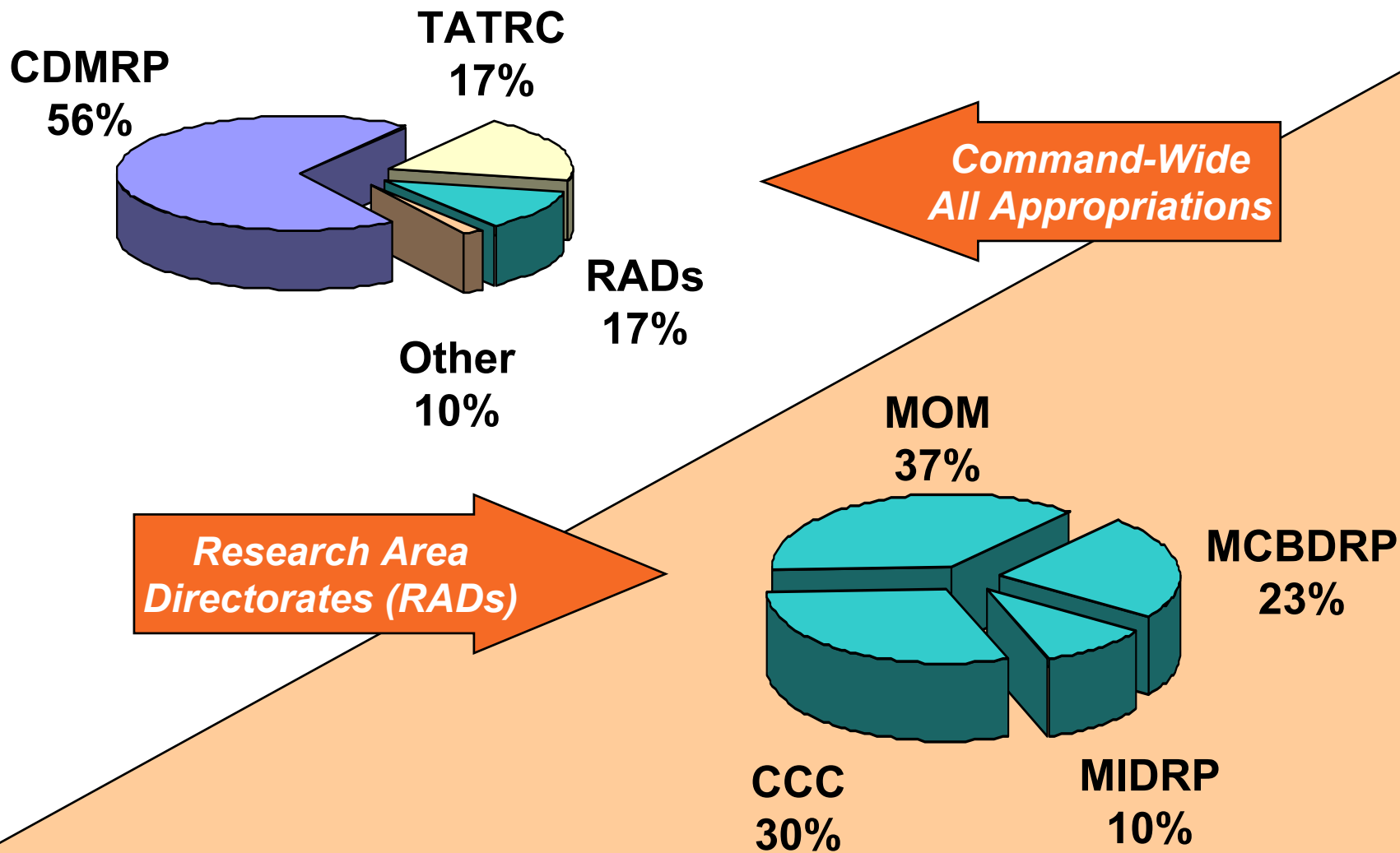
**96.92%**  
**\$598M**



**\*Include research  
management  
and research  
costs**



# Distribution of Fiscal Year 2003 Congressional Special Interest Funds





# SA and CSA Future Army Vision

“The spectrum of likely operations describes a need for land forces in joint, combined, and multinational formations for a variety of missions extending from humanitarian assistance and disaster relief to peacekeeping and peacemaking to major theatre wars...

We will aggressively reduce our logistics footprint ... a force that is strategically responsive and dominant at every point on the spectrum of operations.... put a combat capable brigade anywhere in the world in 96 hours....

We will derive the technology that provides maximum protection to our forces at the individual soldier level... We will do what is necessary to protect the force”

## “The Army – is People”

*“They are the engine behind our capabilities and the **SOLDIER** remains the centerpiece of our formation”*

- GEN Eric Shinseki, past CSA
- Louis Caldera, past SecArmy

**Biomedical Technology Enables the Vision**

Infectious & Emerging Disease

Casualty Management – Indigenous Population Care

Battle & Non-Battle Threats

OPTEMPO & Environmental Threats



## *The Army*

**“The Army is like a funnel. At the top  
you pour doctrine, resources,  
concepts, equipment,  
and facilities.**

**And out the  
bottom  
comes**

**... one lone soldier walking point.”**

*– General Harold K. Johnson, CSA 1964-68*





## Our Army...

- Is **transforming** for greater Strategic Responsiveness.
- Is **busy**...Strategies drive our Operating Pace.
- Is **working as a TEAM** to support the National Strategy to enhance readiness.
- Has **the best men and women** in America.

