Research Update on the Late Effects of Polio

Roberta A. Simon, R.N., a polio survivor, presented the following summary for IPN's Support Group Leaders' Workshop June 3-5, 1988. Roberta received 14 replies from her 19 inquiries. Other information pertaining to research on the late effects of polio follows her article.

Dr. Augusta Alba, Goldwater Memorial Hospital, New York, NY, has been doing carbon dioxide studies, oximetry in the home, and sleep evaluations of polio survivors with respiratory insufficiency. Nose and mouth non-invasive techniques have been found to be working effectively.

Dr. James Agre, University Hospital, Madison, WI, has a grant for a longitudinal study to assess muscle strength. The findings from the first year will be presented at the fall meeting of the American Academy of Physical Medicine and the American Congress of Rehabilitation Medicine (Oct. 30.-Nov. 4, 1988 in Seattle). He plans to continue this study for an additional two years and is planning to research the effect of isometric strengthening exercise on the remaining motor units. Dr. Agre has submitted three papers for publication to the Archives of Physical Medicine.

Dr. Walter Bradley's grant is for an exercise study using modified progressive resistance exercise done with a predetermined amount of weight. Dr. Bradley and his team are looking for individuals with progressive weakness who are willing to commit to a two-year program. Participants must return to the University of Vermont every three months for a follow-up evaluation at no charge. (Travel money is not available.) Four people have completed three months of the study without adverse effects and another ten are expected to start the program. If you are interested contact Patty Krocinski, Patient Coordinator, Department of Neurology, University Health Center, 1 S. Prospect Street, Burlington, Vermont 05405 (802/656-4177).

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Dr. David Buchholz, The Johns Hopkins Hospital, Baltimore, MD, reports that he has seen additional polio survivors with swallowing difficulties since he presented his information at the Second Research Symposium on the Late Effects of Polio, Warm Springs, GA (Sept. 5-7, 1986) and that his opinions have not been altered.

Dr. D. Armin Fischer, Rancho Los Amigos Medical Center, Downey, CA, will be conducting a study of sleep difficulties experienced by polio survivors in a home environment.

Dr. Lauro Halstead, National Rehabilitation Hospital, Washington, D.C., is planning a study of behavioral changes to assess the efficacy of recommended interventions. He has also written a chapter on the late effects of polio for a medical textbook that will be published in the near future.

Dr. Burk Jubelt, Northwestern University Medical School, Chicago, IL, reports that muscle testing using a myometer is being done on all clinic clients. Other areas of study include single and macrofiber electromyography, immune responses to the polio virus and nerve terminals, sleep disorders, and apnea treatments. Muscle biopsies are done to observe nerve terminals for the presence of autoimmune disease or the polio virus.

Dr. Leonard Kurland, Mayo Clinic, Rochester, MN, sent a copy of the expanded study of post-polio difficulties found in Olmstead County which was presented at the Second Research Symposium on the Late Effects of Polio, Warm Springs, GA (Sept. 5-7, 1986). The individuals studied had polio between 1935 and 1959 and by self reporting, 55% noted progression of weakness. Age and interval since polio were not believed to be factors and electromyograms did not predict progression. Dr. Kurland says sequential studies are needed.

Dr. Frederick Maynard and his team at the University of Michigan, Lansing, are doing numerous studies. Topics include crutch use and management of carpal tunnel, reliability of functional status from questionnaire studies, coping strategies, endurance conditioning, and improved energy efficiency with orthotic use. Fatigue, dysphagia (difficulty in swallowing), and EMG studies are also being conducted.

Dr. Theodore Munsat, New England Medical Center, Boston, MA, will soon begin a study of the therapeutic effects of TRH (thyrotropin releasing hormone) in treating post-polio symptoms. Currently following a number of post-polio clients with pulmonary function studies and quantitative muscle strength measurements, the team states that a progressive trend has not been indicated, but wide changes from one test date to the next have been reported.

Dr. Raymond Roos, University of California, Irvine (on sabbatical from the University of Chicago), received a grant to study the neuromuscular junction to identify abnormalities and suggest therapies. This is being done by looking at muscle biopsies, spinal fluid analysis, and EMG findings. Upper motor neuron signs and symptoms are also being studied. Dr. Roos mentioned a paper published by the University of Chicago staff in The New England Journal of Medicine (July 2, 1987, Vol. 317, No. 1. Pages 7-12) showing no difference in muscle biopsy and EMG findings in symptomatic or asymptomatic polio survivors.

Dr. David Wiechers, The Ohio State University, Columbus, reported continued data collection on his clients and noted that weight loss and alleviating stress in one's daily life will reduce fatigue and

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increase endurance. (One patient reported a 80% to 90% improvement.)
Dr. Wiechers stated that the difficulty with exercise studies is that no long-standing information on manual muscle test scores is available to use for evaluation. He is planning to survey Ohio polio survivors for post-polio syndrome involvement.

Dr. Stanley Yarnell, St. Mary's Medical Center, San Francisco, CA, has seen over 300 clients in his clinic and is collecting data and statistics for publication in rehabilitation journals. He plans to describe "middle of the road treatments and warn people of quackery."

Authors' Comments: Most researchers do not want to release data until publication, so some of the information is limited. As a medical advisor experiencing the late effects of polio, I would also like to warn other polio survivors about answers that seem too good to be true - they probably are. My address is 7835 Pine Parkway, Darien, IL 60559 and my phone number is 312/969-0287.

A Clarification
A brief article entitled "Lingering virus" has appeared in several newspapers across the country. The opening line states, "The virus that causes polio is able to linger in the body, causing gradual destruction of the nerves, long after the symptoms of the disease has been stabilized...." This statement is a misinterpretation of an article reported in the May (1988) Archives of Neurology (Vol. 45, p. 505-508) not the Archives of Internal Medicine as the article indicated.

The original article, "Long-term Changes in Spinal Cords of Patients With Old Poliomyelitis" by Gholam H. Pezeshkpour, M.D. and Marinos C. Dalakas, M.D. specifically states (on page 507) that "persistent polio viral infection in PPMA is unlikely."

Dr. Dalakas comments, "What I proposed however is that situ hybridization should be done to exclude even a remote possibility of any residual viral activity. This is a new, sensitive approach to detect viral particles in tissues but it has not been done yet. I hope to do it sometime in the future."

Dr. Pezeshkpour states, "It is only hypothesized that there may be disease activity many years after the original attack, something to bear in mind when you read the article."

The question of the cause of the mild chronic inflammation in the eight spinal cords reviewed by Dr. Pezeshkpour and Dr. Dalakas is still unanswered.

Post-Polio Bibliography

"Functional Recovery: A Major Risk Factor for the Development of Post-polio Myelitis Muscular Atrophy" by Jeffrey Klingman, M.D., Helena Chui, M.D., Mark Corglat, Ph.D., Jacqulien Perry, M.D. Archives of Neurology, June 1988, Volume 45, No. 5. Pages 645-647.

Post-Polio Research
Sunny Roller will mail a listing of the 11 projects now in progress at the University of Michigan if you send a self-addressed stamped envelope. Her address is Program Coordinator, The Post-Polio Research and Training Program, University of Michigan Hospitals, Department of Physical Medicine and Rehabilitation, NI-2A09-0491, 300 N. Ingalls Bldg., Ann Arbor, MI 48109.

Julie Chandler, Kenny REHAB, 21700 Northwestern, Ste 1190, Southfield, MI 48075, may be contacted for Dr. Richard Owens' report on his first year of research. The goal of the three-year study is to learn if a polio survivor can do an exercise program for heart-lung conditioning without damage to the muscles. The first controlled study found that the 20 persons could do an integral training program three times a week for 20 minutes. Dr. Owens' research is being conducted at the Sister Kenny Institute, Minneapolis, MN.

Rehabilitation Gazette
The 30th Anniversary of the Rehabilitation Gazette will be celebrated in 1988, with the publication of a double issue featuring the wisdom and experience of the many pioneers of independent living. Family members and friends also will present insights on the rehabilitation and the independence of their loved ones.

To receive this special edition (Vol. 29, No. 1 & 2), send $15 to Gazette International Networking Institute (G.I.N.I.), 4502 Maryland Avenue, St. Louis, MO 63108.

IPN's 1989 Conference
May 31-June 4, 1989 is the date and the Sheraton St. Louis Hotel is the location of International Polio Network's Fifth International Polio and Independent Living Conference.

Independent Living Worldwide will be the theme for Wednesday, May 31.

Recent information on the management and research on the late effects of polio will be presented by noted health professionals, Thursday, June 1 and Friday, June 2.

On Saturday morning, June 3, the conference will discuss the "Ethical Challenges and Social Policies of Disability and Aging." A Home Mechanical Ventilation Workshop will be the highlight of Saturday afternoon.

Sunday, June 4, will feature many special interest workshops. Persons interested in presenting a workshop should contact Gini Laurie or Joan Headley at IPN for details.

Abilities Expo-Midwest, an exhibit of products for people who are aging and physically disabled, will be held at the Cervantes Convention Center across from the hotel Friday thru Sunday, June 2-4, 1989.

Watch future issues of Polio Network News for details and registration forms.

IPN Membership Renewal Notices
In July, IPN mailed renewal notices to individuals whose memberships are due this quarter. Renew by returning the card with a check for $8.00 so you will receive the Fall Polio Network News (Vol. 4, No. 4).
Leaders’ Workshop Report
The International Polio Network’s second biannual Support Group Leaders’ Workshop was held June 3-5, 1988 at the Sheraton St. Louis.

Director of the Network, Joan Headley, posed many challenging questions to the more than 50 participants from 19 states.

Headley opened the workshop by asking a barrage of questions about membership, attendance, and years of operation. She then asked the following questions which all support group leaders should ask themselves.

- Has your attendance stabilized? Is your attendance declining? Have you reached the minority survivors in your area?

- Have you analyzed why your membership is larger than your attendance? Do you meet your members' needs? Can these needs be met by a support group? Are support groups for everyone?

- Do you have a means of communicating with the non-attenders? Do they receive the Polio Network News? Do you have a newsletter? If you do, are you sure of your facts before you print them? Do you "watch your words"?

- Are you struggling financially to survive? Do your members help with their time and their money? Do they expect everything to be free? Should it be free? If so, who pays? Do we, as polio survivors, give up something when someone else pays? Is the exchange worth it?

- How many of you have a clinic within a reasonable distance? Did your group help start it? If the distance is unreasonable, could you help start one?

- How many of your groups have become involved in advocacy issues?

Can your members and all persons with disabilities in your community vote, obtain a drivers' license, buy groceries, attend meetings?

- Do you know about the whole world of disability? Is it political? Can we really change things?

- Do you have potential members that have "passed" successfully as non-disabled and seem very reluctant to join "our world"? Is the only solution that "they" need to change to join us? What image do we portray? Would you want to join us? A more important question may be: Are the two worlds really that separate?

- How did you react when you received the letter from the PPS (Post-Polio Syndrome) Rider? Did you think that it was about time someone made the public aware or did you think a polio survivor riding miles a day would send the wrong message about exercise? Do we want to be called "victims"?

- In 1987 through our efforts Congress declared "Polio Awareness Week." Should we organize again? When should this week be observed? Who should coordinate this activity?

- How do we pool all our efforts? How do we capture all the energy and efforts from across the country? Are we attacking on too many fronts, in too many places?

- Do we want to be more organized? Do we give up control when we are more organized? Do we really have something that needs to be done that cannot be accomplished by each individual group? Is the individuality and the localness of our groups our strength?

Some answers to the previous questions were provided during the weekend workshop. (Others will be addressed in future newsletters.)
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Leaders' Workshop Report

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Dr. Eileen Connolly, Communications Center Number 1, 214 South Meramec Ave., St. Louis, MO 63105, in a thought-provoking session, caused leaders to evaluate their leadership style. A few of Dr. Connolly's suggestions are listed below.

1. See yourself as a leader among leaders, as the facilitator of co-leadership, as the designated leader with other co-leaders.

2. At meetings tell the group what the topic is and why they are there. Stay focused on the topic instead of personalities. Respond to each person before the next person changes the topic.

3. Do not do in a large group what can be done in a smaller group.

4. Spend some time hearing and understanding the problem but spend more time getting solutions.

5. Encourage people to take responsibility for their own solutions as well as their complaints and questions. Give suggestions but always ask the person what are his/her thoughts about the suggestions. Appreciate that no two people deal with problems in the same way.

6. Focus on changing your own behavior and learn to work with other people as they are, without trying to change them. See people as having their own inner strength and see yourself as facilitating others to utilize their strengths.

For more information about...

...coordinating a group with a hospital rehabilitation department, contact Nancy Caverly, 389 N. Mosley, St. Louis, MO 63141.

...an experienced leader starting a new group in a new city, contact Carolanne Green, 1008 Ivydale Drive, Las Cruces, NM 88005.

...surviving independently and successfully as a group for more than 5 years, contact Renah Shnaider, 350 Vernon, Number 101, Oakland, CA 94610.

...increased funding for national medical rehabilitation, contact Carl Urhmacher, Carltech Associates, 5457 Twin Knolls Road, Suite 100, Columbia, MD 21045.

...the Social Security Administration guidelines on the "Evaluation of the Late Effects of Poliomyelitis," contact your local office and ask for Program Operations Manual Systems (POMS), Part 04, Section DI 24580.010.

...the five-page handout on newsletter writing, send a self-addressed stamped envelope to IPN.

...the other informative and supportive sessions and a workshop notebook which includes the "Post-Polio Support Group Philosophy, Guidelines, and Resources," send $10 plus $3 postage to IPN, 4502 Maryland Avenue, St. Louis, MO 63108.

1988 Post-Polio Directory

There have been over 80 corrections to the 1988 Post-Polio Directory since publication in February. Additions, changes, and deletions have been compiled by International Polio Network and are inserted in this newsletter. Please continue to notify IPN of any corrections.
Solutions to Foot Problems Due to Polio

Surgical Correction
By Bruce Harley, D.P.M.

Flatfoot and cavus foot are the most common polio foot problems which may be corrected by surgery. (Polio Network News, Vol. 4, No. 2. Pages 6-7.)

The goal of surgical correction is to create a foot that functions well and bears weight normally. Correcting the skeletal mal-position reduces the stress placed on the already weakened muscles.

Surgical correction of polio foot problems involves eliminating the skeletal problem and instability, and realigning the neuromuscular imbalance.

Some skeletal problems can be corrected by performing osteotomies. Osteotomies involve cutting through bone, repositioning the bone, and pinning it in the desired position.

Common Osteotomies
A wedge osteotomy through the mid-foot to lower the arch and realign the forefoot is called the Cole procedure.

A wedge osteotomy in the calcaneus bone to straighten the heel is called the Dwyer procedure.

A wedge osteotomy in the first metatarsal is to raise the bone and lower the arch (See below).

Other problems, such as instability, can be eliminated by joint fusions.

Common Joint Fusions
Talo-navicular joint fusion for severe flatfoot.

Triple joint fusion (triple arthrodesis) for very severe types of flatfoot and cavus foot.

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Surgical Correction
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The neuromuscular imbalance must be restored in order to maintain the corrected skeletal alignment. This rebalancing is achieved by transferring functioning muscle-tendon units to the position occupied by non-functioning tendons, and by lengthening contracted tendons. Several types of tendon transfers can be done to correct cavus foot, dropfoot, and hammertoe problems.

The function of the paralyzed muscles can never be repaired, but the final result is a foot that is biomechanically efficient and more able to withstand the stress of normal activity.

Questions should be directed to Dr. Bruce Harley, D.P.M., No. 4 Cottonwood Road, Edwardsville, IL 62025. If you call Dr. Harley at 618/288-5011, he will recommend other podiatrists knowledgeable about polio in the Midwest.

For a podiatrist in your area write or call the American Pediatric Medical Association, 9312 Old Georgetown Road, Bethesda, MD 20814. 301/571-9200.

Proper Footwear
By Jay Portnow, M.D., Ph.D. and Thomas McGillicuddy, C/Ped.

Shoes, unlike ties and earrings, are more than simply accessories for the well-groomed polio survivor. Shoes are aids. They are adaptive equipment. Well-fitted shoes are one of the most important, though neglected, determinants of a polio survivor's comfort.

Shoes are either stock footwear, which means that they are ready-made "off-the-shelf" products, or non-stock footwear, such as mis-

mates, custom-made shoes, and molded shoes. Whether shoes are made to order or stock, they still should have the following four basic characteristics:

Basic Shoe Characteristics for the Polio Survivor
1) Leather Sole
2) Metal shank
3) Firm counters
4) Outside heel

For polio survivors with musculoskeletal instability of any type, leather soles are always to be preferred over crepe, cloth, or plastic soles. Leather soles provide a measure of stability and do not "stick" to rugs or other floor coverings the way crepe soles do. Leather maximizes the possibility for a smooth heel-to-toe progression.

A metal shank is important for stability and to support the arch of the foot. A weak shank means that the bridge between the heel and sole is unstable and may bow under pressure.

A firm counter is also a source of support. The counter comes around the back of the shoe, connecting the sides together, and is responsible for insuring medial and lateral support. Anyone with impaired ankle or foot control should not wear sneakers or other footwear without firm counters, especially when walking on uneven terrain.

A shoe is only as good as its heel. Heels should be separate from the sole, rather than contoured into the sole. Each polio survivor has an unique set of needs and often the height, and even the shape of the heel, must be individually designed.

If the heel is too low, it becomes difficult for body weight to be (continued on page 9)
Proper Footwear
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shifted forward quickly enough, so that one tends to pick up and carry the foot forward rather than truly walk.

If the heel is too high, the foot tends to roll medially or laterally, and the normal heel to toe progression is compromised. Weight is transferred forward too quickly, and instability ensues.

A properly fitting shoe for a polio survivor is not a passive accessory but should help to control gait or actively solve gait problems.

Special Footwear
Mismates, molded shoes, and custom-made shoes are special footwear. For some polio survivors, mismates are all that is needed. The polio foot is generally smaller than the unaffected foot which results in either the unaffected foot squeezed into a small shoe, or the polio foot left unsupported in a shoe too large. If there is more than a third of an inch difference between the left and the right foot, mismated shoes are essential.

Custom molded shoes are the next choice when mismates are not adequate. Molded shoes are made by taking a plaster cast of one's foot and then molding the shoe over that cast. Consequently, molded shoes conform to the individual's foot and provide added comfort. These shoes have wedged heels, rather than separate heels, no metal shank, and no firm medical counters. In general, molded shoes are designed to accommodate the polio foot.

When stability and control are the overriding concerns, one must consider custom-made shoes. Custom shoes are also fabricated over an individual plaster cast of the foot, but they do have separate eels, metal shanks, and firm counters. All the modifications needed for stability are built into the shoe at the time of fabrication. Custom shoes fit firmly and prohibit medial/lateral and anterior/posterior play to control an unstable foot.

Some polio survivors can wear off-the-shelf footwear; others will need modifications built into these shoes. Still others will need non-stock items like mismates or custom molded shoes, while some survivors with a more severe foot problem will need and benefit most from custom-made shoes. The important point to remember is that footwear are part of your treatment and that they are a very real and effective means of providing additional comfort and stability.

Dr. Jay Portnow started the first polio clinic in Massachusetts and may be contacted at his private practice by writing to 126 Prospect Street, Norwell, MA 02061 or by calling 617/659-2521.

Mr. Thomas McGillicuddy is president of Pedi-Mac Shoe Company, Inc., 59 Temple Place, Boston, MA 02111.

Orthotic Devices
By Loren D. Jouett, C.P.O.
Residual foot damage is commonly found in persons whose lower extremities were affected by poliomyelitis. The correct healthy foot has a three point buttress design which can be impaired in 27 different ways as a result of muscular paralysis. Although similar, no two foot problems are alike and therefore, there is no one answer.

Each anatomical weakness should be considered and the combination of problems must be unified to be corrected by the most simple and effective orthotic device.

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Orthotic Devices
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A primary consideration is the balancing of weight bearing forces on the bottom of the post-polio foot. The plantar fascia, which is nature's padding for comfort on the bottom of the foot, is absent on the atrophied foot. An interchangeable shoe insert of the proper durometer to afford a cushioning surface can solve this problem and provide optimal foot support while standing.

This insert must be contoured to assure proper alignment of the extremity. Some areas of the insert may require increased contour of varying rigidity so that intolerant prominences and hypersensitive spots are relieved.

Walking further complicates the problem. Normal ambulation requires the proper functioning and coordinating of muscles and tendons through the foot and leg, as well as around the ankle, knee, hip joints, and spine. Any inadequacies found in these areas may require further orthotic considerations such as ankle/foot orthoses which could include bracing of the knee and hip.

Other complications may include unequal leg lengths which can be corrected by a balancing lift. If an ankle/foot attitude does not allow the sole of the foot to bear weight, surgical intervention may be required.

Each individual must be evaluated and a biomechanical support/control system needs to be designed, fabricated, and applied for each foot.

Mr. Loren D. Jouett, C.P.O. has over 30 years of experience as an orthotist. Questions about orthotic solutions to polio foot problems can be sent to Dreher-Jouett, Inc., 210 West Chicago Avenue, Chicago, IL 60610.

Publication Available
To obtain advice and information about correctable shoes, shoe exchanges, proper socks and hose, and the latest research on foot care and foot surgery, contact, "FOOTNOTES" ($4.00 per year), National Foot Problem Association, P.O. Box 470261, Fort Worth, TX 76147.

POTPOURRI
Governor of New Jersey, Thomas H. Kean, declared June 1-7, 1988 as Post Polio Survivors Week. The efforts of Joyce Houser and the Raritan Valley Post-Polio Support Group have resulted in help for many polio survivors in their area.

Phillipa Morrison, 2/6 Sanders Ave. Napier, New Zealand, reports that since the 1987 International Polio and Independent Living Conference, a list of over 150 polio survivors and interested physicians has been compiled. In August, both groups will participate in a post-polio seminar at Massey College, Palmerston North.

David Kelly and the Lake Tahoe Polio Network would like to hear from each group that publishes a newsletter. Send future copies or details to David Kelly, P.O. 10005, South Lake Tahoe, CA 95731.

1988 Flu Vaccine
The new influenza vaccine for 1988 has been announced by the Centers for Disease Control (CDC). The new vaccine will counter the most prevalent A strain of the virus now circulating in the United States. It also will contain a new variant of the influenza B strain, and the Taiwan A strain that affects primarily people under the age of 35.

In cooperation with the Surgeon General and the CDC, a National Coalition for Adult Immunization has formed to promote the use of influenza vaccine and other vaccines for adults. Consult your personal physician.
PolioPlus a Huge Success
To date, Rotary International has raised US$221 million for PolioPlus, far exceeding the original goal. Already, 110 million children in approximately 50 countries have been immunized under the project since its inception in 1985.

Rotary provides the polio vaccine and other private sector support for national and regional immunization efforts, normally for a five-year period, and works closely with the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and other organizations.

PolioPlus funds will be used to help meet WHO's goal to eradicate polio worldwide by the targeted year 2000.

Committee Renamed
On May 10, 1988, the forty-one-year-old President's Committee on Employment of the Handicapped was renamed The President's Committee on Employment of People With Disabilities by Executive Order 12640. Consumer advocates, working to improve the language concerning disability, applauded the change of name.

The President's Committee on Employment of People With Disabilities advises the President and "provides advice and information as to the development of maximum employment opportunities for people who are physically disabled, mentally retarded, and mentally ill."

Through the efforts of the Committee, Congress has declared the entire month of October 1988 as National Disability Employment Awareness Month. For more information write to 1111 20th Street, N.W. Suite 636, Washington D.C. 20036.

Americans With Disabilities Act of 1988
The Americans With Disabilities Act of 1988 (ADA) has been introduced in the House (H.R. 4498) and the Senate (S. 2345). The announced August 2 joint House-Senate hearing on ADA has been rescheduled for a later time, possibly September.

The ADA, a key recommendation of the National Council on the Handicapped in its 1986 report, Toward Independence, will prohibit discrimination on the basis of handicap in areas such as employment, transportation, public accommodations, travel, communications, and activities of state and local governments.

Congressman Major R. Owens, Chairman, House Subcommittee on Select Education and one of the many sponsors of the Act, appointed a Task Force on the Rights and Empowerment of Americans With Disabilities.

In St. Louis on one of his fifty scheduled visits gathering testimony about how discrimination affects the lives of individuals with disabilities, Justin Dart, Co-Chairperson of the Task Force, remarked, "Victory will not be handed us just because we are right."

Polio survivors unable to attend one of these meetings can send brief anecdotes of discrimination to their legislators and to the National Council on the Handicapped, Attn: Sandra Parrino, 800 Independence Avenue, S.W., Suite 814, Washington, D.C. 20951.

A complete draft of the Americans With Disabilities Act of 1988 will be sent to you by your senator (S. 2345) or your representative (H.R. 4498) upon request.
Calendar


November 12, 1988. Regional Conference on the Late Effects of Poliomyelitis. Ramada Hotel Capitol Plaza, Atlanta, GA. Contact: Nancy Osborne, 404/461-2541 or Theresia Arnold, 771 Lindbergh Drive, Atlanta, GA 30324.


May 31-June 4, 1989. International Polio Network's Fifth International Polio and Independent Living Conference. Sheraton St. Louis Hotel, St. Louis, MO. Contact: Joan Headley, International Polio Network, 4502 Maryland Avenue, St. Louis, MO 63108. 314/361-0475.