

BILLIONS FOR BIODEFENSE: FEDERAL AGENCY BIODEFENSE FUNDING, FY2007–FY2008

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Since 2001, the U.S. government has spent substantial resources on preparing the nation against a bioterrorist attack. Earlier articles in this series analyzed civilian biodefense funding by the federal government from fiscal years 2001 through 2007. This article updates those figures with budgeted amounts for fiscal year 2008, specifically analyzing the budgets and allocations for biodefense at the Department of Health and Human Services, the Department of Homeland Security, the Department of Defense, the Department of Agriculture, the Environmental Protection Agency, the Department of State, and the National Science Foundation.

THE PRESIDENT'S BUDGET FOR FY2008 calls for an increase of approximately \$309 million in federal funding for civilian biodefense programs over estimated FY2007 levels, for a total request of \$5.42 billion. This amount is slightly above the FY2006 funding level of \$5.37 billion (Table 1). Based on analyses from previous "Billions for Biodefense" articles,^{1–3} federal funding for civilian biodefense from FY2001 to FY2006 rose incrementally, but from FY2006 to FY2008, funding for these programs appears to have leveled off (Figure 1). Cumulative funding from FY2001 to FY2008 is approaching \$40 billion (Figure 2).

The FY2008 budget request presents the President's 5-year plan to decrease the deficit and balance the federal budget. In accordance with that plan, the FY2008 budget request "hold[s] the rate of *non-security-related* spending to one percent, well below the rate of inflation [authors' emphasis]."⁴ Further, during the formation of the budget "each and every program was closely reviewed and required to demonstrate alignment with the Nation's top priorities." Those that did not align with top priorities received a "proposed reduction or termination" of funds.⁴

Since 2001 the President has passed 18 Homeland Security Presidential Directives (HSPDs), which are both secu-

rity-related and are among the top priorities of the President. Among these, several have direct significance for civilian biodefense, specifically HSPD-8 National Preparedness (December 2003) and HSPD-10 (April 2004) Biodefense for the 21st Century.⁵ Most recently, on January 31, 2007, the President passed HSPD-18 Medical Countermeasures against Weapons of Mass Destruction.⁵ The President's FY2008 budget was released in February 2007. In the budget, overall civilian biodefense funding would increase 0.99% from FY2007 to FY2008, compared to a 2.8% rate of inflation from March 2006 to March 2007.^{6*}

The majority of proposed funding for FY2008 is directed toward the Department of Health and Human Services (HHS), which would receive \$4.18 billion of the \$5.42 billion total for FY2008 (Figure 3). Additionally, the President's budget requests slight increases for three of the seven federal agencies involved in biodefense. The largest proposed increase is a \$163 million allocation to the U.S. Department of Agriculture (USDA) for enhancement of their

* Historically, "Billions for Biodefense" authors have not adjusted dollar amounts to account for inflation. Agency budgets do not account for inflation from one year to the next except where specified.

Table 1. U.S. Government Civilian Biodefense Funding, FY2001–FY2008 (in \$millions)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate ^a)	FY2008 (budget)	Total
Department of Health and Human Services	271.0	2,940.0	3,738.0	3,819.0	4,148.0	4,082.0	4,042.0	4,180.3	27,220.3
Department of Homeland Security ^{b,c,d}	–	–	418.6	1,704.3	2,981.0	554.3	360.6	334.3	6,353.1
Department of Defense	281.2	697.9	319.9	416.7	419.1	259.0	274.2	336.0	3,004.1
Department of Agriculture ^e	–	–	200.0	109.0	298.0	247.0	177.0	340.0	1,371.0
Environmental Protection Agency	20.0	187.2	132.9	118.7	97.4	129.1	166.1	151.9	1,003.3
Department of State	3.8	70.9	67.2	67.1	67.2	71.1	63.9	53.5	464.6
National Science Foundation	0.0	9.0	31.3	31.0	31.0	31.3	28.0	25.0	186.5
Total USG Civilian Biodefense Funding	576.0	3,905.0	4,907.9	6,265.8	8,041.7	5,373.8	5,111.8	5,421.0	39,602.9
Spent through FY2007	34,181.9								
Spent through FY2007 + FY2008 Budget	39,602.9								

^aFY2007 estimated amounts are based on CR appropriations numbers for HHS, USDA, EPA, Department of State, and NSF, and on regular appropriations for DHS and DoD. CR numbers for the Department of State could not be confirmed with that Department.

^bThe Department of Homeland Security (DHS) was created in FY2003.

^cDHS was unable to provide complete data; thus, some items are missing (see Table 3).

^dDHS FY2004 and FY2005 budgets include one-time advanced appropriations for Project BioShield of \$890 million and \$2.5 billion, respectively, obligated for use through FY2008.

^eFY2001–FY2002 numbers not available due to budget methods used by USDA.

Sources: USDA budget; USDA Press Office; USDA Budget Office; Office of Plans and Systems, Office of the Secretary Media Public Affairs, Department of Defense; Congressional Budget Office; DoD RDT&E Defense-Wide Budget; DoD FY2008 Budget Justifications; Department of the Army FY2008–2009 Budget Justification; EPA Budgets in Brief and Congressional Justifications, FY2002–FY2008; HHS Budget Office; HHS Press Office; HHS Budgets in Brief FY2006–FY2008; Pandemic and All Hazards Preparedness Act (Public Law 109-417); DHS Budget; DHS Press Office; DHS Program Officials; DHS FY2007 Appropriations Act (Public Law 109-295); U.S. Department of State Public Communication Division; U.S. Department of State Budget in Brief FY2008; NSF Budget in Brief FY2008; NSF Office of Legislative & Public Affairs, NSF Program Directors.

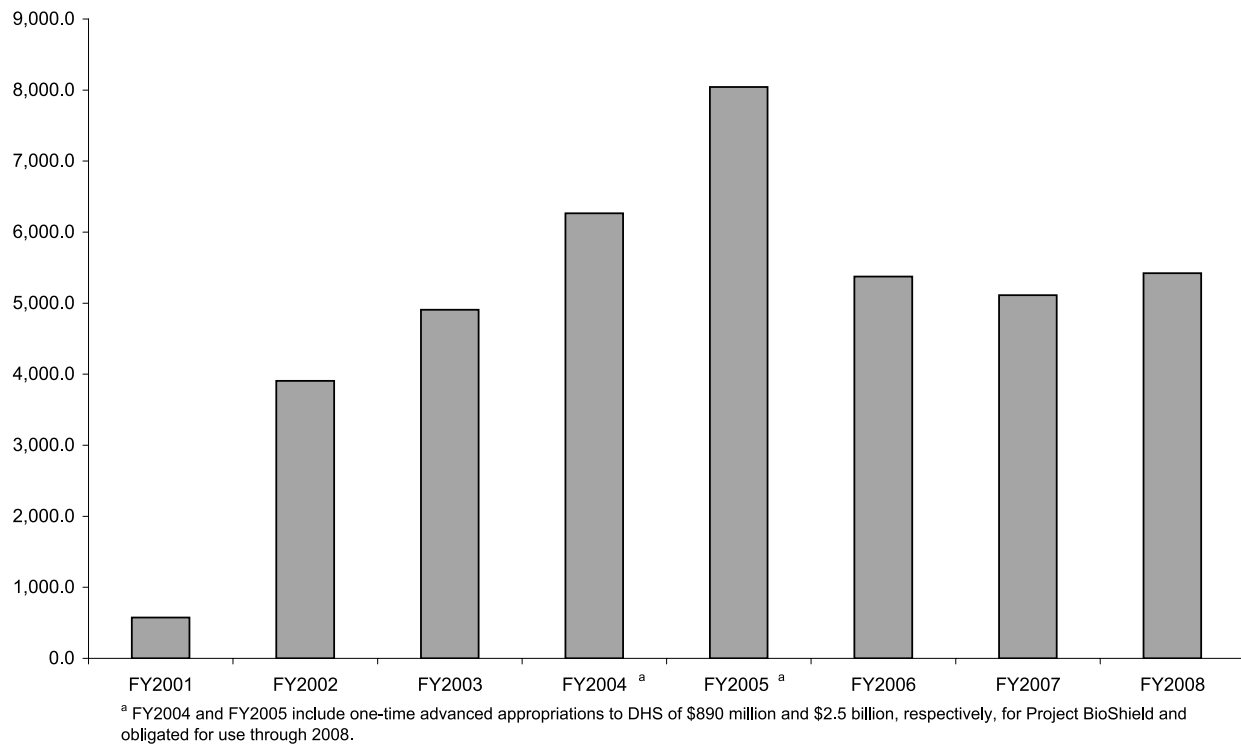


Figure 1. Civilian Biodefense Funding by Fiscal Year, FY2001–FY2008 (in \$millions)

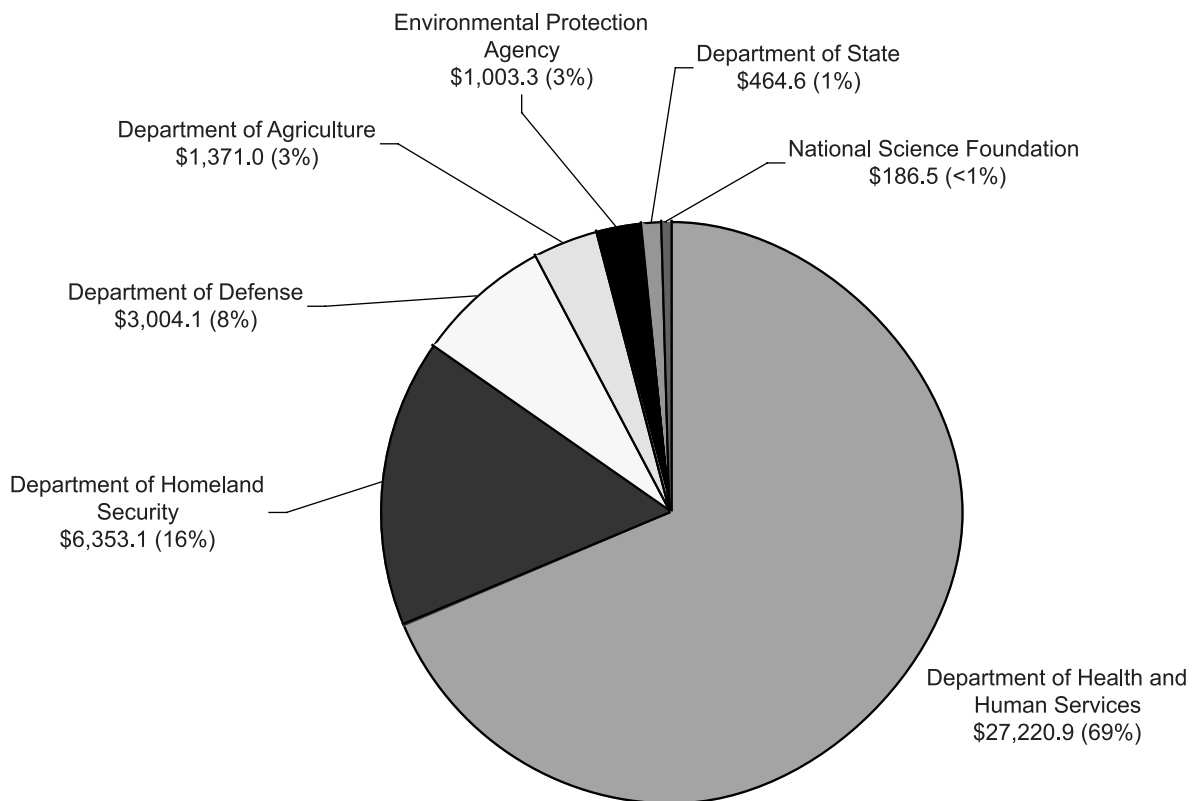


Figure 2. Cumulative Civilian Biodefense Funding by Agency, FY2001–FY2008 (in millions)

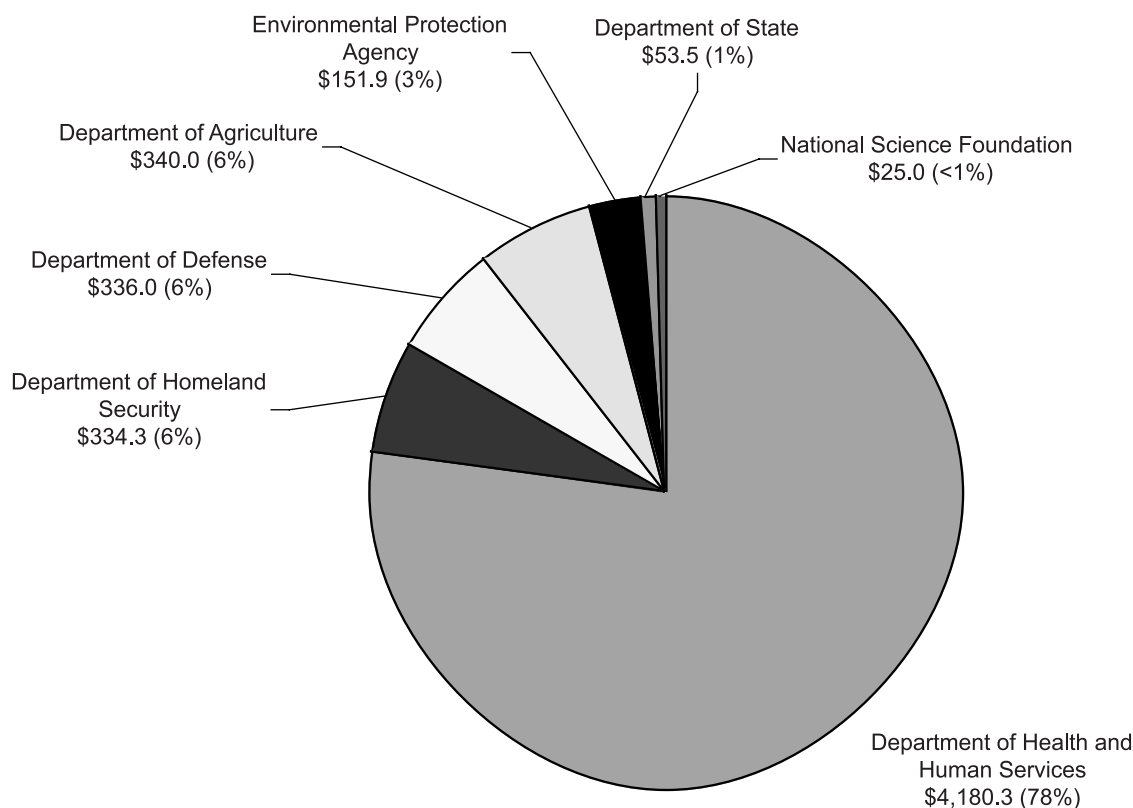


Figure 3. Civilian Biodefense Funding by Agency, FY2008 (in millions)

Food and Agricultural Defense Initiative. Funding increases also have been requested for HHS and the Department of Defense (DoD). Under the President’s FY2008 budget, the rest of the agencies and departments involved in biodefense would receive decreases in funding, the most sizeable of which is a \$26.3 million cut for the Department of Homeland Security (DHS). The Environmental Protection Agency (EPA), the Department of State, and the National Science Foundation (NSF) also would receive cuts to their biodefense program funding in the President’s FY2008 budget (Table 1).

METHODS AND SOURCES

We used a variety of methods and sources, including agency “Budgets in Brief,” stipulations included in public laws and accompanying Congressional reports, and personal contact with agency representatives, to obtain and track civilian biodefense expenditures for FY2008. As in previous analyses, money spent on civilian biodefense in past fiscal years is referred to as “actual funds.” For this article, numbers for actual funds are available from FY2001 to FY2006. We also identify funding appropriated by Congress for civilian biodefense during the current fiscal year (FY2007). While these funds have already been appropri-

ated, it is unclear how much of that money will ultimately be spent on civilian biodefense activities for the year. Hence, FY2007 money is referred to as “estimated funds.” Finally, we analyzed the President’s budget request for the upcoming 2008 fiscal year to gather data on proposed funding. These numbers are referred to as “budget” funds and are subject to change during the FY2008 Congressional budget and appropriations processes.

This “Billions for Biodefense” analysis was complicated by the FY2007 appropriations process. Typically, federal agencies and departments are funded annually through regular Congressional appropriations bills that are enacted by October 1, the beginning of each fiscal year. When Congress fails to pass these appropriations in time, agencies are funded under continuing appropriations acts or continuing resolutions (CRs), which provide approximately the same funding levels as the previous fiscal year until Congress passes final appropriations bills.⁷ Continuing resolutions are often temporary, but they can also take the form of full-year bills that provide money in place of regular appropriations until the end of the fiscal year. For FY2007, 9 of 11 federal appropriations bills were left unpassed by Congress. Three temporary continuing resolutions (P.L. 109-289, P.L. 109-369, and P.L. 109-383)^{8–10} were enacted until the President signed a full-year revised CR (H.J.Res.20)¹¹ into law (P.L. 110-5) on February 15, 2007.⁷

Under the continuing resolution, some agencies received slight increases, some received funding decreases, and a majority received flat funding based on FY2006 levels. The two agencies that received regular Congressional appropriations for FY2007 and were generally unaffected by the CR are DoD and DHS. For FY2007, DoD was funded via the Department of Defense Appropriations Act of 2007 (P.L. 109-289),¹² which became law on September 9, 2006, and DHS was funded by the Department of Homeland Security Appropriations Act of 2007 (P.L. 109-295),¹³ which became law on October 4, 2006.

For this “Billions for Biodefense” article, we were able to obtain program-level funding estimates for the FY2007 CR, but we were unable to confirm CR program-level data for the Department of State. The numbers for the Department of State for FY2007 provided in this analysis are best estimates based on a variety of sources, including the Department of State FY2008 Budget in Brief,¹⁴ the Department of State FY2008 International Affairs Request,¹⁵ and direct communications with the U.S. Office of Management and Budget (OMB, April 25, 2007). Unless otherwise noted, FY2001–FY2006 amounts are based on actual numbers, FY2007 amounts are based on the estimated CR funds or stated appropriations (DoD, DHS), and FY2008 numbers represent the President’s budget request.

In order to obtain accurate and timely budget information for this analysis, we used a number of methods to acquire the data. Departmental “Budget in Brief” documents were primary resources. However, “Budgets in Brief” often contain only partial information on civilian biodefense programs and may not break funding down to the programmatic level. In cases where federal agencies or departments are made up of distinct operating divisions (e.g., HHS and DoD), individual agency or division budgets were also examined. When these documents had been reviewed and still more detailed or complete information was needed, we contacted agency public affairs and budget offices by phone and email.

Inclusion of a line item in the budget for a biodefense program does not necessarily indicate the relative size or location of that program. A number of programs (e.g., BioShield) may be administered by one agency (HHS Office of the Assistant Secretary for Preparedness and Response [ASPR]) with guidance from another (DHS). Also, biodefense line items may represent programs with many components, such as the DHS Biological Countermeasures program.

As in previous years, the authors have made every attempt to distinguish which items should be considered civilian versus military biodefense and/or other homeland security or public health–related programs. For the purposes of this analysis, civilian biodefense funding includes programs, research, or administrative costs that prevent or mitigate bioterrorism’s effect on civilians. Some federal

budgets for programs aimed at preventing and mitigating adverse civilian health effects (e.g., HHS’s BioShield) do not distinguish how much of the program is specifically targeted at biological agents, in addition to chemical, radiological, or nuclear threats. But since civilian biodefense is clearly a critical part of their mission, these programs have been included in their entirety as a practical measure. Multiple application programs (e.g., HHS’s Medical Reserve Corps or the National Disaster Medical System) that may provide a substantial benefit in responding to an incident of civilian bioterrorism have been included in their entirety. This methodology has undoubtedly led to some overestimation of biodefense funding, because it is likely that some of those funds will be spent on non-biodefense programs.

Examples of programs that have been excluded from civilian biodefense budget totals in this analysis are programs aimed at all-hazards preparedness (not bioterrorism preparedness specifically) or at non-bioterrorism-related hazards such as pandemic flu. While the DoD has a large Chemical and Biological Defense program, it focuses on military rather than civilian applications. The Chemical and Biological Defense program includes the purchase and maintenance of military-specific vehicles, detectors, and protective gear that are not pertinent to the U.S. civilian population. Although the program’s basic and applied biological research has the potential for civilian biodefense applications, the intent of this program is for research into military and troop protection from chemical and biological weapons. Civilian biodefense is not the mission of this program and to predict any eventual civilian products emerging from the DoD Chemical and Biological Defense Program would be speculative. For these reasons, the DoD Chemical and Biological Defense numbers have been provided to the reader for information purposes, but they have not been included in the overall civilian biodefense totals.

Items that could not be tracked in previous “Billions for Biodefense” articles^{1–3} were updated for this version as data became available. Some line items were also shifted when compared to previous articles to reflect the restructuring of various agencies and departments.

CIVILIAN BIODEFENSE FUNDING BY FEDERAL AGENCY

Department of Health and Human Services

For FY2008, the President has requested an increase of \$138 million, or 3.4%, over FY2007 continuing resolution funding levels, for a total of \$4.18 billion for HHS civilian biodefense programs (Table 2). FY2007 CR funding levels are approximately even with FY2006 actual amounts. The

Table 2. Department of Health and Human Services Civilian Biodefense Funding FY2001–FY2008 (in \$millions)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate)	FY2008 (budget)
Direct Appropriations to Agency Budgets (Non-PHSSEF)^a								
CDC								
CDC: State and Local Capacity	67	940	939	918	919	823	824	698
BioSurveillance Initiative								
BioSense	–	–	–	18	59	57	57	57
BioSense—Department of Defense Appropriation	–	–	–	0	0	35	0	0
Quarantine Stations (at ports of entry)	–	–	–	4	10	11	11	21
Quarantine Stations—Department of Defense Appropriation	–	–	–	0	0	20	0	0
Real Time Lab Reporting (Enhancing the Laboratory Response Network)	–	–	–	0	10	10	10	10
Subtotal, BioSurveillance Initiative	–	–	–	22	79	133	78	88
Supplemental Appropriations (Smallpox)	–	–	100	0	0	0	0	0
Upgrading CDC Capacity	22	141	157	0	0	0	0	0
Anthrax Vaccine Research	18	18	18	0	0	0	0	0
Upgrading CDC Capacity/Anthrax Vaccine Research ^b	–	–	–	169	158	150	150	137
Botulinum Antitoxin Research	–	–	–	–	–	–	0	0
Independent Studies	11	2	2	0	0	0	0	0
Other	10	46	20	0	0	0	0	0
Strategic National Stockpile (SNS) ^c	81	1,157	398	0	467	474	491	581
Federal Mass Casualty Initiative (additional to the SNS)	–	–	–	–	–	50	0	0
Subtotal, CDC	209	2,304	1,634	1,109	1,623	1,580	1,543	1,504
NIH								
Biodefense Research (NIAID)	53	199	687	1,629	1,548	1,604	1,610	1,628
rPA Anthrax Vaccine Intermediate Scaleup	–	–	123	117	0	0	0	0
MVA Smallpox Vaccine Intermediate Scaleup	–	–	–	75	45	0	0	0
Extramural BT Research Facilities	–	92	495	119	149	30	25	0
Subtotal, NIH	53	291	1,305	1,940	1,742	1,634	1,635	1,628
FDA								
Food Defense (formerly labeled “Food Safety”)	1	98	97	116	150	158	156	178
Medical Product Countermeasures (formerly labeled “Vaccines/Drugs/Diagnostics”)	6	46	53	53	57	57	55	57
Physical Security	2	13	7	7	7	7	7	7
Subtotal, FDA	9	157	157	176	214	222	218	242

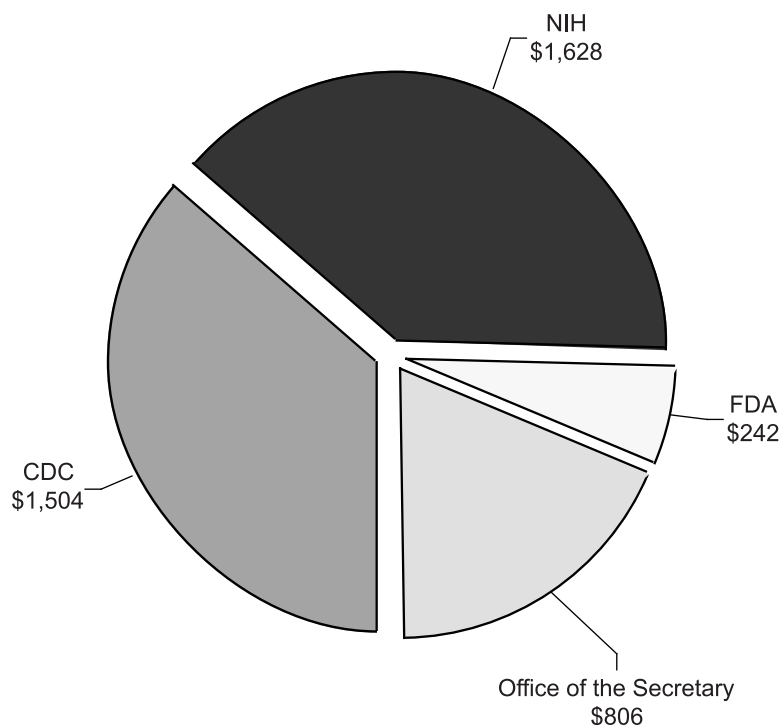


Figure 4. HHS Civilian Biodefense Funding, FY2008 (in millions)

majority of funds requested for FY2008 are allocated to programs within CDC and NIH (Figure 4).

The FY2008 budget illustrates the significant reorganization of the Department of Health and Human Services directed by the Pandemic and All-Hazards Preparedness Act (S. 3678), which the President signed into law (P.L. 109-417) in December 2006.¹⁶ The Act officially establishes the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the Office of the Secretary of HHS. The Office of the ASPR was established in 2006 and, according to HHS budget documents, received FY2006 funds.¹⁷ It replaces the structure and function of the Office of Public Health Emergency Preparedness (OPHEP), which was funded through FY2005. Since its establishment, a number of biodefense-related programs have been either transferred to or newly created within the Office of the ASPR.

The National Disaster Medical System (NDMS), which was originally transferred from HHS to DHS in 2003, has been relocated back to HHS and is housed in the Office of the ASPR. The FY2008 budget request indicates an increase in funding for NDMS of \$6 million over the FY2007 CR appropriation level of \$47 million. HHS budget documents explain that this increase has been requested in order to improve the “emergency readiness and response” of the program following its official move to HHS in January 2007.¹⁷

With the passage of P.L. 109-417, the Health Resources and Services Administration (HRSA) Hospital Prepared-

ness Grants and the Biodefense Training and Curriculum Development Program also have been moved to the Office of the ASPR. The requested funds for the Hospital Preparedness Grant Program for FY2008 are \$414 million, which is a decrease of 14% over CR appropriated funds. Funding for Hospital Biodefense Training and Curriculum Development has been eliminated completely in the FY2008 budget request.¹⁷

Under P.L. 109-417 and the reorganized structure of HHS, the Office of the ASPR will now house the new Biomedical Research and Development Authority (BARDA), which is charged with supporting the advanced research and development of new medical countermeasures (e.g., medicines and vaccines) against biological threats. The FY2008 budget proposes an increase of \$142 million over the FY2007 CR level for Advanced Research and Development (formerly the purview of the National Institute of Allergy and Infectious Diseases [NIAID]). The budget also proposes a new fund of \$22 million to manage Project BioShield,¹⁷ which was created to help facilitate federal countermeasure procurement against biological, chemical, radiological, and nuclear (CBRN) threats.

For FY2008, the President has proposed a \$126 million cut to the Centers for Disease Control and Prevention (CDC) State and Local Capacity program, composed primarily of the CDC public health grants. These grants assist state and local public health departments in preparing for bioterrorism and other public health emergencies. This cut brings funding for State and Local Capacity down to \$698

million from \$824 million appropriated under the FY2007 Continuing Resolution and continues the downward trend in State and Local Capacity funding since FY2003. HHS gives no justification in FY2008 budget documents for proposed cuts to this grant program, even as the FY2008 HHS “Budget in Brief” indicates that HHS maintains a “strong commitment to prepare States and local public health departments and hospitals for public health emergencies and acts of bioterrorism.”^{17(p107)} CDC’s Biosurveillance Initiative (which includes the BioSense project) and the Strategic National Stockpile (SNS) are budgeted to receive increases of \$10 million and \$90 million, respectively, over FY2007 CR amounts.

NIH remains the lead recipient of HHS biodefense funds, with an FY2008 budget of \$1.63 billion. The entirety of these funds is directed to NIAID for its Biodefense Research initiatives, which include research into pathogens and their interaction with human and animal hosts, as well as clinical evaluation of vaccines and drugs against biological agents. Funding for NIH Extramural BT Research Facilities has been eliminated in the FY2008 budget. According to HHS budget documents this is due to cycling of facilities funds to other “priority” areas within the department.¹⁷

Department of Homeland Security

The Department of Homeland Security FY2008 budget request reflects a decrease in civilian biodefense funding of \$26.3 million, or 7%, from FY2007 levels. Estimated funding for FY2007, authorized by Congress in the FY2007 Department of Homeland Security Appropriations Act (P.L. 109-295),¹³ totaled \$360.6 million (Table 3). The agency has undergone reorganization within the past fiscal year, so some civilian biodefense programs and funds have been transferred in FY2008 to other divisions in the department or to other federal agencies.

The Post-Katrina Emergency Management Reform Act (under Title IV of P.L. 109-295), which went into effect March 31, 2007, provides jurisdiction for the reorganization of parts of the department,¹³ along with additional changes pursuant to Section 872 of the Homeland Security Act of 2002. Under the Post-Katrina Emergency Management Reform Act, the Preparedness Directorate will be renamed the National Protection and Programs Directorate (NPPD). NPPD will retain certain of its functions; however, the Act transfers many of the preparedness programs to the Federal Emergency Management Agency (FEMA). One component transferred to FEMA is the Office of Grants and Training, which provides monies for state and local preparedness programs, including the Urban Area Security Initiative and the Metropolitan Medical Response System (MMRS), a program intended to augment and improve emergency preparedness systems in order to increase

the effectiveness of first responders to a public health emergency.¹⁹

The President’s FY2008 budget request eliminates funding for MMRS.²⁰ Similarly, the FY2007, FY2006, and FY2005 presidential budgets also failed to request funding for the program.^{2,3} In FY2005 and FY2006 Congress reinstated \$30 million for the program,²¹ and in FY2007 Congress appropriated \$33 million for MMRS under the Department of Homeland Security Appropriations Act.²²

Also under P.L. 109-295, the Chief Medical Officer (CMO) position, which was created in 2005 and budgeted at \$3 million beginning in FY2007, became the Assistant Secretary for Health Affairs and CMO in the new Office of Health Affairs (OHA). The OHA will have three main programmatic areas: Weapons of Mass Destruction (WMD) and Biodefense; Medical Readiness; and Component Services (occupational safety and health and administrative services).²³

The BioWatch and BioShield programs have been transferred from the Science and Technology Directorate and NPPD, respectively, to the OHA as it becomes DHS’s lead biodefense branch. Therefore, civilian biodefense funding for FY2007 includes transfers of funds from both the NPPD and the Science and Technology Directorate to the OHA for these programs in accordance with P.L. 109-295.²⁴ Under the Department of Homeland Security Appropriations Act of 2004, BioShield received appropriations in the amount of \$5.6 billion. Of that amount no more than \$3.4 billion could be used for FY2004–2008. The remainder of the appropriations will be allocated to BioShield in FY2009–2013.²⁵

Effective January 1, 2007, the National Disaster Medical System (NDMS) was transferred to HHS. Budget documents do not clarify whether the \$34 million requested in the FY2007 budget for NDMS was transferred along with the program.

Department of Defense

The FY2008 presidential budget requests an increase of \$61.8 million, or 23%, in funding for civilian biodefense activities over FY2007 estimated appropriations. DoD biodefense activities funded under the FY2008 proposed budget include Biological Threat Reduction in the Former Soviet Union, WMD Civil Support Teams, the Biological Warfare Defense Program (located in the Defense Advanced Research Projects Agency [DARPA]), and the Chemical and Biological Defense program (Table 4).

The WMD Civil Support Teams (CSTs) are jointly funded by DoD (specifically the Department of the Army) and state National Guard units, to provide detection and response capabilities for local authorities during a WMD event such as a bioterrorist attack. In the FY2008 budget request, the \$92.5 million in proposed funding for CSTs

Table 3. Department of Homeland Security Civilian Biodefense Funding, FY2003–2008 (in \$millions)

	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate)	FY2008 (budget)
National Protection and Program Directorate^a						
National Disaster Medical System ^b	5	82	34	134	–	–
Strategic National Stockpile	0	398	0	– ^c	–	–
MMRS	50	50	30	30	33	0
Office of Health Affairs						
Chief Medical Officer ^d	–	–	–	–	4.9	4.9
BioShield ^e	0	885	2,507	0 ^f	0 ^f	0 ^f
BioSurveillance (National Biosurveillance Integration System and other initiatives)	0	0	12.5	14.1	9.2	11.3
BioWatch ^g	–	–	–	–	85.1	85.1
Animal Disease and AgroDefense	–	–	–	–	–	0.8
Medical Readiness	–	–	–	–	–	3.3
Science & Technology Directorate						
Biological Countermeasures (includes HSARPA, National Bio and Agrodefense Facility, and other research efforts)	362	285	362.7	376.2	228.4	228.9
National Biodefense Analysis and Countermeasures Center ^h	1.6	4.3	35 ⁱ	0	0	0
Total DHS Civilian Biodefense Funding	418.6	1,704.3	2,981.0	554.3	360.6	334.3

^aFormerly the Preparedness Directorate (P.L. 109-295 and changes pursuant to section 872 of the Homeland Security Act, 2002).

^bNDMS was transferred back to HHS effective January 1, 2007.

^cThe Strategic National Stockpile was transferred to HHS (CDC).

^dOffice of the Chief Medical Officer was created in 2005.

^eFormerly located within the National Protection and Program Directorate (P.L. 109-295 and changes pursuant to section 872 of the Homeland Security Act, 2002).

^fFunds appropriated for BioShield in years prior will be used in the current year. Of the \$5.6 billion special reserve fund, an amount not to exceed \$3.4 billion was allotted for FY2004–2008 for the program. The remainder of the fund will be allocated in FY2009–2013.

^gFormerly located within the Science and Technology Directorate (P.L. 109-295 and changes pursuant to section 872 of the Homeland Security Act, 2002).

^hDHS determined the construction cost of the NBACC facility to be \$128 million. This full amount was appropriated by Congress in FY2003–FY2005 (\$5 million, \$88 million, and \$35 million each fiscal year, respectively). According to a Congressional Research Service report, some “funds appear to be have been reprogrammed into other program elements.” No additional funds have been requested for NBACC construction since FY2005, so “it is unclear what funds will be used to construct the NBACC facility in future years.”¹⁸

ⁱThis is the FY2005 amount appropriated by Congress. The actual amount is unavailable.

Sources: DHS FY2007 Budget in Brief; DHS Press Office; OMB Budget Appendix; DHS Program Officials; DHS FY2008 Budget in Brief; FY2007 Department of Homeland Security Appropriations Act (P.L. 109-295); Conference Report on P.L. 109-295.

remains relatively even with the \$93.1 million FY2007 estimate. This sizable increase over FY2006 CST funds of \$56.4 million will support existing CST programs as well as the establishment of new teams and additional activities.

The Biological Threat Reduction program is proposed to receive a considerable increase of \$76.1 million, or 111%,

over FY2007 appropriations. This program oversees the location, collection, and destruction of residual “dangerous pathogens” from weapons created under the former Soviet Union’s biological weapons program. Additionally, the DoD Biological Threat Reduction program seeks to engage scientists from the former Soviet Union in open and ethical

Table 4. Department of Defense Civilian Biodefense Funding, FY2001–FY2008 (in \$millions)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate)	FY2008 (budget)
Biological Countermeasures	0	400	0	0	0	–	–	–
WMD Civil Support Teams	123	109	107	207	195	56.4	93.1	92.5
Biological Threat Reduction (in Former Soviet Union [FSU])	12	17	55	67.8	68.7	69.8	68.3	144.4
Biological Warfare Defense Program (located in DARPA)	146.2	171.9	157.9	141.9	155.4	132.8	112.8	99.1
Total DoD Civilian Biodefense Funding	281.2	697.9	319.9	416.7	419.1	259.0	274.2	336.0
Chemical and Biological Defense ^a	405	595	638	706	714.7	1,047.7	981.2	1,021.5

^aThis number was not included in the calculations because it includes many items that are not applicable to civilian biodefense, such as detectors, protective gear, vehicles, chemical defense, etc. It is given as information for those interested.

Sources: Office of the Secretary Media Public Affairs, Department of Defense; Congressional Budget Office; DoD RDT&E Defense-Wide Budget; DoD Office of the Secretary of Defense Budget Justifications FY2003–FY2008; DoD FY2008 Budget for RTD&E; Department of the Army National Guard FY2008/2009 Budget Estimates.

research and prevent them from being sought out and employed by terrorist groups and “rogue states” that might intend to create and use biological weapons.²⁶

We have added DARPA’s Biological Warfare Defense Program to DoD civilian biodefense funding totals for FY2008 and previous fiscal years. This program focuses on applying research to the development of biological pathogen detection technologies and disease prevention, treatment, and mitigation technologies. The Biological Warfare Defense Program has civilian biodefense applications, because it functions in collaboration with other government agencies, and the technologies that are developed within this program have the potential, and in some cases are intended, for use in both military and civilian settings.²⁷

In contrast to previous years’ publications, DoD biodefense funding numbers have been added into total calculations for civilian biodefense funding for this year’s “Billions for Biodefense” article. In analyzing DoD programs, we concluded that with the addition of DARPA’s Biological Warfare Defense programs, which are “synergistic with efforts of other government organizations,”^{27(p87)} the number of DoD programs with civilian biodefense applications is substantial and that they warrant inclusion. However, as we stated in the methods section, the DoD Chemical and Biological Defense program continues to be excluded from total biodefense budget calculations in this publication because of the inapplicability of many of its items to civilian biodefense. Numbers for this program are provided, but they have been excluded from DoD and overall totals (Table 4).

Department of Agriculture

The FY2008 budget requests an increase in civilian biodefense funding for the USDA of \$163 million, or 92%, over the FY2007 Continuing Resolution (CR) funding levels, for a total of \$340 million. Additionally, this proposed budget represents a \$93 million increase over FY2006 actual funding levels (Table 5).

The rise in USDA funding can be attributed to increases in program funding for both of USDA’s major biodefense initiatives, Food Defense and Agricultural Defense. Within the Food Defense initiative, the Food Emergency Response Network (FERN) is being expanded and upgraded to create a nationwide network of laboratories with the capacity to test large volumes of food products, rapidly identify biothreat agents, and respond quickly to minimize the number of lives lost.²⁸ The FY2008 Budget for FERN is \$19 million, an increase of \$17 million over FY2007 CR. Also, Agricultural Research Service (ARS) Food Defense Research is to receive a boost in funding from \$9 million appropriated in the FY2007 CR to \$23 million in FY2008. This money supports research into manmade and natural sources of food supply contamination, as well as surveillance and detection intervention systems.²⁸

Much of the proposed increase in Agricultural Defense Initiative funding stems from line item increases for Agricultural Defense Research and Enhanced Surveillance under the Pest Detection/Animal Health Monitoring program. According to USDA budget documents, these programs have been put in place in order to identify, de-

Table 5. Department of Agriculture Civilian Biodefense Funding, FY2001–FY2008^a (in \$millions)

	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate)	FY2008 (budget)
Food and Agricultural Defense Initiative						
Food Defense						
FSIS						
Surveillance/Monitoring	1	1	3	3	3	3
Food Emergency Response Network (FERN)	0	0	3	2	2	19
Enhanced Inspections	0	2	2	2	2	2
Lab Upgrades/Physical Security	1	3	3	3	3	6
Education/Training	2	2	3	2	2	4
Other	4	4	5	5	5	5
Agricultural Research Service (ARS)						
Food Defense Research	2	2	8	9	9	23
Subtotal, Food Defense	10	14	27	26	26	62
Agricultural Defense						
ARS						
Ames (Iowa) BSL-3 Facility	143	0	121	58	0	0
Research	10	17	21	25	23	58
National Plant Disease Recovery System	0	0	2	2	2	6
Athens (Georgia) Biocontainment Lab/ Poultry Research Facility	0	0	0	0	0	16
Cooperative State Research, Education, and Extension Services (CSREES)						
Regional Diagnostic Network	0	8	9	10	10	14
Higher Education Agrosecurity Program	0	0	0	0	0	5
Animal and Plant Health Inspection Service (APHIS) Pest Detection/Animal Health Monitoring						
Enhanced Surveillance	0	38	80	87	77	119
BioSurveillance	0	0	2	2	2	3
Plant Safeguarding Activities	–	17	17	17	17	23
Select Agents—Plants and Animals	0	0	3	3	3	7
National Veterinary Stockpile	0	1	3	3	3	8
Others	37	14	13	14	14	19
Subtotal, Agricultural Defense	190	95	271	221	151	278
Total USDA Civilian Biodefense Funding	200	109	298	247	177	340

^aUSDA Press and Budget offices were unable to provide numbers for 2001 and 2002.

Sources: USDA FY2007 Budget Summary; USDA FY2008 Budget Summary; USDA Budget Office; USDA Program Officials.

rect, and track threats to the U.S. agricultural infrastructure.²⁸ Funding for construction of the Ames (Iowa) BSL-3 research facility is discontinued beginning in FY2007 because construction of the facility has been completed and the project has been fully funded.²⁸ The Ames project received a total of \$322 million from FY2003 to FY2006. Despite this discontinuation of funds, Agricultural Defense funding is still projected to increase overall by 84% from FY2007 CR levels and 26% over FY2006 levels.

Environmental Protection Agency

For FY2008, the President’s budget for the Environmental Protection Agency (EPA) is requesting \$151.9 million for civilian biodefense programs, a decrease of 8.5% in civilian biodefense program funds from FY2007 of \$166.1 million.²⁹ Budgets for all of the Agency’s Homeland Security Initiatives are being cut—including the Critical Infrastructure Protection Initiative, which houses the Water Security Initiative (formerly the Water Sentinel) pilot program—by 12% (Table 6).³⁰

Table 6. Environmental Protection Agency Civilian Biodefense Funding, FY2001–FY2008 (in \$millions)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate)	FY2008 (budget)
Capitol Hill Anthrax Cleanup	20	-	-	-	-	-	-	-
Homeland Security								
Clean and Safe Water ^a	0	3.8	-	-	-	-	-	-
Safe Food ^b	0	0	-	-	-	-	-	-
Waste Management ^b	0	3.2	-	-	-	-	-	-
Quality Environmental Information ^b	0	0.6	-	-	-	-	-	-
Sound Science/Improved Understanding/Innovation ^b	0	0.6	-	-	-	-	-	-
Deterrent to Pollution ^b	0	3.5	-	-	-	-	-	-
Effective Management ^b	0	0	-	-	-	-	-	-
Emergency Supplemental Funds ^c	0	175.6	0	0	0	-	-	-
Water Safety Grants to States	0	0	4.5	5	5	5	5	5
Clean and Safe Water: Homeland Security, Critical Infrastructure Protection, Protect Human Health	0	0	14.2	27.4	-	-	-	-
Clean Land: Homeland Security Preparedness, Response and Security	0	0	37.6	27.3	-	-	-	-
Healthy Communities & EcoSystems								
Homeland Security Prep/Resp/Sec, Chem/Org/Pesticide Risks	0	0	0.7	2.3	-	-	-	-
Homeland Security Prep/Resp/Sec, Science and Research	0	0	31	29	-	-	-	-
Compliance and Environmental Stewardship: Homeland Security:								
Critical Infrastructure Protection, Improve Compliance	0	0	4.2	3.9	-	-	-	-
Enabling and Support Programs, Homeland Security	0	0	0	0.6	-	-	-	-
Office of Waste and Emergency Response	0	0	0	0	-	-	-	-
Office of Administration and Resources Management, Protection of EPA Personnel and Infrastructure	0	0	40	19.3	-	-	-	-
Office of Environmental Information, Communication and Information	0	0	0	3.8	-	-	-	-
Office of International Activities, Protection of EPA Personnel and Infrastructure	0	0	0	0	-	-	-	-
Office of the Administrator, Communication and Information	0	0	0.9	0	-	-	-	-
Homeland Security								
Communication and Information	-	-	-	-	4.3	6.8	7.0	6.9
Critical Infrastructure Protection	-	-	-	-	11.2	20.6	40.1	35.2
Preparedness, Response and Recovery	-	-	-	-	56.4	76.6	93.6	89.4
Protection of EPA Personnel and Infrastructure	-	-	-	-	20.5	20.2	20.4	15.4
Total EPA Civilian Biodefense Funding	20.0	187.2	132.9	118.7	97.4	129.1	166.1	151.9

^aNumbers for additional years are included in other line items, such as Clean Land.

^bDue to EPA reorganization, these activities fell under new headings beginning in FY2003.

^cThis bill includes a number of relevant line items, but a precise breakdown that accounts for all \$175 million could not be found. Sources: EPA Budgets in Brief and Congressional Justifications, FY2002–FY2007; EPA FY2007 Operating Plan.

Table 7. Department of State Civilian Biodefense Funding, FY2001–FY2008 (in \$millions)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate) ^a	FY2008 (budget)
Worldwide Security Upgrades: Chem/Bio Program	3.8	3.9	15.2	17.1	17.1	19	10.8	— ^b
BioRedirection ^c	0	67	52.0	50	—	—	—	—
Global Threat Reduction Program ^d	—	—	—	—	50.1	52.1	53.1	53.5
Total State Department Civilian Biodefense Funding	3.8	70.9	67.2	67.1	67.2	71.1	63.9	53.5

^aFY2007 amounts appropriated under the CR are estimates and could not be confirmed by the Department of State.

^bThe Chem/Bio Worldwide Security Upgrades line item was folded into the Physical Security/Protective Equipment Worldwide Security Upgrades. Therefore, specific numbers for Chem/Bio are not available.

^cThe BioRedirection program was folded under the Nonproliferation of WMD Expertise item in 2005.

^dNonproliferation of WMD Expertise was renamed the Global Threat Reduction Program beginning FY2008.

Sources: U.S. Department of State Public Communication Division; U.S. Department of State Budget in Brief FY2008; Summary and Highlights, International Affairs Function 150 FY2008 Budget Request; Office of Management and Budget (OMB) Officials.

Table 8. National Science Foundation Civilian Biodefense Funding, FY2001–FY2008 (in \$millions)

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006 (actual)	FY2007 (estimate)	FY2008 (budget)
Homeland Security Activities Research to Combat Bioterrorism								
Ecology of Infectious Diseases, BIO Directorate	0	4.1	6	6	6	6	6	6
Ecology of Infectious Diseases, GEO Directorate	0	0	4	4	4	4	4	4
Microbial Genome Sequencing, BIO Directorate	0	4.8	15	15	15	15	15	15
Microbial Genome Sequencing, Formerly CISE	0	0	2	2	2	2	3	—
Sensors and Sensor Networks, Engineering Directorate	0	0	4.3	4	4	4.3	—	—
Total NSF Civilian Biodefense Funding	0.0	9.0	31.3	31.0	31.0	31.3	28.0	25.0

Sources: NSF Budget Division; NSF FY2008 Budget in Brief.

Department of State

For FY2008, requested funding for the State Department's civilian biodefense programs has decreased \$10.4 million, or 16%, to \$53.5 million from the FY2007 CR amount (FY2007 CR appropriations amounts could not be confirmed by the Department) (Table 7). The Worldwide Security Upgrades Chemical and "Biological program, a separate line item in the Department's FY2007 "Budget in Brief," was folded into the Physical Security/Protective Equipment Worldwide Security Upgrade program for FY2008 (Department of State, Bureau of Public Affairs, March 19, 2007). Because of this change and because the State Department was funded under the FY2007 CR rather than receiving separate appropriations, it is difficult to say whether or not the FY2007 budget of \$11 million reflects a cut to this program from the \$19 million it received in FY2006; however, the budget for Physical Security/Protective Equipment did not change substantially from FY2007 (\$87.2 million) to FY2008 (\$89.1 million) to reflect the inclusion of the Chemical and Biological program.³¹

The Global Threat Reduction Program (formerly the Nonproliferation of WMD Expertise), which oversees the Science Centers, the Bio-Chem Redirection program, and the BioIndustry Initiative, would receive \$53.5 million under the President's FY2008 budget.³¹ This is approximately even with FY2007 estimated funding for that program.

National Science Foundation

The President's Budget for the National Science Foundation (NSF) for FY2008 proposes a cut of \$3 million, or 11%, over estimated FY2007 CR appropriated funds, for a total of \$25 million for civilian biodefense. According to NSF Budget Office representatives, FY2007 research funds under the Continuing Resolution were appropriated at FY2007 requested levels, and not at FY2006 levels as received by many other agencies (NSF Budget Office, March 12, 2007) (Table 8).

The FY2008 funding decrease is due mainly to the elimination of the Computer and Information Science and Engineering (CISE) portion of the Microbial Genome Sequencing program. Additionally, funding for the Sensor and Sensor Networks program within the Engineering Directorate has been redirected (beginning in FY2007) away from biodetection and toward a focus on detecting explosive devices and thus is no longer applicable to this analysis.³²

CONCLUSION

The President's proposed FY2008 budget requests \$5.42 billion for civilian biodefense, a slight increase over both

FY2007 estimates and FY2006 actual amounts. Overall, federal civilian biodefense funding has essentially leveled from FY2006 to FY2008, halting the previous trend of incremental increases in civilian biodefense funding that occurred from FY2001 to FY2005.

As in previous years, HHS operating divisions continue to receive the majority of federal biodefense funding (78%), followed by DHS, DoD, and USDA, which each receive approximately 6% of FY2008 funding. When looking at total civilian biodefense budgets by agency, HHS would receive a nominal budget increase, even with larger funding cuts to specific divisions or programs within the agency. Proposed budget decreases to hospital preparedness programs, recently moved to the HHS ASPR Office, are large. These funds are expected to sustain preparedness activities for more than 5,000 hospitals around the country, as well as support the Emergency System for Advanced Registration of Volunteer Health Professionals (ESAR-VHP) program, a national network of medical registration and credentialing systems based in each state and designed to more easily enable healthcare providers to volunteer in an emergency.¹⁷

Other agencies sustain more pronounced increases or reductions to proposed budgets. The USDA is proposed to receive the largest budget increase for FY2008. The President's budget request for the USDA nearly doubles FY2007 estimated levels, with increased funding for the Department's Food and Agriculture Defense initiatives. On the other end of the spectrum, the Department of Homeland Security faces the largest budget cut in the FY2008 proposed budget, with the Environmental Protection Agency, the Department of State, and the National Science Foundation also experiencing cuts to their biodefense programs.

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