

PROSTHETICS RESEARCH—A COST REDUCTION PROGRAM

... an editorial

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In my position as an administrator I am naturally concerned about cost reduction. The dedicated people responsible for our prosthetics research program have sometimes felt that I was more concerned about money than the intangible benefits of a proposed program. To a certain extent this is true. To be a good researcher one must be essentially a dreamer, with little or no concern for mundane things like money and where it comes from—but to be a good administrator one must be a realist, and the realistic manager under our system of government must first find the money before he can carry out the programs advocated by the dreamers.

It was just over 20 years ago that Public Law 729 was passed. This law, now codified as Section 216, Title 38, U.S. Code, recognized the need for a continuous program of research and development in the then long-neglected fields of prosthetic and sensory aids, authorized the Administrator of Veterans Affairs to conduct such a program and to disseminate the results, and authorized the appropriation of one million dollars per year for its support. Public Law 87-572, approved August 2, 1962, removed the \$1,000,000 ceiling and authorized "... such funds as may be necessary to carry out ..." the program.

During the 20-year period July 1, 1948 through June 30, 1968, the Veterans Administration expended a total of \$20,107,000 for prosthetics research and development. Of this amount, almost 80 percent (or \$16,000,000) was devoted to the field of artificial limbs, a research field in which the Veterans Administration has played the major role in a cooperative program.

What have we received for those millions? There are many tangible achievements. In prosthetics alone, the program has developed, evaluated, and introduced new devices, fitting techniques, and biomechanical principles for every level of amputation, including development and refinement of the most recent technique of immediate postsurgical prosthetics fitting of the newly amputated patient. There have been important contributions

to fundamental knowledge of locomotion, arm and hand motions, and pain. The program has been responsible for the establishment of the Prosthetics Clinic Team concept, started 20 years ago with 25 "Pilot" VA Clinic Teams, now expanded to more than 300 similar teams in Government and private rehabilitation agencies throughout the United States, and widely copied abroad. To disseminate results of research and to educate the professions composing these clinic teams, the Veterans Administration research program supported not only publication of manuals and three major texts but also the first formal post-graduate prosthetics education program at UCLA, beginning in 1953, as well as a second at NYU, beginning in 1956. Because a majority of the students represented public and private clinics serving nonveterans, financial support was assumed in 1958 by what was then the Office of Vocational Rehabilitation and has been continued by its successors in the Department of Health, Education and Welfare. HEW also initiated in 1959 and continues to support a third school at Northwestern University.

In addition, much progress has been made by the balance of the Veterans Administration research program in the development of practical guidance devices and reading machines for the blind, in refinement of criteria for hearing aids, and in the development of several types of improved orthopedic braces. The conduct of additional comprehensive educational and informational programs has helped to assure that the results of VA prosthetics research in all aspects will benefit not only the veterans but all other disabled.

If we were to end the story here, most reasonable people would agree that the major results outlined above would completely justify the funds expended—but that isn't the end of the story! One of the most interesting aspects of this remarkable program is that IT HAS MORE THAN PAID FOR ITSELF through the avoidance of greatly increased costs which would have been inevitable without it. Space does not permit the listing of all details to support this contention, and of course there have been many other important economies, but you may be assured the statement is not made lightly. (Remember I am a realist—not a dreamer!)

Based on the artificial limb program alone, here are the results of very careful computations covering the 20-year period of the VA Prosthetics Research and Development Program:

(1) The numbers of amputee patients eligible for artificial limbs and repairs has risen from 22,424 at the beginning of FY 1949 to 27,069 at the end of FY 1968, for a total increase of 20.7 percent.

(2) Along with increases in the price of food, housing, automobiles, and everything else in the United States, the average unit cost of artificial limbs and repairs over the 20-year period increased—in this case by a total of 116.5 percent. The fact that this cost increase was not greater is remark-

able—but that, too, is largely because of improved materials and speedier fabrication techniques developed in the prosthetics research program.

(3) The average cost of the VA artificial limb program per eligible amputee veteran in FY 1948 was \$94.72. Applying the 116.5 percent increase in average prices of limbs and repairs, we could reasonably expect that the cost in FY 1968 would be \$205.07 per eligible amputee. Multiplying this increased cost per patient by the 27,069 eligible amputees, we find that total program costs of \$5,551,040 could reasonably be expected for FY 1968—as opposed to a total of only \$2,123,923 in FY 1948. Computing the more gradual average cost increases and increases in numbers of amputees on a year-by-year basis, we find that the artificial limb program over the 20-year period could reasonably be expected to cost a total of \$75,532,719, or an average of \$3,776,636 per year.

(4) The *actual* cost of the VA artificial limb program in FY 1968 was only \$3,309,691 (or \$122.27 per eligible amputee), or *\$2,241,349 less than could be expected!* Over the entire 20-year period, actual costs were only \$47,022,580, or a total of *\$28,510,139 less than could be expected!*

But, you may ask, how is it possible that such large savings could have been realized in this one relatively small VA program? The answer is fairly simple:

(1) The greatly improved artificial limbs developed under the prosthetics research program over the past 20 years are lasting, on the average, about *twice as long* as those being replaced in FY 1948. This one factor alone almost completely equalizes the average 116.5 percent increase in cost of these items.

(2) Because of the increased knowledge of proper prescription, checkout, and amputee management on the part of our VA Prosthetics Clinic Teams (including the private prosthetists who both serve on our clinic teams and fit individual veterans in the facilities of our prosthetics contractors), our amputee patients (including the serious “problem” cases) are receiving initial prostheses which fit and function much more satisfactorily than those furnished in FY 1948 and earlier. Premature replacement because of inadequate or improper prescription or unsatisfactory fitting is therefore substantially reduced. In addition, our more sophisticated clinic teams are much more objective in determining the need for spare limbs, and they are insisting that basically satisfactory limbs be repaired when possible instead of being replaced.

So—as I stated earlier—this remarkable prosthetics research program has more than paid for itself over the past 20 years, and even though not designed for that purpose, it has satisfied all the requirements for an excellent Cost Reduction Program! As a matter of fact, it has helped us greatly in holding down the cost of our overall VA Prosthetics Program, enabling us to serve a total of 498,468 veterans eligible for various types of aids in

FY 1968 at an average total cost of only \$30.09 per patient. We do not have overall program costs as far back as FY 1948, but it is a remarkable fact that our average total cost per patient in FY 1968 was only 3.5 percent higher than it was 10 years ago in FY 1958. (Look again—that's 3½ percent—not 35!)

The overall VA Prosthetics Program is a unique example of how research, education, and clinical operations can be successfully and economically integrated, with the common goal of aiding our disabled population to lead more independent and productive lives. As an administrator and a realist, I am keenly aware of the significant contributions made by the prosthetics research program—not only in terms of greatly improved services to patients, but in terms of dollars and cents as well!

The past 20 years have indeed been years of progress in prosthetics research, and there is every reason to believe that the next 20 may bring even more dramatic results for disabled people all over the world.

Editor's Note (In ReTalley-ation): With his typical modesty, Mr. Talley has very graciously lauded research and development in prosthetics without mentioning his own contributions. The reader should know that the research, development, and educational undertakings of the Prosthetic and Sensory Aids Service are intimately related to the operational programs of the Service and that Mr. Talley has for many years been primarily responsible for formulating plans and policies for these operational programs. It is largely because of this *integrated* nature of all of our programs that the research and development activities have enjoyed success.

W.M.B.