

My Search for a Better Polio Brace

Marny K. Eulberg, MD, Denver, Colorado

My search for a better brace began 4½ years ago. I had been using a below-knee brace that provided good control of my drop foot and also provided some knee control. I was using a single forearm crutch whenever walking more than one block (such as whenever making rounds at the hospital). But my knee was getting weaker and at times when walking my dog, it felt like my knee was going to buckle. I was not sure I'd make it back home.

I knew that the only option available with conventional bracing was a long leg brace locked at the knee. I was not excited about that possibility as I was not sure that I had enough hip flexor strength to lift the additional weight of a long leg brace all day. Also, I did not want my obvious limp to become even more exaggerated, and the idea of locking and unlocking the knee joint every time I wanted to sit down was daunting.

I learned that there are some companies that make knee joints that can lock during weight bearing and will automatically unlock when not weight bearing. I checked out some websites and it appeared that these knee joints were not available in Denver, or at least not through any of the vendors covered by my insurance.

One of my post-polio patients who lives in California had come back for a re-evaluation with an impressively improved gait after getting a new brace. Eileen suggested that I should get a brace made by the orthotists who had made hers. I knew that Eileen's pattern of muscle weakness was much different than mine so I was not sure this design would work for me. I decided to learn more.

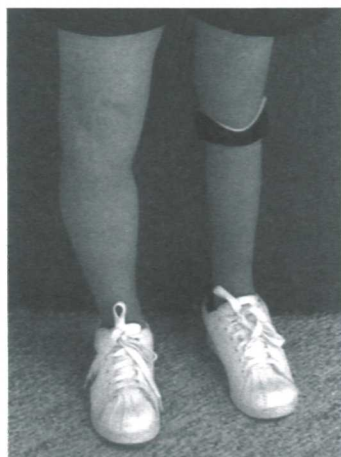
Eileen has a dynamic triplanar short leg brace (Ankle Foot Orthosis or AFO) from DynamicBracingSolutions (DBS)

in San Diego. It is dynamic in that it is both rigid enough to provide for stability and flexible enough to provide for mobility. Conventional bracing controls/supports only in the front-to-back plane; the triplanar design provides control in side-to-side and rotational planes as well.

DBS suggests that a potential client send them a video that shows the client standing and walking, and then they will render an opinion whether they feel the DBS design(s) has(have) the potential to benefit that client. After I sent my video, DBS's reply was, "Yes, a DBS AFO can solve many of your gait problems, and we believe that you have the potential to have a nearly normal gait and walk without a cane or crutch."

I arranged to go to San Diego for a medical conference. While there I

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There are licensed DBS clinicians in Scottsdale, Arizona; Dallas-Ft. Worth, Texas; San Diego, California; and New Jersey (Ortho-Therapy) who follow the DBS design protocol that I can endorse.

For information, visit www.DynamicBracingSolutions.net or www.Ortho-Therapy.com, or call 619-972-3853 or email info@DynamicBracingSolutions.net

was evaluated by a DBS orthotist who told me that, in 90-95% of cases, a DBS AFO could adequately control the knee (prevent knee flexion from a weak or even absent quadriceps) and then a long leg brace would not be needed. I decided that the cost of the brace would be worth it *even* if it did nothing more than save me from wearing a long leg brace. So I was casted for an AFO and the design team spent hours analyzing the video of my gait and custom engineering a brace for me.

I flew back to San Diego about two months later for three days for fitting of the new brace and for training in balance exercises. I began to unlearn how I had walked for 54 years and to learn a new way to shift my weight over my polio-affected leg with each step and *to trust* that it would allow me to be stable as I advanced my other leg. After the first day, I could already feel how well my knee was supported.

The next phase—practicing, practicing and more practicing—was a test of my determination. I have been the medical director for a post-polio clinic for 20 years, so intellectually I understood a lot about gait, but knowing how walking should work and *doing it myself* were two very different things. The way I had walked nearly all my life seemed normal to me.

I was poor at monitoring my own body positions, so I worked with a physical therapist weekly to biweekly. To make the time for practice, I got up 30 minutes earlier than usual for nearly a year. It was frustrating, to put it mildly, as I practiced, or when I would get the assessments back from DBS after I had sent followup videos and be

told again and again, “You are showing improvement *but* you need to get your pelvis over further.” Finally after nearly two years, Marmaduke Loke, CPO, of DBS gave me the equivalent of an Olympian’s “perfect 10!”

I never thought I’d say I love a brace, but I love this brace. I would have been satisfied simply avoiding a long leg brace. In addition, I am walking with nearly normal gait and not using a cane or forearm crutch except when I might have to walk distances or on uneven terrain or when walking my rambunctious dog who could pull me over. I feel very stable when standing, such as when I lecture. In the past, I always leaned on the podium or sat on the edge of a table.

There are no straps or velcro to ruin nylon stockings, and the footplate makes up for the difference in my foot sizes so now I don’t have to buy split-size shoes.

An unexpected benefit was that I felt so much better about my appearance that I was motivated to lose 50 pounds which, of course, decreases the stress on my weakened leg muscles. Another interesting finding is that the strength of my hip and knee muscles has improved.

For me, the search for a better brace was successful—beyond my initial expectations. But it was not without significant time, money and lots and lots of work by the orthotists, my physical therapist and myself. ▲

Marny K. Eulberg, MD, is a polio survivor who has worn a brace for over 30 years. She is a family physician who founded a post-polio clinic in 1985 and has seen over 1,000 polio survivors. Eulberg was named “Colorado Family Physician of the Year” by the Colorado Academy of Family Physicians in July 2005.

Eulberg can be reached at Post-Polio Clinic, St. Anthony’s Family Medical Center West, Ground Floor East, 4231 West 16th Avenue, Denver, Colorado 80204; 303-899-5369 voicemail.

The Post-Polio Experience: Psychological Insights and Coping Strategies for Polio Survivors and Their Families

by Margaret E. Backman, PhD, 231 pp. softcover, ISBN 0-595-38639-3, \$18.95, March 2006
iUniverse, Inc. (www.iuniverse.com)

Backman, a clinical psychologist in New York City, specializes in helping individuals and families cope with medical illnesses and physical disabilities. She has been working with polio survivors for over 20 years. This very readable book—appropriately titled—provides insights (one size does not fit all) and offers strategies for survivors and families.

There Is Room at the Inn: Inns and B&Bs for Wheelers and Slow Walkers

by Candy B. Harrington, 256 pp. softcover, ISBN 1-932603-61-1, \$21.95, June 2006
Demos Publishing (www.demosmedpub.com)

Written by *Emerging Horizons*' editor, this is a guide to 118 accessible inns and B&Bs through out 40 states in the USA. The book includes tips for finding an accessible inn and some notes for innkeepers.

Behind Enemy Lines: A Memoir

by John Durand, 312 pp. softcover, ISBN 0-9743783-2-1, \$15.95, September 2005
Puzzlebox Press (www.puzzleboxpress.com)

Durand writes about his polio experience beginning as a six-year-old child in a small Wisconsin town. Forty years later he found his life in shambles and sought answers through counseling and discovers a sleeping boy within ... and a surprising enemy. He has also authored two historical novels: *The Taos Massacres* and *The Odyssey of Mary B.* ▲

Poliomyelitis Eradication Field Guide from Immunization Unit of the Pan American Health Organization (PAHO)

The strategies that made polio eradication in the Americas possible are the same ones currently being implemented on a global scale and, essentially, those that will make it possible to keep the countries of the Americas polio-free: to achieve and maintain high vaccination coverage and adequate epidemiological surveillance. This guide (third edition) provides the knowledge and strategies necessary for health workers to keep the Western Hemisphere polio-free and to enable them to quickly and effectively control new outbreaks. More than a guide to achieving eradication, it is a reference manual for maintaining polio eradication.

Field guides are also available for yellow fever, measles, neonatal tetanus, rubella, and one is entitled "Control of Diphtheria, Tetanus, Pertussis, Haemophilus Influenzae Type B (HIB) and Hepatitis B."

Information on how to obtain one or all six of the field guides can be found at www.paho.org/english/ad/fch/im/fieldguide_index.htm. ▲



Summary of Research Presentations from Strategies for Living Well, June 2005

Edited by Baldwin Keenan, Irvine, California

Who is likely to report a diagnosis of post-polio syndrome?

Nancy A. Myers, PhD, Assistant Professor of Epidemiology, Northeastern Ohio Universities College of Medicine, Rootstown, Ohio, namyers@neoucom.edu

In 1994 and 1995, the National Health Interview Survey identified and questioned a national sample of polio survivors—not just survivors seeking medical attention or associated with support groups. Based on the number of respondents, it is estimated that 920,000 polio survivors were living in the United States at that time. The survivors were asked a series of questions about their past and current health, including whether they had been diagnosed with post-polio syndrome (PPS).

- 25% reported they believed that they had PPS, while only 11% reported that they had been diagnosed by a physician. (*Note: Today, 11 years later, more survivors and more doctors know more about post-polio syndrome.*)
- Survivors who had polio as an adult were three times more likely to report PPS than those who had contracted polio during their childhood. This may be due, in part, to these survivors' current age. They may have better access to regular medical care because of their Medicare coverage, and therefore, be more likely to receive a timely diagnosis.
- No relationship was found between the length of time of the respondents' polio infection and the time of the survey and the likelihood that they reported a diagnosis of PPS.
- There was no difference in the rates of diagnosis of PPS in men versus women. Since the vast majority of respondents were white, it was not possible to tell statistically if there were differences in rates by racial or ethnic group.
- Respondents whose polio infection was more severe (for example, those who had more than five muscle groups affected, or those who required hospitalization for their original treatment) were more likely to report a diagnosis of PPS.
- Respondents were asked a series of questions about their view of life, similar to Type A personality questions that have been used in other surveys. Respondents who scored higher on the answers to these questions had a slightly *lower* likelihood of reporting a diagnosis of PPS.
- Future research on PPS needs to be expanded to include all polio survivors, with a special effort to include those who are not European-Americans. They may not have received an accurate polio diagnosis or standard treatment for their polio at the time of the epidemics due to the segregation that existed in the health care system in the US at that time.
- Future research should also identify what factors—not just physical factors—put polio survivors at risk of developing post-polio syndrome. ▲

Mouse Model of Post-Polio Syndrome for Growth Factor Therapy

Burk Jubelt, MD, Department of Neurology, SUNY Upstate Medical University, Syracuse, New York

A “polio mouse” has been developed with hopes to find a therapeutic intervention for post-polio syndrome (PPS). The infected mice react to the polio attack much the way humans do. In SUNY’s study,

- 49% died,
- 9% had no paralysis,
- 42% survived with paralysis, and
- None had residual inflammation or viral infection with the continued motor neuron deterioration.

One year later, the equivalent of 30 to 40 human years, 50% of the surviving mice developed late weakness.

There has been some study of people with PPS taking growth factors. However, no useful information resulted for a couple of reasons.

- The dosages were too low and not repeated often enough.
- The growth factors were injected under the skin or into a muscle and did not reach the motor neurons.

The newer research intends to use two types of growth factors on the “polio mice:”

- GDNF: Glial cell lined-derived neurotropic factor. Its purpose is to maintain the health of the motor neuron cell body.
- IGF-1: Insulin-like growth factor. Its purpose is to strengthen and maintain the motor neuron sprouts.
- A combination of these two factors is intended to stop the late weakness of polio.

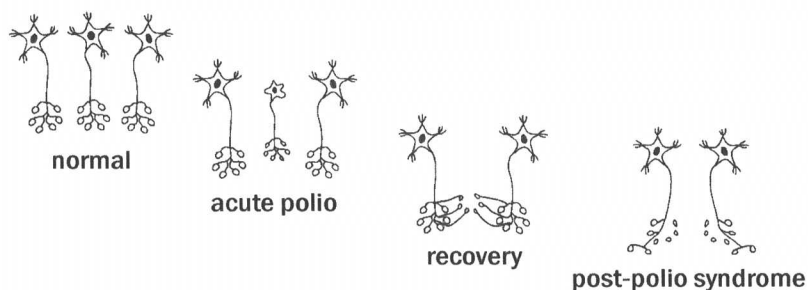
In order to deliver the growth factor precisely to the motor neuron cell body and sprouts, the researchers will use a benign virus vector which

does not damage the nerve cells.

The virus vector carrying genes of the two growth factors will attach inside the motor neuron and replicate. It is projected that the injection of additional virus vectors will only have to be done every six to nine months.

If this procedure is successful with mice, the next step will be to try it with polio survivors. ▲

PATHOPHYSIOLOGY OF POST-POLIOMYELITIS SYNDROME



Normal: Three normal motor units are presented.

Acute Polio: Invasion of one motor neuron by poliovirus produces degeneration of the affected motor neuron and denervation of associated muscle fibers.

Recovery: Recovery after paralytic polio occurs through axonal sprouting from surviving motor neurons with reinnervation of muscle fibers. Muscle fiber hypertrophy may also occur (not illustrated).

Post-Polio Syndrome: Distal degeneration of enlarged motor units with denervation of muscle fibers is believed to be the most likely cause of PPS.

SOURCE: Trojan, D. & Cashman, N. *Current Trends in Post-Poliomyelitis Syndrome*, 1996.



Study Using Modafinil to Treat Fatigue

Olavo M. Vasconcelos, MD, Uniformed Services University of Health Sciences, Bethesda, Maryland, ovasconcelos@usuhs.mil

Post-polio fatigue is not simply muscular or physical. It involves emotional, intellectual, social and other related functioning.

Modafinil (Provigil®) has been successful in treating fatigue in patients with other neurological disorders, including multiple sclerosis.

First Study: The PPS program sponsored by the Uniformed Services University enrolled (June 2005) volunteer polio survivors to test if modafinil can reduce fatigue in polio survivors experiencing PPS. The results of this randomized controlled trial showed that modafinil was not superior to placebo in alleviating the fatigue.

Second Study: The program has enrolled polio survivors to look at alterations in their brains and spinal cords in order to explain the development and the origin of PPS symptoms. This is not a drug treatment trial. Electro-physiology and magnetic resonance will be used to map possible residual

abnormalities in the central nervous system caused by the poliovirus during the original infection.

Third Study: We also will look at cognitive problems that are common among polio survivors who have PPS. The study will measure the brain's ability to concentrate, sustain attention, register and memorize information with the use of traditional neuropsychological tests. Recruitment for this study is expected to start in May of 2006. Polio survivors with and without PPS are needed for this study. Any polio survivor is welcome to enroll, but funding is not available for transportation to the site. ▲

Understanding Research

After every international conference, PHI is asked, "What's the latest research?" Thanks to polio survivor Baldwin Keenan, this issue features the summaries of four presentations (pp. 4-7). Three of the researchers discussed pharmacological possibilities—modafinil, GDNF and IGF-1 and intravenous immunoglobulin (IVIg). The next question is, "Should I, as a polio survivor, try it?"

The findings in the modafinil study were that it did not alleviate fatigue, which is the same conclusion as that of a team of researchers from the University of Alberta, Canada. K.M. Chan and colleagues reported their study in the January 2006 *Muscle & Nerve* [33(1):138-41].

GDNF and IGF-1 are just now being tested on mice. There is no decision to be made.

By all accounts, intravenous immunoglobulin (IVIg) sounds promising. But, there are many questions. Is the research "good" research? Which polio survivors would it benefit? All of us? A select few? What are the side-effects? These and other questions will be answered in the next issue of *Post-Polio Health* by Lauro S. Halstead, MD, National Rehabilitation Hospital, Washington, DC, and Julie K. Silver, MD, International Rehabilitation Center for Polio, Framingham, Massachusetts. ▲

Intravenous Immunoglobulin Treatment for Improving Muscle Strength

Kristian Borg, MD, PhD, Division of Rehabilitation Medicine, Karolinska Institute, Danderyd University Hospital, Stockholm, Sweden, kristian.borg@ki.se

Post-Polio Syndrome, described as weakness and atrophy in skeletal muscles, occurs when there is a failure in capacity of a nerve cell body to maintain large motor units. The large motor units are supported when the capacity for re-innervation is greater than denervation. Eventually this mechanism reaches an upper limit leading to muscle weakness. The cause of the denervation is unknown at the moment.

An ongoing inflammatory process in the central nervous systems of post-polio patients has been described in some studies, but has not been found in other studies.

Our study in 2002 found an increase of cytokine production in the central nervous system of post-polio patients.

We know that:

- Cytokine levels are greater when there is an inflammation.
- Cytokine levels are higher in people with multiple sclerosis (MS), a known neuroinflammatory disorder.
- The level of the increase in the post-polio patients was almost the same as in the MS patients.

We checked older studies to see what work had been done.

- Dinsmore reported an effect of prednisone in high doses and the effect eroded as the doses were lowered.
- Ann Bailey, MD, at Warm Springs, Georgia, in the early '80s, treated 80 patients with the oral vaccination, and 50 of those patients reported a positive effect on their symptoms.*

Due to her results and to the pattern of the cytokine increase, we began an

open, uncontrolled study using intravenous immunoglobulin (IvIg) in 16 post-polio patients.

We were able to down modulate the cytokines, but what is the gain for the patient? We next developed a multi-center placebo-controlled study, double-blinded in 135 post-polio patients. (In the former study, we used 90 grams of IvIg; 30 grams daily for 3 days.)

In this study, we used 30 grams for 3 days, repeated twice. We noted an increase of muscle strength of 4.3% in the post-polio patients. In the placebo group, muscle strength was decreased by 5.7%. This was statistically significant. The *natural course* of decrease in strength was 5.7% in one-half year.

The benefit: Post-polio patients selected for the study had an increase in cytokine levels, indicating inflammation in the central nervous system. The inflammation was down-modulated by the intravenous immunoglobulin (IvIg) and down-modulated inflammation led to increased muscle strength and should result in a better quality of life. ▲

**Using oral polio vaccine to treat PPS is not an accepted practice.*

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Teen Polio Survivors Coming of Age in the 21st Century

Debbie Hardy, Whittier, California

Part I: Grace Rossow, Saint Louis, Missouri

Like most American teenagers, fourteen-year-old Grace Rossow of Saint Louis, Missouri, loves going to the movies and hanging out with her friends at the mall. Recently, she has negotiated an arrangement with her parents promising better grades for a cell phone. She misses her two older sisters who are away at college.



Grace, like all eighth graders in her school, is looking forward to the formal dance that will be held to celebrate their middle school graduation. However, whatever Grace chooses to wear for the dance, she will have an accessory that none of the other girls will be wearing. She will be wearing a KAFO leg brace.

Grace had polio when she was nine months old and it significantly affected the muscle control in her left leg. Decorated in a very colorful rainbow plastic and adorned with the signatures of her friends, the brace enables her to walk. Grace is not self-conscious about her brace, although she sometimes tires of the problems and maintenance it requires. Grace welcomes the attention she receives when these problems must be addressed and enjoys her visits to Shriner's Hospital as long as there is no agonizing physical therapy involved.

Born in India, she came to the United States when she was 13 months old and was adopted by the Rossow family. Her mother, Beth, says that following some surgery, Grace learned to walk with her brace at age 2½. She mentions that during her early schooling, Grace had a lot of resources available to her such as a physical therapist provided through the school, free use of arm-controlled bicycles and very supportive school and hospital personnel.

Throughout her school experience, other children have not teased Grace, but have gone out of their way to offer help when it's been needed.

Grace likes working with computers and spending time with her friends. She is frustrated occasionally and feels left out because she is unable to participate in team sports or ski trips. But negativity—about her disability or anything else—is not Grace's style. She prefers to accentuate the positive and enjoys the drama class she is taking in place of Physical Education this year.

A special key enables her to use the elevator at school (when it is working), and she is allowed to leave class early, so that if she needs to take the stairs, she can do so before the rush of other students changing classes.

Grace feels that her disability has afforded her opportunities to meet interesting people and establish close relationships with many of them. She is also not shy about the fact that she had polio and is willing to discuss it with anyone who broaches the subject.

Confident and articulate, Grace is looking forward to starting high school in the fall. After college, she hopes to become a physician so that she not only can heal the sick, but also be compassionate and supportive of others. ▲

Part II: Nazish Rashid, Lahore, Pakistan

Life in Pakistan, a country where many view a physical disability as a shame upon the family and a punishment from God, has not been easy for 16-year-old Nazish Rashid. As a result of having polio at two years of age, she has a weakened and shortened right leg causing her to limp and bow to the right. When she was very young, Nazish wore a leg brace, but because of financial constraints she no longer uses one. Proper medical assistance is either not available or too expensive to pursue. She has had one visit to a rehabilitation center in her city where a surgeon advised corrective surgery to lengthen her leg. The procedure was too costly for her family.

Nazish is in the 10th grade and enjoys movies and plays. She and her friends can spend hours discussing boys and, their favorite topic, the latest fashions. She loves sports and wishes she could participate with her friends. In the classroom, Nazish tends to become shy and keeps to herself. She immerses herself in her studies finding it difficult to be accepted because of the way disabilities are perceived in her society. While some people are sympathetic, she finds that many are superstitious and cautious about befriending someone who has a disability. This has made her feel inferior and self-conscious.

Nazish often chooses not to participate in family and social activities and rarely leaves her home, going out only when her attendance is mandatory. Sometimes this is because she is physically unable to do so due to architectural barriers; other times she chooses not to attend social events because some family members and friends make no secret that they consider her to be a burden.

She is very close to her mother and her brother. Her mother prays for her

recovery daily and blames herself for her daughter's disability. Her brother, Amjad, is protective towards her and often intercedes on her behalf with family members and friends. He uses his computer skills to find information about her disability that will benefit her and coax her back into the mainstream of life.

Most marriages in Pakistan are arranged. It is especially difficult to arrange a marriage for a woman who has a disability. Nazish is fast approaching the age when young girls in her country usually get married. Her family worries that they will not have the financial ability to enter into an arrangement that will come at a higher than normal cost because of their daughter's disability.

Nazish has no idea what the future will hold for her, but she hopes to pursue a career in medicine or teaching. Whatever career Nazish chooses, she will embark upon it with the same determination and strength that she currently gives to her studies. ▲



Nazish at 10 years of age.

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Post-Polio Health International acknowledges a bequest from Darlene M. Mellom, Wisconsin, who "was a very kind and giving woman who was always thinking about others."

BOARD ACTIVITIES

At the request of the National Institute of Neurological Disorders and Stroke (NINDS), Post-Polio Health International's Medical Advisory Committee, chaired by Martin B. Wice, MD, Saint Louis, Missouri, reviewed and revised the NINDS "Post-Polio Syndrome Fact Sheet." The new version can be viewed at www.ninds.nih.gov/disorders/post_polio/detail_post_polio.htm.

Members of PHI without Internet access may request a copy (314-534-0475, info@post-polio.org). Specify "NINDS Post-Polio Syndrome Fact Sheet."

Two Join PHI Board of Directors

Selma Harrison Calmes, MD, Olive View/UCLA Medical Center, Sylmar, California, an anesthesiologist, has advocated for the appropriate management of polio survivors during surgery. She has dedicated many hours to educating and assisting her colleagues on current topics related to breathing and anesthesia.

Daniel J. Wilson, PhD, Muhlenberg College, Allentown, Pennsylvania, a professor of history, has written extensively about the polio epidemics and its survivors. He also has been active in the Post-Polio Support Group of the Lehigh Valley for more than 20 years.

Calmes and Wilson are both polio survivors who join PHI's Board of Directors for a two-year term. Other members are listed at www.post-polio.org/brd.html.

The Research Fund Proposal Deadline Extended

What?

CALL FOR PROPOSALS FOR THE RESEARCH FUND

Who should apply?

Researchers investigating the late effects of poliomyelitis and/or neuromuscular respiratory disease. The Fund's priorities are to provide funds to initiate new research; to continue notable projects; to combine with other resources to complete research into post-poliomyelitis and neuromuscular respiratory research.

How much?

\$25,000 for 2007

Deadline for Phase 1:

August 1, 2006 (Applicants will be notified by September 1, 2006, if accepted for Phase 2.)

Deadline for Phase 2:

November 1, 2006

Criteria and Procedures:

Available on www.post-polio.org or by calling 314-534-0475.

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PHI's mission is to enhance the lives and independence of polio survivors and home mechanical ventilator users through education, advocacy, research and networking.

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Polio History

THE SABIN ORAL PROGRAM

WHAT: A plan to wipe out polio in our area. Sabin Oral Vaccine, given on three Sundays about a month apart to everybody from the age of three months to the oldest residents, whether they have had the shots or not, gives permanent protection against the three types of polio.

WHO: The program is being sponsored, planned, and carried out by the Greenville Evening Lions Club with your help.

WHERE: The whole area of Washington County. Clinics will be set up in certain designated schools throughout the area.

HOW: Two drops of tasteless, odorless Sabin vaccine are placed on a sugar cube, which is given to each person to eat. No pain, no more shots, ever. For those who cannot eat a sugar cube, the drops are placed directly in the mouth or given in water.

WHEN: The three Sundays are February 9, March 15 and April 19. For protection against the three types of polio, it is necessary to take the vaccine ALL THREE SUNDAYS. All the clinics will be open from 12 noon to 6:00 P.M.

WHY: The Sabin Oral Vaccine has great advantages over the older type. It is PERMANENT (no boosters needed, except POSSIBLY for babies), and it not only keeps you from GETTING polio, but also from CARRYING polio. It takes effect in only a few days. Given to everyone at the same time, it could completely STAMP OUT POLIO IN THIS AREA. Newcomers and babies should be given the vaccine as soon as they arrive, to keep our area polio-free.

COST: Contributions are voluntary—25¢ or more is suggested to help defray the cost of vaccine and supplies. The vaccine will be given free to anyone who can't afford to contribute.

REGISTRATION: Registration forms are to be filled out before you get the vaccine. They will be given out to school children before each S.O.S. Sunday and will be printed in The Delta Democrat Times. To save time you should fill out the form before you come to the clinic if you can. (All members of the same household can be listed on the same form.) Registration forms will be available at each clinic for those who have not completed them before arriving.

To get the vaccine attend the place closest to your home:

GREENVILLE HIGH SCHOOL - (White)
EM BOYD ELEMENTARY SCHOOL - (White) GREENVILLE
FULWILER ELEMENTARY SCHOOL - (White) GREENVILLE
HOLLANDALE HIGH SCHOOL - (White)
DEAN HIGH SCHOOL - (White) LELAND
GLEN ALLAN HIGH SCHOOL - (White)
RIVERSIDE HIGH SCHOOL - (White)
COLEMAN HIGH SCHOOL - (Colored) GREENVILLE
WEDDINGTON ELEMENTARY SCHOOL - (Colored) GREENVILLE
LUCY WEBB ELEMENTARY SCHOOL - (Colored) GREENVILLE
SIMMONS COLORED SCHOOL - HOLLANDALE
LINCOLN COLORED SCHOOL - LELAND
ARCOLA COLORED SCHOOL AVON COLORED SCHOOL
MOORE COLORED SCHOOL

PHI appreciates this donation to the archives from Susan Collum of Brandon, Mississippi.

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