

Billions for Biodefense: Federal Agency Biodefense Funding, FY2001–FY2005

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ABSTRACT

Over the past several years, the United States government has spent substantial resources on preparing the nation against a bioterrorist attack. This article analyzes the civilian biodefense funding by the federal government from fiscal years 2001 through 2005, 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 National Science Foundation, and the Department of State. In total, approximately \$14.5 billion has been funded for civilian biodefense through FY2004, with an additional \$7.6 billion in the President's budget request for FY2005.

THE SEPTEMBER 11 WORLD TRADE CENTER ATTACKS and the subsequent anthrax mail attacks have made counterterrorism a central security issue in the United States, and the federal government has spent substantial resources over the past several years on preparing the nation against a bioterrorist attack in particular. The most conspicuous example of the federal government's commitment to counterterrorism is the formation of the new Department of Homeland Security (DHS), whose budget has increased from \$19.5 billion in FY2002¹ to a proposed \$40.2 billion in FY2005.²

To date, however, there has not been a clear accounting for, and analysis of, how civilian biodefense funding has been allocated and spent. Only one agency, the Department of Health and Human Services (HHS), publishes a comprehensive "biodefense spending" section in their annual budget. Other departments, such as DHS, publish partial information, and still others, such as the Environmental Protection Agency (EPA), publish homeland security-themed spending reports. What is lacking is a centralized resource for tracking civilian biodefense budgets and spending.

This article identifies civilian biodefense budgeting and spending across the federal government and consolidates this information into one report. It provides budget

information as presented by federal government agencies, either through published documents or via personal communications with their press and budget offices. We have not evaluated the value of programs or whether the goals of the programs have been met, and it should be cautioned that expenditures of money should not be used as indicators of success or failure. Rather, this article is a summary of government budget and funding information from FY2001 to FY2005.

All told, the government has spent approximately \$14.5 billion on civilian biodefense from FY2001 to FY2004, with another \$7.6 billion in the President's budget request for FY2005 (Table 1; Figs. 1, 2). The two agencies primarily responsible for civilian biodefense are HHS and DHS, which together account for over 90% of budgeted civilian biodefense funds. Some agencies, such as the EPA, the Department of Agriculture (USDA), and the Department of Defense (DoD), also have been given substantial funding for civilian biodefense programs, with others, such as the State Department and the National Science Foundation (NSF), receiving some lesser amounts of funding for civilian biodefense programs. Going into FY2005, civilian biodefense spending is budgeted to be more than 18 times that of FY2001 (Table 1).

TABLE 1. U.S. GOVERNMENT CIVILIAN BIODEFENSE FUNDING, FY2001–FY2005 (IN \$MILLIONS)

	FY2001	FY2002	FY2003	FY2004 (estimated)	FY2005 (budget)	Total
Department of Health and Human Services	271.0	2,940.0	3,986.0	3,500.0	4,005.0	14,702.0
Department of Homeland Security ^a	—	—	412.0	1,622.0	2,938.0	4,972.0
Department of Defense ^b	123.0	509.0	107.0	207.0	195.0	1,141.0
Department of Agriculture ^c	—	—	204.0	78.0	381.0	663.0
Environmental Protection Agency ^d	20.0	187.2	132.9	118.7	91.6	550.4
National Science Foundation	0.0	9.0	31.3	32.0	32.0	104.2
Department of State	0.0	0.0	0.0	1.2	0.0	1.2
Total USG Civilian Biodefense Funding	414.0	3,645.2	4,916.2	5,484.9	7,647.6	22,107.8
Spent through FY2004	14,460.2					
Spent through FY2004 + FY2005 Budget	22,107.8					

^aThe Department of Homeland Security was created in FY2003.

^bExact numbers unavailable due to inability of press office to provide information and lack of published information.

^cNumbers not available due to budget methods used by USDA.

^dEPA FY2001–FY2003 based on actual numbers; FY2004–FY2005 are based on the President’s budget for those years.

Sources: USDA Budget; USDA Press Office; USDA Budget Office; Office of Plans and Systems, Office of the Secretary, Department of Defense; Defense Cost Estimates Unit, Congressional Budget Office; AAAS Reports 22–24 on Research and Development; EPA Budgets in Brief and Congressional Justifications, FY2002–FY2005; HHS Budget Office; HHS Press Office; DHS Budget; S&T Directorate Press Office; EPR Press Office; IAIP Press Office; NSF Budget Division, Engineering Directorate, Office of Budget, Finance and Award Management.

METHODS AND SOURCES

Tracking expenditures in civilian biodefense poses a number of challenges, some of which are inherent to tracking government expenditures in general, while other issues are specific to civilian biodefense. The first of these challenges was determining 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 spending estimates available for the current year, and the President’s budget request available for the upcoming year. In this article, unless otherwise noted, FY2001–FY2003 amounts are based on actual numbers, FY2004 amounts are estimated, and FY2005 numbers represent the President’s budget request. It also should be noted that unless otherwise speci-

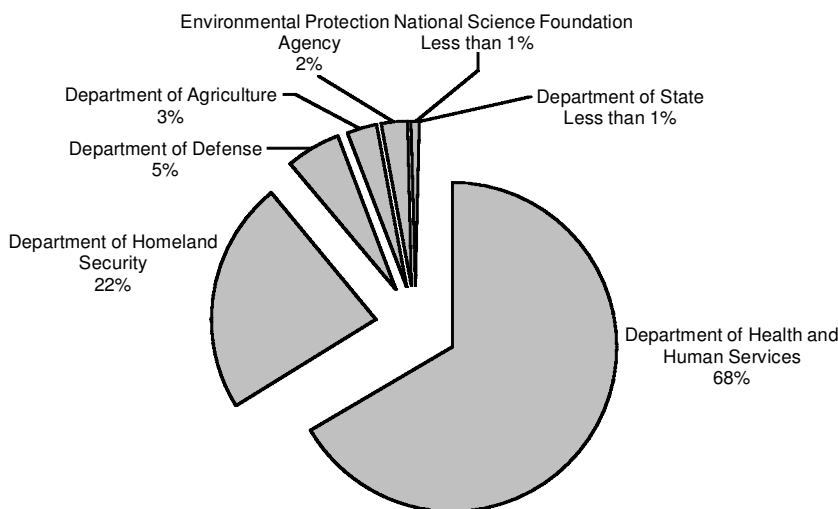


FIGURE 1. CUMULATIVE CIVILIAN BIODEFENSE SPENDING BY AGENCY, FY2001–FY2005.

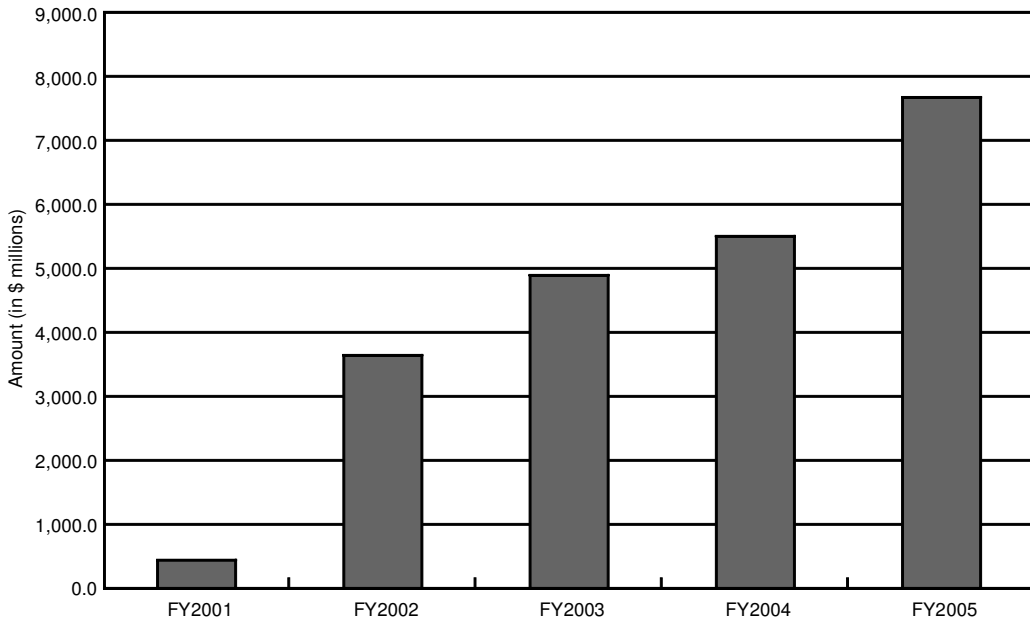


FIGURE 2. CIVILIAN BIODEFENSE SPENDING BY FISCAL YEAR.

fied, FY2002 numbers include the FY2002 emergency supplemental appropriations bill.

Finding accurate and up-to-date sources of information is another challenge. Although each department publishes a “Budget in Brief” document, these reports often do not separate out civilian biodefense efforts, or they may include only partial information on them. Analysis of the entire agency budget is not always an effective method either, as civilian biodefense expenditures may be contained within broader line items. For this analysis, data was 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 spending), or a program may have many components (such as BioShield, which receives inputs from DHS, HHS, and the White House). In other cases, work may be done by one department and reimbursed by another: For example, biodefense 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.

Another significant challenge was to distinguish, for the purposes of this article, which items should be considered civilian biodefense and which should not. Here, civilian biodefense spending includes programs, research, or administrative costs that prevent or mitigate bioterrorism’s effects on civilians. Federal budgets for programs intended for general WMD prevention and mitigation, such as “chemical, biological, radiological, and nuclear countermeasures” (e.g., some EPA detection items and Bio-Shield), do not distinguish how much of the program is

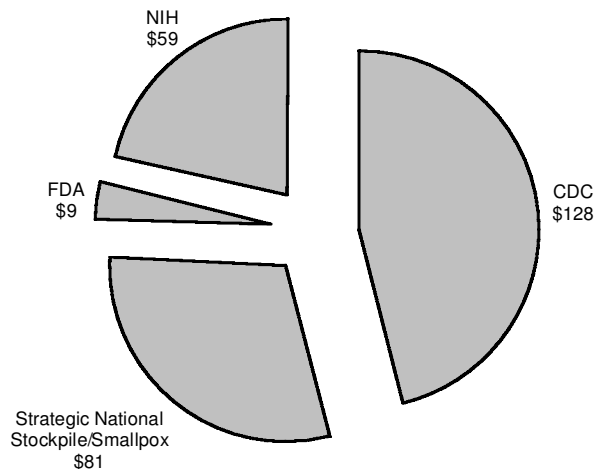


FIGURE 3. HHS CIVILIAN BIODEFENSE SPENDING, FY2001 (IN \$ MILLIONS).

CIVILIAN BIODEFENSE SPENDING BY FEDERAL AGENCY

Department of Health and Human Services

The Department of Health and Human Services is the principal agency for protecting the health of all Americans.³ HHS's bioterrorism defense efforts fall into three primary areas: support for local and state public health and hospitals, research into countermeasures, and surveillance against diseases. HHS's surveillance efforts, which are intended to serve the dual purposes of surveying naturally occurring infectious diseases and keeping watch for a potential bioterror attack, began in the late 1990s after President Clinton issued Presidential Directive PDD/NSC39. One section of the directive reads: "The United States shall give the highest priority to developing effective capabilities to detect, prevent, defeat and manage the consequences of nuclear, biological or chemical (NBC) materials or weapons use by terrorists."⁴ After 9/11 and the anthrax attacks, HHS received a steep increase in funding to address these areas.⁵ The majority of these funds have gone to the various subagencies of HHS, many of which have seen a dramatic increase in funding for civilian biodefense (Figs. 3, 4). The National Institutes of Health (NIH) received one of the largest increases, from \$291 million in FY2002 to \$1.5 billion in FY2003, followed by a similar allocation of about \$1.6 billion for FY2004; it is budgeted for a comparable amount in FY2005 for biodefense countermeasure research. The Centers for Disease Control and Prevention (CDC) also received substantial capacity upgrades, with overall CDC civilian biodefense funding increasing from \$128 million in FY2001 to \$1.1 billion in FY2002. CDC will continue to receive funding of more than \$1 billion for the years FY2003–FY2005. It is important to note that a number of programs have moved between HHS and DHS. The Strategic National Stockpile, for example, was located within HHS from its creation in 1999,⁶ moved to DHS in FY2004, and is scheduled to move back to HHS in FY2005. Programs such as the National Disaster Medical Service and the Metropolitan Medical Response System were also in HHS prior to the creation of DHS in 2003. Based on the information available, by FY2005 HHS will have spent approximately \$15 billion on civilian biodefense efforts since FY2001 (Table 2).

Department of Homeland Security

The Department of Homeland Security, formed from the Homeland Security Act of 2002, has the responsibility of leading the unified national effort to secure America.⁷ DHS has funded a number of civilian biodefense-related activities through its Emergency Preparedness, Information Analysis and Infrastructure Protection, and

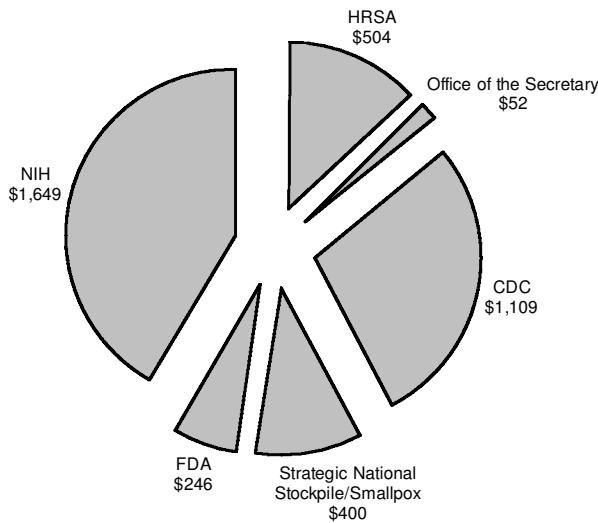


FIGURE 4. HHS CIVILIAN BIODEFENSE SPENDING, FY2005 (IN \$MILLIONS).

specifically targeted at civilian biodefense, so they were included in their entirety. 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 also 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).

Programs that are not specifically directed at bioterror agents (e.g., the National Institutes of Health's nuclear/radiological medical countermeasures or pandemic flu) were not included. Also not included were programs that have 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 inspection service, which focuses on chemical contamination and natural microbial contamination).

Finally, 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. For example, certain military medical countermeasures, such as the AVA anthrax vaccine, are approved for use by military personnel but not civilians. Other products, such as protective gear and detectors, do not have civilian mass-market applications. 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.

Science and Technology Directorates since the agency's creation in FY2003 (Figs. 5, 6). The largest of these initiatives is the BioShield program, under the Emergency Preparedness Directorate, which is designed to enable the U.S. government to quickly make large-scale procurements of countermeasures. While the authorizing legislation had not yet been passed by the Senate, nearly \$900

million was appropriated in FY2004 for BioShield, and it is budgeted for \$2.5 billion in FY2005. Another initiative is the BioWatch program, which deploys in a number of cities biological sensors that are intended to detect potential releases of biological pathogens. Other notable programs include the Homeland Security Advanced Research Projects Agency (HSARPA), which is responsible

TABLE 2. HHS CIVILIAN BIODEFENSE FUNDING, FY2001–FY2005 (IN \$MILLIONS)

	<i>FY2001</i>	<i>FY2002</i>	<i>FY2003</i>	<i>FY2004</i> <i>(estimated)</i>	<i>FY2005</i> <i>(budget)</i>
CDC					
CDC: Upgrading State and Local Capacity	67	940	939	934	829
BioSurveillance Initiative	0	0	0	0	130
Supplemental Appropriations (Smallpox)	0	0	100	0	0
Upgrading CDC Capacity	22	141	157	157	142
Anthrax Vaccine Research	18	18	18	18	8
Independent Studies	11	2	2	0	0
Other	10	46	20	0	0
Subtotal, CDC	128	1,147	1,236	1,109	1,109
HRSA					
Hospital Preparedness and Infrastructure	0	135	515	515	476
Education Incentives for Medical Curriculum	0	0	28	28	28
Smallpox Compensation	0	0	42	0	0
Subtotal, HRSA	0	135	585	543	504
Office of the Secretary					
OASPHEP					
Operations	0	13	13	13	13
Advanced Research	0	5	5	5	5
International Security Early Warning Surveillance	0	10	9	9	9
Emergency Response Team	0	3	3	3	3
Preparedness, Planning and Evaluation	0	6	7	7	7
Media/Public Information Campaign	0	0	5	5	5
Command, Control and Communication	0	13	0	0	0
AHRQ Biodefense Activities	0	0	5	0	0
Subtotal, OASPHEP	0	50	47	42	42
Medical Reserve Corps	0	3	10	10	10
Subtotal, Office of the Secretary	0	53	57	52	52
Strategic National Stockpile/Smallpox	81	1,157	398	0 ^a	400
Subtotal, PHSSEF Biosecurity	209	2,492	2,276	1,704	2,065
FDA					
Food Safety	1	98	97	116	181
Vaccines/Drugs/Diagnostics	6	46	53	53	58
Physical Security	2	13	7	7	7
FDA total	9	157	157	176	246
NIH					
Biodefense Research (NIAID)	53	199	687	1,428	1,499
rPA Anthrax Vaccine Intermediate Scaleup	0	0	123	117	0
MVA Smallpox Vaccine Intermediate Scaleup	0	0	0	75	45
BT Research Facilities	0	92	743	0	150
NIH Total	53	291	1,553	1,620	1,694
Total HHS Civilian Biodefense Funding	271	2,940	3,986	3,500	4,005

^aThe SNS was funded by the Department of Homeland Security in FY2004.

Sources: Office of the Assistant Secretary for Budget, Technology, and Finance, HHS; HHS Press Office.

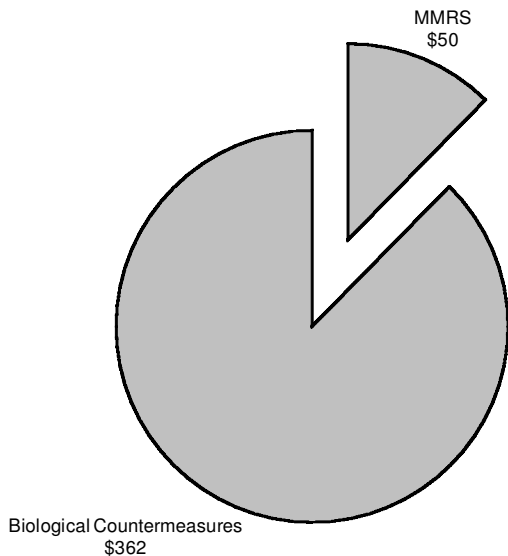


FIGURE 5. DHS CIVILIAN BIODEFENSE SPENDING, FY2003 (IN \$ MILLIONS).

primarily for late-stage development of new homeland security technology, the National Disaster Medical Service, and the Metropolitan Medical Response System. Based on the information available, by FY2005 DHS will have spent approximately \$5 billion on civilian biodefense efforts since its creation in FY2003 (Table 3).

Department of Defense

Although the Department of Defense focuses primarily on military threats and warfighter protection, there also are some programs that are intended to support civilian biodefense efforts. One such program is the Civil Support Teams, which are jointly funded by DoD and state national guard units. The Civil Support Teams provide detection capabilities for local authorities during WMD events.

Also of note is the Cooperative Threat Reduction Program, which was designed to help the countries of the former Soviet Union destroy nuclear, chemical, and biological weapons of mass destruction and their associated infrastructure and to establish verifiable safeguards against the proliferation of those weapons.⁸ The Defense Threat Reduction Agency (DTRA) was unable to provide budget numbers for this program, so it was not included here.

Finally, a line item for funding \$400 million of civilian biological countermeasures was placed in the DoD budget prior to the creation of the Department of Homeland Security in FY2002.⁹ It should be noted that although other civilian biodefense programs may have been funded by the DoD, these were the programs described

by DoD during the research for this article. Based on the information available, by FY2005 DoD will have spent approximately \$1.1 billion on civilian biodefense efforts since FY2001 (Table 4).

Department of Agriculture

The USDA is the lead agency responsible for ensuring food and agricultural safety from both natural and deliberate pathogens. USDA homeland security activities include border surveillance, faster response to animal and crop disease incidents, protecting the food supply, and enhancing laboratory security.¹⁰ The largest increase in USDA funding has gone toward accelerating the completion of a new BioSafety Level 3 (BSL) laboratory in Ames, Iowa, for diagnosing animal disease.

The USDA began its civilian biodefense efforts with \$61 million in operational activities and \$143 million in construction activities in FY2003.¹¹ Under the President’s FY2005 budget, the USDA would embark on a new “Food and Agriculture Defense Initiative.” Under this new initiative, USDA’s FY2005 funding for civilian biodefense is slated to increase substantially from that of FY2004, from \$78 million to \$381 million. Of these funds, \$131 million are for the Ames, Iowa, BSL-3 facility, and the remainder will go toward enhancing civilian biodefense activities and operations, including enhanced surveillance programs, enhancing and creating additional laboratory capacity for agricultural and food testing, and additional research efforts intended to better protect U.S. food and agriculture.

The absence of numbers prior to FY2003 is a result of the way that the USDA presents its budgets. Prior to the

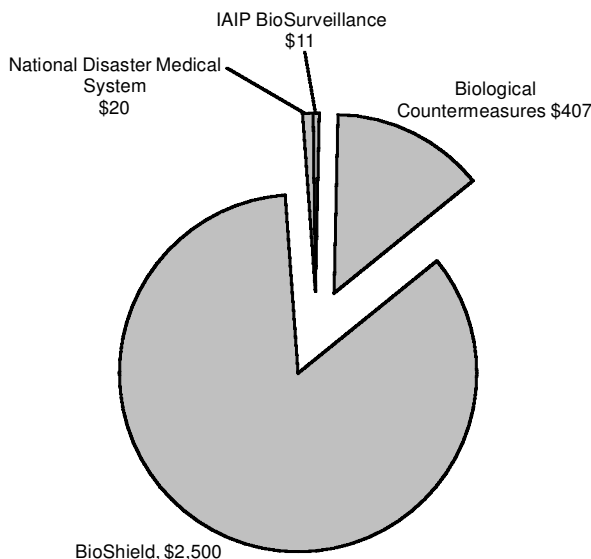


FIGURE 6. DHS CIVILIAN BIODEFENSE SPENDING, FY2005 (IN \$ MILLIONS).

TABLE 3. DHS CIVILIAN BIODEFENSE FUNDING, FY2003–FY2005 (IN \$MILLIONS)

	FY2003	FY2004 (estimated)	FY2005 (budget)
Emergency Preparedness and Response Directorate			
National Disaster Medical System ^a	0	0	20
Strategic National Stockpile	0	398	0
MMRS	50	50	0
BioShield	0	889	2,500
Science & Technology Directorate			
Biological Countermeasures (includes HSARPA, BioSurveillance/BioWatch, other research efforts)	362	285	407
Information Analysis and Infrastructure Protection Directorate			
BioSurveillance	0	0	11
Total DHS Civilian Biodefense Funding	412	1,622	2,938

^aThe Department of Homeland Security was unable to provide this number due to multipurpose functions that are supported in this program. The \$20 million listed for FY2005 is specifically for a biodefense-related study.

Sources: DHS Budget; S&T Directorate Press Office; EPR Press Office; IAIP Press Office.

Food Defense Initiative, activities were focused on the “routine surveillance” mission of the USDA, which did include civilian biodefense components; however, it is not possible for the budget office to provide specific numbers for civilian biodefense efforts for those fiscal years.¹² Additional civilian biodefense funding was calculated by the agency in their FY2005 Food and Agricultural Defense Initiative. Based on the information available, by FY2005 the USDA will have spent approximately \$663 million on civilian biodefense efforts since FY2001 (Table 5).

Environmental Protection Agency

The Environmental Protection Agency’s mission is to protect human health and to safeguard the natural envi-

ronment—air, water, and land—on which life depends.¹³ Under Homeland Security Presidential Directive 7,¹⁴ the EPA has been designated the lead agency for water safety and protection. To meet this task, the EPA has been engaged in a variety of activities, the most important being critical infrastructure protection. The EPA has spent about \$45 million on water safety critical infrastructure protection from 2001 to 2004, but it is only scheduled to spend \$6 million on these inspections in FY2005. From FY2002–FY2004, these funds were used to inspect water treatment facilities to evaluate their vulnerabilities. In FY2005, the EPA intends to use these funds to identify chemical, biological, and radiological contaminants that could be used against water and to review the means by which terrorists could disrupt the drinking water supply.

The EPA has additionally disbursed about \$5 million

TABLE 4. DoD CIVILIAN BIODEFENSE FUNDING, FY2001–FY2005 (IN \$MILLIONS)

	FY2001	FY2002	FY2003	FY2004 (estimated)	FY2005 (budget)
Biological Countermeasures	0	400	0	0	0
Civil Support Teams	123	109	107	207	195
Cooperative Threat Reduction ^a	—	—	—	—	—
Total DoD Civilian Biodefense Funding	123	509	107	207	195
Chemical and Biological Defense ^b	405	595	638	706	560

^aThe Defense Threat Reduction Agency was unable to provide numbers for this program.

^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 Plans and Systems, Office of the Secretary, Department of Defense; Defense Cost Estimates Unit, Congressional Budget Office; AAAS Reports 22–24 on Research and Development.

annually since FY2003 in grants to states for water safety critical infrastructure protection. The EPA also has budgeted \$80 million from FY2002 to FY2005 for decontamination technology research as part of their homeland security efforts. Other activities include the creation of a second environmental response team based on the West Coast, a counterterrorism evidence response team, and upgrades to physical security at EPA resources. Based on the information available, by FY2005 EPA will have spent approximately \$550 million on civilian biodefense efforts since FY2001 (Table 6).

National Science Foundation

The National Science Foundation’s mission is to promote the progress of science; to advance the national

health, prosperity, and welfare; and to secure the national defense.¹⁵ Although many of NSF’s research efforts have not historically involved civilian biodefense, NSF has added three civilian biodefense-related projects to its portfolio post-9/11. The first is the Ecology of Infectious Diseases program, the purpose of which is to develop predictive models and discover principles for relationships between anthropogenic environmental change and transmission of infectious agents.¹⁶ The second program is Microbial Genome Sequencing, the goal of which is to support high-throughput sequencing of the genomes of microorganisms (including viruses, bacteria, archaea, fungi, oomycetes, protists, and agriculturally important nematodes).¹⁷ The third effort is the biological component of the sensors and sensor networks program.¹⁸ Based on the information available, by FY2005 NSF will

TABLE 5. USDA CIVILIAN BIODEFENSE FUNDING, FY2001–FY2005 (IN \$MILLIONS)

	<i>FY2001^a</i>	<i>FY2002^a</i>	<i>FY2003</i>	<i>FY2004 (Est.) (estimated)</i>	<i>FY2005 (budget)</i>
Food Defense					
FSIS					
Surveillance/Monitoring	—	—	1	1	6
Food Emergency Response Network (FERN)	—	—	0	0	14
Enhanced Inspections	—	—	0	2	2
Lab Upgrades/Physical Security	—	—	1	3	6
Education/Training	—	—	2	2	4
Other	—	—	4	4	4
ARS Food Defense Research	—	—	2	2	16
Subtotal, Food Defense	—	—	10	14	52
Agricultural Defense					
ARS					
Ames, IA, BSL-3 Facility	—	—	143	0	178
Research	—	—	10	12	15
National Plant Disease Recovery System	—	—	0	0	6
CSREES					
Regional Diagnostic Network	—	—	0	8	30
Higher Education Agrosecurity Program	—	—	0	0	5
APHIS Pest Detection/Animal Health Monitoring					
Enhanced Surveillance	—	—	0	0	34
State Cooperative Agreements	—	—	4	4	10
BioSurveillance	—	—	0	0	5
Selected Agents—Plants	—	—	0	0	1
National Veterinary Vaccine Bank	—	—	0	0	7
Others	—	—	37	40	38
Subtotal, Agricultural Defense	—	—	194	64	329
Total USDA Civilian Biodefense Funding	—	—	204	78	381

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

Sources: USDA Budget; USDA Press Office; USDA Budget Office.

TABLE 6. EPA CIVILIAN BIODEFENSE FUNDING, FY2001–FY2005 (IN \$MILLIONS)

	FY2001	FY2002	FY2003	FY2004 (budget)	FY2005 (budget)
Capital Hill Anthrax Cleanup	20.00	—	—	—	—
Clean and Safe Water: Homeland Security ^a	0	3.76	—	—	—
Safe Food: Homeland Security ^b	0	0.01	—	—	—
Waste Management: Homeland Security ^b	0	3.20	—	—	—
Quality Environmental Information: Homeland Security ^b	0	0.60	—	—	—
Sound Science/Improved Understanding/Innovation: Homeland Security ^b	0	0.58	—	—	—
Deterrent to Pollution: Homeland Security ^b	0	3.46	—	—	—
Effective Management: Homeland Security ^b	0	0	—	—	—
Emergency Supplemental Funds ^c	0	175.60	0	0	0
Water Safety Grants to States	0	0	4.50	5.00	5.00
Clean and Safe Water: Homeland Security, Critical Infrastructure Protection, Protect Human Health	0	0	14.19	27.39	6.13
Clean Land: Homeland Security Preparedness, Response and Security	0	0	37.56	27.34	27.16
Healthy Communities & EcoSystems: Homeland Security Prep/Resp/Sec, Chem/Org/Pesticide Risks	0	0	0.69	2.33	2.34
Healthy Communities & EcoSystems: Homeland Security Prep/Resp/Sec, Science and Research	0	0	30.96	29.00	22.75
Compliance and Environmental Stewardship: Homeland Security: Critical Infrastructure Protection, Improve Compliance	0	0	4.18	3.90	3.97
Enabling and Supporting Programs					
Homeland Security, Office of Waste and Emergency Response	0	0	0	0.60	0.60
Homeland Security, Office of Administration and Resources Management, Protection of EPA Personnel and Infrastructure	0	0	39.97	19.29	19.31
Homeland Security, Office of Environmental Information, Communication and Information	0	0	0	3.82	3.82
Homeland Security, Office of International Activities, Protection of EPA Personnel and Infrastructure	0	0	0	0	0.04
Homeland Security, Office of the Administrator, Communication and Information	0	0	0.87	0	0.50
Total EPA Civilian Biodefense Funding	20.00	187.21	132.92	118.67	91.62

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

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

^cThis bill includes a number of relevant line items, but a precise breakdown which accounts for all \$175 million could not be found.

Sources: Compiled from EPA Budgets in Brief and Congressional Justifications, FY2002–FY2005. FY01, FY02, and FY03 are actual expenditures; FY04 and FY05 are based on President's budget requests.

TABLE 7. NSF CIVILIAN BIODEFENSE FUNDING, FY2001–FY2005 (IN \$MILLIONS)

	FY2001	FY2002	FY2003	FY2004 (estimated)	FY2005 (budget)
Ecology of Infectious Diseases, Bio Directorate	0	4.14	6.00	6.00	6.00
Ecology of Infectious Diseases, Geographical Directorate	0	0	4.00	4.00	4.00
Microbial Genome Sequencing, Bio Directorate	0	4.83	15.00	15.00	15.00
Microbial Genome Sequencing, Computer/Information Science Directorate	0	0	2.00	2.00	2.00
Sensors and Sensor Networks, Engineering Directorate	0	0	4.25	5.00	5.00
Total NSF Civilian Biodefense Funding	0	8.97	31.25	32.00	32.00

Sources: NSF Budget Division, Bio Directorate, Office of Budget, Finance and Award Management; NSF Budget Division, Engineering Directorate, Office of Budget, Finance and Award Management.

have spent approximately \$104.2 million on civilian biodefense efforts since FY2001 (Table 7).

Department of State

The State Department is responsible for creating a more secure, democratic, and prosperous world for the benefit of the American people and the international community. The State Department has had little funding for civilian biodefense; however, \$1.2 million was allocated in FY2004 for training and enhancing biosecurity legislation in the nations of Georgia, Uzbekistan, and Kazakhstan. This money was allocated out of funds for nonproliferation defense and was appropriated after these three nations approached the U.S. State Department at the 2003 meeting of the Biological Weapons Convention and requested assistance in curbing biological weapons proliferation.¹⁹ Based on the information available, by FY2005 the State Department will have spent approximately \$1.2 million on civilian biodefense efforts since FY2001 (Table 8).

Department of Energy National Labs

The Department of Energy is not included in this article due to lack of response from the National Laboratories and difficulties in accounting for research funds.

Many of the programs run from DoE national labs are funded by other agencies (e.g., DoD, DHS), making accounting for the DoE contribution difficult and not possible without the participation of agency officials, which could not be obtained.

Department of Justice

The Department of Justice was unable to provide budget numbers on civilian biodefense spending by the time of publication.

CONCLUSION

From FY2001 to FY2004, the government will have allocated more than \$14 billion on a variety of civilian biodefense programs and efforts ranging from research to surveillance to nonproliferation, with an additional \$7.6 billion in the budget request for FY2005. Funding has grown across the board for most agencies since FY2001, but already some agencies are seeing their civilian biodefense funding begin to level off. For example, HHS has remained relatively constant at \$4 billion from FY2003 to FY2005 (except when the Strategic National Stockpile was moved to DHS in FY2004, resulting in a drop of

TABLE 8. DEPARTMENT OF STATE CIVILIAN BIODEFENSE FUNDING, FY2001–FY2005 (IN \$MILLIONS)

	FY2001	FY2002	FY2003	FY2004 (estimated)	FY2005 (budget)
Biosecurity Legislation and Training	0	0	0	1.2	0
Total State Department Civilian Biodefense Funding	0	0	0	1.2	0

Sources: Gregory Stuart, Office of Biological and Chemical Conventions, Bureau of Arms Control, State Department.

about \$400 million). Some agencies, such as EPA, are seeing declines. Funding at other agencies is continuing to grow at rapid rates, such as the USDA, where funding could increase nearly fivefold from \$78 million in FY2004 to \$381 million FY2005, and DHS, which would nearly double from \$1.6 billion in FY2004 to almost \$3 billion in FY2005 under the President's budget request. In light of the new Presidential Directive announced April 28, 2004, focused on "Biodefense for the 21st Century," it would greatly benefit the government if definitions for civilian biodefense budgeting and spending terms were established and harmonized across the federal government. Under these harmonized rules, individual agencies could then publish their own civilian biodefense efforts as part of their budget reports. In a new field such as civilian biodefense, which has grown from \$414 million in FY2001 to a projected \$7.6 billion in FY2005, such a concise dissemination of information would greatly aid government agencies in their internal evaluations as well as external parties seeking to review and understand government efforts and expenditures.

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