



CONGRESSIONAL BUDGET OFFICE
COST ESTIMATE

June 25, 2008

S. 1695

Biologics Price Competition and Innovation Act of 2007

*As ordered reported by the Senate Committee on Health, Education, Labor, and Pensions
on June 27, 2007*

SUMMARY

S. 1695 would establish an abbreviated regulatory procedure for licensing biological drugs by the Food and Drug Administration (FDA) that meet certain requirements and are highly similar to or interchangeable with products originally licensed to innovator companies under the Public Health Service Act (PHSA). (Biological drugs are products derived from living organisms.) Savings to public and private purchasers of biologics would result from the availability of these lower-priced versions that would be approved by FDA for marketing under the bill. Such competing products are commonly referred to as "follow-on biologics (FOBs)," "biosimilars," or "biogenerics."

CBO estimates that:

- Enacting S. 1695 would reduce total expenditures on biologics in the United States by \$0.2 billion over the 2009-2013 period and by about \$25 billion over the 2009-2018 period. (Over that 10-year period, such savings would equal roughly 0.5 percent of national spending on prescription drugs, valued at wholesale prices.)
- Direct spending by the federal government would decrease by \$46 million over the 2009-2013 period, and by \$5.9 billion over the 2009-2018 period. Federal revenues would increase by \$6 million over the 2009-2013 period and by \$0.8 billion over the 2009-2018 period. As a result of those changes, CBO estimates that enacting the bill would reduce budget deficits (or increase surpluses) by a total of \$52 million over the 2009-2013 period and by \$6.6 billion over the 2009-2018 period.

- Implementing S. 1695 would increase federal discretionary costs, on net, by nearly \$30 million over the 2009-2013 period and by \$5.3 billion over the 2009-2018 period, assuming appropriation of the necessary amounts, mostly because the bill would authorize discretionary spending equal to the estimated amount of savings to the federal government under the legislation. These sums exclude FDA's costs to administer the new regulatory program established under the bill.

S. 1695 contains an intergovernmental mandate as defined in Unfunded Mandates Reform Act (UMRA) because it would preempt state pharmacy laws. CBO estimates, however, that the costs to states to comply with that mandate would be small and would not exceed the threshold established in UMRA (\$68 million in 2008, adjusted annually for inflation).

Because the bill's requirements would result in lower costs for biologics provided under the Medicaid program, CBO estimates that state spending for Medicaid would decrease by about \$4 million over the 2009-2013 period.

In addition, the patent challenge process established by S.1695 would impose a mandate on the private sector by requiring that brand-name manufacturers of biologics participate in a patent challenge process specified in the bill. The cost of complying with those requirements, however, would not exceed the annual threshold specified in UMRA.

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary impact of S. 1695 is shown in the following table. The costs of this legislation primarily fall within budget functions 050 (defense), 550 (health), 570 (Medicare), and 700 (veterans benefits and services).

BASIS OF ESTIMATE

For this estimate, CBO assumes that S. 1695 will be enacted near the beginning of fiscal year 2009 and that outlays will follow historical spending patterns for existing programs or similar activities. The bill would affect spending subject to appropriation, direct spending, and revenues.

S. 1695 would establish an abbreviated regulatory procedure for licensing biological products by FDA that meet certain requirements and are highly similar to (referred to as "biosimilar" in the bill) or interchangeable with drugs originally licensed to innovator drug companies under the PHSA. To grant marketing approval of FOBs, the bill would allow FDA to rely, in part, on literature or the agency's findings of safety and effectiveness related to an innovator's biological product that was previously approved by FDA. (An innovator's product would be identified as the FOB's "reference product," partly because the FOB

By Fiscal Year, in Billions of Dollars

2009- 2009-
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2013 2018

CHANGES IN DIRECT SPENDING

Medicare												
Estimated Budget Authority	0	0	0	*	*	-0.2	-0.5	-0.9	-1.3	-1.8	*	-4.7
Estimated Outlays	0	0	0	*	*	-0.2	-0.5	-0.9	-1.3	-1.8	*	-4.7
Other Mandatory Health Programs ^a												
Estimated Budget Authority	0	0	0	*	*	*	-0.1	-0.2	-0.3	-0.5	*	-1.1
Estimated Outlays	0	0	0	*	*	*	-0.1	-0.2	-0.3	-0.5	*	-1.1
Total Changes												
Estimated Budget Authority	0	0	0	*	*	-0.2	-0.6	-1.1	-1.7	-2.3	*	-5.9
Estimated Outlays	0	0	0	*	*	-0.2	-0.6	-1.1	-1.7	-2.3	*	-5.9

CHANGES IN REVENUES

Income and HI Payroll Taxes (on-budget)	0	0	0	0	*	*	0.1	0.1	0.1	0.2	*	0.5
Social Security Payroll Taxes (off-budget)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>*</u>	<u>*</u>	<u>*</u>	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>	<u>*</u>	<u>0.3</u>
Total Changes	0	0	0	0	*	*	0.1	0.1	0.2	0.3	*	0.8

CHANGES IN SPENDING SUBJECT TO APPROPRIATION^b

Discretionary Health Programs ^a												
Estimated Authorization Level	0	0	0	*	*	*	-0.1	-0.2	-0.2	-0.3	*	-0.8
Estimated Outlays	0	0	0	*	*	*	-0.1	-0.2	-0.2	-0.3	*	-0.8
Biological Product Savings Fund												
Estimated Authorization Level	0	0	0	*	0.1	0.3	0.8	1.4	2.1	2.8	0.1	7.4
Estimated Outlays	0	0	0	0	*	0.2	0.6	1.1	1.7	2.4	*	6.1
Total Changes ^c												
Estimated Authorization Level	0	*	*	*	0.1	0.3	0.7	1.2	1.9	2.5	0.1	6.6
Estimated Outlays	0	*	*	*	*	0.2	0.5	0.9	1.5	2.2	*	5.3

Notes: * = between -\$50 million and \$50 million. HI = Hospital Insurance program under Medicare. Components may not sum to totals because of rounding.

- a. Other mandatory health programs include Medicaid, the government's share of retirees' premiums under the Federal Employees Health Benefits (FEHB) program, and the TRICARE for Life program operated by the Department of Defense. Discretionary health programs include those operated by the Veterans Health Administration, the Department of Defense, and the Indian Health Service, as well as federal agencies' contributions toward FEHB premiums of current employees.
- b. Excludes administrative costs for FDA to implement the new regulatory procedures established under the bill.
- c. Total changes include costs for the Government Accountability Office in 2010 and 2011 to conduct the study on pediatric research relating to biological products required under the bill. CBO estimates that the study would cost less than \$500,000, assuming the availability of appropriated funds.

applicant would effectively reference certain data in the innovator's original application and FDA would consider such information when reviewing the FOB application for marketing approval.) Such an approach would allow manufacturers of FOBs to sell the competing version at a discounted price by avoiding the substantial research and development expenses incurred by the brand-name company to bring an innovator biological product to market, including costs associated with large, clinical trials necessary to demonstrate safety and effectiveness of the treatment in humans.

Key provisions of S. 1695 include:

- Establishing standards for FDA approval of FOBs, including requiring the conduct of certain clinical trials. The bill would grant FDA the discretion to waive the specified requirements.
- Allowing FDA to issue guidance documents for manufacturers that identify the criteria that FDA would use to approve biosimilar and interchangeable biological products¹. The absence of such guidance would not prevent the approval of a FOB under the bill.
- Permitting FDA to determine that a FOB is interchangeable with an innovator biological product, subject to the FOB applicant providing certain types of clinical evidence. FDA would award one year of market exclusivity to the first interchangeable FOB that references a particular innovator drug, subject to certain restrictions. (Market exclusivity in this context prohibits FDA from approving a subsequent interchangeable product during that period.)
- Granting innovator biologics 12 years of data exclusivity beginning when the innovator biologic was first licensed by FDA. (Data exclusivity in this context would prohibit FDA from approving a FOB that uses the innovator product as its reference product.)
- Creating a process to resolve patent disputes through agreement or litigation between the FOB applicant and the brand name company.

1. Interchangeability would allow a pharmacist to substitute the FOB for the original brand-name product without first obtaining the prescribing physician's approval.

Estimating Savings to Purchasers of Biologics

Evaluating the federal budgetary impact of creating an abbreviated pathway for approval of FOBs requires the consideration of many scientific, regulatory, legal, and economic factors. CBO's analysis of the drugs affected, timing of FOB entry, level of price competition, and market penetration by competing versions of FOBs is based on information provided by stakeholders, academics, industry experts, and published materials. After identifying a select group of biologics likely to experience competition over the next 10 years, we used spending on such products as a benchmark to gauge the overall size of the market potentially affected by the bill.

CBO estimates that enacting S. 1695 would reduce national expenditures on biologics in the United States by roughly \$25 billion over the 2009-2018 period. (Such savings would equal about 0.5 percent of national spending on prescription drugs over that period, valued at wholesale prices.) Of that amount, we estimate that federal programs would save about \$6.6 billion. (A portion of that total—about \$0.8 billion—relates to spending by discretionary health programs and therefore would be subject to appropriation action.)

Identifying Biologics that Might Face Competition From FOBs. In recent years, total spending on biologics has grown rapidly, with nominal spending growth averaging roughly between 15 percent and 20 percent annually; spending amounted to about \$40 billion in 2006. CBO focused on a subset of biologics that might face competition by FOBs over the next 10 years. Those products make up roughly three-quarters of the current market for biologics. We estimate that by 2018 about \$70 billion in national spending on biologics could face competition by FOBs because of the procedure for their regulatory approval established under the bill.

To estimate the effect of the bill on federal spending by health programs that pay for biologics, we took into account that the mix of affected biologics differs across federal health programs that pay for such products. For certain programs, such as Medicare Part B and Medicaid, we constructed program-specific estimates of spending on biologics potentially subject to competition by FOBs. For most other federal programs, CBO estimated aggregate savings resulting from FOB competition. Those estimates were based primarily on average market-wide projections of the dollar sales of innovator biologics potentially affected by the legislation as a share of projected spending on prescription drugs. Also, CBO's analysis reflects the extent to which affected biologics may be provided in physicians' offices and hospitals or dispensed by outpatient pharmacies. (The bill would not affect Medicare spending for hospitals because aggregate payments to hospitals would not be affected by changes in the costs of biologics that hospitals purchase.)

To gauge spending over the 2009-2018 period, CBO projects that annual nominal growth in spending on the group of biologics potentially affected by the legislation will average about 7 percent annually over the 2009-2018 period (reflecting spending by all public and private payers). We expect lower growth in spending for such products than the average rate for all biologics because the drugs are generally older and often lose market share to new or next generation products. Reflecting the different mix of affected biologics across federal health programs that pay for such products, we anticipate that average rates of growth in federal programs' spending on that group of drugs will range from roughly 6 percent to 8 percent over the same period.

Accounting for the Impact of FOB Entry. CBO adjusted the estimated spending for products that would be subject to FOB competition in a given year to reflect the likelihood and timing of market entry by FOBs over the 2009-2018 period. Such factors include:

- Approval requirements established under the bill, the length of time for FDA to review and approve applications, and other regulatory determinations by FDA,
- Scientific and technical barriers, and
- Patent protection, the delay of market entry associated with legal challenges of such protections, and the effect of the patent resolution process created by the bill on such delay.

After considering these factors, CBO estimates that savings over the next five years would be relatively small, but would accelerate rapidly as more applications are submitted and approved, and additional firms market FOBs.

CBO anticipates that the first FOBs could enter the market near the middle of calendar year 2012. In particular, we believe that some applications for FOBs for which regulatory authorities in the European Union have already issued guidance or granted marketing approval would be submitted shortly after enactment of the bill. However, CBO expects that competition would not begin for most products until the second half of the 2009-2018 period. CBO also estimates that certain types of more complex biologics, such as monoclonal antibodies, may obtain marketing approval near the end of the 2009-2018 period.

Determining Expected Price Discounts and Market Penetration by FOBs. The process of designing and manufacturing FOBs is complex and more costly than typical generic drugs approved under the Federal Food, Drug and Cosmetic Act. Nevertheless, CBO expects that certain drugs could face competition from several firms by 2018, although we believe it would be more typical for an innovator biologic to face competition from between one and three competitors.

CBO also analyzed the effects on prices and market penetration of introducing competition in similar markets (for example, complex small molecule drugs with narrow therapeutic indexes, human growth hormone products, and FOBs recently marketed in the European Union). CBO expects that during the first year of FOB competition, the market share of a FOB would be about 10 percent. By the fourth year, we estimate that the sales-weighted average market share would increase to about 35 percent.

With respect to price discounts, CBO estimates that during the first year of competition, the sales-weighted market average discount on FOBs relative to brand-name innovator drugs would be about 20 percent, reaching 25 percent in the most competitive markets. By the fourth year of competition, we anticipate that the sales-weighted average discount of the FOB relative to the brand-name price would reach about 40 percent. We expect that the availability of FOBs would constrain brand-name prices. Also, because a FOB would be less expensive than the original innovator product, we expect that demand for such therapies would increase, thus offsetting a small portion of the savings generated by the switching of patients who would have used the original innovator product (or a therapeutic alternative) to the competing FOB version.

Other Considerations. Our estimate accounts for the possibility that brand-name manufacturers might make certain changes or improvements to their original products and that manufacturers, in some cases, could qualify for the right to market those modified products exclusively for an additional 12 years. (Certain types of changes would be explicitly excluded from consideration by FDA.) CBO anticipates that such a scenario could allow an innovator company to limit the size of the market available to a competing FOB primarily through efforts to switch patients from its original “reference product” (on which the FOB is based) to a modified version that would be protected from competition for an additional 12 years.

Beyond the 2009-2018 period, the potential for innovator companies to modify existing product lines could become an increasingly significant constraint on the ability of FOBs to compete.

Direct Spending

Allowing lower-cost, competing versions of biologics to be available to purchasers would reduce spending by federal health programs that buy drugs or provide health insurance that covers drugs. Consequently, CBO expects that direct spending for certain federal health programs—particularly Medicare, Medicaid, the government's share of retirees' health premiums under the Federal Employee Health Benefits (FEHB) program, and the Defense Department's TRICARE for Life program—would be affected by the bill. CBO estimates

that enacting S. 1695 would save mandatory health programs \$46 million over the 2009-2013 period and \$5.9 billion over 2009-2018 period.

Several key provisions of S. 1695 affect the timing of entry of FOBs and thus influence when the savings would begin to accrue to the federal government. Those provisions would allow FDA to review and approve FOB applications prior to issuing guidance to industry, provide the agency with flexibility in determining the information required for approval, and establish a procedure to resolve patent disputes concurrently with the application process. The availability of FOBs also would be subject to certain scientific and technical hurdles related to product development and manufacturing that affect the likelihood and timing of market entry. Taken together, we expect that federal mandatory programs could start to realize some savings starting in fiscal year 2013. CBO estimates annual savings would grow significantly through the end of 2018 (reaching over \$2 billion in that year) as more products potentially face FOB competition for the first time each year and previously marketed FOBs penetrate the market more deeply and at steeper discounts relative to the price of the innovator product, on average.

Across all of the government's mandatory health programs, CBO estimates that Medicare Part B would realize roughly 50 percent of the savings attributable to the availability of lower-priced FOBs under the bill. We expect that annual program spending under Part B at risk for FOB competition would reach roughly \$10 billion by 2018, and that savings under the bill would amount to about \$1 billion in that year. Medicare Part D would account for an additional 30 percent of savings to mandatory health programs.

Revenues

CBO expects that enacting the bill would increase federal tax revenues because of changes in taxable compensation provided by employers that we estimate would occur under the bill. By lowering the average cost of biologics, we anticipate that the bill would reduce costs for private health insurance plans and lower insurance premiums for employers by 0.1 percent by 2018. As the amount spent by employers for tax-favored health insurance decreases, we anticipate that the amount spent on taxable wages would increase, by less than \$50 million in 2013 and by increasing amounts in subsequent years, reaching about \$1 billion by 2018. As a result, CBO estimates that the bill would increase federal revenues from income taxes and payroll taxes by \$6 million over the 2009-2013 period and by \$0.8 billion over the 2009-2018 period. Social Security payroll taxes, which are off-budget, would account for about 30 percent of those totals.

Spending Subject to Appropriation

Allowing lower-cost FOBs to enter the market would affect the costs to administer certain discretionary health programs, including those of the Veterans Health Administration, the Indian Health Service, and the Department of Defense. It would also affect payments by federal agencies for health insurance premiums for current employees enrolled in the FEHB program. CBO estimates that implementing S. 1695 would decrease discretionary spending by those programs and agencies by about \$10 million over the 2009-2013 period, and \$0.8 billion—or by nearly 0.1 percent—over the 2009-2018 period, assuming that appropriations reflect the reduced costs.

S. 1695 also would require the Secretary of Treasury annually to estimate savings to the federal government generated by the legislation. The bill would authorize the appropriation of such amounts into the Biological Product Savings Fund to be used to pay for activities authorized under the PHSA. Assuming such appropriations, CBO estimates that implementing that provision would increase discretionary spending by about \$40 million over the 2009-2013 period and by \$6.1 billion over the 2009-2018 period.

S. 1695 would authorize the assessment of fees on applicants for marketing approval of FOBs during a “transitional period” extending through fiscal year 2012. The bill would require applicants to pay the fee imposed under FDA’s existing user fee program for prescription drugs, commonly referred to Prescription Drug User Fee Act (PDUFA) fees. (Such fees are classified in the federal budget as offsetting collections because the authority for FDA to assess and spend such fees is subject to appropriation. That fee program will sunset at the end of fiscal year 2012 under current law.) Although the bill would allow FDA to adjust the fee amount based on an audit of the costs of reviewing applications for FOBs, we assume that fees would be imposed at PDUFA rates.

However, CBO expects that such assessments would cover only a portion of the total costs for FDA to implement and administer the new regulatory activities authorized under the bill. Thus, additional appropriated funds would be necessary for FDA to operate the new program. S. 1695 would authorize appropriations of such sums as necessary to carry out the new regulatory activities; however, CBO has not completed its analysis of those costs and this estimate does not include them. Although the bill expresses that it is the sense of the Congress that a separate user fee program be established for the review of FOBs, the bill does not authorize the collection of user fees for that purpose beyond 2012.

The bill would require the Government Accountability Office to conduct a study on pediatric research relating to biologics. CBO estimates that the study would cost less than \$500,000, assuming the availability of appropriated funds.

ESTIMATED IMPACT ON STATE, LOCAL, AND TRIBAL GOVERNMENTS

For FOBs that are approved by FDA as interchangeable, S. 1695 would preempt state laws that restrict pharmacies from substituting a FOB for an innovator product without first consulting with the prescribing physician. That preemption would be an intergovernmental mandate as defined in UMRA. Because the preemption would simply limit the application of state law, CBO estimates that the costs of this mandate would be small and would not exceed the threshold established in UMRA (\$68 million in 2008, adjusted annually for inflation).

Because the bill's requirements would result in lower costs for prescription drugs provided under the Medicaid program, CBO estimates that state spending for Medicaid would decrease by about \$4 million over the 2009-2013 period.

ESTIMATED IMPACT ON THE PRIVATE SECTOR

S. 1695 would impose a mandate on the private sector by requiring that manufacturers of brand-name biologics participate in a process that accelerates the litigation of patent challenges by manufacturers of follow-on biologics. The patent challenge process established by the bill would require the brand-name manufacturer to inform the FOB applicant of the patents that may be infringed upon if the FOB were to be marketed, provide an explanation as to why certain patents may be infringed upon, and negotiate with the applicant over which patents, if any, would be immediately litigated. The costs of this mandate to the brand-name manufacturers would be its administrative costs associated with the patent challenge process. CBO estimates that those costs would not exceed the threshold defined in UMRA (\$136 million in 2008, adjusted annually for inflation).

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