

# Orthopedic Appliance Cases

Served by Flint (Michigan) D.V.R. Office  
1961-2, 1962-3

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Since World War I, the replacement of lost limbs or other parts of the body has developed into the science of *prosthetics*. The great debt owed to the science of prosthetics by orthopedically handicapped people, and the immense reliance on it by people and agencies who assist in restoring the orthopedically handicapped to employability will be reflected in this paper.

We have undertaken to portray the record of the Flint area office of the Michigan Vocational Rehabilitation Division in rehabilitating this group of clients during fiscal years 1961-2 and 1962-3. We will relate the following types of information:

Numbers of cases

Sex breakdown of the total number

Breakdown of disabilities as indicated in appliances provided

"Repeats," *i.e.*, numbers of cases in which previous appliances were used

D.V.R. "repeat" appliances, dates provided, and other previous D.V.R. services

Limb life of prostheses and wheel chairs provided

Employment at closure of cases rehabilitated

In the two fiscal years 1961-2 and 1962-3, we provided appliances to 247 people. These included leg and arm prostheses, leg and back braces, hearing aids, dentures, glasses, etc. Of the 247 clients, 127 were orthopedic cases and 120 were nonorthopedic—mainly heard-of-hearing.

We will portray in the following the services rendered the 127 orthopedic appliance cases.

The sex distribution of these 127 people for whom we provided appliances is: 109 men, 18 women—a ratio of approximately 6 to 1.

A breakdown of the cases into disabilities indicates the following limb extremity and other body parts distribution:

One leg amputated A/K, B/K or foot—66;

Both legs amputated—4;

One arm amputation A/E, B/E, or hand—28;

Both arms—1.

Persons provided braces were:

One leg brace—12 cases;

Braces on both legs—2;

Back braces and lumbo-sacral corset supports—9;

Wheel chairs—13;

Orthopedic shoes—4;

Work boots—1;

Metatarsal pads—1.



These appliances add up to 141. One hundred twenty-seven persons were involved as recipients, and so it is indicated by subtracting 127 from 141 that 14 of the 127 clients were provided a second appliance within the two-year period 1961-2 and 1962-3.

Most of the appliances were purchased from three or four of the dozen or more limb-making firms in Michigan, or which have branches here. From the two top firms we purchased, respectively, 49 and 42 limbs, costing approximately \$15,500 and \$14,000. There were in the neighborhood of twelve firms and/or agencies from which we purchased one each. The total cost of the appliances during each of these two years was approximately \$20,000.

New limb wearers almost always need assistance in acquiring good habits of limb use in order to achieve comfort, naturalness of use, and the best service function. In some of these cases our agency provides or buys "gait-training" along with purchase of the appliance. The gait training is secured from some agency other than the prosthesis firm from which the limb is purchased—University Hospital, Ford Hospital, and others. A count of these cases shows that 13 of the new limb wearers were provided gait training. Since there were 23 new limb wearers, it is to be noted that the other ten secured gait training assistance either at the client's expense or upon assistance from some other agency. Always the coordinator sees to it that this initial help toward acquiring the skills of using the prosthesis is provided from one or another source.

As all workers in vocational rehabilitation in Michigan know, we secure participation of clients in defraying costs, if warranted on the basis of financial information in the case file and if client's agreement is secured, although this is done much more frequently in securing hearing aids. During these two years, eight of the orthopedic clients contributed a total of \$650.

Participation in defraying service costs cannot often be secured from orthopedic appliance clients because in most cases they are unemployed and because of the disablement are unable to work until after provision of service. Hard-of-hearing clients, on the other hand, very frequently are continuing work while they are being processed for replacement of hearing aid. They may have families to support, bills to be paid, etc.; they may simply be unable to accumulate the necessary \$250 to \$300 for the hearing instrument, but sometimes find it possible to contribute one quarter or one half the cost.

Among the more urgently sought answers in this study of orthopedic appliance cases were those indicating "repeat" services. How many of the clients had worn one or more leg or arm prostheses, or whatever the appliance, previously? Also, had Vocational Rehabilitation provided previous appliances?

We found that 77 of the 141 appliances provided these 127 clients were "repeats." Some of the 77 clients had had more than one previous appliance—several, four or five. This is to be expected, of course; say, for example, in the case of a man now 54 years of age who lost his leg in childhood.

The likelihood of the matter is that this man has been able to secure his own prostheses during his working prime, but at 54—unless he is a skilled worker—he may find it necessary to apply for vocational rehabilitation service in order to qualify for whatever employment he can, with D.V.R. help, find.

Next, we broke down the life of the D.V.R. "repeat" appliances. In other words, how many years had the various prostheses provided by our agency lasted?



The following table will show this, although it is not complete since our records do not in all cases give definite information as to just what the life of the previous prosthesis has been. The table shows the "life" of 42 of the 89 leg and arm prostheses:

10 limbs -----	2 years	2 limbs -----	8 years
4 limbs -----	3 years	3 limbs -----	9 years
7 limbs -----	4 years	1 limb -----	10 years
6 limbs -----	5 years	1 limb -----	13 years
3 limbs -----	6 years	2 limbs -----	15 years
2 limbs -----	7 years	1 limb -----	17 years

The life of the wheel chairs previously provided by D.V.R. for nine of the 13 wheel-chair clients is shown in the following table:

3 wheel chairs were used	3 years
4 wheel chairs were used	2 years
1 wheel chair was used	1 year
1 wheel chair was used	11 years

Most wheel chairs are repaired more or less extensively one or more times during their life, and for this reason it is difficult to ascertain the length of usage in some cases.

We felt it would be interesting to investigate the sources, or originating causes, of the disabling orthopedic conditions of our rehabilitants. Our findings reveal that the primary causes and/or sources of the main disabilities of these 127 persons were:

Traumatic -----	77
Disease -----	36
Congenital -----	14

Of the 77 traumatically disabled, 22 were victims of employment accidents. Among the 22 employment accidents were: 9 farm machine—corn-husker, cornshredder, *et al.*; 4 train accidents cases—involving mainly railroad employment situations; 4 factory employment; one each—saw mill, mowing machine, etc. Traffic accidents, including both vehicle driving and pedestrian situations, accounted for 26 of the 77 traumatic accidents; motorcycle accidents, 6; gunshot wounds, 6. Among the many other originating sources of disabling of the 127 clients were: injuries from falling; disease such as diabetes, poliomyelitis, arterial disorders, osteomyelitis, tumors, infections; second, third, and fourth-degree burns. A review of the sources and/or causes of orthopedic disabilities are some involving accidents in the home—such as falls of children, burns, efforts to make and operate a home-made gun, etc.

After provision of an orthopedic appliance, sometimes along with this service, we often provide vocational training in order to get the client started in a suitable field of employment. However, if no further cost service is needed, there still remains the necessity for seeing the client into employment.

In many cases, of course, the client already has a job to return to, and, with his new appliance, he now can do so. If he needs assistance in finding suitable employment we provide this in one of the many ways we, with our accumulated information on personnel needs and current hiring practices, can use.

Of the 127 orthopedic appliance cases of this study, 34 were not yet closed employed, but were in active status at the time of our investigation,

that is, they were in one of the several stages of vocational rehabilitation involved in preparing the client for employment. Some of the 34 had been provided a prosthesis, a brace, a wheel chair or other appliance, but were still undergoing vocational training—which would mean in the terminology we are using in Michigan that the individual clients were now in status 5. There are several other statuses, but these should exemplify the steps in our work with disabled people. Nearly half of the 34 cases in active status, fifteen to be precise, were in status 7, which means they were working and ready to be closed out from our records.

Ninety-three clients had been closed status 12, employed. We have made a breakdown of the types of employment at closure which these 93 ex-clients as we now call them, were following. It would be pointless to attempt a listing of all types of jobs, but a partial listing will, we believe, support our statement that they become, to all intents and purposes, a cross-section of workers.

There were 15 factory workers, 7 service station attendants, 7 salesmen and sales clerks, 5 auto mechanics, 4 bookkeepers, 4 day workers, 4 farmers and/or farm laborers, and smaller numbers each in the following: laundries, teaching, shoe repair, bar tending, cab driving, carpentering, housepainting, waitress work, furniture repair, stock-handling, and many others.

We should observe in concluding this brief study of orthopedic appliance services that this is only one chapter in the chronicle of the more or less successful utilization of machinery in the human body. In this age of increasing automation the human body is not excepted from mechanical encroachments.

Crutches have been used for millennia; glasses have assisted human eyes for centuries; hearing aids for decades; and now human heart block victims can be restored to approximately normal functioning and longevity by having their hearts wired to an electrical timing device or pacer embedded inside the body—3,000 of them in this country, alone, it was reported a few months ago. Sections of large blood vessels have been replaced by plastic tubing in many people.

Wooden, metallic, and plastic appliances are used to replace human limbs, to supplement, to amplify, to cosmetize—if we may venture a neologism—many human body parts. And perforce we must suppose this curious thing is only begun.

