

vaccines that would warrant the adoption of such a subsidy? As was suggested earlier, there are external economic benefits from controlling the spread of infectious diseases. The cost to society of preventing an outbreak of an infectious disease tends to be much lower than the cost of treating the outbreak that might occur in the absence of immunization. This raises the possibility that private firms invest less in vaccine R&D than its potential social benefits warrant. Partly in an effort to correct for such market failure, the federal government supports vaccine R&D through its funding of basic research in vaccines and clinical trials for new vaccines. Its research support is also intended to direct vaccine investment to address current and future public health needs. In addition, it offers two tax subsidies for R&D, namely: the R&D tax credit and the expensing of R&D costs under IRC section 174. Although these subsidies are not targeted at vaccine research but are available to all firms that perform qualified research, they benefit vaccine firms by increasing their potential aftertax rate of returns on R&D investments. The proposed vaccine research tax credit would supplant the R&D tax credit for vaccine firms, but its treatment of qualified research would be more favorable, increasing the expected profitability of vaccine F&D investment relative to other kinds of R&D investment.

Thus, an important policy issued for Congress is whether the current level of domestic vaccine R&D investment is socially desirable or efficient. And if not, would the proposed tax credit in H.R. 1274 be more efficient than added federal funding of vaccine R&D or some other policy measure (such as government grants to international agencies that purchase and distribute needed vaccines in poor countries) in raising total investment to such a level. From the perspective of economic efficiency, the R&D projects that should be promoted are those with the largest gaps between the social and private rates of return. Yet vaccine firms are likely to use any research tax credits to fund first those projects with the highest expected private rates of return. At the same time, there is no certainty that the federal government could do a better job of targeting those vaccine R&D projects with the largest spillover effects. If it is determined that domestic vaccine R&D is less than socially optimal, perhaps a combination of a targeted tax credit like the one proposed in H.R. 1274 and increased government support for basic and applied vaccine research would be more attractive than relying solely on one instrument or the other.

Another policy issue for Congress raised by the proposed tax credits in H.R. 1274 relates to the external benefits of mass immunizations. The economic benefits to a society from vaccinations far outweigh the benefits to individual consumers, who in deciding whether or not to purchase vaccines for themselves or their children tend to consider only the costs and benefits to themselves and not the potential benefits to others in the community. Even if the market for vaccines were perfectly competitive, it is unlikely that immunization levels would be socially optimal.<sup>11</sup> Thus government intervention in the development and distribution of vaccines is certainly justified on economic grounds. The proposed tax credits would spur the development of new vaccines, but they would not lessen any of the barriers to the achievement of universal immunization with available vaccines. Low immunization rates are due to a variety of factors, including out-of-pocket costs, parental attitudes and knowledge, access to health clinics or doctors' offices, the perceived efficacy of vaccines, and the perceived risk of contracting

diseases for which vaccines exist.<sup>12</sup> Clearly, other policy initiatives would be needed to address these factors.

#### FOOTNOTES

<sup>1</sup> Sing, Merrile and Mary Kaye Willian. "Supplying Vaccines." *Supplying Vaccine: An Economic Analysis of Critical Issues*. Pauly, Mark, et al., editors. Washington, D.C., IOS Press, 1996. P. 61.

<sup>2</sup> Grabowski, Henry G. and John M. Vernon. *The Search For New Vaccines*. Washington, D.C., American Enterprise Institute Press, 1997. P. 20.

<sup>3</sup> Pauly, Mark V. and Bridget E. Cleff. "The Economics of Vaccine Policy: A Summary of the Issues." *Supplying Vaccines*. P. 7.

<sup>4</sup> Sisk, Jane E. "The Relationship between Scientific Advances and the Research, Development, and Production of Vaccines in the United States." *Supply Vaccines*. p. 181; and FIND/SVP. *The World Market for Vaccines*. New York, October 1995. P. 169.

<sup>5</sup> Sisk, Jane E. *Supplying Vaccines*. P. 177.

<sup>6</sup> Marcuse, Edgar K., et al. "United States Vaccine Research: A Delicate Fabric of Public and Private Collaboration." *Pediatrics*. December 1997. P. 1017.

<sup>7</sup> Vaccines: Big Shots. *Economist*, May 9, 1998. P. 63.

<sup>8</sup> Sisk, Jane E. *Supplying Vaccines*. P. 175.

<sup>9</sup> Hall, Bronwyn H. and John van Rreenen. *How Effective Are Fiscal Incentives for R&D: A Review of the Evidence*. Working Paper 7098. Cambridge, MA, National Bureau of Economic Research, April 1999. P. 21.

<sup>10</sup> Hall, Bronwyn H. *How Effective Are Fiscal Incentives for R&D?* P. 21.

<sup>11</sup> Holtmann, Alphonse G. "The Economics of U.S. Immunization Policy." *Supplying Vaccine*. P. 155.

<sup>12</sup> Pauly, Mark V. and Bridget E. Cleff. "The Economics of Vaccine Policy." *Supplying Vaccine*. P. 12-16.

#### ADDITIONAL COSPONSORS

S. 26

At the request of Mr. FEINGOLD, the name of the Senator from Iowa (Mr. HARKIN) was added as a cosponsor of S. 26, a bill entitled the "Bipartisan Campaign Reform Act of 1999".

S. 51

At the request of Mr. BIDEN, the name of the Senator from Delaware (Mr. ROTH) was added as a cosponsor of S. 51, a bill to reauthorize the Federal programs to prevent violence against women, and for other purposes.

S. 80

At the request of Ms. SNOWE, the name of the Senator from Iowa (Mr. GRASSLEY) was added as a cosponsor of S. 80, a bill to establish the position of Assistant United States Trade Representative for Small Business, and for other purposes.

S. 345

At the request of Mr. ALLARD, the name of the Senator from Michigan (Mr. ABRAHAM) was added as a cosponsor of S. 345, a bill to amend the Animal Welfare Act to remove the limitation that permits interstate movement of live birds, for the purpose of fighting, to States in which animal fighting is lawful.

S. 1110

At the request of Mr. LOTT, the name of the Senator from Michigan (Mr. ABRAHAM) was added as a cosponsor of S. 1110, a bill to amend the Public Health Service Act to establish the National Institute of Biomedical Imaging and Engineering.

S. 1264

At the request of Ms. SNOWE, the name of the Senator from South Dakota (Mr. DASCHLE) was added as a co-

sponsor of S. 1264, a bill to amend the Elementary and Secondary Education Act of 1965 and the National Education Statistical Act of 1994 to ensure that elementary and secondary schools prepare girls to compete in the 21st century, and for other purposes.

S. 1265

At the request of Mr. COVERDELL, the name of the Senator from South Carolina (Mr. HOLLINGS) was added as a cosponsor of S. 1265, a bill to require the Secretary of Agriculture to implement the Class I milk price structure known as Option A-1 as part of the implementation of the final rule to consolidate Federal milk marketing orders.

S. 1277

At the request of Mr. GRASSLEY, the names of the Senator from Wyoming (Mr. ENZI) and the Senator from South Carolina (Mr. THURMOND) were added as cosponsors of S. 1277, a bill to amend title XIX of the Social Security Act to establish a new prospective payment system for Federally-qualified health centers and rural health clinics.

S. 1448

At the request of Mr. HUTCHINSON, the name of the Senator from South Dakota (Mr. DASCHLE) was added as a cosponsor of S. 1448, a bill to amend the Food Security Act of 1985 to authorize the annual enrollment of land in the wetlands reserve program, to extend the program through 2005, and for other purposes.

S. 1539

At the request of Mr. DODD, the names of the Senator from Washington (Mrs. MURRAY) and the Senator from New Mexico (Mr. BINGAMAN) were added as cosponsors of S. 1539, a bill to provide for the acquisition, construction, and improvement of child care facilities or equipment, and for other purposes.

S. 1547

At the request of Mr. BURNS, the names of the Senator from Massachusetts (Mr. KERRY) and the Senator from Hawaii (Mr. AKAKA) were added as cosponsors of S. 1547, a bill to amend the Communications Act of 1934 to require the Federal Communications Commission to preserve low-power television stations that provide community broadcasting, and for other purposes.

S. 1619

At the request of Mr. DEWINE, the names of the Senator from Montana (Mr. BURNS), the Senator from Idaho, (Mr. CRAIG), and the Senator from North Carolina (Mr. HELMS) were added as cosponsors of S. 1619, a bill to amend the Trade Act of 1974 to provide for periodic revision of retaliation lists or other remedial action implemented under section 306 of such Act.

S. 1644

At the request of Mr. ABRAHAM, the name of the Senator from North Carolina (Mr. HELMS) was added as a cosponsor of S. 1644, a bill to provide additional measures for the prevention and punishment of alien smuggling, and for other purposes.

## SENATE CONCURRENT RESOLUTION 32

At the request of Mr. CONRAD, the name of the Senator from North Carolina (Mr. HELMS) was added as a cosponsor of Senate Concurrent Resolution 32, a concurrent resolution expressing the sense of Congress regarding the guaranteed coverage of chiropractic services under the Medicare+Choice program.

## SENATE RESOLUTION 190

At the request of Mr. CAMPBELL, the name of the Senator from Virginia (Mr. WARNER) was added as a cosponsor of Senate Resolution 190, a resolution designating the week of October 10, 1999, through October 16, 1999, as National Cystic Fibrosis Awareness Week.

## SENATE RESOLUTION 201—CONGRATULATING HENRY “HANK” AARON ON THE 25TH ANNIVERSARY OF BREAKING THE MAJOR LEAGUE BASEBALL CAREER HOME RUN RECORD ESTABLISHED BY BABE RUTH AND RECOGNIZING HIM AS ONE OF THE GREATEST BASEBALL PLAYERS OF ALL TIME

Mr. COVERDELL (for himself, Mr. CLELAND, Mr. BUNNING, Mr. SESSIONS, Mr. KOHL, Mr. FEINGOLD, Mr. MACK, Mr. MURKOWSKI, Mr. STEVENS, Mr. LAUTENBERG, Mr. WYDEN, Mr. DEWINE, Mr. COCHRAN, Mr. CRAIG, Mr. McCONNELL, Mr. TORRICELLI, Mr. MCCAIN, Mr. HAGEL, Mr. BURNS, Mr. DURBIN, and Mr. SCHUMER) submitted the following resolution; which was considered and agreed to:

## S. RES 201

Whereas Henry “Hank” Aaron hit a historic home run in 1974 to become the all-time Major League Baseball home run leader;

Whereas Henry “Hank” Aaron over the course of his career created a lasting legacy in the game of baseball and continues to contribute to society through his Chasing the Dream Foundation;

Whereas Henry “Hank” Aaron hit more than 40 home runs in 8 different seasons;

Whereas Henry “Hank” Aaron appeared in 20 All-Star games;

Whereas Henry “Hank” Aaron was elected to the National Baseball Hall of Fame in his first year of eligibility, receiving one of the highest vote totals (406 votes) in the history of National Baseball Hall of Fame voting;

Whereas Henry “Hank” Aaron was inducted into the National Baseball Hall of Fame on August 1, 1982;

Whereas Henry “Hank” Aaron finished his career in 1976 with 755 home runs, a lifetime batting average of .305, and 2,297 runs batted in;

Whereas Henry “Hank” Aaron taught us to follow our dreams;

Whereas Henry “Hank” Aaron continues to serve the community through his various commitments to charities and as corporate vice president of community relations for Turner Broadcasting;

Whereas Henry “Hank” Aaron became one of the first African-Americans in Major League Baseball upper management, as Atlanta’s vice president of player development; and

Whereas Henry “Hank” Aaron is one of the greatest baseball players: Now, therefore, be it

*Resolved*, That the Senate—

(1) congratulates Henry “Hank” Aaron on his great achievements in baseball and recognizes Henry “Hank” Aaron as one of the greatest professional baseball players of all time; and

(2) commends Henry “Hank” Aaron for his commitment to young people, earning him a permanent place in both sports history and American society.

## AMENDMENTS SUBMITTED

## THE COMPREHENSIVE NUCLEAR TEST-BAN TREATY

## DASCHLE EXECUTIVE AMENDMENT NO. 2291

Mr. BIDEN (for Mr. DASCHLE) proposed an amendment to the resolution to advise and consent to the Comprehensive Nuclear Test-Ban Treaty (Treaty Document 105-28); as follows:

Strike all after the resolving clause and insert the following:

## SECTION 1. SENATE ADVICE AND CONSENT SUBJECT TO CONDITIONS.

The Senate advises and consents to the ratification of the Comprehensive Nuclear Test Ban Treaty, opened for signature and signed by the United States at New York on September 24, 1996, including the following annexes and associated documents, all such documents being integral parts of and collectively referred to in this resolution as the “Treaty,” (contained in Senate Treaty document 105-28), subject to the conditions in section 2:

(1) Annex 1 to the Treaty entitled “List of States Pursuant to Article II, Paragraph 28”.

(2) Annex 2 to the Treaty entitled “List of States Pursuant to Article XIV”.

(3) Protocol to the Comprehensive Nuclear Test-Ban Treaty.

(4) Annex 1 to the Protocol.

(5) Annex 2 to the Protocol.

## SEC. 2. CONDITIONS.

The advice and consent of the Senate to the ratification of the Treaty is subject to the following conditions, which shall be binding upon the President:

(1) STOCKPILE STEWARDSHIP PROGRAM.—The United States shall conduct a science-based Stockpile Stewardship program to ensure that a high level of confidence in the safety and reliability of nuclear weapons in the active stockpile is maintained, including the conduct of a broad range of effective and continuing experimental programs.

(2) NUCLEAR LABORATORY FACILITIES AND PROGRAMS.—The United States shall maintain modern nuclear laboratory facilities and programs in theoretical and exploratory nuclear technology that are designed to attract, retain, and ensure the continued application of human scientific resources to those programs on which continued progress in nuclear technology depends.

(3) MAINTENANCE OF NUCLEAR TESTING CAPABILITY.—The United States shall maintain the basic capability to resume nuclear test activities prohibited by the Treaty in the event that the United States ceases to be obligated to adhere to the Treaty.

(4) CONTINUATION OF A COMPREHENSIVE RESEARCH AND DEVELOPMENT PROGRAM.—The United States shall continue its comprehensive research and development program to improve its capabilities and operations for monitoring the Treaty.

(5) INTELLIGENCE GATHERING AND ANALYTICAL CAPABILITIES.—The United States shall continue its development of a broad range of

intelligence gathering and analytical capabilities and operations to ensure accurate and comprehensive information on worldwide nuclear arsenals, nuclear weapons development programs, and related nuclear programs.

## (6) WITHDRAWAL UNDER THE “SUPREME INTERESTS” CLAUSE.—

(A) SAFETY AND RELIABILITY OF THE U.S. NUCLEAR DETERRENT; POLICY.—The United States—

(i) regards continued high confidence in the safety and reliability of its nuclear weapons stockpile as a matter affecting the supreme interests of the United States; and

(ii) will regard any events calling that confidence into question as “extraordinary events related to the subject matter of the Treaty” under Article IX(2) of the Treaty.

(B) CERTIFICATION BY SECRETARY OF DEFENSE AND SECRETARY OF ENERGY.—Not later than December 31 of each year, the Secretary of Defense and the Secretary of Energy, after receiving the advice of—

(i) the Nuclear Weapons Council (comprised of representatives of the Department of Defense, the Joint Chiefs of Staff, and the Department of Energy).

(ii) the Directors of the nuclear weapons laboratories of the Department of Energy, and

(iii) the Commander of the United States Strategic Command,

shall certify to the President whether the United States nuclear weapons stockpile and all critical elements thereof are, to a high degree of confidence, safe and reliable. Such certification shall be forwarded by the President to Congress not later than 30 days after submission to the President.

(C) RECOMMENDATION WHETHER TO RESUME NUCLEAR TESTING.—If, in any calendar year, the Secretary of Defense and the Secretary of Energy cannot make the certification required by subparagraph (B), then the Secretaries shall recommend to the President whether, in their opinion (with the advice of the Nuclear Weapons Council, the Directors of the nuclear weapons laboratories of the Department of Energy, and the Commander of the United States Strategic Command), nuclear testing is necessary to assure, with a high degree of confidence, the safety and reliability of the United States nuclear weapons stockpile.

(D) WRITTEN CERTIFICATION; MINORITY VIEWS.—In making the certification under subparagraph (B) and the recommendations under subparagraph (C), the Secretaries shall state the reasons for their conclusions, and the views of the Nuclear Weapons Council, the Directors of the nuclear weapons laboratories of the Department of Energy, and the Commander of the United States Strategic Command, and shall provide any minority views.

(E) WITHDRAWAL FROM THE TREATY.—If the President determines that nuclear testing is necessary to assure, with a high degree of confidence, the safety and reliability of the United States nuclear weapons stockpile, the President shall consult promptly with the Senate and withdraw from the Treaty pursuant to Article IX(2) of the Treaty in order to conduct whatever testing might be required.

## AUTHORITY FOR COMMITTEES TO MEET

## SELECT COMMITTEE ON INTELLIGENCE

Mr. HELMS. Mr. President, I ask unanimous consent that the Select Committee on Intelligence be authorized to meet during the session of the Senate on Tuesday, October 12, 1999, at 2 p.m. to hold a closed hearing on intelligence matters.