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**Are we Over-Prioritizing Bioterrorism Spending  
at the Expense of Other Public Health Issues?**

## Abstract

Although spending on bioterrorism initiatives began under the Clinton administration, it was not until after the events of September 11<sup>th</sup> 2001 and the anthrax attacks in October 2001 that the federal government recognized the need for, and authorized a significant increase in funds for bioterrorism preparedness. Since then, federal funding has increased from \$239 million dollars in 1999 to a projected \$5.2 billion in 2004. The 2004 funding will be mostly divided amongst 4 agencies within the Department of Health and Human Services with the Centers for Disease Control and the National Institutes of Health receiving the bulk of the money. The funding, some of which will be provided by regular appropriations and the rest by the Public Health and Social Services Emergency Fund (PHSSEF), will be used to improve state, local and hospital preparedness, upgrade CDC capacity, provide training and research potential bioterrorism agents and vaccines to counteract them.

The success and effectiveness of these initiatives is difficult to measure since many of the programs are ongoing and since it is hard to provide quantitative benchmark results. The recent SARS outbreak and its relatively minor impact in the US compared to other affected countries, seems to suggest that the public health system has indeed improved over the past two years although the crisis did not measure our ability to cope with the kinds of mass casualties that could occur in a bioterrorism outbreak . Improvements have been made however as far as communications, training and vaccine procurement is concerned. We can definitely consider our public health system more prepared for a bioterrorist attack than two years ago.

Meanwhile, in contrast to the significant increase in funding for bioterrorism initiatives, the CDC has seen its overall non-terrorism budget cut over the past two years for many of its prevention programs. NIH on the other hand has seen general increases for research due to the Clinton administration pledge to double the NIH budget over 5 years, with emphasis on research on infectious diseases that are related to bioterrorism. Although CDC has seen cuts to its chronic disease prevention programs, chronic diseases remain the leading causes of deaths in the United States whilst, thus far, only 5 people have died from a bioterrorist attack leading critics to question the distorted allocation of public health resources.

However, while chronic diseases are the leading causes of death in the US, infectious diseases cannot be ignored particularly with regard to newly emerging diseases such as SARS, the increase in cases of West Nile Virus and potential for infectious disease to spread rapidly in today's globalized world. One may also argue that using funds to control and eliminate infectious diseases is more important than using those funds to prevent chronic diseases, since the latter are to a certain extent attributable to our lifestyle and personal behavior, whereas the majority of infectious diseases are not. In addition infectious diseases are still the number one killer worldwide and can be viewed as a threat to national and indeed global security. For this reason, research into these diseases and finding vaccines to treat and prevent them justifies the current spending on biodefense research.

Since Bioterrorism spending also aims to improve the overall public health system, it is also argued that the gains from improving the public health system will benefit all Americans and all

aspects of public health thus giving everyone their fair share of public health money and maximizing the effectiveness of the resources.

However, critics argue that unless a bioterrorist event occurs (which is still considered unlikely) or that the public health system really is improved overall, then the spending is not justified and that other programs will suffer as a result. They also argue that the bioterrorist threat should be put into perspective and that we must not ignore the statistics that show that too many Americans are dying of preventable diseases whilst we are spending much-needed and scarce public health funds preparing for illnesses and deaths that may never happen. Public opinion also shows that Americans are more concerned about chronic diseases than bioterrorism. In addition, chronic disease is not merely the result of poor personal judgment or behavior.

Regardless of which disease is more important than the other and how easy or difficult it is to measure the efficacy of bioterrorism funding, the events of September 11<sup>th</sup> and the anthrax attacks brought home to us how unprepared we are for an attack on our country both as far as our intelligence service and our public health system is concerned. The need for improving our public health system is undeniable and we know that there is still much to be done to ensure adequate protection of our citizens. Funding for bioterrorism preparedness has not had a significant negative impact on other public health programs so far and despite the fact that we are not yet in a position to adequately measure how well our bioterrorism dollars have been spent, we will need to keep spending them in the short term in order to provide long-term protection.

## Purpose

The purpose of this paper is to examine the levels of federal spending on bioterrorism preparedness by various government agencies since 2001 in comparison to spending on other aspects of public health. It will examine whether bioterrorism spending has been an efficient allocation of public health funds and whether it has had a positive or negative impact on other aspects of public health as well as the overall public health system in the United States. It will also discuss whether the levels of spending on bioterrorism are justified and whether we should continue to prioritize bioterrorism preparedness over other public health issues.

## Introduction

Acknowledging the fact that bioterrorism attacks in the US were a potential threat to national security and at the same time recognizing the need to improve the nation's ability to respond to a potential attack, President Clinton issued a Presidential Directive in 1998 to make available \$ 265 million to the Department of Health and Human Services (HHS) for bioterrorism preparedness, \$149 million of which would be allocated to the CDC, \$30 million to the Office of Emergency Preparedness and \$ 30 million to research.

Whilst spending on bioterrorism preparedness increased under the Clinton administration, many of his requests for increased funding were denied by a skeptical Congress and it was not until the devastating events of September 11<sup>th</sup>, 2001 that the federal government began to seriously assess the threat of bioterrorism in the context of an overall reassessment of the threat of terrorism and national security in the United States. The subsequent anthrax attacks in the fall of 2001 that caused 5 deaths and sickened 22 others further brought home the need to urgently improve the structure and capabilities of the public health system and in doing so, significantly improve the nation's ability to respond to a potential bioterrorism attack. The deterioration of the public health system was already evident prior to September 11th. Studies and reports had revealed extensive problems such as a lack of resources, improperly trained staff, lack of hospital capacity and poor communication systems and IT capabilities

Whilst the States assume much of the responsibility for public health, it has been generally recognized that the federal government needs to assume a greater role in public health since bioterrorism has become a national security issue. Thus increased funding for bioterrorism preparedness was directed at federal agencies rather than state governments.

Since 2001 spending on Bioterrorism preparedness has increased from \$305 million in 2002 to \$ 4.4 billion in 2003. The president's budget request for 2004 increases that spending to \$ 5.2 billion (including Project Bioshield). Responsibility for and spending on bioterrorism preparedness at the federal level is shared by the Department of Health and Human Services (DHHS) and the newly created post-9/11 Department of Homeland Security (DHS). DHHS spending is further distributed to 4 agencies involved in bioterrorism preparedness: the Center for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA), the Food and Drug Administration (FDA) and the National Institutes of Health (NIH).

Recognizing the important role of the DHHS in combating bioterrorism, the department received a significant funding increase after September 11<sup>th</sup>. Original funding for bioterrorism preparedness in 2001 was set at \$ 387 million with the President's requesting \$446 million in 2002, a significant increase over the \$53 million appropriated in 1998. Post 9-11, Congress increased spending for measures to combat terrorism from 13.6 billion, as requested by the President, to \$ 22.2 billion, of which the DHHS received \$ 3.1 billion, a \$2.6 billion increase representing approximately 30% of the total increase in terrorism spending<sup>1</sup>. HHS had however begun its bioterrorism preparedness initiatives back in 1999 and received funding during 1999-2001 of \$730 million. The funding was to aid HHS in achieving its goals of bioterrorism prevention, research and development of new vaccines and drugs for bioterrorism agents, improved communication systems and disease surveillance and improving its IT capabilities.

HHS funds for bioterrorism are, as mentioned, divided amongst 4 agencies within HHS with the majority of the funds used to finance programs run by the CDC and NIH. As of 2003, funds for the National Pharmaceutical Stockpile and Smallpox Vaccine Procurement program are not reflected in the CDC budget, as such assets have been transferred to the Department of Homeland Security. DHS proposed spending on bioterrorism for 2004 amounts to \$1.6 billion, which includes \$890 million for Project Bioshield, part of a projected \$5.6 billion to be appropriated over the next nine years to procure vaccines and medicines to protect the nation against such agents as smallpox, anthrax, botulism, plague and Ebola. Total projected spending by HHS and DHS on Bioterrorism preparedness in 2004 is \$5.2 billion

<b>Spending on Bioterrorism Preparedness--HHS and DHS</b>				
<b>(Dollars in millions)</b>				
	<b>FY 2001 Enacted</b>	<b>FY 2002 Enacted</b>	<b>FY 2003 Enacted</b>	<b>FY 2004 Proposed</b>
HHS	\$305	\$3,019	\$3,590	\$3,557
DHS	-	-	800	780
<i>Jointly managed assets, DHS/HHS (non-add)...</i>	-	-	(400)	(400)
BioShield	-	-	-	<u>890</u>
<b>Total, BT Preparedness</b>	<b>\$305</b>	<b>\$3,019</b>	<b>\$4,390</b>	<b>\$5,227</b>

Source: HHS Fact Sheet: <http://www.os.dhhs.gov/news/facts/bioprep.html>

Of this total funding \$1.8 billion was provided by the Public Health and Social Services Emergency Fund (PHSSEF) in 2003 and \$1.9 billion is projected to be provided in 2004. This amount covers funding for bioterrorism initiatives for CDC, HRSA and the Office of the

<sup>1</sup> Congressional Budget office – Budget and Economic Outlook: Fiscal Years 2003-2012, Chpt. 7, Homeland Security

Secretary. The increase of \$ 100 million is earmarked for a program to ensure the adequate supply of influenza vaccines.

## Methodology

For the purposes of assessing bioterrorism spending in the paper, spending at the Federal level will be the main source of information. As the key recipients of HHS bioterrorism funding, the NIH and CDC will be examined in most detail using 2001 – 2004 budget information. Spending by HRSA, FDA and the Department of Homeland Security will also be discussed in brief. This paper will show how bioterrorism preparedness dollars have been spent, by whom and on which programs and initiatives over the past three years. Next the success and effectiveness of bioterrorism funding will briefly be discussed. In the scope of this paper it is not possible to examine individual states. States vary greatly in their size, composition (percentage of rural areas versus urban areas etc.) and ability to commit resources to bioterrorism initiatives, thus it would be difficult to gauge overall state preparedness.

Secondly, spending by NIH and CDC on other areas of public health will be examined, in particular changes in allocation of funding by program and by disease over the past few years (since bioterrorism initiatives have been funded). Finally a brief examination of health statistics will offer provoke some discussion of public health funding priorities.

## Results

### ***Bioterrorism Spending by the Health and Human Services Department (2004 – 3.6 billion)***

The 2004 HHS budget proposed by the President amounts to \$ 539 billion, an increase of 7.3% over 2003 (2003 budget reflected an increase of 8.9% over 2002). Of the \$3.6 billion HHS 2004 budget request<sup>2</sup> allocated for bioterrorism initiatives, just over one half of this amount (\$1.9 billion) will be provided by Public Health and Social Services Emergency Fund (PHSSEF). CDC is allocated \$1.1 billion of the PHHHS funds, HRSA \$618 million, the Office of the Secretary \$ 62 million and \$100 million will be provided to fund influenza vaccines and is therefore not included in the \$539 billion budget. The remaining \$ 1.8 billion for HHS bioterrorism initiatives will be funded from the HHS budget, which allocates \$176 million to FDA and 1.6 billion to NIH as part of their 2004 budget requests. Thus, the \$1.8 billion for bioterrorism reflects 0.34% of the total HHS budget.

### ***CDC***

The CDC budget request for 2004 totals \$6.5 billion<sup>3</sup>, a \$61 million increase over 2003, of which \$4.2 billion is to be provided via regular appropriations from the HHS budget, \$1.1 billion from the Centers for Medicaid and Medicare Services for the Vaccines for Children Program and \$1.1 billion from PHSSEF for Bioterrorism Preparedness and Response Initiatives. Thus, CDC is set to receive one third of the total bioterrorism budget in 2004. Of this \$1.1 billion, 940 million is to

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<sup>2</sup> US Department of Health and Social Services FY 2004 Budget in Brief [www.hhs.gov](http://www.hhs.gov)

<sup>3</sup> CDC Budget Summary FY 2004 [www.cdc.gov](http://www.cdc.gov)

be used in the form of state grants for upgrading state and local capacity to respond to a bioterrorist attack, \$158 million is to be used for upgrading CDC capacity, \$18 million for further research on anthrax vaccines. A further \$300 million for the National Pharmaceutical Stockpile (since renamed Strategic National Stockpile) and \$100 million for smallpox procurement is reflected in the budget as a nonadd as this initiative has been transferred to the Department of Homeland Security.

A significant portion of CDC's funds are allocated to a grant program to upgrade state and local capacity within their public health care systems to improve their public health structure overall and thus increase their level of preparedness to respond to a potential bioterrorism attack. The grants first became available in 2002 and states were required to submit applications outlining their current capacity, whether it was adequate and how it could be improved. In 2002, funds were dispersed in the following critical areas: 31% (\$280 million) for preparedness planning and readiness assessment, 22% (\$201 million) for disease surveillance and epidemiology, 16% (\$147 million) for laboratory capacity, 16% (\$149 million) to improve communications and IT technology, 4% (\$41 million) for risk communication and health information dissemination and 11% (\$97 million) for education and training.<sup>4</sup> The 2004 budget request of \$940 million for state and local preparedness reflects a 0% increase in funds for these initiatives over 2002 and 2003.

In order to support state and local jurisdictions CDC plans to spend \$ 158 million in 2004 to upgrade its own capacity, also a 0% increase over the previous two years. Also remaining at the same funding levels in 2003 is an \$18 million allocation for evaluation of the adverse effects of the current anthrax vaccine<sup>5</sup>.

## *NIH*<sup>6</sup>

In 1998 President Clinton pledged to double the NIH's funding from \$13 billion by 2003. The funding grew by 16.1% from \$ 23.5 billion 2002 to 27.3 in 2003 thus achieving the goal of Congress. NIH 2004 requested funding is \$27.8 billion reflecting a 1.8% increase over 2003. Of this \$1.6 billion will be requested for bioterrorism activities. Although this is a net decrease of \$ 121 million over 2003 reflected in the FY2003 one-time laboratory construction costs and purchase of anthrax vaccines, the amount for research activities will increase 116% from 2003 levels of \$750 million to \$ 1.6 billion in 2004. The research activities, carried out under the leadership of the National Institute of Allergy and Infectious Diseases, will concentrate on two areas: identifying potential agents that could be used in a bioterrorist attack, their effect on people and development of and research on vaccines and drugs to treat potential outbreaks of such diseases as smallpox, plague and Ebola. Total NIH spending on bioterrorism has risen from \$291 million in 2002 to \$ 1.625 billion in 2004, a 458% increase.

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<sup>4</sup> CRS "An Overview of the US Public Health System in the Context of Bioterrorism – May 2003

<sup>5</sup> NIH receives funding for research on NEW anthrax vaccines

<sup>6</sup> National Institutes of Health (NIH) Budget Request FY 2004 [www.nih.gov](http://www.nih.gov)

## ***FDA***

FDA's budget request includes \$176 million for bioterrorism activities, \$116 million of which will be used for food safety measures and \$53 million of which will go towards vaccine and drug approvals. The request reflects an increase of 11% over 2003 (\$158 million)

## ***HRSA***

HRSA's funding request of \$ 618 remains at the 2003 level and includes \$518 million for the hospital preparedness program, which similar to the CDC state and local preparedness program, aims to strengthen the public health infrastructure. The HRSA funds are made available to states, territories and major metropolitan areas (Chicago, New York, Los Angeles) for improving hospital capacity and departments in order for them to be able to respond better to mass casualty events whether it be a bioterrorist attack or outbreak of an infectious disease. HRSA provides guidance on how those funds are to be spent and states must achieve certain benchmarks in order to receive funds. Such as designating a coordinator and establishing a committee for bioterrorism preparedness planning and designing a specific plan to respond to an outbreak of disease. The hospital preparedness program funding increased from \$ 135 million in 2002 to \$518 million in 2003, a 284% increase.

## ***Office of the Secretary***

The 2004 budget request of \$ 62 million for the Office of the Secretary remains at the same level as 2003. The majority of the funds (\$42) will be used for the Office of the Assistant Secretary for Public Health and Emergency Preparedness (ASPHEP), which directs and coordinates the bioterrorism initiatives at HHS and liaises with the DHS. The remaining \$20 million will be used to fund the Medical Reserve Corps and the Cybersecurity initiative.

## ***Bioterrorism spending by the Department of Homeland Security***

The Department of Homeland Security's<sup>7</sup> budget request is \$ 36.2 billion, a 74. % increase over 2003 and a 64% increase over 2002. Of this, \$400 million is earmarked for strengthening the National Pharmaceutical Stockpile, which purchases, stores and rotates drugs needed to treat diseases that could break out as the result of a bioterrorism attack such as anthrax and smallpox.

An additional \$ 890 million is requested in 2004 for Project Bioshield, which would authorize appropriations of up to \$5.6 billion from 2004 to 2013 for aiding the increased procurement of drugs and vaccines needed as countermeasures to bioterrorism attacks and would encourage biotech and drug companies to develop and produce such pharmaceuticals. The funding for Project Bioshield would be provided to DHS but HHS would be responsible for acquiring and stockpiling the drugs and vaccines.

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<sup>7</sup> Department of Homeland Security 2004 Budget in brief – [www.dhs.gov](http://www.dhs.gov)

### *Measuring the successes and failures of bioterrorism spending*

Measuring the success and effectiveness of bioterrorism dollars is difficult for a number of reasons. After all, many of the initiatives are new and still ongoing. In addition, unlike measuring health programs that aim to prevent certain diseases such as AIDS or to prevent causes of disease such as obesity or smoking, the impact of bioterrorism funding cannot be measured *quantitatively*. Whilst we can measure the decrease in number of smokers or the decrease in numbers of deaths caused by AIDS we cannot measure the number of lives that are *potentially* saved as a result of bioterrorism spending. As yet, the only “measure” of our preparedness, if it can be viewed as a test, is the recent SARS outbreak in China. The relatively slow spread of the disease in the US has been attributed to public education, the presidential emergency quarantine order and an early warning mechanism, however health authorities also cite the new bioterrorism initiatives and the improvements to the public health structure brought about by bioterrorism funding as the reason for the low number of cases (63 or 1% of the total) in the US. Even so, there is no sure way of knowing whether the disease would have spread further without the bioterrorism spending. Moreover, the SARS case only tested certain aspects of the public health system. It did not, for example test hospital preparedness to deal with mass casualties since there were none.

Whether bioterrorism funding helped or hindered the fight against the SARS virus is a matter of heated debate. Interestingly, two newspapers published articles about the US response to the SARS epidemic in spring 2003 and quoted experts from the American Public Health Association with two very differing views. According to Dr. Georges Benjamin (quoted in the May 11 edition of the Salt Lake Tribune), the current executive director of the Association, the Health Alert Network, expanded by the CDC as part of its bioterrorism upgrades, has “*been a jewel. There was very quick communication about what we knew and didn’t know*”. He goes on to point out that “*More than anything, the federal emphasis on bioterrorism, has created a new psychological climate, an awareness for the potential for infectious disease threats that is keeping health departments and doctors alert for any unusual symptoms*”. In contrast, Dr Vic Sidel, past president of the American Public Health Association claims in the April 28<sup>th</sup> edition of the UK newspaper The Guardian, “*All the attention on bioterrorism has taken resources and personnel away from good public health protection. Support for public health organizations for dealing with the current epidemic of SARS has not been strengthened. The attention on bioterrorism preparedness has not helped the public health community but has actually weakened it.*”

Whether or not bioterrorism preparedness issues contributed to stalling the spread of SARS, there have definitely been some positive aspects of bioterrorism funding. According to the DHHS<sup>8</sup>:

- *All 50 states have bioterrorism preparedness plans including mass vaccination plans*
- *Since Spring 2002, approximately 3,850 new state and local public health staff have been funded by the CDC preparedness grants*

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<sup>8</sup> HHS Fact Sheet “Public Health Emergency Preparedness – Transforming American’s Capacity to Respond” (September 11, 2003)

- *The US is capable of supplying more than 300 million doses of the smallpox vaccine an increase of 285 thus providing enough vaccine to inoculate every American. Thus significantly reducing the risk of the spread of the disease during a potential outbreak*
- *Public health system communications have improved: 90% of the country's health departments can receive health alert and advisory messages through the Public Health Information Network (PHIN), up from 68% in 2001*
- *The National Strategic Stockpile of push packages has increased 50% since 2001*
- *Public Health Coordination has improved: in 2002 the Office of Health Emergency Preparedness was created to coordinate the different bioterrorism preparedness programs.*

### ***Federal Funding for other Public Health issues***

The total funding for HHS as reflected in the FY2004 Budget will increase by 7.3% over 2003. Much of that increase will go to mandatory programs with Medicare and Medicaid receiving the lion's share of the increase. "Winners" in the Discretionary program are the National Institutes of Health which will receive additional funding of \$550 million (2% increase), the Centers for Medicare and Medicaid Services, which receives an additional \$ 28 billion (7 % increase) the HRSA which receives an additional \$ 316 million (5.9 % increase) and the Administration for Children and Families which receives an additional 369 million (2.3 % increase). The "loser", ostensibly, is the CDC which has had its budget reduced by \$33 million dollars to \$ 4.2 billion, a further reduction from the 2002 level of \$4.4 billion. Although the total CDC budget request for 2004 shows a net \$61 million increase, only 4 programs have seen increases, whilst all other programs have remained at 2003 levels or have been cut. Whilst the 2004 budget will see a \$100 million boost to the "Steps to a Healthier U.S." initiative, a research-based strategy aimed at preventing diabetes, obesity and the complications of asthma, funding for other chronic diseases and significant killers such as colorectal, ovarian and prostate cancer will remain stagnant with only breast and cervical cancer and comprehensive cancer programs receiving increases of 5% and 21% respectively. On the AIDS front, whilst the CDC budget includes an increase of \$50 million for the Prevention of Mother-to-Child Transmission of HIV in Africa and the Caribbean, funding for domestic AIDS programs will be reduced by \$858 million (0.1%). In addition, funding for programs to prevent sexually transmitted diseases (STDs) and Tuberculosis will also be subject to 1% cuts of 1.6 million and 1.3 million respectively.

The story at NIH is far different with all diseases receiving increases to their research funding. The biggest "winners" in the 2004 budget are AIDS vaccines with a 10.3 % increase in funding, and diabetes with a 9.9% increase in research funds. Disproportionately higher funding will go to bioterrorism related research such as anthrax (66.7% increase), emerging infectious diseases (55%), smallpox (11.5%) and tropical microbicides (37%). Other areas of research will receive modest increases although West Nile virus research receives a must needed boost of 44% in funding.

Overall therefore, whilst research activities in non-bioterrorism health issues will see modest increases in 2004, prevention and control programs will generally see decreases.

Finally, in order to put everything into perspective and discuss the pros and cons of bioterrorism spending, we should take a look at a few health statistics in the United States:

#### Top 10 leading causes of death in 2002<sup>9</sup>

Heart Disease 29%  
Cancer 22.9%  
Stroke 6.8%  
Chronic lower respiratory disease 5.1%  
Accidents 3%  
Diabetes 3%  
Influenza and pneumonia 2.5%  
Alzheimer's Disease 2.2%  
Kidney disease 1.6%  
Septicemia 1.3%

#### HIV/AIDS Statistics<sup>10</sup>

##### *Domestic:*

The estimated cumulative number of AIDS cases through 2002 in the US is 886,575.  
Estimated cumulative number of deaths of persons with AIDS is 501,669  
Estimated AIDS deaths per year: 1998 – 19,005 / 1999 – 18,454 / 2000 – 17,347  
/ 2001 – 17,402 / 2002 – 16,371

##### *Worldwide:*

42 million people are estimated to be living with HIV/AIDS.  
Approximately 5 million people acquired the HIV virus in 2002  
In 2002 3.1 million people died of AIDS

#### West Nile Virus Cases 2001 – 2003<sup>11</sup>

##### *Diagnosed Cases:*

2003 (up to 11/12/03): 8,393  
2002: 4,156

##### *Deaths:*

2003 (up to 11/12/03): 184  
2002: 284

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<sup>9</sup> National Vital Statistics Reports, Vol 52, No. 9, November 7, 2003

<sup>10</sup> CDC Division of HIV/AIDS Prevention

<sup>11</sup> CDC Division of Vector-Borne Infectious Diseases

## Facts about Chronic Illnesses<sup>12</sup>

- More than 90 million Americans live with chronic illnesses.
- Chronic diseases account for 70% of all deaths in the United States.
- The medical care costs of people with chronic diseases account for more than 60% of the nation's medical care costs.
- Chronic diseases account for one third of the years of potential life lost before age 65.
- Chronic disease disproportionately affects women and racial minority populations

## Discussion

In 1990 chronic disease overtook infectious diseases as the leading causes of death worldwide (except for sub-Saharan Africa and the Middle East). In the United States the top 10 leading causes of death are mostly chronic diseases (except influenza and accidents). We could conclude therefore that diseases such as stroke, heart disease, diabetes and cancer should be the focus of our attention as far as public health funding on research and prevention is concerned. Indeed up until the 1980's when the AIDS causing HIV virus was discovered and began to spread rapidly, we had become rather smug about our control of infectious disease. After all, smallpox had been eradicated and infectious diseases such as polio, measles and diphtheria had been significantly reduced. Thus we began in the 1980's to focus our attention on prevention programs and research for common killers such as cancer.

AIDS was a huge wake up call for the public health system and research scientists in the 1980's as they realized that despite medical triumphs in the past century, the war against the germs had not been won. Their sense of security vanished. Meanwhile, the World Health Organization reported in 1999 that infectious diseases are the leading cause of death among children and young adults with HIV being the top killer. Furthermore, research has indicated that viruses and bacteria may be the leading causes of chronic diseases such as the human Papilloma virus that causes cervical cancer in women.

In 1996, in her book *"The Coming Plague"* Laurie Garrett wrote about the dangers of newly emerging diseases and warned, *"The skills needed to describe and recognize perturbations in the Homo Sapiens microecology are disappearing with the passing of the generations, leaving humanity, lulled into a complacency born of proud discoveries and medical triumphs, unprepared for the coming plague"*

The outbreak of SARS and the increased cases of West Nile Virus over the past few years are a perfect example of how we cannot ignore newly emerging infectious diseases. Not only do we need to be aware of new diseases but we also need to be on guard against old diseases with new strains. Influenza is still in the top list of causes of death in the US causing over 30,000 deaths a year.

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<sup>12</sup> Source: Trust for Americas Health – [www.healthyamericans.org](http://www.healthyamericans.org)

Whilst chronic diseases are major causes of death in the US, many of the risk factors associated with these diseases are attributable to personal behavior i.e. smoking, alcohol consumption, unhealthy diet and sexual behavior. The same could be said about accidents since all accidents are preventable. In contrast, aside from sexually transmitted diseases, the spread of infectious disease, one could argue, is not attributable for the most part to personal behavior, and control and prevention is dependent on good sanitation, vector control, vaccine development and research and thus should be public health issues funded by the public health system. Since the threat of bioterrorism falls into this category, one could argue that bioterrorism preparedness, vaccine development for and research on, potential bioterror agents is a public health priority that should be financed by the federal government. Similarly research into other infectious diseases such as SARS and West Nile Virus not to mention influenza should also receive priority funding. One has to wonder how many AIDS deaths both globally and domestically could have been prevented had the Reagan administration provided more adequate funding into prevention and research programs in the 1980's. Since public health dollars do not grow on trees, the question remains whether we are justified in favoring bioterrorism programs and infectious disease research over programs to reduce obesity and smoking since the former are public issues and the latter could be considered personal choice and therefore a matter of personal responsibility.

If the above argument is justified, we can look at the bioterrorism spending for NIH and conclude that the increased spending on infectious disease research (including smallpox, anthrax and Ebola) both basic (investigating agents with bioterrorism potential) and applied (developing vaccines to counter these agents) is also justified. Although biodefense research at NIH is the top priority for funding increases in 2004, an overall doubling of the NIH budget in the past 5 years has ensured that research on other diseases, both chronic and infectious will not be negatively impacted. Since CDC's role in the public health systems is prevent and control disease, injury and disability, the arguments above suggest that in a world of finite funds for public health, CDC funds would be better spent on controlling and preventing diseases that are more a public health issue, thus the allocation of funds to bioterrorism programs is justified. Whilst non-terrorism funding at CDC will decrease with the 2004 budget, one could also argue that that chronic disease prevention has actually received a boost of \$100 million for its prevention initiative as had breast cancer and cervical cancer programs with a \$10 million increase.

A further argument for prioritizing bioterrorism spending is the fact that the emergence of new diseases and their spread can be viewed as a matter of national security. Infectious diseases know no borders and carry no passports. Whilst a terrorist attack in the form of a bomb will invoke a massive security response, an infectious disease could spread slowly, undetected. It is imperative therefore that mechanisms are in place to quickly identify potential bioterrorism agents and to be able to respond with vaccine and drugs to control the spread of the disease should an attack take place.

Moreover, spending on bioterrorism preparedness and research benefits the nation as a whole. Combining the principles of maximization and fair shares in determining the allocation of scarce resources, bioterrorism spending will improve the infrastructure and capabilities of a public health system that has been in decline for years by improving disease surveillance systems, updating infrastructure, and improving communications and IT systems. Thus we are directing

the resources to where we could bring about the greatest improvement in health and we are making sure that everyone gets their fair share of public health resources. Other programs funded by public health dollars that give priority to the worst off, one could argue, benefit only certain groups of the population and this does not represent a “fair” allocation of tax dollars.

There are, of course, two sides to every argument. As far as allocation of resources is concerned, the principle of maximization will only be justified if a) in the event that no bioterrorism event takes place, there is indeed a significant improvement to the overall public health system which will in turn aid public health officials to deal more effectively and efficiently with other public health issues or b) in the event of a major attack we are able to minimize its effect because of our spending and can save a significant number of lives. Bearing in mind that the likelihood of a major bioterrorist attack that would cause mass casualties is very low, justification for the expenditures remains in making sure that improvement to the overall public health system is a major priority. Since bioterrorism initiatives are in their early stages, it is difficult to judge how effective the dual use of funds has been. As outlined in the a May 2003 report to Congress<sup>13</sup>, we know that problems still exist particularly with regards to defining what an adequate level of preparedness is. Furthermore communication and coordination problems arise because of the sheer numbers of agencies involved in the planning and because of the gap between the public and private sector, particularly in view of the highly privatized health system in the US.

Critics of the “excessive” level of spending on bioterrorism initiatives also argue that despite all our spending, the nation is still woefully under prepared for a bioterrorist attack and that it will cost much more in the future to bring our public health system to a level where we can adequately protect ourselves. How much more will we need to spend and at what level is the spending on bioterrorism no longer justified? Can we keep pouring money into programs that don’t provide adequate protection or whose efficacy is difficult to measure?

Let’s also look at the big picture. Terrorism related deaths amounted to 3,028 in 2001 and 5 people died during the US’s only major bioterrorist attack. In the same year 700,000 people died of heart disease, 553,000 of cancer, 62,000 of influenza and pneumonia and 14,000 of AIDS. Globally 40 million people are estimated to be living with AIDS, 3 million people will die of the disease in 2003 and 5 million more will be infected according to a report by UNADS, a joint program run by the World Bank and the United Nations. In 1999 the UN declared AIDS to be a threat to global security. Infectious diseases are the leading cause of death in developing countries and poor health is the leading cause of poverty around the world, leading to economic and political instability and resulting in global insecurity. This begs the question – if we are so concerned about our national security why aren’t we doing more to improve international health overseas?

Moreover, how can we justify spending our public health funds on preparing for a health crisis that we don’t even know will happen, whilst we have a number of serious health crises already threatening our nation? Two thirds of the US population is considered overweight and one third

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<sup>13</sup> Congressional Research Service: “An overview of the U.S. Public Health System in the Context of Bioterrorism” (Updated May 21, 2003)

of our nation is considered obese. Diabetes cases are on the rise, as is childhood obesity and influenza is still one of the top ten causes of death in the US. Whilst experts warn that another influenza pandemic is likely to affect industrialized countries over the next few years, the CDC has seen its Epidemic Services and Response funding cut by 5% over the past two years and its infectious disease control budget by 1%. Why are we not allocating our resources to tackling the most pressing public health issues?

Other opinions on whether bioterrorism spending is over-prioritized and have come at the expense of other more important public health issues depends also on where you live. A resident or public health official in a major metropolitan area such as Washington, D.C or New York would be more likely to agree that the bioterrorism spending levels are justified since these areas are more prone to attack, whereas a public health official or resident in a small rural area will be more concerned about issues that they consider a higher priority such as teen pregnancy rates, obesity or smoking. Indeed a smaller local health authority may be more likely to suffer from stretched resources. In a survey commissioned by the National Association of County and City Health Officials sent out to local public health authorities in November 2002, LPHA's were questioned on their current preparedness for a bioterrorism event and what future challenges they faced. The diversity of the LPHA's was reflected in the answers, however the subject of funding and staffing problems was mentioned often with many complaining that federal spending had not reached them or that other programs had been cut in order to accommodate bioterrorism issues.

As far as public opinion is concerned, whilst the majority of people agree that spending on bioterrorism preparedness is crucial, they also agree that our public health system is in need of repair and that more should be spent on preventing chronic diseases. In a survey commissioned in 2002 by the non-partisan Trust for America's Health and carried out by the Mellman Group in May 2002, respondents expressed concern over the likelihood of future bioterrorist attack with 80% saying it was "likely" and 46% saying it was "very likely". At the same time, 54% of respondents feared that their community was not prepared to deal with such an event. However, respondents expressed more concern over chronic diseases such as heart disease and cancer and the survey concluded, "*voters would support increased spending in public health to deal with both terrorism and chronic diseases such as asthma and cancer*"

Of course, funding for public health programs is finite and there are number of ways to look at allocation of resources when it comes to public health. Previously it has been argued that public health spending may better allocated to control and prevent disease that are to a great extent not influenced by human behavior (smoking, unhealthy diet, sexual behavior) etc such as infectious diseases. This argument is flawed since many of the chronic diseases that are major killers in the US disproportionately affect certain segments of the population who are poorer and who have ethnic or family backgrounds that make them more susceptible for the disease. Whilst obesity can lead to heart disease and diabetes and smoking to lung disease, not all chronic diseases are caused by unhealthy behavior and it would be unrealistic and dangerous to divert funding away from controlling and preventing chronic diseases.

## Conclusion

The events of September 11<sup>th</sup> taught us all that what we must be prepared for the unthinkable. Prior to this date in history the thought of 4 airliners being simultaneously hijacked by terrorists wielding nothing more than box cutters and crashing them into buildings was, even for the nation's military brass, nothing more than a plot to another disaster movie. If life imitates art, as we have seen it can, we cannot dismiss the possibility that a terrorist group or individual could get hold of and unleash a deadly virus causing mass casualties. Before October 2001, it was also considered highly unlikely that anyone would be able to get hold of and release anthrax spores. Whilst the idea of using biological agents as weapons is not new, it was not until after September 11<sup>th</sup>, that the United States realized that the nation was considerably underprepared for an attack and that the public health system that had been declining for years was not in a position to assume the leadership role in a potential attack.

Although we do not know the true level of risk of a bioterrorism attack, the need to have a public health system in place that can adequately detect and treat an outbreak of disease (whether bioterrorism related or not) is undisputed. It is also generally accepted that in order to ensure the adequacy of the public health system to respond to threats, funds must be spent to improve communications, infrastructure, training and overall preparedness. The hope is that that this spending will have "dual-use" functionality i.e. it will increase our level to respond to an potential bioterrorist attack and will at the same a) improve our public health system overall and b) allow a better response to other non-terrorism related disease outbreaks such as West Nile Virus or SARS. Justification for bioterrorism spending is thus met with this dual-use approach to allocation of resources. With the ever increasing threat of new and re-emerging diseases facing us and with a public health system in desperate need of improvement it is hard to criticize this combined use of the principles of maximization and fair share. We also accept the fact that the government must assume the largest responsibility for protecting us against a bioterrorism attack.

However, the spending can only be justified if the funds are used in an effective and efficient manner and if they truly achieve their aim. Measuring effectiveness is problematic, since we have not had a bioterrorist attack to test our response and since the recent SARS cases did not test our ability to treat mass casualties. In addition, many of the bioterrorism initiatives are not complete and it is generally agreed that we are far from being adequately prepared to face a bioterrorist attack. Defining "preparedness" also adds to the difficulty of measuring effectiveness and success. It may be a while before we can begin to measure the effectiveness of bioterrorism spending.

From examining the budgets of the various agencies, we have seen that, in general, despite an overall small decrease in the CDC budget, funding for other aspects of public health have not been significantly impacted by the allocation of resources to bioterrorism preparedness and that the funding has been a new injection of funds rather than a reallocation of resources. The National Institutes of Health has in fact received a significant increase to its funding particularly for infectious disease research, a high priority whether or not bioterrorism is involved. The CDC has seen just a 0.3% decrease in its overall budget since 2002.

Regardless of whether infectious disease research is more important than chronic disease research and regardless of the level of responsibility each individual has over his/her own health or whether we should spend money on prevention activities that we can measure the success of or on diseases we can predict rather than on bioterrorism prevention that we can't measure or that we can't predict, the goal and mission of our public health system is to protect *everyone* from diseases and risks that they cannot protect themselves from. Without a sound public health system, we cannot adequately carry out this mission.

Unfortunately funding for public health is limited and in deciding where our money should be best allocated we must look at all three principles: maximization, fair share and priority to the worst off. There are also times when one aspect of public health dominates and needs to be given higher priority. At the current time, preparing ourselves to protect against a potential bioterrorist attack should be a high priority, particularly since bioterrorism initiatives will improve the public health system overall and in turn benefit other programs. If we view the bioterrorism funding priorities as short-term with long-term benefits, the increased spending on plans to defend ourselves against an event that may never happen may be an easier pill to swallow.

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