

BILLIONS FOR BIODEFENSE: FEDERAL AGENCY BIODEFENSE FUNDING, FY2009-FY2010

Crystal Franco

Since 2001, the United States 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 for fiscal years (FY) 2001 through 2009. This article updates those figures with budgeted amounts for FY2010, specifically analyzing the budgets and allocations for biodefense at the Departments of Health and Human Services, Defense, Homeland Security, Agriculture, and State; the Environmental Protection Agency; and the National Science Foundation. This year's article also provides an assessment of the proportion of the biodefense budget that serves multiple programmatic goals and benefits, including research into infectious disease pathogenesis and immunology, public health planning and preparedness, and disaster response efforts. The FY2010 federal budget for civilian biodefense totals \$6.05 billion. Of that total, \$4.96 billion is budgeted for programs that serve multiple goals and provide manifold benefits.

THIS YEAR'S "BILLIONS FOR BIODEFENSE" analysis looks at funding for civilian biodefense programs across the federal government from fiscal year (FY) 2001 through the proposed budget for FY2010. It reflects information collected from FY2010 budget materials, as well as information collected for the 5 previous "Billions for Biodefense" articles.¹⁻⁵ This year's "Billions for Biodefense" provides an analysis of the FY2010 presidential budget—the first budget proposed by the Obama administration and the first budget of a new administration since the terrorist attacks of September and October 2001. When excluding the FY2009 BioShield allocation, biodefense funding for FY2010 is proposed to increase \$330.9 million above the previous year's estimates. President Obama's FY2010 budget proposes a total of \$6.05 billion in federal funding for civilian biodefense programs, bringing the sum total of funding for civilian biodefense from FY2001 through FY2010 to \$54.39 billion (Table 1, Figure 1).

Many of the programs included in the \$6.05 billion FY2010 budget have missions that serve multiple programmatic goals and benefits in addition to improving biodefense. These include programs to fund basic science research in infectious disease pathogenesis and immunology, programs to improve planning and operations related to public health preparedness, and programs to improve preparedness and response for a range of disasters.⁶ Some specific examples of programs with multiple goals and benefits include the Department of Health and Human Services' (HHS) Hospital Preparedness Program (HPP), which helps to improve healthcare surge capacity around the country for all-hazards; the National Institute of Allergy and Infectious Diseases' (NIAID) Biodefense Research Program, which funds basic infectious disease pathogenesis and immunology research, with implications for a multitude of diseases; and the HHS Strategic National Stockpile (SNS), which stockpiles pharmaceutical countermeasures

Table 1. U.S. Government Civilian Biodefense Funding, FY2001-FY2010 (in \$millions)

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|--|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------|----------------------|--------------------|-----------------|
| Department of Health and Human Services | 271.0 | 2,940.0 | 3,738.0 | 3,818.9 | 4,148.2 | 4,132.3 | 4,066.3 | 3,993.3 | 4,309.1 | 4,524.1 | 35,941.2 |
| Department of Defense | 273.9 | 823.7 | 422.1 | 417.4 | 429.6 | 583.0 | 555.0 | 578.0 | 623.8 | 686.8 | 5,393.4 |
| Department of Homeland Security ^{a,b,c} | — | — | 422.0 | 1,788.0 | 2,981.2 | 567.3 | 353.8 | 359.4 | 2,542.2 | 396.1 | 9,410.0 |
| Department of Agriculture ^d | — | — | 200.0 | 109.0 | 298.0 | 247.0 | 186.0 | 215.0 | 218.0 | 233.0 | 1,706.0 |
| Environmental Protection Agency | 20.0 | 187.2 | 132.9 | 118.7 | 97.4 | 129.1 | 153.1 | 157.4 | 156.7 | 159.8 | 1,312.5 |
| Department of State | 3.8 | 70.9 | 67.2 | 67.1 | 67.2 | 22.9 | 23.3 | 28.4 | 30.9 | 36.8 | 418.4 |
| National Science Foundation | 0.0 | 9.0 | 31.3 | 31.0 | 31.0 | 31.3 | 26.9 | 15.0 | 15.0 | 15.0 | 205.4 |
| Total USG Civilian Biodefense Funding | 568.7 | 4,030.8 | 5,013.5 | 6,350.1 | 8,052.6 | 5,712.9 | 5,364.4 | 5,346.6 | 7,895.7 | 6,051.6 | 54,386.8 |
| Total USG Civilian Biodefense Funding (minus BioShield funds) | 568.7 | 4,030.8 | 5,013.5 | 5,465.1 | 5,545.6 | 5,712.9 | 5,364.4 | 5,346.6 | 5,720.7 | 6,051.6 | |
| BioShield Funds | — | — | — | 885.0 | 2,507.0 | — | — | — | 2,175.0 | — | |
| Spent through FY2009 | 48,335.2 | | | | | | | | | | |
| Spent through FY2009 + FY2010 Budget | 54,386.8 | | | | | | | | | | |

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

^bDHS was unable to provide complete data; accordingly, some items are missing. See Table 5.

^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 FY2008. The FY2009 budget also includes a one-time advanced BioShield appropriation of \$2.2 billion, obligated for use through FY2013.

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

Sources: HHS Budget in Brief FY2010; DHS Budget in Brief FY2010; DoD RDT&E Defense-Wide Budget; DoD FY2010 Budget Justifications; Department of the Army FY2010 Budget Justification; USDA Budget Summary FY2010; EPA Budget in Brief FY2010; Department of State Budget in Brief FY2010; NSF Budget in Brief FY2010; Pandemic and All Hazards Preparedness Act (P. L. 109-417).

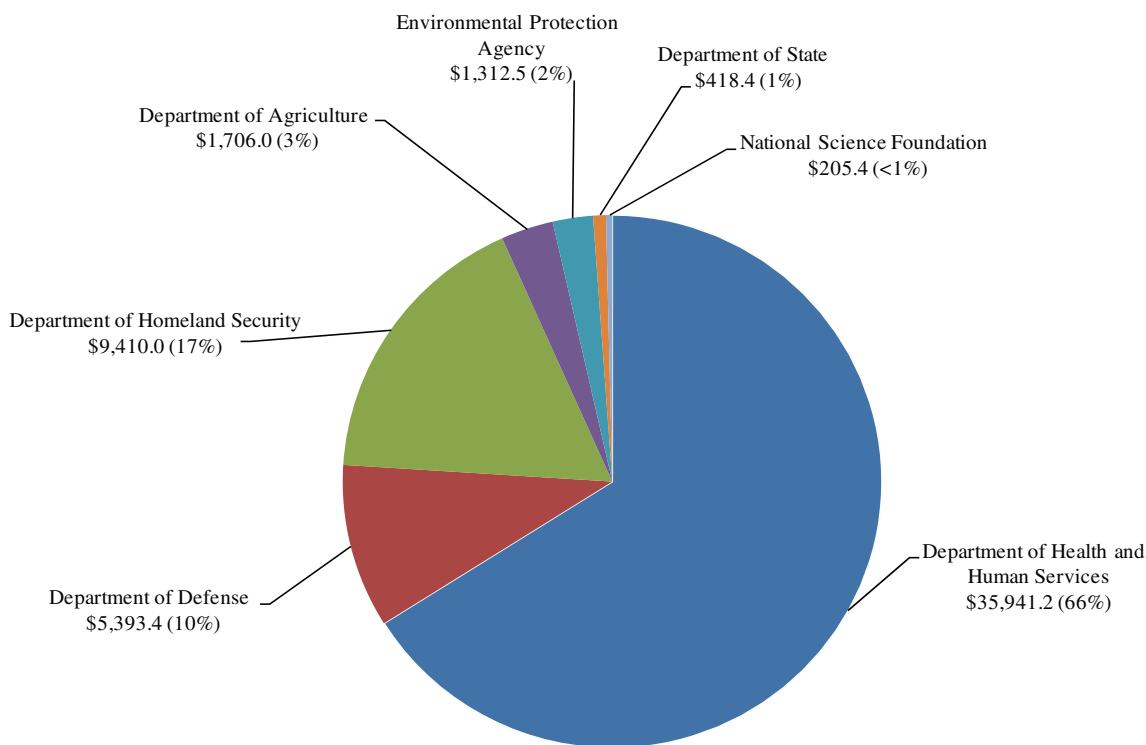


Figure 1. Cumulative Civilian Biodefense Funding by Agency, FY2001-FY2010 (in \$millions). Color images available online at www.liebertonline.com/bsp.

and nonpharmaceutical medical supplies for radiological and chemical events, in addition to supplies and countermeasures for other disasters.

Of President Obama's FY2010 budget request of \$6.05 billion for civilian biodefense, \$4.96 billion is budgeted for programs that have multiple goals and benefits; the FY2010 budget for programs that deal strictly with biodefense is \$1.09 billion (Table 2). Over the course of the 10 fiscal years included in this analysis, \$42.57 billion of the \$54.39 billion in funding for biodefense has been dedicated to programs with multiple goals and benefits, while \$11.81 billion has gone to programs devoted only to biodefense (Table 2).

As a comparison of biodefense funding as a percentage of agency budgets:

- The FY2010 biodefense budget for HHS represents 0.5% of the total \$879 billion FY2010 HHS budget;⁷
- The biodefense budget for the Department of Homeland Security (DHS) is less than 1% of the total FY2010 DHS budget of \$55.1 billion;⁸ and
- The biodefense budget for the Department of Defense (DoD) is 0.10% of the total FY2010 DoD budget of \$663.8 billion.⁹

As additional points of comparison: The Carnegie Endowment estimates that in FY2008, the federal government

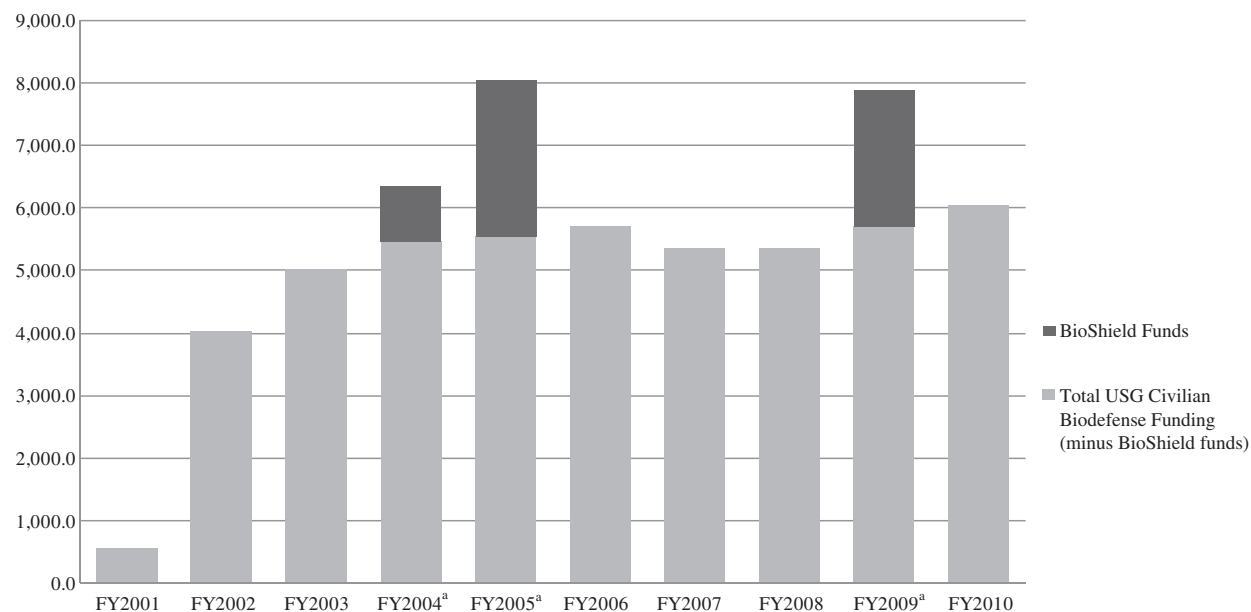
spent \$52.4 billion on nuclear weapons and nuclear defense programs—more than all federal funding for civilian biodefense from FY2001 through FY2008 combined.¹⁰ And in FY2010, the DoD-wide missile defense program is budgeted to receive \$9.3 billion in funding, 1.4% of the total FY2010 DoD budget¹¹ and \$3.2 billion more than the amount proposed for all biodefense for FY2010.

FUNDING TRENDS

Based on analyses from previous "Billions for Biodefense" articles¹⁻⁵ and updated numbers for this year's article, it can be concluded that, after a 3-year decrease or leveling off of biodefense funding, overall federal funding for civilian biodefense is planned to increase under the President's FY2010 budget. Biodefense funding rose incrementally from FY2001 to FY2006. Excluding Project BioShield funds—which were appropriated in FY2004 but have been allocated and used over multiple fiscal years (see sidebar, p.000)—biodefense funding first peaked at \$5.71 billion in FY2006 and then generally declined through FY2008. Beginning with estimated FY2009 funds and continuing into the budget for FY2010, biodefense allocations have begun to trend upward again. Excluding BioShield funding, the FY2010 budget represents an increase in biodefense funding of \$330.9 million over FY2009 estimates (Table 1, Figure 2).

Table 2. Strictly Civilian Biodefense Funding (Excluding Programs with Multiple Goals and Benefits), FY2001-FY2010 (in \$millions)

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|---|-------------|-------------|--------------|--------------|-------------|--------------|--------------|--------------------|----------------------|--------------------|----------------|
| HHS | | | | | | | | | | | |
| Direct Appropriations to Agency Budgets (Non-PHSSEF) | | | | | | | | | | | |
| CDC | | | | | | | | | | | |
| Supplemental Appropriations (Smallpox) | — | — | 100.0 | — | — | — | — | — | — | — | 100.0 |
| Anthrax Vaccine Research | 18.0 | 18.0 | 18.0 | 15.0 | 15.0 | 15.0 | 12.0 | 8.0 | 8.0 | — | 127.0 |
| Botulinum Antitoxin Research | — | — | — | — | — | — | 3.0 | — | — | — | 3.0 |
| Subtotal, CDC | 18.0 | 18.0 | 118.0 | 15.0 | 15.0 | 15.0 | 15.0 | 8.0 | 8.0 | 0.0 | 230.0 |
| NIH | | | | | | | | | | | |
| rPA Anthrax Vaccine Intermediate Scale-up | — | — | 123.0 | 117.0 | — | — | — | — | — | — | 240.0 |
| MVA Smallpox Vaccine Intermediate Scale-up | — | — | — | 75.0 | 45.0 | — | — | — | — | — | 120.0 |
| Subtotal, NIH | 0.0 | 0.0 | 123.0 | 192.0 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 360.0 |
| HRSA | | | | | | | | | | | |
| Hospital Preparedness Bioterrorism Training and Curriculum Development | 0 | 0 | 28.0 | 28.0 | 28.0 | — | — | — | — | — | 84.0 |
| Smallpox Compensation | 0 | 0 | 42.0 | 0 | 0 | — | — | — | — | — | 42.0 |
| Covered Countermeasures Fund | — | — | — | — | — | — | — | — | — | 5.0 | 5.0 |
| Subtotal, HRSA | 0 | 0 | 70.0 | 28.0 | 28.0 | — | — | — | — | 5.0 | 131.0 |
| Subtotal, Direct Appropriations | 18.0 | 18.0 | 311.0 | 235.0 | 88.0 | 15.0 | 15.0 | 8.0 | 8.0 | 5.0 | 721.0 |
| Office of the Secretary, PHSSEF | | | | | | | | | | | |
| Assistant Secretary for Emergency Preparedness and Response (ASPR) | | | | | | | | | | | |
| HPP Biodefense Training and Curriculum Development | — | — | — | — | — | 21.0 | 21.0 | — | — | — | 42.0 |
| Medical Countermeasures Dispensing (USPS pilot program) | — | — | — | — | — | — | — | — | — | 10.0 | 10.0 |
| Advanced Research and Development (moved from NIAID NIH) | — | — | — | — | — | 54.0 | 104.0 | 102.0 | 275.0 | 305.0 | 840.0 |
| BioShield Management | — | — | — | — | — | 0 | 16.0 | 21.0 | 22.0 | 22.0 | 81.0 |
| Subtotal, ASPR | 0 | 0 | 0 | 0 | 0 | 75.0 | 141.0 | 123.0 | 297.0 | 337.0 | 973.0 |
| Subtotal, Office of the Secretary, PHSSEF Biosecurity | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 150.0 | 282.0 | 246.0 | 594.0 | 674.0 | 1,946.0 |
| Total HHS Civilian Biodefense Funding | 18.0 | 18.0 | 311.0 | 235.0 | 88.0 | 165.0 | 297.0 | 254.0 | 602.0 | 679.0 | 2,667.0 |



^aA total of \$5.6 billion was appropriated to a Project BioShield Special Reserve fund in FY2004. Of the \$5.6 billion fund, \$885 million and \$2.507 billion were allocated to DHS in FY2004 and FY2005, respectively, and were obligated for use through FY2008. \$2.175 billion in BioShield funds has been allocated to DHS in the FY2009 budget and is obligated for use through FY2013.

Figure 2. Civilian Biodefense Funding by Fiscal Year, FY2001-FY2010 (in \$millions)

As in previous budgets, the majority of proposed biodefense funding for FY2010 is directed toward HHS (Table 3), which would receive \$4.52 billion (75%) of the \$6.05 billion total for FY2010, a proposed increase of \$215

million over FY2009 estimates (Figure 3). The Department of Defense has the next largest biodefense budget for FY2010 at \$686.8 million (11% of the total), an increase of \$63 million over FY2009 estimates (Table 4). The Department of Homeland Security would receive the next largest proportion of federal civilian biodefense funding for FY2010 with \$396.1 million (7% of the total) (Table 5). The FY2010 budget for DHS represents a proposed increase in funding of \$28.9 million over FY2009 estimates (when BioShield funds are excluded from FY2009 totals).

Additionally, the President’s budget shows increases for 3 of the 4 remaining federal agencies involved in biodefense. The largest proposed increase (other than DoD, DHS, and HHS) is a \$15 million allocation to the Department of Agriculture (USDA) (Table 6), followed by a proposed \$5.9 million increase for the State Department (Table 8) and a \$3.1 million increase for the Environmental Protection Agency (EPA) (Table 7). Finally, the National Science Foundation (NSF) is budgeted to receive the same amount of biodefense funding (\$15 million) in FY2010 as it is estimated to have received in FY2009 (Table 9) (Figure 3).

Since the first “Billions for Biodefense” article, federal agencies have become somewhat more transparent in their accounting for, and analysis of, biodefense programs. HHS provides the most readable budget, with a section for preparedness and a subsection for biodefense funding. DHS provides a fairly clear budget, although biodefense funding is not all presented in one place as it is in the HHS budget. Other agencies such as DoD, EPA, State, and NSF provide fragmented budgets, necessitating multiple personal

How Does BioShield Funding Work?

- BioShield funds were originally appropriated to a Special Reserve Fund (SRF) in FY2004.
- Under the Department of Homeland Security Appropriations Act of 2004, the BioShield SRF received an appropriation in the amount of \$5.6 billion. Of that amount, \$885 million and \$2.507 billion were allocated under the DHS budget in FY2004 and FY2005, respectively, for use in FY2004-FY2008. The remainder of the appropriations (\$2.175 billion) was then allocated to BioShield in FY2009 for use in FY2009-FY2013.
- Although BioShield funds were allocated to the DHS budget in those specific years, the funds have been used for countermeasures activities in DHS and HHS over multiple years.
- BioShield funding allocated in a specific year does not accurately reflect the amount of money provided for the BioShield program in that year. BioShield money has been spent by both DHS and HHS in each year since FY2004 and will continue to be spent through FY2013.

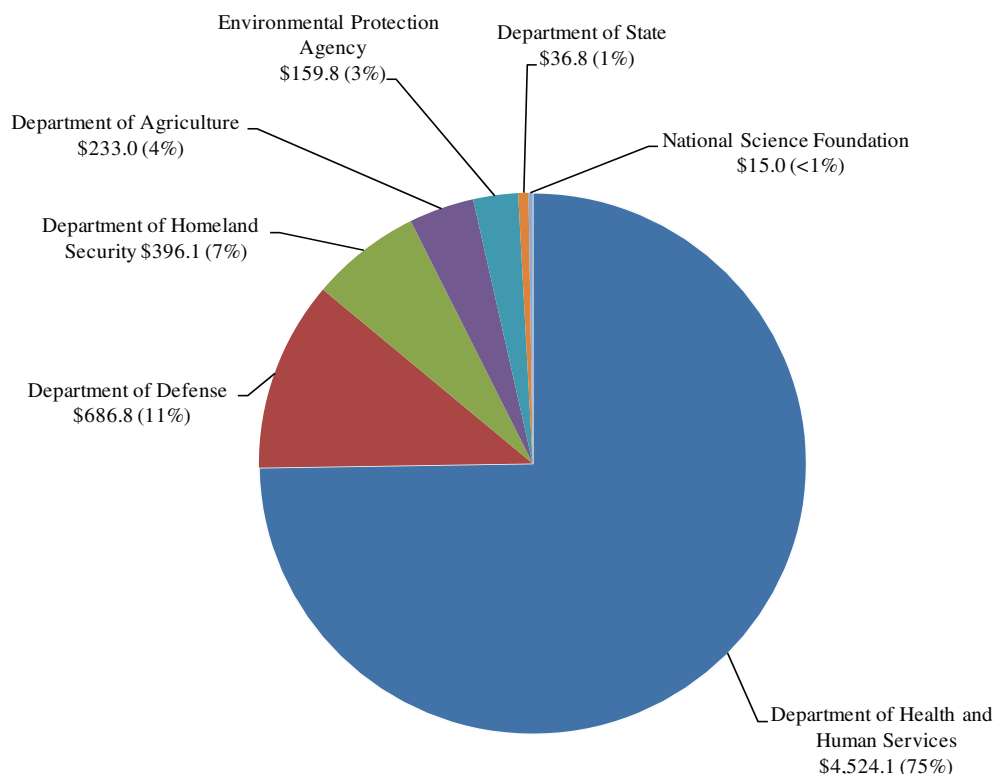


Figure 3. Civilian Biodefense Funding by Agency, FY2010 (in \$millions). Color images available online at www.liebertonline.com/bsp.

contacts with agency representatives to obtain otherwise unavailable data.

METHODS AND SOURCES

The author used a variety of methods and sources, including agency “Budgets in Brief,” agency budget justifications, stipulations included in public laws and accompanying Congressional reports, and personal contact with agency representatives, to obtain and track civilian

biodefense expenditures for FY2010. 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 through FY2008.

The author also identified funding appropriated by Congress for civilian biodefense during the current fiscal year (FY2009). While these funds have already been appropriated, it is unclear how much of that money will ultimately be spent on civilian biodefense activities for the year. Hence, FY2009 money is referred to as “estimated funds.” Finally, the author analyzed the President’s budget request for the upcoming 2010 fiscal year to gather data on proposed funding. These numbers are referred to as “budget” funds and are subject to change during the FY2010 Congressional budget and appropriations processes. Any “stimulus funding” related to biodefense and public health preparedness provided under the American Recovery and Reinvestment Act of 2009 (P.L. 111-5) has been accounted for by the agencies in their estimate for FY2009 funding, but these funds have not been specifically singled out as stimulus funding in this analysis.¹²

In order to obtain accurate and timely budget information for this analysis, a number of methods were used 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

Billions for Biodefense Assumptions and Methods

- **Fiscal Years:** FY2001-FY2008 (actual funds spent on biodefense), FY2009 (estimated biodefense funds), FY2010 (budget request)
- **Agencies Included:** HHS, DoD, DHS, USDA, EPA, State, NSF
- **Programs Excluded:** All-hazards programs (without biodefense in the mission), pandemic flu, and programs specific to the warfighter with no civilian applications

departments are made up of distinct operating divisions (eg, HHS and DoD), individual agency or division budgets also were examined. When these documents had been reviewed and still more detailed or complete information was needed, agency public affairs and budget offices were contacted by phone and e-mail.

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, such as BioShield, may be administered by one agency (HHS) with guidance from another (DHS). Also, biodefense line items may represent programs with many components, such as the DHS Biological Countermeasures Thrust Area (Table 5).

As in previous years, every attempt has been made to distinguish which items should be considered for the purposes of this budget analysis as 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 (eg, HHS's SNS program) do not distinguish how much of the program is specifically targeted at stockpiling countermeasures for biological threats, in addition to chemical, radiological, nuclear, or other threats. But because civilian biodefense is clearly a critical part of their mission, these programs have been included in their entirety. Other programs with multiple goals and benefits (eg, 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 also been included in their entirety.

Finally, research programs such as the NIAID Biodefense Research program and DoD's Medical Biological Defense research conduct basic research on infectious disease pathology and immunology and have clear objectives and relevance to both biodefense and other infectious disease research more broadly. It is impossible to differentiate which part of this early research benefits biodefense specifically. Thus, these programs have been included as a whole in the overall biodefense budget. This methodology of including biodefense programs with multiple goals and benefits for infectious disease research, public health preparedness, and disaster response has led to an overestimation of biodefense funding, in the strict sense, because much of the money allocated for multiple-application programs is in fact spent on nonbiodefense applications.

Examples of programs that have been excluded from civilian biodefense budget totals in this analysis are programs aimed explicitly at all-hazards preparedness (ie, those that do not single out biodefense as part of their mission), programs aimed at nonbioterrorism-related hazards such as pandemic flu, and those programs that have strictly military applications.

Of the DoD Chemical and Biological Defense program budget, only the Medical Biological Defense program, which is primarily focused on medical countermeasures, has been included in this analysis. DoD's Medical Biological Defense program has the potential for civilian biodefense applications; it has increasing coordination with other federal agencies; and it has applicability to civilian biodefense in its biological medical countermeasures research and development activities. For these reasons the Medical Biological Defense Program has been included for FY2010 and previous years (Table 4). The remainder of the Chemical and Biological Defense program is focused on military, rather than civilian, applications, including the purchase and maintenance of military-specific vehicles, detectors, and protective gear that are not intended as tools for the U.S. civilian population. Additionally, a large proportion of the program is focused on chemical defense, which is not applicable to this analysis.

A new element in this year's analysis is to account for programs that have multiple goals and benefits and the amount of funding allocated to them from FY2001 through FY2010. For this analysis, a program with multiple goals and benefits is defined as a program with a mission that serves one or more purposes beyond the strict goals of biodefense. In fact, many of these programs focus a minority of their mission and effort on biodefense. However, these programs are included in the overall biodefense budget because at least an element of the program is related to improving biodefense. A few examples of programs with multiple goals and benefits are the HHS Hospital Preparedness Program (HPP), the NIAID Biodefense Research program, the USDA biosurveillance program, and the DHS National Biosurveillance Integration Center (NBIC). A new table (Table 2) has been included in this year's analysis that totals the FY2001-FY2010 funding for programs that are strictly biodefense-focused and calculates the totals for multiple-application programs for the same fiscal years.

Items that could not be tracked in previous "Billions for Biodefense" articles were updated for this version as data became available. Some line items were added or shifted when compared to previous articles to reflect the restructuring of various programs, agencies, and departments.

CIVILIAN BIODEFENSE FUNDING BY FEDERAL AGENCY

Department of Health and Human Services

For FY2010, HHS has budgeted \$4.524 billion for biodefense programs. This amount represents a proposed increase in funding of \$215 million, or 5%, over FY2009 estimated

Table 3. Department of Health and Human Services Civilian Biodefense Funding, FY2001-FY2010 (in \$millions)

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|--|--------|---------|---------|----------------|---------|---------|---------|--------------------|----------------------|--------------------|----------|
| Direct Appropriations to Agency Budgets (Non-PHSSEF) | | | | | | | | | | | |
| CDC | | | | | | | | | | | |
| Upgrading State and Local Capacity | 67.0 | 940.0 | 939.0 | 918.0 | 919.0 | 823.0 | 767.0 | 746.0 | 747.0 | 761.0 | 7,627.0 |
| Real Time Disease Detection Pilot Program | — | — | — | — | — | — | — | — | 10.0 | — | 10.0 |
| BioSurveillance Initiative | — | — | — | — | — | — | — | — | — | — | — |
| BioSense | — | — | — | 17.9 | 59.4 | 57.2 | 57.2 | 34.4 | 34.4 | 34.4 | 294.9 |
| BioSense—Department of Defense Appropriation | — | — | — | 0 | 0 | 35.0 | 0 | 0 | 0 | — | 35.0 |
| Quarantine Stations (at ports of entry) | — | — | — | 4.0 | 9.9 | 11.1 | 11.1 | 9.9 | 26.5 | 26.5 | 99.0 |
| Quarantine Stations—Department of Defense Appropriation | — | — | — | 0 | 0 | 20.0 | 0 | 0 | 0 | — | 20.0 |
| Real Time Lab Reporting | — | — | — | — | — | — | — | — | — | — | — |
| (Enhancing the Laboratory Response Network) | — | — | — | 0 | 9.9 | 10.0 | 10.0 | 9.0 | 8.2 | 8.2 | 55.3 |
| Subtotal, BioSurveillance Initiative ^a | — | — | — | 21.9 | 79.2 | 133.3 | 78.3 | 53.3 | 69.1 | 69.1 | 504.2 |
| Supplemental Appropriations (Smallpox) | — | — | 100.0 | — | — | — | — | — | — | — | 100.0 |
| Upgrading CDC Capacity | 22.0 | 141.0 | 157.0 | 0 | 0 | 0 | 123.0 | 121.0 | 121.0 | 121.0 | 806.0 |
| Anthrax Vaccine Research | 18.0 | 18.0 | 18.0 | 0 | 0 | 0 | 12.0 | 8.0 | 8.0 | — | 82.0 |
| Upgrading CDC Capacity/Anthrax Vaccine Research ^b | — | — | — | 169.0 | 158.0 | 150.0 | — | — | — | — | 477.0 |
| Botulinum Antitoxin Research | — | — | — | — | — | — | 3.0 | — | — | — | 3.0 |
| Independent Studies | 11.0 | 2.0 | 2.0 | — | — | — | — | — | — | — | 15.0 |
| Other | 10.0 | 46.0 | 20.0 | — | — | — | — | — | — | — | 76.0 |
| SNS ^c | 81.0 | 1,157.0 | 398.0 | — ^c | 467.0 | 474.0 | 496.0 | 552.0 | 570.0 | 596.0 | 4,791.0 |
| Federal Mass Casualty Initiative (additional to the SNS) | — | — | — | — | — | 50.0 | — | — | — | — | 50.0 |
| Subtotal, CDC | 209.0 | 2,304.0 | 1,634.0 | 1,108.9 | 1,623.2 | 1,630.3 | 1,476.3 | 1,480.3 | 1,525.1 | 1,547.1 | 14,538.2 |
| NIH | | | | | | | | | | | |
| Biodefense Research (NIAID) | 53.0 | 199.0 | 687.0 | 1,629.0 | 1,548.0 | 1,604.0 | 1,624.0 | 1,633.0 | 1,681.0 | 1,696.0 | 12,354.0 |
| rPA Anthrax Vaccine Intermediate Scale-up | — | — | 123.0 | 117.0 | — | — | — | — | — | — | 240.0 |
| MVA Smallpox Vaccine Intermediate Scale-up | — | — | — | 75.0 | 45.0 | — | — | — | — | — | 120.0 |
| Extramural BT Research Facilities | — | 92.0 | 495.0 | 119.0 | 149.0 | 30.0 | 14.0 | 0 | 0 | 0 | 899.0 |
| Subtotal, NIH | 53.0 | 291.0 | 1,305.0 | 1,940.0 | 1,742.0 | 1,634.0 | 1,638.0 | 1,633.0 | 1,681.0 | 1,696.0 | 13,613.0 |
| FDA | | | | | | | | | | | |
| Food Defense (formerly labeled "Food Safety") | 1.0 | 98.0 | 97.0 | 116.0 | 150.0 | 158.0 | 172.0 | 171.0 | 213.0 | 217.0 | 1,393.0 |
| Vaccines/Drugs/Diagnostics | 6.0 | 46.0 | 53.0 | 53.0 | 57.0 | 57.0 | 57.0 | 56.0 | 67.0 | 68.0 | 520.0 |
| Physical Security | 2.0 | 13.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 71.0 |
| Subtotal, FDA | 9.0 | 157.0 | 157.0 | 176.0 | 214.0 | 222.0 | 236.0 | 234.0 | 287.0 | 292.0 | 1,984.0 |
| HRSA^d | | | | | | | | | | | |
| Hospital Preparedness and Infrastructure (grants) | 0 | 135.0 | 515.0 | 515.0 | 487.0 | — | — | — | — | — | 1,652.0 |
| Bioterrorism Training and Curriculum Development | 0 | 0 | 28.0 | 28.0 | 28.0 | — | — | — | — | — | 84.0 |

(continued)

Table 3. Continued

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|---|--------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------------|----------------------|--------------------|-----------------|
| Smallpox Compensation | 0 | 0 | 42.0 | 0 | 0 | — | — | — | — | — | 42.0 |
| Covered Countermeasures Fund | — | — | — | — | — | — | — | — | — | 5.0 | 5.0 |
| Subtotal, HRSA | 0 | 135.0 | 585.0 | 543.0 | 515.0 | — | — | — | — | 5.0 | 1,783.0 |
| Office of the Secretary | | | | | | | | | | | |
| Revitalization of Commissioned Corps | — | — | — | — | 3.0 | 4.0 | 10.0 | 4.0 | 15.0 | 15.0 | 51.0 |
| Subtotal, Direct Appropriations | 271.0 | 2,887.0 | 3,681.0 | 3,767.9 | 4,097.2 | 3,490.3 | 3,360.3 | 3,351.3 | 3,508.1 | 3,555.1 | 31,969.2 |
| Office of the Secretary, PHSEF | | | | | | | | | | | |
| Office of Public Health and Emergency Preparedness ^e | 0 | 50.0 | 47.0 | 41.0 | 41.0 | — | — | — | — | — | 179.0 |
| Assistant Secretary for Emergency Preparedness and Response (ASPR) | | | | | | | | | | | |
| Operations | — | — | — | — | — | 9.0 | 8.0 | 10.0 | 13.0 | 13.0 | 53.0 |
| Preparedness and Emergency Operations | — | — | — | — | — | 15.0 | 14.0 | 17.0 | 22.0 | 36.0 | 104.0 |
| National Disaster Medical System (NDMS) ^f | — | — | — | — | — | 47.0 | 47.0 | 46.0 | 50.0 | 56.0 | 246.0 |
| Hospital Preparedness (HPP) Grants | — | — | — | — | — | — | — | — | — | — | — |
| (moved from HRSA) (includes ESAR-VHP) | — | — | — | — | — | 474.0 | 474.0 | 423.0 | 394.0 | 426.0 | 2,191.0 |
| Biodefense Training and Curriculum Development | — | — | — | — | — | 21.0 | 21.0 | — | — | — | 42.0 |
| Emergency Care Systems | — | — | — | — | — | — | — | — | — | 10.0 | 10.0 |
| Medical Countermeasures Dispensing (USPS pilot program) | — | — | — | — | — | — | — | — | — | 10.0 | 10.0 |
| Advanced Research and Development (moved from NIAID NIH) | — | — | — | — | — | 54.0 | 104.0 | 102.0 | 275.0 | 305.0 | 840.0 |
| Next Generation Ventilators | — | — | — | — | — | — | — | — | — | 65.0 | 65.0 |
| BioShield Management | — | — | — | — | — | 0 | 16.0 | 21.0 | 22.0 | 22.0 | 81.0 |
| International Early Warning and Surveillance | — | — | — | — | — | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 45.0 |
| Policy, Strategic Planning, Communications | — | — | — | — | — | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 | 18.0 |
| Subtotal, ASPR | 0 | 0 | 0 | 0 | 0 | 632.0 | 696.0 | 632.0 | 789.0 | 956.0 | 3,705.0 |
| Other Office of the Secretary | | | | | | | | | | | |
| Medical Reserve Corps | 0 | 3.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 12.0 | 13.0 | 88.0 |
| Subtotal, Office of the Secretary, PHSEF Biosecurity^g | 0 | 53.0 | 57.0 | 51.0 | 51.0 | 642.0 | 706.0 | 642.0 | 801.0 | 969.0 | 3,972.0 |
| Total HHS Civilian Biodefense Funding | 271.0 | 2,940.0 | 3,738.0 | 3,818.9 | 4,148.2 | 4,132.3 | 4,066.3 | 3,993.3 | 4,309.1 | 4,524.1 | 35,941.2 |

^aFY2007-FY2009 subtotals for the Biosurveillance Initiative differ slightly from CDC and HHS calculated subtotals. The reason for this difference could not be identified.

^bUpgrading CDC Capacity/Anthrax Research line items were counted separately until the President's FY2006 budget and are separated once again in the FY2009 budget.

^cThe SNS was located in the HHS Office of the Secretary for FY2001-FY2003 and FY2005-FY2007. In FY2004, it was located in the Department of Homeland Security. It is now a CDC function.

^dHRSA bioterrorism and hospital preparedness programs were moved to the ASPR Office in 2006.

^eThe Office of Public Health and Emergency Preparedness became the Office of the Assistant Secretary for Emergency Preparedness and Response (ASPR) in 2006.

^fThe National Disaster Medical System was moved from the Department of Homeland Security to the Department of Health and Human Services ASPR Office effective January 2007.

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

Sources: HHS Budget Office; HHS Press Office; HHS Budgets in Brief FY2006-FY2010; <http://www.hhs.gov/asrr/ob/docbudget/2010budgetinbrief.pdf>; CDC FY2010 Budget Justification; http://www.cdc.gov/fmo/topic/Budget%20Information/appropriations_budget_form_pdf/FY2010_CDC_CJ_Final.pdf; Pandemic and All Hazards Preparedness Act (P. L. 109-407).

funding levels for HHS (Table 3). The majority of funds requested for HHS in FY2010 are allocated to programs in the National Institutes of Health (NIH) and the U.S. Centers for Disease Control and Prevention (CDC) (Figure 4). However, the FY2010 budget proposes funding increases in all areas of the HHS biodefense budget, including CDC, NIH, the Food and Drug Administration (FDA), the Health Resources and Services Administration (HRSA), and the Office of the Secretary (Table 3).

The CDC budget for biodefense includes a proposed \$14 million increase in funding over FY2009 levels for “upgrading state and local capacity,” to support state and local preparedness efforts (composed primarily of the state Public Health Emergency Preparedness cooperative agreement grants), and a proposed \$26 million increase for the Strategic National Stockpile program (SNS), which works to stockpile medical countermeasures and other supplies for a bioterrorism attack and other public health emergencies.⁷ NIH would also receive an increase to its biodefense research programs, which are administered through NIAID; these programs are budgeted to increase \$15 million in FY2010. FDA’s food defense program is budgeted to increase to \$217 million from an estimated \$213 million in FY2009. HRSA is budgeting \$5 million for the Preparedness Countermeasures Injury Compensation fund, a fund established by the Public Readiness and Emergency Preparedness (PREP) Act. The fund is meant to provide compensation to individuals that suffer from any unintended side effects of a countermeasure that is administered during a disaster or public health emergency.⁷ This funding also represents the first direct biodefense funding for HRSA since FY2005.

The major increases in funding in HHS are in the Office of the Secretary, specifically under the Office of the Assistant Secretary for Preparedness and Response (ASPR). Part of this is the National Hospital Preparedness Grant Program (HPP), which is budgeted to receive a \$32 million increase over estimated funds for FY2009. This would bring the HPP funding level back up to \$426 million, approximately its level in FY2008 before the program was cut, but still much lower than it was when HRSA administered the program from FY2003 to FY2005.

The FY2010 budget proposes \$305 million for advanced research and development of medical countermeasures, a \$30 million increase over the estimated FY2009 level. The Biomedical Research and Development Authority (BARDA), under the Office of the Assistant Secretary for Preparedness and Response, is charged with supporting advanced research and development of new medical countermeasures (eg, medicines and vaccines) against biological threats. These proposed advanced research and development funds would support research on selected countermeasure candidates with the potential for purchase under Project BioShield and delivery to the Strategic National Stockpile. While the FY2010 budget proposes an increase in funding for BARDA initiatives related to advanced countermeasures research and development, the budget states that “funding for advanced research and development for FY2010 will be provided through a transfer of funds from the remaining BioShield Special Reserve Fund (SRF).”⁷ As a result, the funding increase for BARDA represents a reallocation of BioShield funds.

The FY2010 budget includes 3 new line items under ASPR for an Emergency Care System Program to improve

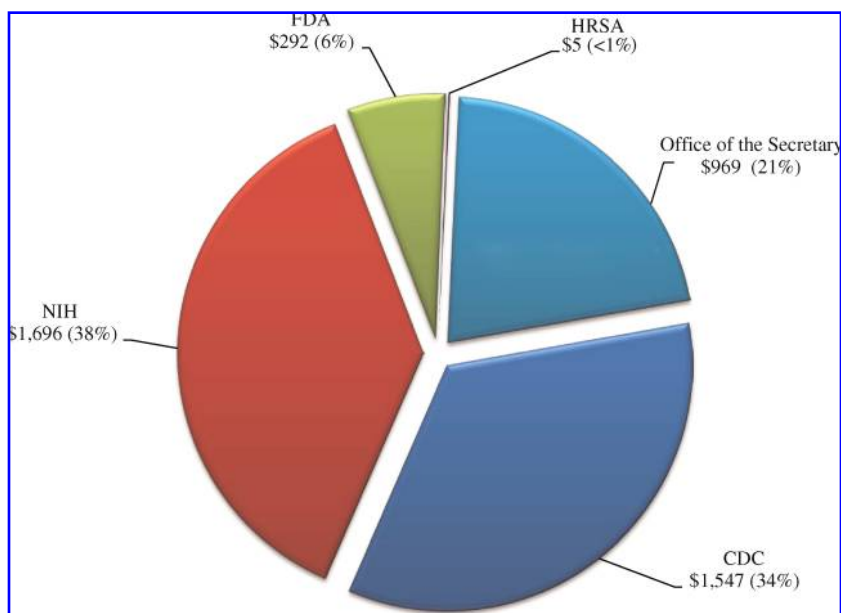


Figure 4. HHS Civilian Biodefense Funding, FY2010 (in \$millions). Color images available online at www.liebertonline.com/bsp.

Table 4. Department of Defense Civilian Biodefense Funding, FY2001-FY2010 (in \$millions)

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------|----------------------|--------------------|----------------|
| Army National Guard WMD Civil Support Teams | | | | | | | | | | | |
| Training | 4.6 | 3.8 | 11.9 | 9.1 | 10.1 | 16.7 | 23.2 | 27.7 | 26.3 | 40.7 | 174.1 |
| Equipment and Capabilities (funded through CBDP) | 2.0 | 25.0 | 14.1 | 8.8 | 18.2 | 56.4 | 30.7 | 9.7 | 8.3 | 11.8 | 185.0 |
| Subtotal, WMD CST | 6.6 | 28.8 | 26.0 | 17.9 | 28.3 | 73.1 | 53.9 | 37.4 | 34.6 | 52.5 | 359.1 |
| Biological Threat Reduction (located in DTRA) | | | | | | | | | | | |
| BW Proliferation Prevention | 12.0 | 17.0 | 54.7 | — | — | — | — | — | — | — | 83.7 |
| BW Infrastructure Elimination | — | — | — | 17.1 | — | 2.2 | 0.5 | — | — | — | 19.8 |
| Biosecurity, Biosafety, Threat Agent Detection and Response | — | — | — | 34.6 | 58.3 | 66.3 | 66.1 | 152.7 | 174.3 | 133.3 | 685.6 |
| Cooperative Biological Research | — | — | — | 16.0 | 10.4 | 1.4 | 5.8 | 21.8 | 11.2 | 18.9 | 85.5 |
| Subtotal, Biological Threat Reduction | 12.0 | 17.0 | 54.7 | 67.7 | 68.7 | 69.9 | 72.4 | 174.5 | 185.5 | 152.2 | 874.6 |
| Biological Warfare Defense Program (located in DARPA) | | | | | | | | | | | |
| Biological Countermeasures | 146.2 | 171.9 | 157.9 | 141.9 | 155.4 | 132.8 | 99.9 | 64.1 | 56.1 | 40.6 | 1,166.9 |
| | 0 | 400.0 | 0 | 0 | 0 | — | — | — | — | — | 400.0 |
| Chemical and Biological Defense Program (CBDB) (Defense-wide) | | | | | | | | | | | |
| Medical Biological Defense ^a | | | | | | | | | | | |
| Basic Research | 20.0 | 23.6 | 30.7 | 27.1 | 32.3 | 53.8 | 66.1 | 33.2 | 16.3 | 16.9 | 320.0 |
| Applied Research | 22.4 | 34.2 | 47.2 | 44.8 | 43.0 | 89.2 | 93.5 | 98.9 | 47.6 | 54.2 | 575.0 |
| Advanced Technology Development | 22.4 | 34.6 | 34.7 | 44.4 | 67.9 | 87.9 | 87.1 | 96.0 | 188.7 | 204.6 | 868.3 |
| Advanced Component Development and Prototypes | 28.5 | 68.6 | 36.1 | 66.5 | 24.2 | 26.3 | 25.8 | 4.7 | 5.6 | 101.3 | 387.6 |
| System Development and Demonstration | 15.8 | 45.0 | 34.8 | 7.1 | 9.8 | 50.0 | 56.3 | 69.2 | 89.4 | 64.5 | 441.9 |
| Subtotal, Medical Biological Defense | 109.1 | 206.0 | 183.5 | 189.9 | 177.2 | 307.2 | 328.8 | 302.0 | 347.6 | 441.5 | 2,151.3 |
| Total DoD Civilian Biodefense Funding | 273.9 | 823.7 | 422.1 | 417.4 | 429.6 | 583.0 | 555.0 | 578.0 | 623.8 | 686.8 | 5,393.4 |

^aOf the Chemical and Biological Defense Program, only Medical Biological Defense has been included in totals for FY2010 and years past. Medical Biological Defense is primarily countermeasures-research oriented, whereas the remainder of the Chemical and Biological Defense Program either is focused on chemical defense or has strictly military applications.

Sources: DoD FY2010 Operations and Maintenance http://www.defenselink.mil/comptroller/defbudget/fy2010/budget_justification/pdfs/01_Operation_and_Maintenance/O_M_VOL_1_PARTS/x0134_CTR.pdf; FY2010 Department of the Army Budget Estimates <http://www.asafm.army.mil/budget/fybm/fy10/milpers/ngpa.pdf>; DoD FY2009 Chemical and Biological Defense Program Budget Justification http://www.defenselink.mil/comptroller/defbudget/fy2010/budget_justification/pdfs/03_RDT_and_E/Vol_4_CBDP/CBDP_PB10_RDTE.pdf; DoD Budget Justifications FY2003-FY2009 http://www.defenselink.mil/comptroller/defbudget/fy2009/budget_justification/index.html; DoD Budget Request for International WMD Security Programs http://www.partnershipforglobalsecurity.org/PDFFrameSet.asp?PDF=analysis_of_fy10_budget_request_final1.pdf; DoD DARPA RDTE budget http://www.defenselink.mil/comptroller/defbudget/fy2010/budget_justification/pdfs/03_RDT_and_E/Vol_1_DARPA/DARPA_PB10_RDTE-05-04-09.pdf.

the quality of emergency care around the country and set national emergency care standards; a Medical Countermeasures Dispensing pilot program, partnering with the United States Postal Service (USPS) to dispense countermeasures in an emergency; and a program for Advanced Development of Next Generation Ventilators. These line items are budgeted at \$10 million, \$10 million, and \$65 million, respectively.

Department of Defense

The FY2010 DoD biodefense budget of \$686.8 million represents an increase of \$63.0 million in funding for DoD civilian biodefense activities over FY2009 estimated funds. DoD biodefense activities in this FY2010 budget analysis include Army National Guard WMD Civil Support Teams; Biological Threat Reduction programs, located in the Defense Threat Reduction Agency (DTRA); the Biological Warfare Defense Program, located in the Defense Advanced Research Projects Agency (DARPA); and the Medical Biological Defense program under the Chemical and Biological Defense heading (Table 4).

Both the Biological Threat Reduction (in DTRA) and the Biological Warfare Defense Programs (in DARPA) face proposed budget cuts in FY2010. The Biological Threat Reduction program would receive a decrease of \$33.3 million over FY2009 estimates. This program oversees the location, collection, and destruction of “dangerous pathogens” from weapons created under biological weapons programs, and it seeks to engage scientists from the former Soviet Union and other areas of the world in open and ethical research to prevent them from being sought out and employed by terrorist groups and “rogue states” that might intend to create and use biological weapons.¹³ The Biological Warfare Defense program would be cut by \$15.5 million under the FY2010 budget.

The Medical Biological Defense program represents a majority of DoD’s investment in biodefense activities, includes funding for basic and applied biological research, and encompasses specific research areas such as the Transformational Medical Technologies Initiative (TMTI), launched in FY2006 “as a key Quadrennial Defense Review initiative to respond to the threat of emerging or intentionally bioengineered biological threats.”¹⁵ For FY2010, Medical Biological Defense is budgeted to receive \$441.5 million, an increase of \$93.9 million over FY2009 estimates. Since FY2001, this program has reached a total of \$2.15 billion in funding (including budgeted amounts for FY2010).

Department of Homeland Security

The DHS budget request for FY2010 totals \$396.1 million, an increase of \$28.9 million from FY2009 estimated levels (when BioShield funds are excluded from FY2009

totals) (Table 5). The DHS FY2010 budget request would eliminate funding for the Metropolitan Medical Response System (MMRS) and replace it with the Medical Surge Grant Program, funded at a similar level (\$40 million). This new grant program is said to build on the “foundations” of the MMRS.

The requested budget for the BioWatch program, in the Office of Health Affairs, is \$94.5 million, a proposed decrease of \$17.1 million in funding for the program from the FY2009 estimate. The FY2010 budget does not provide an explanation for this decrease but mentions that the \$94.5 million budget for the program is proposed to support baseline capabilities for first- and second-generation BioWatch collectors, as well to support field testing and procurement of third-generation systems.⁸ All other DHS biodefense funding budgeted for FY2010 remains at or near FY2009 estimated levels (Table 5).

Department of Agriculture

The FY2010 USDA budget requests an increase in civilian biodefense funding of \$15 million over FY2009 funding levels, for a total of \$233 million (Table 6).

This FY2010 budget for USDA is a departure from previous budgets in that the budget does not propose funding of its Food Defense and Agricultural Defense initiatives. In fact, nowhere in the FY2010 USDA “Budget in Brief” is the word “defense” mentioned.¹⁴ A USDA Budget and Advocacy Committee Meeting discussed removing the Food and Agricultural Defense Initiative as a targeted budget item in FY2010.¹⁵ Instead, a similar amount of funding for biodefense-related activities is budgeted among programs under the Animal and Plant Health Inspection Service (APHIS), the Food Safety and Inspection Service (FSIS), and the newly established National Institute of Food and Agriculture (NIFA). In addition, the budget indicates that \$3 million should be provided for homeland security initiatives within USDA.

In this newly arranged FY2010 budget, a majority of funding goes to surveillance activities, including the APHIS Animal Health Monitoring and Surveillance program, Plant and Animal Health Monitoring, and the NIFA Regional Diagnostic Network. Other significant funding includes the APHIS Veterinary Biologics and Diagnostics program and the FSIS Public Health Data Communication Infrastructure System.

With this new USDA budget formatting, the budget is much less transparent, making it more difficult to discern biodefense funding.

Environmental Protection Agency

For FY2010, the budget for the EPA requests \$159.8 million for civilian biodefense programs, an increase of \$3.1 million over FY2009 estimated funds. The only significant

Table 5. Department of Homeland Security Civilian Biodefense Funding, FY2003-FY2010 (in \$millions)

| | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|---|--------------|----------------|----------------|----------------|----------------|--------------------|----------------------|--------------------|----------------|
| National Protection and Programs Directorate^a | | | | | | | | | |
| National Disaster Medical System ^b | 5.0 | 82.0 | 34.0 | 134.0 | — | — | — | — | 255.0 |
| Strategic National Stockpile | 0.0 | 398.0 | 0.0 | — ^c | — | — | — | — | 398.0 |
| Metropolitan Medical Response System (MMRS) | 50.0 | 50.0 | 30.0 | 30.0 | 33.0 | — | — | — | 193.0 |
| Office of Health Affairs | | | | | | | | | |
| BioShield ^d | 0.0 | 885.0 | 2,507.0 | 0 ^e | 0 ^e | 0 ^e | 2,175.0 | 0.0 | 5,567.0 |
| National Biosurveillance Integration Center (NBIC) | 0.0 | 0.0 | 12.5 | 14.1 | 7.3 | 10.0 | 8.0 | 8.0 | 59.9 |
| BioWatch ^{f,g} | — | — | — | — | 85.1 | 78.2 | 111.6 | 94.5 | 369.4 |
| Planning and Coordination | — | — | — | — | — | — | — | — | — |
| Animal Disease and AgroDefense | — | — | — | — | — | 0.8 | 0.7 | 0.7 | 2.2 |
| Medical Readiness | — | — | — | — | — | 3.8 | 5.1 | 1.7 | 10.6 |
| Federal Emergency Management Agency (FEMA) | | | | | | | | | |
| State and Regional Preparedness Programs | — | — | — | — | — | 39.8 | 0.0 | — | 39.8 |
| Metropolitan Medical Response System (MMRS) | — | — | — | — | — | — | — | — | — |
| Medical Surge Grant Program (builds on MMRS foundation) | — | — | — | — | — | — | — | 40.0 | 40.0 |
| Science & Technology Directorate | | | | | | | | | |
| Biological Countermeasures Thrust Area (includes HSRAPA, National Bio and Agrodefense Facility, BioWatch R&D, bioforensics, and other research efforts) | 362.0 | 285.0 | 362.7 | 376.2 | 228.4 | 154.8 | 142.6 | 148.2 | 2,059.9 |
| Laboratory Facilities ^b | — | — | — | — | — | — | — | — | — |
| Laboratory Operations | — | — | — | — | — | 27.0 | 30.7 | 36.7 | 94.4 |
| Plum Island Animal Disease Center | — | — | — | — | — | — | — | — | — |
| National Biodefense Analysis and Countermeasures Center (NBACC) | — | — | — | — | — | 16.8 | 32.9 | 30.0 | 79.7 |
| Laboratory Construction | — | — | — | — | — | — | — | — | — |
| Plum Island Animal Disease Center | — | — | — | — | — | 17.3 | 0.0 | 0.0 | 17.3 |
| NBACC | 5.0 | 88.0 | 35.0 | 13.0 | 0.0 | 11.0 | 35.6 | 36.3 | 223.9 |
| Total DHS Civilian Biodefense Funding | 422.0 | 1,788.0 | 2,981.2 | 567.3 | 353.8 | 359.4 | 2,542.2 | 396.1 | 9,410.0 |

^aFormerly the Preparedness Directorate (P.L. 109-295 and changes pursuant to section 872 of the Homeland Security Act, 2002).
^bNDMS was transferred to the HHS Office of the Assistant Secretary for Preparedness and Response (ASPR) effective January 1, 2007.
^cThe Strategic National Stockpile was transferred to HHS (CDC).
^dOf the \$5.6 billion BioShield special reserve fund (appropriated in FY2004), an amount not to exceed \$3.4 billion was allocated for FY2004-FY2008 for the program. The remaining approximately \$2.2 billion of the fund was allocated in the FY2009 budget for FY2009-FY2013.
^eFunds appropriated for BioShield in years prior will be used in the current year.
^fBioWatch was formerly located within the Science and Technology Directorate and had been part of the Biological Countermeasures line item through FY2006. (P.L. 109-295 and changes pursuant to section 872 of the Homeland Security Act, 2002).
^gThe FY2007 number for BioWatch is an estimate only. DHS could not confirm the validity of this number.
^hThe FY2009 DHS budget breaks down the Laboratory Facilities line item into operations and construction for various facilities for the first time. Attempts were made to obtain numbers for previous fiscal years. NBACC operations began in 2008 (therefore, prior numbers are not available), and numbers for Plum Island Construction and Operations prior to FY2008 were not provided by DHS.
Sources: DHS FY2010 Budget in Brief http://www.dhs.gov/xlibrary/assets/budget_bib_fy2010.pdf; DHS FY2010 Budget Details http://www.dhs.gov/xlibrary/assets/budget_fy2009.pdf; DHS Press Office; DHS Program Officials.

Table 6. Department of Agriculture Civilian Biodefense Funding, FY2001-FY2010 (in \$millions)

| | FY2001 ^a | FY2002 ^a | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|--|---------------------|---------------------|--------|--------|--------|--------|--------|--------------------|----------------------|--------------------|---------|
| Food and Agricultural Defense Initiative^b | | | | | | | | | | | |
| Food Defense | | | | | | | | | | | |
| Food Safety and Inspection Service (FSIS) | | | | | | | | | | | |
| Surveillance/Monitoring | — | — | 1.0 | 1.0 | 3.0 | 3.0 | 3.0 | — | — | — | 11.0 |
| Food Emergency Response Network (FERN) | — | — | 0 | 0 | 3.0 | 2.0 | 4.0 | — | — | — | 9.0 |
| Enhanced Inspections | — | — | 0 | 2.0 | 2.0 | 2.0 | 2.0 | — | — | — | 8.0 |
| Lab Upgrades/Physical Security | — | — | 1.0 | 3.0 | 3.0 | 3.0 | 3.0 | — | — | — | 13.0 |
| Education/Training | — | — | 2.0 | 2.0 | 3.0 | 2.0 | 3.0 | — | — | — | 12.0 |
| Other | — | — | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | — | — | — | 23.0 |
| ARS Food Defense Research | — | — | 2.0 | 2.0 | 8.0 | 9.0 | 9.0 | — | — | — | 30.0 |
| Subtotal, Food Defense | — | — | 10.0 | 14.0 | 27.0 | 26.0 | 29.0 | — | — | — | 106.0 |
| Agricultural Defense | | | | | | | | | | | |
| Agricultural Research Service (ARS) | | | | | | | | | | | |
| Ames, IA, BSL-3 Facility | — | — | 143.0 | 0 | 121.0 | 58.0 | 0 | — | — | — | 322.0 |
| Research | — | — | 10.0 | 17.0 | 21.0 | 25.0 | 25.0 | — | — | — | 98.0 |
| National Plant Disease Recovery System | — | — | 0 | 0 | 2.0 | 2.0 | 2.0 | — | — | — | 6.0 |
| Cooperative State Research, Education, and Extension Service (CSREES) | — | — | 0 | 8.0 | 9.0 | 10.0 | 10.0 | — | — | — | 37.0 |
| Regional Diagnostic Network | — | — | 0 | 38.0 | 80.0 | 87.0 | 82.0 | — | — | — | 287.0 |
| Animal and Plant Health Inspection Service (APHIS) | — | — | 0 | 0 | 2.0 | 2.0 | 2.0 | — | — | — | 6.0 |
| Enhanced Surveillance | — | — | — | 17.0 | 17.0 | 17.0 | 16.0 | — | — | — | 67.0 |
| BioSurveillance | — | — | — | 0 | 3.0 | 3.0 | 3.0 | — | — | — | 9.0 |
| Plant Safeguarding Activities | — | — | 0 | 1.0 | 3.0 | 3.0 | 3.0 | — | — | — | 10.0 |
| Select Agents—Plants and Animals | — | — | 37.0 | 14.0 | 13.0 | 14.0 | 14.0 | — | — | — | 92.0 |
| National Veterinary Stockpile | — | — | 190.0 | 95.0 | 271.0 | 221.0 | 157.0 | — | — | — | 934.0 |
| Others | — | — | 200.0 | 109.0 | 298.0 | 247.0 | 186.0 | — | — | — | 1,040.0 |
| Subtotal, Agricultural Defense | — | — | — | — | — | — | — | — | — | — | — |
| Subtotal, Food and Agricultural Defense Initiative | — | — | — | — | — | — | — | — | — | — | — |
| Animal and Plant Health Inspection Service (APHIS) | | | | | | | | | | | |
| Animal Health Monitoring and Surveillance | — | — | — | — | — | — | — | 123.0 | 129.0 | 127.0 | 379.0 |
| Emergency Management Systems | — | — | — | — | — | — | — | 15.0 | 16.0 | 16.0 | 47.0 |
| All Other Plant and Animal Health Monitoring | — | — | — | — | — | — | — | 6.0 | 8.0 | 9.0 | 23.0 |
| Veterinary Biologies and Diagnostics | — | — | — | — | — | — | — | 40.0 | 41.0 | 41.0 | 122.0 |
| Emergency Supplemental for Pathogen Surveillance | — | — | — | — | — | — | — | 5.0 | — | — | 5.0 |
| Food Safety and Inspection Service (FSIS) | | | | | | | | | | | |
| Public Health Data Communication Infrastructure System | — | — | — | — | — | — | — | 15.0 | 13.0 | 27.0 | 55.0 |
| National Institute of Food and Agriculture (NIFA) | | | | | | | | | | | |
| Regional Diagnostic Network | — | — | — | — | — | — | — | 10.0 | 10.0 | 10.0 | 30.0 |
| Homeland Security | — | — | — | — | — | — | — | 1.0 | 1.0 | 3.0 | 5.0 |
| Total USDA Civilian Biodefense Funding | — | — | 200.0 | 109.0 | 298.0 | 247.0 | 186.0 | 215.0 | 218.0 | 233.0 | 1,706.0 |

^aUSDA Press and Budget offices were unable to provide numbers for these years.^bUSDA FY2010 budget does not include any line items specifically for Food and Agricultural Defense.Sources: USDA FY2010 Budget Summary and Annual Performance Plan <http://www.obpa.usda.gov/budsum/FY10budsum.pdf>; Agenda Budget and Advocacy Committee meeting agenda: <https://www.aplu.org/NetCommunity/Document.Doc?id=1572>.

Table 7. Environmental Protection Agency Civilian Biodefense Funding, FY2001-FY2010 (in \$millions)

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|---|-------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------------|----------------------|--------------------|----------------|
| Capitol Hill Anthrax Cleanup | 20.0 | — | — | — | — | — | — | — | — | — | 20.0 |
| Homeland Security | | | | | | | | | | | |
| Clean and Safe Water ^a | 0 | 3.8 | — | — | — | — | — | — | — | — | 3.8 |
| Waste Management ^b | 0 | 3.2 | — | — | — | — | — | — | — | — | 3.2 |
| Quality Environmental Information ^b | 0 | 0.6 | — | — | — | — | — | — | — | — | 0.6 |
| Sound Science/Improved Understanding/Innovation ^b | 0 | 0.6 | — | — | — | — | — | — | — | — | 0.6 |
| Deterrent to Pollution ^b | 0 | 3.5 | — | — | — | — | — | — | — | — | 3.5 |
| Emergency Supplemental Funds ^c | 0 | 175.6 | 0 | 0 | 0 | — | — | — | — | — | 175.6 |
| Clean and Safe Water: Homeland Security, | | | | | | | | | | | |
| Critical Infrastructure Protection, Protect Human Health | 0 | 0 | 14.2 | 27.4 | — | — | — | — | — | — | 41.6 |
| Clean Land: Homeland Security Preparedness, Response and Security | 0 | 0 | 37.6 | 27.3 | — | — | — | — | — | — | 64.9 |
| Healthy Communities & Ecosystems | | | | | | | | | | | |
| Homeland Security Prep/Resp/Sec. Chem/Org/Pesticide Risks | 0 | 0 | 0.7 | 2.3 | — | — | — | — | — | — | 3.0 |
| Homeland Security Prep/Resp/Sec. Science and Research | 0 | 0 | 31.0 | 29.0 | — | — | — | — | — | — | 60.0 |
| Compliance and Environmental Stewardship: Homeland Security: | | | | | | | | | | | |
| Critical Infrastructure Protection, Improve Compliance | 0 | 0 | 4.2 | 3.9 | — | — | — | — | — | — | 8.1 |
| Enabling and Support Programs: Homeland Security | | | | | | | | | | | |
| Office of Waste and Emergency Response | 0 | 0 | 0 | 0.6 | — | — | — | — | — | — | 0.6 |
| Office of Administration and Resources Management, | | | | | | | | | | | |
| Protection of EPA Personnel and Infrastructure | 0 | 0 | 40.0 | 19.3 | — | — | — | — | — | — | 59.3 |
| Office of Environmental Information, | | | | | | | | | | | |
| Communication and Information | 0 | 0 | 0 | 3.8 | — | — | — | — | — | — | 3.8 |
| Office of the Administrator, Communication and Information | 0 | 0 | 0.9 | 0 | — | — | — | — | — | — | 0.9 |
| Homeland Security | | | | | | | | | | | |
| Grants to States (formerly Water Safety Grants) | 0 | 0 | 4.5 | 5.0 | 5.0 | 5.0 | 5.0 | 5.7 | 5.0 | 0 | 35.1 |
| Communication and Information | — | — | — | — | 4.3 | 6.8 | 6.8 | — | — | — | 17.9 |
| Critical Infrastructure Protection | — | — | — | — | 11.2 | 20.6 | 30.5 | — | — | — | 62.3 |
| Preparedness, Response and Recovery | — | — | — | — | 56.4 | 76.6 | 90.6 | — | — | — | 223.6 |
| Protection of EPA Personnel and Infrastructure | — | — | — | — | 20.5 | 20.2 | 20.3 | — | — | — | 61.0 |
| Homeland Security | | | | | | | | | | | |
| Science and Technology (including the water sentinel program, | | | | | | | | | | | |
| decontamination, lab preparedness and response, and safe buildings) | — | — | — | — | — | — | — | 74.9 | 63.7 | 71.3 | 209.9 |
| Environmental Program and Management (decontamination) | — | — | — | — | — | — | — | 21.0 | 23.4 | 23.9 | 68.3 |
| Buildings and Facilities | — | — | — | — | — | — | — | 8.2 | 8.1 | 8.1 | 24.4 |
| Hazardous Substance Superfund (including laboratory | | | | | | | | | | | |
| decontamination, and laboratory preparedness and response) | — | — | — | — | — | — | — | 47.6 | 56.6 | 56.6 | 160.8 |
| Total EPA Civilian Biodefense Funding | 20.0 | 187.2 | 132.9 | 118.7 | 97.4 | 129.1 | 153.1 | 157.4 | 156.7 | 159.8 | 1,312.5 |

^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 Budget in Brief FY2010 <http://www.epa.gov/budget/2010/2010bib.pdf>, Pp. 28-63.

Table 8. Department of State Civilian Biodefense Funding, FY2001-FY2010 (in \$millions)

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|--|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------|----------------------|--------------------|--------------|
| Worldwide Security Upgrades: Chem/Bio Program ^a | 3.8 | 3.9 | 15.2 | 17.1 | 17.1 | 19.0 | 10.8 | — | — | — | 86.9 |
| BioRedirection ^b | 0 | 67.0 | 52.0 | 50.0 | — | — | — | — | — | — | 169.0 |
| Global Threat Reduction Program ^c | — | — | — | — | 50.1 | — | — | — | — | — | 50.1 |
| Biosecurity Engagement Program (BEP) ^d | — | — | — | — | — | 3.1 | 11.3 | 26.9 | 29.3 | 34.6 | 105.2 |
| Bureau of Verification, Compliance, and Implementation | — | — | — | — | — | 0.8 | 1.2 | 1.5 | 1.6 | 2.2 | 7.2 |
| Office of Biological Weapons Affairs ^e | — | — | — | — | — | — | — | — | — | — | — |
| Total State Department Civilian Biodefense Funding | 3.8 | 70.9 | 67.2 | 67.1 | 67.2 | 22.9 | 23.3 | 28.4 | 30.9 | 36.8 | 418.4 |

^aThe 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 no longer available.

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

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

^dThe Biosecurity Engagement Program (BEP) was first notified to Congress in 2006. The program receives funds out of the Global Threat Reduction programs account under the Nonproliferation, Anti-terrorism, Demining and Related programs budget.

^eInformation on funding for this office is not available from the Department of State prior to FY2006.

Sources: U.S. Department of State Budget in Brief FY2010 <http://www.state.gov/documents/organization/122511.pdf>; U.S. Department of State Foreign Operations Congressional Budget Justification FY2010 <http://www.state.gov/documents/organization/123415.pdf>; U.S. Department of State Congressional Budget Justifications FY2008-FY2010 <http://www.state.gov/documents/organization/123413.pdf>; personal communications with Department of State representatives.

Table 9. National Science Foundation Civilian Biodefense Funding, FY2001-FY2010 (in \$millions)

| | FY2001 | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 | FY2007 | FY2008 (actual) | FY2009 (estimate) | FY2010 (budget) | Total |
|---|------------|------------|-------------|-------------|-------------|-------------|-------------|--------------------|----------------------|--------------------|--------------|
| Homeland Security Activities: Research to Combat Bioterrorism | 0 | 4.1 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | — | — | — | 34.1 |
| Ecology of Infectious Diseases, BIO Directorate | 0 | 0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | — | — | — | 20.0 |
| Ecology of Infectious Diseases, GEO Directorate | 0 | 4.8 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 124.8 |
| Microbial Genomics, BIO Directorate | 0 | 0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.9 | — | — | — | 9.9 |
| Microbial Genome Sequencing, Formerly CISE | 0 | 0 | 4.3 | 4.0 | 4.0 | 4.3 | — | — | — | — | 16.5 |
| Sensors and Sensor Networks, Engineering Directorate | 0 | 0 | — | — | — | — | — | — | — | — | — |
| Total NSF Civilian Biodefense Funding | 0.0 | 9.0 | 31.3 | 31.0 | 31.0 | 31.3 | 26.9 | 15.0 | 15.0 | 15.0 | 205.4 |

Sources: NSF FY2010 Budget in Brief http://www.nsf.gov/about/budget/fy2010/pdf/entire_fy2010.pdf; NSF Homeland Security Activities Summary FY2009 Budget Request to Congress http://www.nsf.gov/about/budget/fy2009/pdf/10_fy2009.pdf.

change to the budget for EPA is that the Homeland Security Grants to States (formerly the Water Safety Grants), which have been funded annually at \$5 million, would receive no funding for FY2010 (Table 7).

Department of State

For FY2010, the State Department budget requests an increase in funding for the department's civilian biodefense programs of \$5.9 million, for a total of \$36.8 million (Table 8). New in this year's analysis is funding for the Office of Biological Weapons Affairs under the State Department Bureau of Verification, Compliance and Implementation. This office deals specifically with biological threat reduction and is funded at \$2.2 million for FY2010. Additionally, new information on the Global Threat Reduction (GTR) Biosecurity Engagement Program (BEP) was provided by the State Department for FY2010 and previous years. The BEP is an international program that engages scientists and laboratories in "programs that promote the safe, secure and responsible use of biological materials that are at risk of accidental release or intentional misuse."¹⁶ The BEP is budgeted at \$34.6 million for FY2010.

National Science Foundation

The NSF FY2010 budget proposes flat funding of \$15 million for its civilian biodefense program. In the FY2010 budget, biodefense funding is solely directed to Microbial Genome Sequencing in the NSF biology directorate (Table 9).¹⁷

CONCLUSION

The President's proposed FY2010 budget requests \$6.05 billion for civilian biodefense. Excluding BioShield funds allocated in FY2009, biodefense funding for FY2010 is proposed to increase \$330.9 million above the previous year's estimates. Overall, federal civilian biodefense funding now totals approximately \$54.39 billion from FY2001 through FY2010. Many of the programs included in the FY2010 budget and previous years are intended not only to improve biodefense, but also to improve preparedness and response more broadly.⁶ This year's analysis includes an assessment of the programs in the biodefense budget that have multiple goals and benefits, such as infectious disease pathogenesis and immunology research, public health preparedness, and disaster response. Of the FY2010 \$6.05 billion budget, \$4.96 billion is budgeted for programs with multiple goals and benefits, with \$1.09 billion budgeted for programs that deal strictly with biodefense and biosecurity. Over the course of the 10 fiscal years included in this analysis, \$42.57 billion of the \$54.39 billion in funding for biodefense has been dedicated to programs that have

multiple goals and benefits, and \$11.81 billion has gone specifically toward biodefense.

As in previous "Billions for Biodefense" analyses, HHS continues to receive the majority of FY2010 federal biodefense funding (75%), followed by DoD with 11%, DHS (7%), USDA (4%), EPA (3%), State (1%), and NSF (<1%). Six of the 7 agencies included in this budget analysis would receive increases to their biodefense budgets, with no agencies receiving funding cuts and NSF receiving flat funding.

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Address correspondence to:
Crystal Franco, MPH
Senior Analyst
Center for Biosecurity of UPMC
621 East Pratt St.
Pier 4 Building, Ste. 210
Baltimore, MD 21202

E-mail: cfranco@upmc-biosecurity.org

