

A Guide for the Management of The Child Amputee

EDITOR'S NOTE: The following article, prepared by the Committee for the Care of the Handicapped Child of the American Academy of Orthopaedic Surgeons, is here reprinted with the permission of the Academy because of its importance to all those concerned with this field: the surgeon, physician and rehabilitation official, as well as the prosthetist and orthotist.

FOREWORD

In the total care of children with musculoskeletal handicaps there are many considerations that determine whether or not they will achieve maximum function, both medically and as a member of the community. It is the responsibility of the orthopaedic surgeon to evaluate the basic medical problem, plan a realistic therapy program and serve as a strong member of the team caring for the child.

In this concept there is the need to first establish a careful diagnosis and evolve an individual therapy program geared to the child's actual abilities, constantly to reevaluate and reestablish the therapy plan and goals, and finally to set realistic goals. The American Academy of Orthopaedic Surgeons, through its Committee for the Care of the Handicapped Child has outlined in this Guide its expression of the minimum professional requirements for this type of approach.

It must be realized that no absolute or arbitrary standards are possible. There are many differences in local and state methods of caring for the handicapped child, availability of facilities and personnel, individual philosophies of approach, and personal differences in the needs of children with the same diagnosis. It is suggested therefore that this Guide might serve as an expression of the minimum essential needs upon which can be built a realistic program for the child amputee. With the leadership of interested orthopaedic surgeons, and other medical and paramedical personnel, and with careful planning and cooperation by state and local community educational, social and therapy services, many of the constantly changing needs of these children can be fulfilled.

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A GUIDE FOR THE MANAGEMENT OF THE CHILD AMPUTEE

I—Introduction

During the past decade, significant progress has been made in developing total care techniques for the child amputee. Medical contributions have resulted from the development and application of engineering and prosthetic principles, better understanding of biomechanics and growth and development, evolution of orthopaedic surgical procedures and rehabilitation techniques. Co-ordination of these medical advances with social, vocational, education, psychological, community and administrative efforts have led to the development of a "team approach" to the child amputee.

Child amputee centers have been established throughout the country, and individual experiences have been shared by constant exchange of information. Groups involved, (e.g., Advisory Committee to the Children's Bureau, The Children's Bureau, and State Director of Crippled Children's Programs, etc.) have worked closely with orthopaedic surgeons towards this goal of improved services for the child amputee.

Sufficient time has elapsed and experience gained to warrant analysis of these services that have been found to be basic and essential for the coordinated care of the child amputee. This guide, therefore, outlines practical recommendations of the American Academy of Orthopaedic Surgeons, and represents goals toward which existing child amputee services might aspire, and which new centers might employ in developing facilities for the child with this type of handicap.

II—Classification

The juvenile amputee may be classified into three major groups:

- A. Post-surgical amputee
- B. Congenital amputee (terminal transverse deficiencies)
- C. Children with anomalous extremities, either single or multiple, who are rehabilitated with prosthetic devices either with or without surgery.

III—Recommended Standards

Recommended standards are described for two main categories of facilities for care of the child amputee; namely, the Crippled Children's Clinic and the Child Amputee Center.

A. *The Crippled Children's Clinic Caring for the Child Amputee*

These children do not present unusual fitting and training problems (i.e., a below knee amputee) and can be cared for in conjunction with other orthopaedically handicapped children provided that the clinic is staffed with personnel trained and qualified in child amputee care.

The Crippled Children's Clinic team should consist of a clinic chief or director, a pediatrician, physical therapist and/or occupational therapist, prosthetist, and additional paramedical and ancillary personnel customary in the area in which the clinic is located.

1. The clinic chief or director should be Board Certified or Part II eligible for the American Board of Orthopaedic Surgery.
2. Members of the occupational therapy team should be registered with the American Occupational Therapy Association. Members of the

physical therapy team should be graduates of an accredited school of physical therapy and registered.

3. The clinic chief or director and members of occupational therapy and/or physical therapy teams must have a knowledgeable interest in the field of prosthetics. It is desirable that they have attended some of the post-graduate courses offered in prosthetics education.*
4. There should be available the services of a prosthetist certified by the American Board for Certification in Orthotics and Prosthetics.
5. There should be available the facilities for frequent, well supervised out-patient training and in-patient care when required.
6. In conjunction with the clinic, adequate consultation services should be available by qualified physicians in the various medical and surgical specialties. These specialists should be encouraged to attend regular team evaluation conferences to obtain the benefit of coordinated discussion and thinking in the total care of the patient. When possible, inclusion of a physician trained in physical medicine is to be encouraged.
7. Close liaison should be maintained with the child's own physician in planning and executing a projected treatment regime. He should be invited, where possible, to attend the clinic sessions and participate in the discussions. When it is not possible for the child's own physician to be in attendance at such clinics, it is essential that a resume of the treatment program be sent to the physician for his information, and his recommendation should be solicited.
8. It should be pointed out that because of the problems of longitudinal and circumferential growth of the extremities in children, it is necessary that juvenile amputees be seen not less frequently than three to four months.
9. Careful unit charts should be maintained and include the entire medical and paramedical record of the child.
10. There should be an efficient follow-up technique to prevent broken appointments and permit proper continuity of the child's care.

B. *The Child Amputee Center*

Children with anomalous extremities, either single or multiple, and fore-quarter, hindquarter, shoulder disarticulation and/or hip disarticulation amputations, present very highly specialized problems and are best managed in a child amputee center where there is a well organized team devoting itself specifically to those complicated problems.

As a result of years of experience and public educational efforts, congenital limb abnormalities are more and more being treated by prosthetic substitution (with or without surgical conversion), rather than by classic orthopaedic reconstruction and/or bracing. Any clinic responsible for managing this group of patients successfully (see III above) must have more highly trained personnel, more specialized physical facilities and closer teamwork. This group of patients is expensive to care for, and in developing and expanding services, realistic budgeting of funds, well-trained personnel and adequate facilities must be available. (For example, at Mary Free Bed Amputee Center, in 137 lower extremity anomalies, it was necessary to do

*For example, Prosthetic Educational Programs such as those conducted at the University of California Medical School in Los Angeles, the Northwestern School of Medicine Program in prosthetic education, or the New York University programs in prosthetic education.

surgical conversion to develop a more satisfactory stump in 57% of the cases, while contrarily, in 108 upper extremity limb deficiencies, surgical conversion was required in only 15%.) In order that this group of children be protected from unnecessary surgical procedures, highly-trained, knowledgeable and mature orthopaedic surgeons must function as clinic chiefs or directors. The chief must be surrounded by equally knowledgeable members of the team.

1. The basic minimum for this team should be the clinic chief or director, a pediatrician, a physical and/or occupational therapist, a medical social worker and a prosthetist. Better services can be attained by the addition of other medical and paramedical personnel to this basic minimum staff:
 - a. Child psychiatrist
 - b. Rehabilitation nurse
 - c. Vocational counselor

The basic minimum team members must be qualified as follows:

- a. A mature orthopaedic surgeon certified by the American Board of Orthopaedic Surgery with special interest and knowledge in the problems of the juvenile amputee.
 - b. The physical therapist should be a graduate of an accredited school of physical therapy. The occupational therapist should be registered with the American Occupational Therapy Association. Both should have background experience in physical and occupational therapy as related to children, and have successfully completed the upper and lower extremity prosthetic courses above mentioned.
 - c. A qualified medical social worker.
 - d. A prosthetist who has been certified in prosthetics by the American Board of Certification in Prosthetics and Orthotics.
 - e. Consultation should be available by qualified specialists when indicated, and these consultants should be available to participate in conferences and team evaluations of the children.
2. The clinic should be operated in close physical proximity to the area in which in-patient training is offered these children. No other category of crippled children should be serviced at the Child Amputee sessions. It is essential that all members of the clinic team attend the full clinic session including the clinic conferences and evaluations. The Child Amputee Clinics should meet not less than once a month, preferably once every two weeks if the caseload demands. Facilities must be so arranged that follow-up visits can be made as frequently as the specific case requires, and not less than every three months. Facilities for in-patient training and occasionally in-patient surgical treatment are important for certain patients in this group, when their problems are sufficiently complex so that successful out-patient training is not feasible. During in-patient training periods, it is occasionally desirable for a parent to attend training sessions. Provision of living quarters for parents in proximity to the training areas are desirable.
 3. Records of these patients must be detailed, and must include a complete pediatric survey, x-rays, necessary laboratory details, and consultations when indicated. This group has genetic implications because of the high percentage of congenital anomalies. Unless de-

tailed records are kept, the genetic implications cannot be further investigated. Because of the incidence of visceral abnormalities, other laboratory investigations are more frequent.

- a. Photographic records of the patients with congenital anomalies are particularly desirable. Where possible, motion pictures more accurately record progress and are to be encouraged.
 - b. Many of the complex amputee problems in children cannot be resolved satisfactorily with our current prosthetic armamentarium. Therefore, in the organization and development of this type of highly specialized clinic, it is essential to include provision for a prosthetic fabrication, research and development section.
4. An efficient follow-up technique for these children is necessary to prevent broken appointments and permit continuity of care.

In view of the complexity of operation of a Child Amputee Clinic, the highly trained and specialized personnel, the special physical facilities needed for training, examination and prosthetic fabrication and research, it is desirable that this type of clinic be established on an area basis. The Child Amputee Clinic should provide not only service to the child amputee and offer a means of research and development in prosthetics and various genetic implications mentioned above, but should serve as an educational and training opportunity for medical and paramedical individuals. Participation in such clinics by physician-residents in training in special areas such as orthopaedic surgery, pediatrics, and physical medicine should be encouraged since it is from these sources that future clinic teams will be developed. Similarly, students in training in physical and occupational therapy, together with those in the school of social work, should also be given this educational experience, since in the future, they may become members in other amputee clinics.

