

Billions for Biodefense: Federal Agency Biodefense Funding, FY2006–FY2007

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Since 2001, the United States government has spent substantial resources on preparing the nation against a bioterrorist attack. Earlier articles in this series analyzed the civilian biodefense funding by the federal government from fiscal years 2001 through 2006. This article updates those figures with budgeted amounts for fiscal year 2007, specifically analyzing the budgets and allocations for biodefense at the Department of Health and Human Services, the Department of Homeland Security, the Department of Agriculture, the Environmental Protection Agency, the Department of State, and the National Science Foundation.

FEDERAL FUNDING for civilian biodefense increased by \$112 million in the President's FY2007 budget, for a total request of \$5.24 billion (Table 1). Excluding BioShield funds made available in FY2004 and FY2005, the FY2007 budget request continues a trend of incremental increases in civilian biodefense funding since FY2001 (Figure 1). The President's FY2007 budget request includes funding increases for most of the agencies involved in biodefense, with the largest increase being allocated to the Department of Health and Human Services (HHS) for programs such as the Strategic National Stockpile (SNS), biodefense research, and countermeasure development. HHS is the chief recipient of the proposed federal biodefense monies, with 82% of the FY2007 proposed funds going to this agency (Figure 2) and 73% of biodefense-related funds since FY2001 (Figure 3). Funding increases also have been requested for the Department of Agriculture (USDA), the Environmental Protection Agency (EPA), and the Department of State. The most significant decrease in biodefense funding is proposed for the Department of Homeland Security (DHS), and a smaller budget cut is proposed for the National Science Foundation (NSF).

METHODS AND SOURCES

Tracking expenditures in civilian biodefense poses a number of challenges; some of these are inherent in tracking government expenditures in general, while other issues are specific to civilian biodefense. It was first necessary to determine what was actually spent as opposed to what was budgeted or appropriated. Typically, in a budget cycle, actual numbers are available for the prior year, with funding estimates available for the current year, and the President's budget request available for the upcoming year. In this article, unless otherwise noted, FY2001–FY2005 amounts are based on actual numbers, FY2006 amounts are estimated, and FY2007 numbers represent the President's budget request.

Finding accurate and up-to-date sources of information is another challenge. Departmental "Budget in Brief" documents were analyzed when available, but these reports often do not separate out civilian biodefense efforts, or they may include only partial information. Entire agency or departmental budgets also were examined, yet this was not always an effective method, as civilian biodefense expenditures could be contained within

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TABLE 1. U.S. GOVERNMENT CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS)

	<i>FY2001</i> <i>(actual)</i>	<i>FY2002</i> <i>(actual)</i>	<i>FY2003</i> <i>(actual)</i>	<i>FY2004</i> <i>(actual)</i>	<i>FY2005</i> <i>(actual)</i>	<i>FY2006</i> <i>(estimate)</i>	<i>FY2007</i> <i>(budget)</i>	<i>Total</i>
Department of Health and Human Services	271.0	2,940.0	3,986.0	3,700.0	4,153.0	4,085.0	4,253.0	23,388.0
Department of Homeland Security ^{a,b,c}	—	—	418.6	1,704.3	2,946.2	554.3	374.2	5,997.6
Department of Agriculture ^d	—	—	200.0	109.0	298.0	253.0	322.0	1,182.0
Environmental Protection Agency	20.0	187.2	132.9	118.7	97.4	129.1	184.0	869.4
Department of State	3.8	70.9	67.2	67.1	67.2	71.1	77.7	425.0
National Science Foundation	0.0	9.0	31.3	31.0	31.0	31.3	25.0	158.5
Total USG Civilian Biodefense Funding	294.8	3,207.1	4,836.0	5,730.1	7,592.8	5,123.8	5,235.9	32,020.4
Department of Defense ^e	135.0	526.0	161.7	274.8	263.7	—	—	1,361.2
Spent through FY2006	26,784.5							
Spent through FY2006 + FY2007 Budget	32,020.4							

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

^bDHS was unable to provide complete data. Accordingly, some items are missing. See Table 3.

^cDHS FY2004 and FY2005 budgets include one-time advanced appropriations for Project BioShield of \$890 million and \$2.5 billion, respectively, obligated for use through FY2013.

^dFY2001–FY2002 numbers not available due to budget methods used by USDA.

^eExact numbers unavailable due to inability of press office to provide information and lack of clear and complete published information. DoD is no longer counted in the total due to incomplete information.

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; AAAS Report on FY2007 Research and Development in DoD; DoD RDT&E Defense-Wide Budget; EPA Budgets in Brief and Congressional Justifications, FY2002–FY2007; HHS Budget Office; HHS Press Office; HHS Budgets in Brief FY2006–FY2007; DHS Budget; DHS Press Office; DHS FY2006 Congressional Justification (page 6); OMB Budget Appendix; DHS Program Officials; DHS FY2006 Appropriations Bill (H.R. 2360), Public Law 109-62; U.S. Department of State Public Communication Division; U.S. Department of State Budget in Brief FY2007; NSF Office of Legislative & Public Affairs, NSF Program Directors.

broader line items. Ultimately, when further information was deemed necessary, data were acquired by contacting the public affairs and budget offices of every agency listed in the report. This methodology was based on the principle that the numbers from the respective budget offices would be the most accurate and current, as these were the same numbers then assigned to the program offices responsible for executing programs within the agency.

It should be noted that budget line items are not necessarily indicative of size or location of programs. Many programs may be consolidated under one line item (such as DHS's Science & Technology), or a program may have many components (such as BioShield, which is administered by HHS with guidance from DHS). In other cases, work may be done by one department and reim-

bursed by another: For example, work done by the Agency for Healthcare Research and Quality (AHRQ) has been reimbursed by the Health Resources and Services Administration (HRSA) and the Office of State and Local Preparedness Office of the Assistant Secretary for Public Health Emergency Preparedness of HHS.

A challenge for this and the previous years' articles^{1,2} was to distinguish which items should be considered civilian biodefense and which should not. Here, civilian biodefense funding includes programs, research, and administrative costs that prevent or mitigate bioterrorism's effects on civilians. Federal budgets for programs intended for the general prevention and mitigation of weapons of mass destruction (WMD), such as "chemical, biological, radiological, and nuclear countermeasures" (e.g., some EPA detection items and BioShield), do not

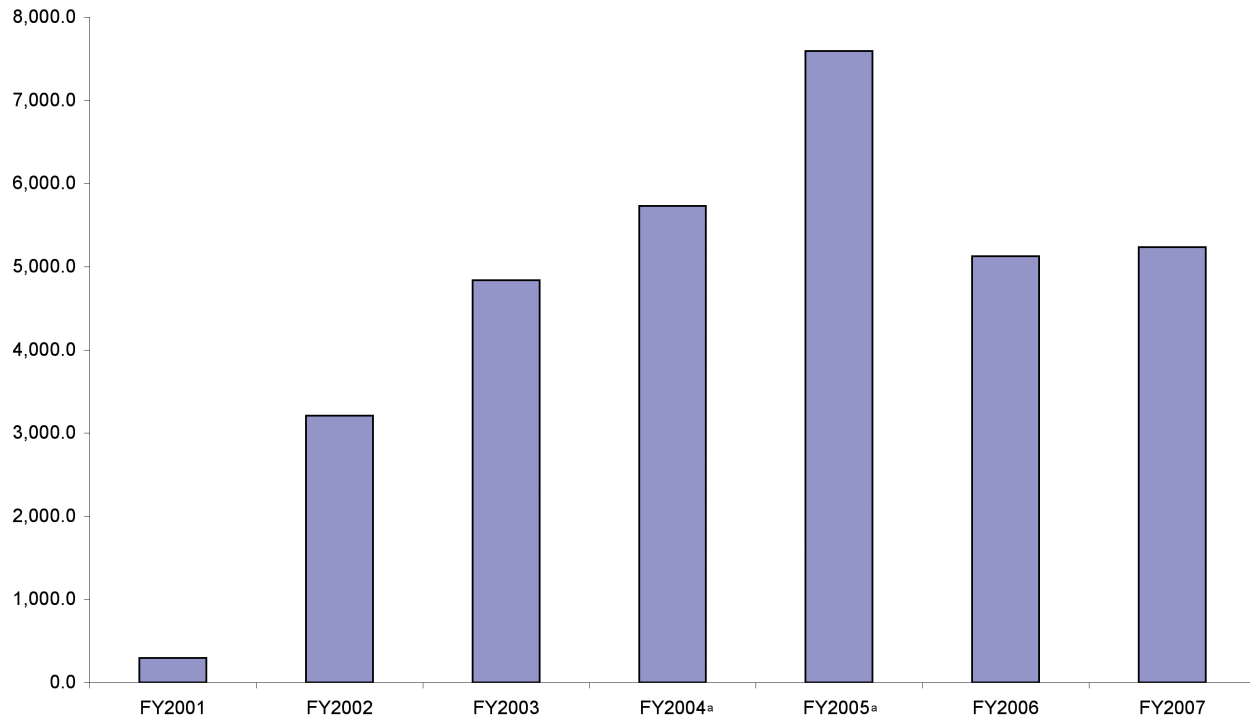


FIGURE 1. CIVILIAN BIODEFENSE FUNDING BY FISCAL YEAR, FY2001–FY2007 (IN MILLIONS)

distinguish how much of the program is specifically targeted at civilian biodefense, so they were included in their entirety as a practical measure. Multiple application programs (e.g., HHS’s Medical Reserve Corps or DHS’s National Disaster Medical System) that provide a substantial benefit in responding to an incident of civilian bioterrorism were included in their entirety. Physical security upgrades and other infrastructure protection also were included, but it should be noted that these upgrades cover both laboratory and general security (such as office buildings). This overall methodology led to some overestimation of biodefense funding, because it is likely that some of those funds will be spent on non-biodefense programs.

Programs that are not specifically directed at bioterror agents (e.g., the National Institute of Health’s nuclear/radiological medical countermeasures or pandemic flu programs) were not included. Also not included were programs that include a small, undefined biological component (such as many of the DHS Preparedness Directorate’s “All Hazards” grants and training), as well as routine surveillance that does not focus specifically on civilian biodefense but may play a role in such detection (such as the Department of Agriculture’s Food Safety and Inspection Service, which focuses on chemical contamination and natural microbial contamination).

The Department of Defense (DoD) has a large base of

research in chemical and biological countermeasures for warfighter protection. However, because of the focus on the warfighter and not the civilian, these numbers were excluded from this article. Some products, such as protective gear and detectors, do not have civilian mass market applications, so these DoD programs are not defined as civilian biodefense in this article. Some DoD research has direct civilian benefit, but because the majority of these funds are primarily military in application, these lines were excluded from calculation of total DoD expenditures.

Finally, there are two items of importance that should be noted in this year’s update to earlier “Billions for Biodefense” articles.^{1,2} The first is the absence of DoD data for both FY2006 and FY2007 and the exclusion of DoD numbers from the overall civilian biodefense funding totals (Table 1). The DoD figures were separated from the calculated totals in this edition of “Billions for Biodefense” for the following reasons:

- Officials in the DoD’s Office of the Secretary had difficulty distinguishing between military and civilian biodefense programs within their own budget.
- The authors were unable to distinguish civilian biodefense programs from military biodefense using DoD Budget Justification materials.³
- Some programs identified for previous “Billions for

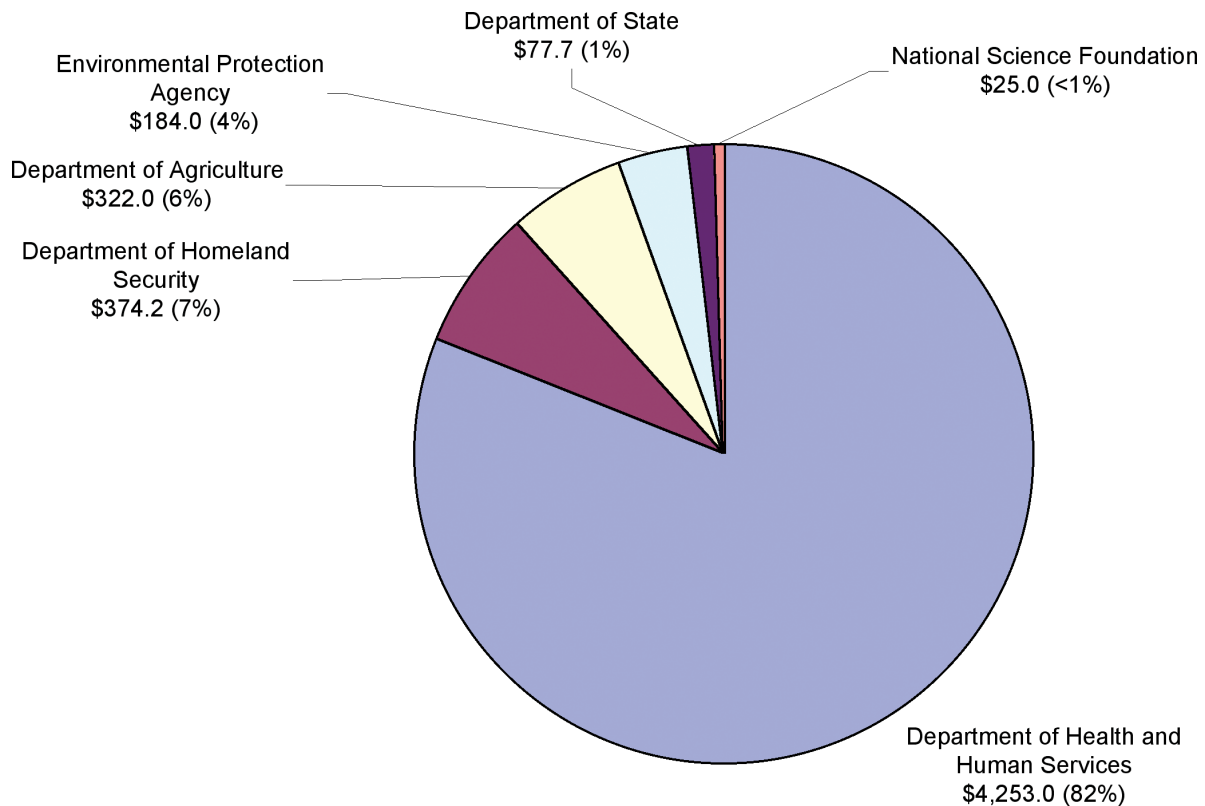


FIGURE 2. PROPOSED CIVILIAN BIODEFENSE FUNDING BY AGENCY, FY2007 (IN MILLIONS)

Biodefense” articles^{1,2} could not be found in the FY2006 or FY2007 budget documents and could not be provided by DoD.

- It was unclear what percentage of funding was being directed to biodefense versus chemical defense.

The second major change was the documenting of additional DHS biodefense efforts that were not included in last year’s article. We have revised the totals from last year’s article, and DHS efforts from FY2001–FY2007 (including the President’s budget request) total \$6 billion from the data that is available.

CIVILIAN BIODEFENSE FUNDING BY FEDERAL AGENCY

Department of Health and Human Services

For FY2007, the President’s budget for HHS requests an increase of \$168 million, or about 3.95%, for a total of \$4.253 billion. Most of the money requested for HHS is provided to programs and agencies within the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) (Figure 4). Most of the

HHS line item values, with a few exceptions, are comparable to their FY2006 amounts (Table 2).

The President has requested that NIH create a \$160 million fund within the Office of the Director for a program devoted to the advanced development of biodefense countermeasures identified as likely targets for potential acquisition by Project BioShield. Funding for this program for FY2007 will be allocated as a subset of the Biodefense Research money request. Although \$50 million was included within the National Institute of Allergy and Infectious Disease (NIAID) biodefense research base to fund similar activities in FY2006, it was not designated as a separate fund. This FY2007 advanced countermeasure development fund represents an increase of \$110 million for such activities and is the largest increase in HHS biodefense-related funds for FY2007.⁴

The Strategic National Stockpile is slated to receive a budget increase of \$68 million, for a total of \$593 million. Of this, \$79 million will be used to continue funding a “Federal Mass Casualty Initiative” for the purchase of portable hospital treatment units that are expected to be used to expand hospital surge capacity in a mass casualty emergency such as a bioterrorist attack. This represents an increase of \$29 million in FY2007 over the \$50 million that was appropriated in FY2006.

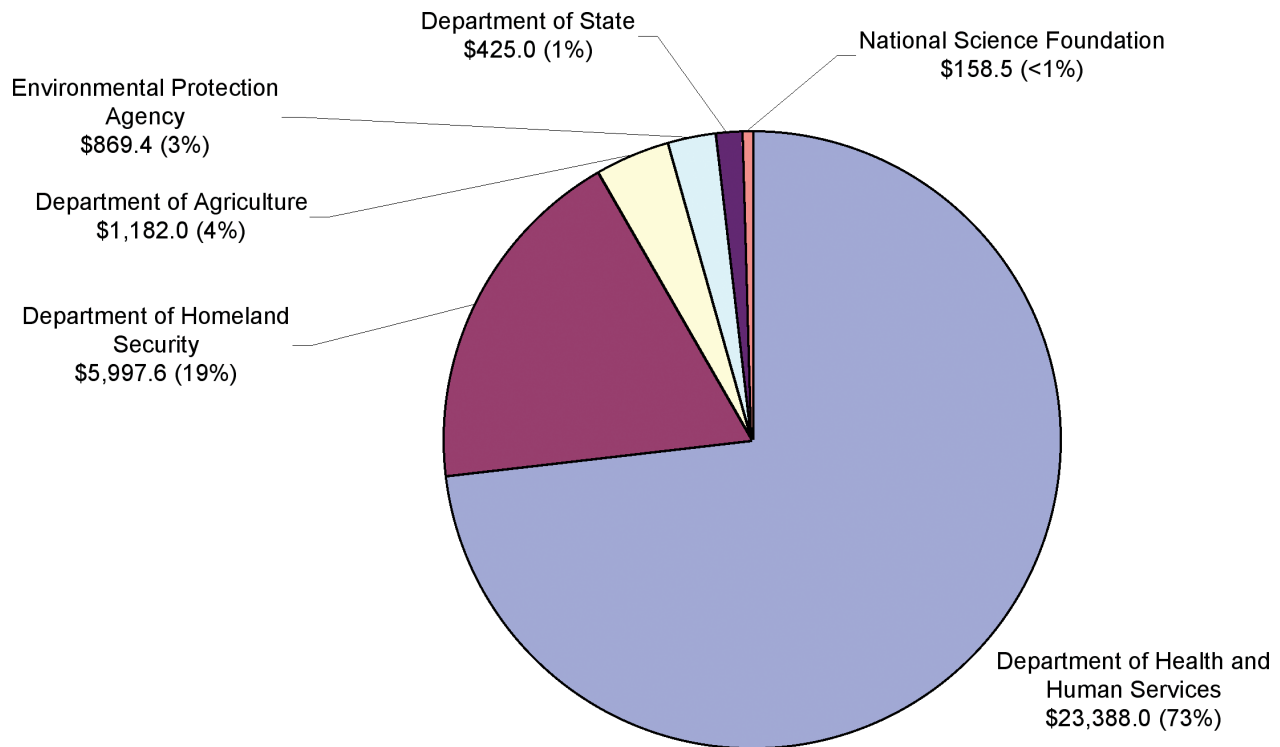


FIGURE 3. CUMULATIVE CIVILIAN BIODEFENSE FUNDING BY AGENCY, FY2001–FY2007 (IN MILLIONS)

Finally, CDC has a proposed cut of \$31 million, or about 23%, for its Biosurveillance Initiative, which is intended to strengthen surveillance, containment, and outbreak response measures. According to HHS budget documents, this reduction will be partially offset by FY2007 pandemic influenza emergency funds designated to support the Biosurveillance Initiative.⁴

Department of Homeland Security

For FY2007, the President's budget for DHS proposes a decrease of \$180 million, or about 31%, for a total of \$374.2 million (Table 3). This sum represents an estimate of the total amount of biodefense funds requested for DHS, since precise figures for its BioSurveillance program could not be obtained.

The FY2007 budget decrease is primarily due to a one-time emergency supplemental in FY2006 providing additional funds to the National Disaster Medical System (NDMS) for deployment during the response to Hurricane Katrina. NDMS was originally appropriated \$34 million for FY2006⁶ but received \$100 million in additional appropriations through an emergency supplemental,⁷ signed on September 8, 2005, to provide disaster relief funds for use as authorized by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002.

The Office of the Chief Medical Officer was created in July 2005 to serve as the department's chief liaison to other federal agencies in coordinating overall efforts to prevent and respond to a biological terrorist attack.⁸ Located within the newly restructured Preparedness Directorate, it is proposed to have a budget of \$3 million.

The Metropolitan Medical Response System (MMRS), a program also within the Preparedness Directorate, is intended to augment and improve emergency preparedness systems in order to increase the effectiveness of first responders to a public health emergency.⁹ It is not funded in the proposed FY2007 budget, resulting in a reduction of \$30 million. The President's past FY2005 and FY2006 budget proposals also failed to request funding for MMRS after the program rated poorly in the Office of Management and Budget's annual program assessments.^{10,11} Congressional appropriators disapproved^{12,13} of the program's elimination by declaring it a "vital system"¹² and subsequently reinstated \$30 million to MMRS for each fiscal year.¹⁴

The Science and Technology Directorate budget has a proposed reduction of \$39 million, or about 10%, as a result of a decrease in funds for biological countermeasures. The Directorate's FY2007 request of \$337 million includes \$23 million for planning, designing, and developing a National Bio and Agrodefense Facility to

TABLE 2. DEPARTMENT OF HEALTH AND HUMAN SERVICES CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS)

	FY2001 (actual)	FY2002 (actual)	FY2003 (actual)	FY2004 (actual)	FY2005 (actual)	FY2006 (estimate)	FY2007 (budget)
CDC							
CDC: Upgrading State and Local Capacity	67	940	939	918	927	824	824
BioSurveillance Initiative	0	0	0	22	79	133	102
Supplemental Appropriations (Smallpox)	0	0	100	0	0	0	0
Upgrading CDC Capacity	22	141	157	0	0	0	0
Anthrax Vaccine Research	18	18	18	0	0	0	0
Upgrading CDC Capacity/Anthrax Vaccine Research ^a	0	0	0	169	158	150	136
Botulinum Antitoxin Research	—	—	—	—	—	—	3
Independent Studies	11	2	2	0	0	0	0
Other	10	46	20	0	0	0	0
Strategic National Stockpile (SNS) ^b	81	1,157	398	0	467	475	514
Federal Mass Casualty Initiative (additional to the SNS)	0	0	0	0	0	50	79
Subtotal, CDC	209	2,304	1,634	1,109	1,631	1,632	1,658
HRSA							
Hospital Preparedness and Infrastructure	0	135	515	515	487	449	449
Emergency Response Demonstration ^c	0	0	0	0	0	25	25
Education Incentives for Medical Curriculum	0	0	28	28	28	21	12
Smallpox Compensation	0	0	42	0	0	0	0
Subtotal, HRSA	0	135	585	543	515	495	486
Office of the Secretary							
Office of Public Health and Emergency Preparedness	0	50	47	41	41	41	43
Medical Reserve Corps	0	3	10	10	10	10	22
Healthcare Provider Credentialing	0	0	0	0	0	0	7
Subtotal, Office of the Secretary	0	53	57	51	51	51	72
Subtotal, PHSSEF Biosecurity^d	209	2,492	2,276	1,703	2,197	2,178	2,216

TABLE 2. DEPARTMENT OF HEALTH AND HUMAN SERVICES CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS) (CONTINUED)

	FY2001 (actual)	FY2002 (actual)	FY2003 (actual)	FY2004 (actual)	FY2005 (actual)	FY2006 (estimate)	FY2007 (budget)
FDA							
Food Safety	1	98	97	116	150	158	178
Vaccines/Drugs/Diagnostics (relabelled “Medical Product Countermeasures”)	6	46	53	53	57	57	57
Physical Security	2	13	7	7	7	7	7
Subtotal FDA	9	157	157	176	214	222	242
NIH							
Biodefense Research (NIAID)	53	199	687	1,629	1,548	1,655	1,610
Advanced Development of Biodefense Countermeasures ^e	—	—	—	—	—	—	160
rPA Anthrax Vaccine Intermediate Scaleup	0	0	123	117	0	0	0
MVA Smallpox Vaccine Intermediate Scaleup	0	0	0	75	45	0	0
Extramural BT Research Facilities ^f	0	92	743	0	149	30	25
Subtotal NIH	53	291	1,553	1,821	1,742	1,685	1,795
Total HHS Civilian Biodefense Funding	271	2,940	3,986	3,700	4,153	4,085	4,253

^aThese line items were counted separately until the President’s FY2006 budget.

^bThe SNS was located in the HHS Office of the Secretary for FY2001–FY2003 and 2005–2007. In FY2004, it was located in the Department of Homeland Security. It is now a CDC function.

^cThis line item is additional to the Hospital Preparedness and Infrastructure item.

^dSome HHS biodefense funds are specifically requested through the Public Health Social Services Emergency Fund (PHSSEF). Placing funds in the PHSSEF enables them to be appropriated in one place and then allocated to targeted biodefense activities.

^eThis fund is to be overseen by the Office of the NIH Director. The money for this fund is allocated from the existing Biodefense Research program.

^fFY2007 Extramural BT Research Facilities funds are to be used to construct new university BSL-3 labs and to renovate existing university labs to BSL-3 standards. This line item is the only funding stream being allocated directly toward construction and upkeep of BT-specific facilities. It is assumed that funding for upkeep of intramural NIH facilities used in BT-related research is encompassed in the NIH intramural research funding. The NIH Buildings and Facilities line item, although budgeted close to \$1 billion each year, is focused on physical maintenance of all NIH facilities. The authors do not consider the NIH Buildings and Facilities account to be directly relevant to biodefense and have not included it in these calculations.

Sources: HHS Budget Office; HHS Press Office; HHS Budgets in Brief FY2006–FY2007 <http://www.hhs.gov/budget/07budget/2007BudgetInBrief.pdf>, pg. 36

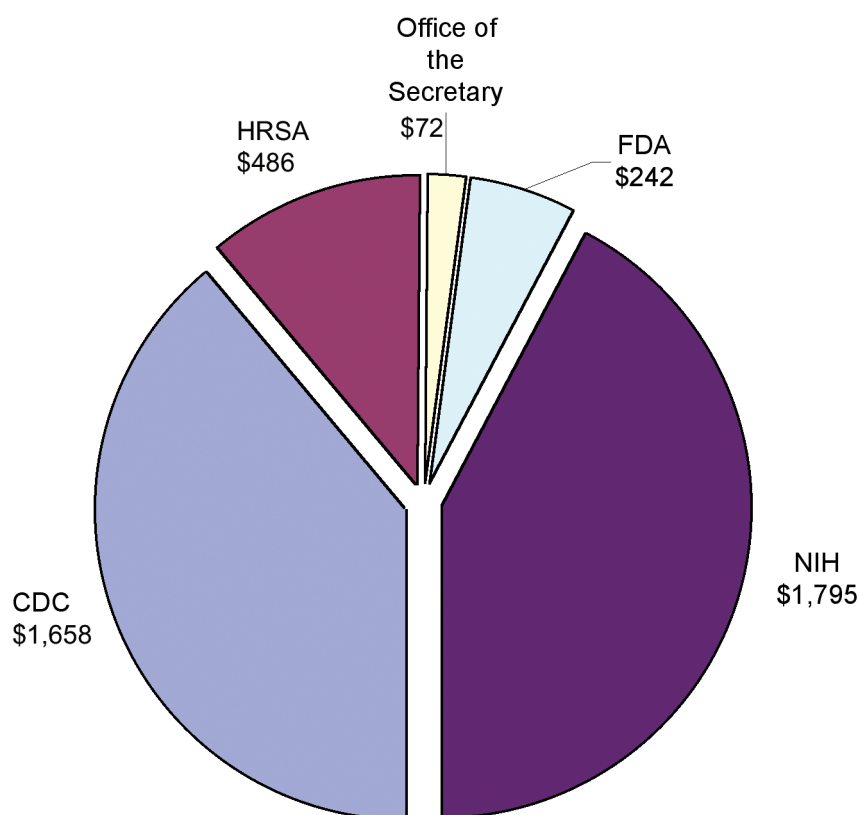


FIGURE 4. HHS PROPOSED CIVILIAN BIODEFENSE FUNDING, FY2007 (IN MILLIONS)

research biological threats caused by human and animal diseases.¹⁵

In FY2004, an advanced appropriation of \$5.6 billion was awarded to BioShield for use through FY2013, of which \$890 million was made available in FY2004 and \$2.5 billion was made available in FY2005. The remaining balance of \$2.2 billion is to be made available beginning in FY2009.¹⁶ As of FY2006, \$2.3 billion of the \$3.5 billion in total BioShield funds available prior to FY2009 remained unobligated.¹⁷

Additionally, a number of line items that could not be tracked in previous “Billions for Biodefense” articles^{1,2} were updated for this version when data became available. Particular line items also were shifted when compared to previous articles to reflect the restructuring of DHS directorates after the department’s second-stage review in October 2005.

Department of Agriculture

For FY2007, it is proposed that USDA receive a funding increase of about \$69 million, or about 27%, for a total of \$322 million. This represents an increase in program funding for the Food and Agriculture Defense

Initiative of \$127 million, or about 65%, when accounting for the completion of the BSL-3 facility in Ames, Iowa (Table 4).

Most of the increases stem from an expansion of the department’s food and agricultural monitoring and research activities. Within food defense, the Food Emergency Response Network (FERN) is a collaborative effort between the USDA’s Food Safety and Inspection Service (FSIS) and HHS to operate a network of laboratories intended to detect and distinguish biological, chemical, and radiological agents in food.¹⁸ FERN was provided a budget increase of \$16 million, and the Agricultural Research Service (ARS) was provided an additional \$14 million for Food Defense Research compared to FY2006. Overall, an increase of \$30 million is proposed for the Food Defense component of the Food and Agriculture Defense Initiative.

The Animal and Plant Health Inspection Service is budgeted an increase of \$43 million, or about 49%, to a total of \$130 million for enhanced surveillance, and the ARS proposes an increase of \$24 million for agricultural defense research. Funding for the completed Ames, Iowa, BSL-3 facility was eliminated, for a decrease of \$58 million in FY2007. Overall, an increase of \$39 mil-

TABLE 3. DEPARTMENT OF HOMELAND SECURITY CIVILIAN BIODEFENSE FUNDING, FY2003–FY2007 (IN \$MILLIONS)

	FY2003 (actual)	FY2004 (actual)	FY2005 (actual)	FY2006 (estimate)	FY2007 (budget)
Preparedness Directorate^a					
National Disaster Medical System	5	82	34	134	34
Strategic National Stockpile	0	398	0	— ^b	— ^b
Metropolitan Medical Response System (MMRS)	50	50	30	30	0
BioShield	0	885	2,507	0 ^c	0 ^c
Office of the Chief Medical Officer ^d	—	—	—	—	3
BioSurveillance ^e	0	0	12.5	14.1	— ^f
Science & Technology Directorate					
Biological Countermeasures (includes HSARPA, BioSurveillance/ BioWatch, National Bio and Agrodefense Facility, and other research efforts)	362	285	362.7	376.2	337.2
National Biodefense Analysis and Countermeasures Center ^g	1.6	4.3	35 ^h	0	0
Total DHS Civilian Biodefense Funding	418.6	1,704.3	2,946.2	554.3	374.2

^aFormerly known as the Emergency Preparedness and Response Directorate.

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

^cFunds appropriated for BioShield in prior years will be used in the current year.

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

^eFormerly located within the Information Analysis and Infrastructure Protection Directorate.

^fDHS was unable to provide this amount.

^gDHS determined the construction cost of the NBACC facility to be \$128 million. This full amount was appropriated by Congress in FY2003–FY2005 (\$5m, \$88m, \$35m each fiscal year, respectively). According to a Congressional Research Service report, some “funds appear to be have been reprogrammed into other program elements.”⁵ 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.”⁵

^hThis is the FY2005 amount appropriated by Congress. The actual amount is unavailable.

Sources: DHS FY2007 Budget in Brief http://www.dhs.gov/dhspublic/interweb/assetlibrary/Budget_BIB_FY2007.pdf; DHS Press Office; OMB Budget Appendix; DHS Program Officials; DHS FY2006 Appropriations Bill (H.R. 2360), Public Law 109-62; DHS FY2006 Congressional Justification http://www.dhs.gov/interweb/assetlibrary/Budget_PBO_FY2006.pdf pg.6; DHS FY2006 Congressional Justification, Science and Technology Directorate <http://www.ucop.edu/research/homelandsecurity/documents/STFY2006CJ2022005Final1.pdf>.

lion is proposed for the Agricultural Defense component of the Food and Agriculture Defense Initiative.

Environmental Protection Agency

The President’s budget for the Environmental Protection Agency (EPA) is requesting an increase of \$54.9 million, or about 43%, to a total of \$184.04 million. The FY2007 budget allocates an additional \$33.4 million to the Water Sentinel program, for a total of \$54 million, and an increase of \$21 million to EPA’s Homeland Security research and preparedness response program, for a total of \$97.6 million (Table 5). According to EPA budget documents, the Public Health Security and Bioterrorism Response and Preparedness Act of 2002 and Home-

land Security Presidential Directives (HSPD 7 and 9) direct EPA to help the water sector develop and implement both protective measures against terrorism and comprehensive surveillance programs.¹⁹ The increase in FY2007 biodefense funds will help support these programs.

State Department

For FY2007, the President is requesting an increase of \$6.61 million, or about 9.3%, to a total of \$77.68 million for the State Department’s biodefense programs. The Worldwide Security Upgrades Chemical and Biological Program, responsible for increases of diplomatic personnel and facilities in the face of terrorism, is budgeted at \$20.5 million for FY2007 (Table 6).²⁰ In addition,

TABLE 4. DEPARTMENT OF AGRICULTURE CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS)

	FY2001 ^a	FY2002 ^a	FY2003 (actual)	FY2004 (actual)	FY2005 (actual)	FY2006 (estimate)	FY2007 (budget)
Food and Agricultural Defense Initiative							
Food Defense							
FSIS	—	—	1	1	3	3	3
Food Emergency Response Network (FERN)	—	—	0	0	3	3	19
Enhanced Inspections	—	—	0	2	2	2	2
Lab Upgrades/Physical Security	—	—	1	3	3	6	6
Education/Training	—	—	2	2	3	4	4
Other Activities	—	—	4	4	4	5	5
ARS Food Defense Research	—	—	2	2	8	9	23
Subtotal, Food Defense	—	—	10	14	26	32	62
Agricultural Defense							
ARS							
Ames, IA, BSL-3 Facility	—	—	143	0	121	58	0
Research	—	—	10	17	21	25	49
National Plant Disease Recovery System	—	—	0	0	2	2	6
Foreign Disease Weed Science Laboratory, Frederick, MD	—	—	0	0	0	0	0
Cooperative State Research, Education, and Extension Service (CSREES)							
Regional Diagnostic Network	—	—	0	8	9	10	12
Higher Education Agrosecurity Program	—	—	0	0	0	0	5
APHIS Pest Detection/Animal Health Monitoring							
Enhanced Surveillance	—	—	0	38	80	87	130
BioSurveillance	—	—	0	0	2	2	3
Plant Safeguarding Activities	—	—	—	17	17	17	23
Select Agents—Plants and Animals	—	—	0	0	3	3	5
National Veterinary Stockpile	—	—	0	1	3	3	8
Other Activities	—	—	37	14	14	14	19
Subtotal, Agricultural Defense	—	—	190	95	272	221	260
Total USDA Civilian Biodefense Funding	—	—	200	109	298	253	322

^aUSDA Press and Budget offices were unable to provide numbers for these years.

Sources: USDA FY2007 Budget Summary <http://www.usda.gov/agency/obpa/Budget-Summary/2007/FY07budsum.pdf>; USDA Press Office; USDA Budget Office; USDA Program Officials.

TABLE 5. ENVIRONMENTAL PROTECTION AGENCY CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS)

	FY2001 (actual)	FY2002 (actual)	FY2003 (actual)	FY2004 (actual)	FY2005 (actual)	FY2006 (estimate)	FY2007 (budget)
Capitol Hill Anthrax Cleanup	20	—	—	—	—	—	—
Clean and Safe Water: Homeland Security ^a	0	3.8	—	—	—	—	—
Safe Food: Homeland Security ^b	0	0	—	—	—	—	—
Waste Management: Homeland Security ^b	0	3.2	—	—	—	—	—
Quality Environmental Information: Homeland Security ^b	0	0.6	—	—	—	—	—
Sound Science/Improved Understanding/Innovation: Homeland Security ^b	0	0.6	—	—	—	—	—
Deterrent to Pollution: Homeland Security ^b	0	3.5	—	—	—	—	—
Effective Management: Homeland Security ^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
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	—	—	—
Healthy Communities & EcoSystems: 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, Office of Waste and Emergency Response	0	0	0	0.6	—	—	—
Enabling and Support Programs: Homeland Security, Office of Administration and Resources Management, Protection of EPA Personnel and Infrastructure	0	0	40	19.3	—	—	—
Enabling and Support Programs: Homeland Security, Office of Environmental Information, Communication and Information	0	0	0	3.8	—	—	—
Enabling and Support Programs: Homeland Security, Office of International Activities, Protection of EPA Personnel and Infrastructure	0	0	0	0	—	—	—
Enabling and Support Programs: Homeland Security, Office of the Administrator, Communication and Information	0	0	0.9	0	—	—	—
Homeland Security: Communication and Information	—	—	—	—	4.3	6.8	7.1
Homeland Security: Critical Infrastructure Protection	—	—	—	—	11.2	20.6	54.1
Homeland Security: Preparedness, Response and Recovery	—	—	—	—	56.4	76.6	97.6
Homeland Security: Protection of EPA Personnel and Infrastructure	—	—	—	—	20.5	20.2	20.3
Total EPA Civilian Biodefense Funding	20	187.2	132.9	118.7	97.4	129.1	184.0

^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: Compiled from EPA Budgets in Brief and Congressional Justifications, FY2002–FY2007 <http://www.epa.gov/ocfo/budget/2007/2007bib.pdf>.

TABLE 6. DEPARTMENT OF STATE CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS)

	<i>FY2001</i> (<i>actual</i>)	<i>FY2002</i> (<i>actual</i>)	<i>FY2003</i> (<i>actual</i>)	<i>FY2004</i> (<i>actual</i>)	<i>FY2005</i> (<i>actual</i>)	<i>FY2006</i> (<i>estimate</i>)	<i>FY2007</i> (<i>budget</i>)
World Security Upgrades:							
Chem/Bio Program	3.8	3.9	15.2	17.1	17.1	19	20.5
Worldwide Security Upgrades:							
Chem/Bio Preparedness ^a	—	—	—	—	—	—	0.98
BioRedirection ^b	0	67	52	50	—	—	—
Nonproliferation of WMD							
Expertise	—	—	—	—	50.1	52.1	56.2
Total State Department Civilian Biodefense Funding	3.8	70.9	67.2	67.1	67.2	71.1	77.7

^aThis line item was added for FY2007, and funds are to be used to buy masks and other protective equipment.

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

Sources: U.S. Department of State Public Communication Division; U.S. Department of State Budget in Brief FY2007 <http://www.state.gov/m/rm/c6112.htm>.

the State Department is requesting \$980,000 for Chemical/Biological Preparedness under the Worldwide Security Upgrades program. These funds are intended to provide training for use and maintenance of escape masks for protection of personnel in the event of a chemical or biological attack at overseas missions.²⁰

The Nonproliferation of WMD Expertise (NWMDE) line item is provided \$56.2 million for four programs: Science Centers, Bio-Chem Redirection, the BioIndustry Initiative, and Iraqi WMD Scientist Redirection. All of these focus on redirecting and engaging scientists from

former bioweapons programs to “sustainable civilian scientific research.”²¹

National Science Foundation

For FY2007, the President’s budget for the National Science Foundation proposes a decrease of \$4 million, or 20%, for a total of \$25 million to fund its Ecology of Infectious Diseases and Microbial Genome Sequencing programs.

Funding for Sensor and Sensor Networks, established as a short-term program to bolster particular sensor re-

TABLE 7. NATIONAL SCIENCE FOUNDATION CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS)

	<i>FY2001</i> (<i>actual</i>)	<i>FY2002</i> (<i>actual</i>)	<i>FY2003</i> (<i>actual</i>)	<i>FY2004</i> (<i>actual</i>)	<i>FY2005</i> (<i>actual</i>)	<i>FY2006</i> (<i>estimate</i>)	<i>FY2007</i> (<i>budget</i>)
Ecology of Infectious Diseases, BIO Directorate	0	4.1	6	6	6	6	6
Ecology of Infectious Diseases, GEO Directorate	0	0	4	4	4	4	4
Microbial Genome Sequencing, Bio Directorate	0	4.8	15	15	15	15	15
Microbial Genome Sequencing, CISE Directorate	0	0	2	2	2	2	0
Sensors and Sensor Networks, Engineering Directorate	0	0	4.3	4	4	4.3	0
Total NSF Civilian Biodefense Funding	0	8.9	31.3	31	31	31.3	25

Sources: NSF Office of Legislative & Public Affairs, NSF Program Directors.

search, is to be eliminated in FY2007. Total funding for Microbial Genome Sequencing will decrease to \$15 million after a reduction of \$2 million formerly funded by the Computer, Information Science, and Engineering (CISE) Directorate (Table 7).

Department of Defense

For the president's FY2007 budget request, the authors were able to find numbers for the line items of Civil Support Teams, Cooperative Threat Reduction: Biological Weapons Proliferation Prevention, and Chemical and Biological Defense. The Civil Support Teams, which are jointly funded by DoD and state national guard units and provide detection capabilities for local authorities during WMD events, are not funded in the FY2007 budget according to DoD documents.²²

The Cooperative Threat Reduction (CTR) Program was established with the intention of preventing the proliferation of WMD and related materials, technologies, and expertise from states of the former Soviet Union. Biological Weapons (BW) Proliferation Prevention, a program within CTR, is divided into three initiatives: elimination of former Soviet bioweapons production infrastructure; biosecurity and biosafety upgrades and increased biological threat agent detection and response; and cooperative biological research with former Soviet bioweapons scientists. The CTR BW Proliferation Prevention Program's proposed budget request is \$68.4 million in FY2007 (Table 8).³ The authors also updated pro-

gram funding levels for previous years, which were unavailable for past "Billions for Biodefense" articles.^{1,2}

The Chemical and Biological Defense program was not included in the DoD biodefense budget calculation because it includes many items that are not applicable to civilian biodefense. DoD could not provide numbers for other biodefense-related programs, and thus these numbers have not been included.

The budget numbers for DoD were not counted in this article's overall total for civilian biodefense funds due to the absence of complete and clear data from the agency. Some of the data related to DoD biodefense funding was inaccessible, and the authors often were unable to discern which funds were allocated specifically for civilian biodefense efforts. DoD allocates a large sum of money toward Chemical and Biological Defense, but it is unclear what percentage of that goes toward biological versus chemical defense, what percentage is spent on laboratory research that will lead to civilian countermeasures, and what percentage is military equipment development (sensors, vehicles, etc.) that will not be deployed for civilian use. As such, the authors have chosen to make the DoD data available but have excluded it from the overall total.

CONCLUSION

The President's proposed FY2007 budget requests an increase of \$112 million over the FY2006 civilian biode-

TABLE 8. DEPARTMENT OF DEFENSE CIVILIAN BIODEFENSE FUNDING, FY2001–FY2007 (IN \$MILLIONS)

	<i>FY2001</i> <i>(actual)</i>	<i>FY2002</i> <i>(actual)</i>	<i>FY2003</i> <i>(actual)</i>	<i>FY2004</i> <i>(actual)</i>	<i>FY2005</i> <i>(actual)</i>	<i>FY2006</i> <i>(estimate)</i>	<i>FY2007</i> <i>(budget)</i>
Biological Countermeasures	0	400	0	0	0	— ^a	— ^a
WMD Civil Support Teams	123	109	107	207	195	0	0
Cooperative Threat Reduction, BW Proliferation Prevention	12	17	54.7	67.8	68.7	60.8	68.4
Total DoD Civilian Biodefense Funding	135	526	161.7	274.8	263.7	—	—
Chemical and Biological Defense ^b	405	595	638	706	714.7	1049.4	959.1

^aExact numbers were unavailable due to inability of the DoD press office to provide information and a lack of clear and complete published information.

^bThis 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, etc. It is listed as a reference for those interested.

Sources: Office of the Secretary Media Public Affairs, Department of Defense; Congressional Budget Office; AAAS Report on FY2007 Research and Development in DoD; DoD RDT&E Defense-Wide Budget http://www.dod.mil/comptroller/defbudget/fy2007/budget_justification/pdfs/rdtande/Vol_4_CBDP/CBDP_RDTE_DW.pdf; pg. 178; DoD Offices of the Secretary of Defense Budget Justifications FY2003–FY2007 [http://www.dod.mil/comptroller/defbudgettr/fy2007/budget_justification/pdfs/operation/O_and_M\(CO\)_Volume_I_PB_2007.pdf](http://www.dod.mil/comptroller/defbudgettr/fy2007/budget_justification/pdfs/operation/O_and_M(CO)_Volume_I_PB_2007.pdf); pg. 759

fense funding total and continues a general trend of incremental increases in funding since FY2001, excluding consideration of BioShield funds. About 88% of the proposed FY2007 funding is budgeted for agencies and programs within HHS and DHS, a figure similar to that of FY2006. While most departments and agencies are budgeted an increase in biodefense funds, the President is proposing that DHS and the National Science Foundation have civilian biodefense funding cuts for FY2007. DHS would experience the largest budget reduction compared to FY2006, mainly due to emergency funds provided to the department for its response to Hurricane Katrina that would not be present in FY2007. HHS would have the largest increase in biodefense funding, primarily for programs relating to the Strategic National Stockpile and for the support of advanced development of biological countermeasures by NIH. The President is requesting that two other agencies receive significant increases in their FY2007 budgets: USDA would receive an additional \$127 million for its Food and Agriculture Defense Initiative, when excluding consideration of prior funds provided for the completion of the Ames, Iowa BSL-3 facility; and EPA would receive an additional amount of \$54 million for its Water Sentinel and Homeland Security preparedness and response programs. As of FY2006, a total of \$1.1 billion has been spent on Project BioShield.

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