February, 1999

POLIO POSTBOX

Editor: Fred Ramsay
Phone: 543-6380

Polio Regina Incorporated

825 McDonald Street, Regina, Sask. S4N 2X5

Editorial

Thanks!

With a new slate of officers being elected in February, we thank the out-going executive for the excellent job they did in 1998. Special thanks to Jackie Ball, president, for her guidance and to Verna Copeland, who knitted the group into one unit and kept our finances in order.

Now we head into the new season stronger and more active than ever.

But we need your input about programs and projects which you would like to see in 1999. This is an organization which is run by the membership and the executive is always glad to hear from you.

Fellowship and socializing are extremely important in a support group like ours and its no big deal if all we do sometimes at a meeting is visit with each other and play a few games. That's the secret for the excellent turnout at the annual Christmas social.

Anyway let's have a great year. I'll do my best to render my support.

- Fred

Financial Statement

Bank balance January 1, 1998	740.41	
Term deposit	3196.04	3936.45
Income		
Memberships	585.00	
Donations	442.69	
Sponsors	100.00	
Social	54.95	
Xmas Banquet (53 plates @ $12.00)	636.00	
Coffee mugs	115.00	
Bank interest	84.90	
	2018.54	
Outstanding cheque	50.00	
	2068.54	6004.99
Expenses		
1997 remuneration	357.50	
Postage	230.78	
Printing	772.79	
Hall rent, entertainment, P.A. System	261.75	
Social supplies	252.35	
Xmas banquet (54 plates @ 11.77)	635.58	
Cards, flowers, etc.	41.16	
Stationery	85.73	
	2637.64	
1997 Outstanding cheque	210.00	
Bank balance December 31, 1998	1040.71	
Term deposit	2116.64	6004.99

Submitted by Verna Copeland

Your handy list of active members - January 1, 1999

Check to make sure we have your current address and telephone number. If there's any errors or omissions, please contact Blenda Ramsay at 543-6380.

First name	Last name	Address	City/town	Prov.	Post code	Phone
Ruth	Adelia	40-702 Sangster Blvd.	Regina	SK	S4R 8B6	543-7035
Jim	Allonby	1622 Brown St.	Regina	SK	S4N 4V8	789-9217
Jeanne	Baldy	1293 Hall Ave.	West St. Paul	MN	55118	(612)457-3774
Jackie & Keith	Ball	RR #2	Craven	SK	S0G 0W0	775-2896
Dick	Beck	6938 Maplebrook Cres.	Regina	SK	S4X 4J2	791-0351
Norm & Bernice	Beliveau	654 Cameron	Regina	SK	S4T 2R8	522-0755
Carol & Clarence	Biberdorf	7319-6th Ave.	Regina	SK	S4T 0P3	545-4173
Dan	Black	2131 Bonneau Place E.	Regina	SK	S4V 0L4	789-7058
R.H. (Doc)	Bornholdt	Box 55	Yellow Grass	SK	S0G 5J0	465-2528
Ian	Cardiff	633 Arthur St.	Regina	SK	S4T 4V3	545-6106
Mrs. Betty	Comstock	Box 97	Indian Head	SK	S0G 2K0	695-3660
Ross & Verna	Copeland	Box 226	White City	SK	S0G 5B0	771-2619
Leo	Denbrok	1744 Regent St.	Regina	SK	S4N 1S3	525-2649
Maurice & Virginia	Denzin	R.R. #2	Craven	SK	S0G 0W0	775-2821
Donna	Dobrowolsky	Box 403	Craik	SK	S0G 0V0	734-2362
Marlene	Dreger	#34 - 4045 Robinson St.	Regina	SK	S4S 3E1	565-3925
Claude	Dumelie	Box 1102	Assiniboia	SK	S0H 0B0	642-5703
Carole	Einfeld	4264 Wascana Ridge	Regina	SK	S4V 2T2	761-1020
James	Ellaschuk	Box 174	Wroxton	SK	S0A 4S0	742-4219
Carman	Feader	#205 - 2339 Lorne St.	Regina	SK	S4P 2N2	586-2347
Judith	Focht	8 Kensington Cres.	Regina	SK	S4S 7G5	586-3729
Connie	Frisk	Box 518	Bengough	SK	S0C 0K0	267-5634
R. Murray	Grant	1037 Grace St.	Regina	SK	S4T 5M5	545-1363
Adam	Gruszczynski	15 Trudeau Bay	Regina	SK	S4S 6V3	586-5094
Norma	Haggard	Box 282	White Fox	SK	S0J 3B0	276-2179
Christina	Harder	13 - 27 Vaughn St.	Regina	SK	S4N 1V5	525-9007
Del	Hayden	323 McIntosh Street	Regina	SK	S4R 4Z6	545-1009
Georgina & Allan	Heselton	Box 373, #6 Hummingbird Bay	White City	SK	SOG 5BO	586-8699
James & Jeanette	Hipfner	2836 24th Avenue	Regina	SK	S4S 1J8	586-8729

Isabelle	Hitchie	769 Horace St.	Regina	SK	S4T 5K7	545-1806
Mrs. Jeanne	Hoffman	General Delivery	Zehner	SK	S0G 5K0	543-5145
Leonard	Jacobs	114 Birch Dr.	Weyburn	SK	S4H 0S5	842-3247
Eveline	Jenkins	3624 Albert St.	Regina	SK	S4S 3P8	586-8691
Ivan & Judith	Jorgensen	3344 Baneberry Dr.	Regina	SK	S4V 2V2	757-8051
Carl & Marion	Kenney	#345 - 325 4th Ave. S.W.	Moose Jaw	SK	S6H 5V2	
Suzanne	Lalonde	#7 - 133 Proctor Pl.	Regina	SK	S4S 4G2	586-2230
Don & Grace	Lekivitz	1957 York St.	Regina	SK	S4T 4R5	522-1755
Diane	Lemon	2411 Athol St.	Regina	SK	S4T 3G6	522-7338
Susan	Lexier	102 Lincoln Bay	Regina	SK	S4S 6R3	584-1086
Vi	Lundell	1813 Robinson St.	Regina	SK	S4T 2P2	522-3256
Lloyd & Inge	MacPherson	82 Metcalfe Road	Regina	SK	S4V 0H8	789-6573
John & Adeline	Manz	Box 71	Markinch	SK	S0G 3J0	726-5720
Mavis	Matheson	15 Trudeau Bay	Regina	SK	S4S 6V3	586-5094
John	McCallum	#201 - 1703 Oxford St.	Regina	SK	S4N 6J5	789-3169
Joan A.	McIver	#908 - 2141 Cornwall St.	Regina	SK	S4P 3R1	757-9107
Javonne	Miller	307-330 Plainsview Dr.	Regina	SK	S4S 6Z8	585-0074
Norma	Motherwell	#1009 - 111 Lockwood Rd.	Regina	SK	S4S 3G5	584-8720
Evelyn	Pidhorny	#220 - 7th Ave.	Yorkton	SK	S3N 3Z2	783-8057
Deryl & Susie	Quinn	2624 G Shooter Dr. E.	Regina	SK	S4V 1E1	789-2123
Fred & Blenda	Ramsay	4334 England Rd.	Regina	SK	S4R 4N9	543-6380
Irv	Richards	#1406 - 2345 Broad St.	Regina	SK	S4P 2A7	352-8360
Alma	Schiller	305 - 467 6th St. N.E.	Weyburn	SK	S4H 2V9	842-2980
Dennis	Schmidt	616 Arthur St.	Regina	SK	S4T 4V2	545-1868
Dorothy	Slater	306-2243 Hamilton St.	Regina	SK	S4P 4B6	347-0881
Bernadette	Tremblay	Box 68	Courval	SK	S0H 1A0	394-4307
Don	Volpel	82 Aiken Cres.	Regina	SK	S4R 5W7	543-8958
Betty	Williams	646 Aberdeen Cr	Regina	SK	S4T 6A9	949-3187
Gloria	Young	106 2237 McIntyre	Regina	SK	S4P 3A1	525-8498

Remember if you haven't paid your membership for 1999, Now is the time !
See Treasurer Verna Copeland

THE KNIFE IS NOT SO ROUGH IF...

by Richard L. Bruno, Ph.D.
Director, Post-Polio Rehabilitation and Research Service,
Kessler Institute for Rehabilitation - Saddle Brook, NJ

When orthopedist Henry Kessler wrote "The Knife is Not Enough," describing what would become the specialty of rehabilitation, polio was America's main event. Today, only a handful of specialists know how to treat polio survivors and Post-Polio Sequelae (PPS). Even more disturbing, few physicians have heard about, and even fewer know, what PPS are or understand polio survivors' special needs in variety of medical settings.

Unfortunately, surgeons are often the most unaware of issues that don't relate to their specialty. If you have to "go under the knife," the innocent ignorance of your surgeon (or his thoughtless disregard for your non-surgical problems) can lead to unnecessary emotional discomfort, excessive physical pain and, occasionally, serious complications.

However, it is important that polio survivors not add PPS to their list of worries surrounding surgery. Not one of our hundreds of patients has died or been seriously damaged even if none of the issues discussed in the following article was addressed. And, only a few of our hundreds of post-polio patients have permanently lost function after surgery.

So read the article and give a copy to each member of the surgical team and the nurses on the hospital floor where you will be staying. Discuss the article in detail with your surgeon and ask that a copy be placed in your medical chart before you go under the knife. Hopefully, all members of your surgical team - the surgeon, anesthesiologist, recovery room and floor nurses - will listen to you and become educated about the special problems surrounding surgery for polio survivors - and your individual medical issues in particular - long before the order "scalpel" is given in the O.R.

PREVENTING COMPLICATIONS IN POLIO SURVIVORS UNDERGOING SURGERY

Unfortunately, only a handful of specialists treat Post-Polio Sequelae (PPS) - the unexpected and often disabling fatigue, muscle weakness, joint pain, cold intolerance, and swallowing, sleep and breathing problems - occurring in America's 1.63 million polio survivors 40 years after their acute polio.1,2

However, all medical professionals need to be familiar with the neurological damage done by the original poliovirus infection that today causes unnecessary discomfort, excessive physical pain and, occasionally, serious complications after surgery. This is a brief overview to inform patients and professionals about the cause and prevention of complications in polio survivors undergoing surgery.

PRE-OPERATIVE PREPARATION

The pre-operative period is the most important, since it is when polio survivors must establish communication with the surgical team. After the second opinion and a polio survivor's decision to have surgery, the patient needs to ask the surgeon to read this article and the references cited. Then, surgical candidates must meet with the surgeon and anesthesiologist to discuss in detail patient's complete polio and general medical histories and the problems that will likely arise before and during surgery, in the recovery room and on the nursing floor.

It is also recommended that the polio survivor meet with the supervisor of nursing on the floor where they will be transferred after surgery to discuss likely problems during the post-op and recovery period.

Lungs.

We recommend that all polio survivors have pulmonary function studies as part of their pre-operative testing.3 This is vital for those who had bulbar polio acutely, whether or not they used a respirator or an iron lung. But, polio survivors who have (or had) neck, arm or chest muscle weakness or have swallowing problems should also have their lung function tested so there will be no unpleasant surprises coming off the respirator at the end of the operation. Polio survivors with a lung capacity below 70% may need a respirator or respiratory therapy after surgery.1

Of course, polio survivors who use a respirator during the day or at night must discuss their respirator use and maintenance in detail with their surgeon, anesthesiologist, the nursing staff, and with their own pulmonologist, before admission to the hospital.

Physical Assistance.

X-rays are a normal part of pre-op testing. Because of workers compensation concerns, many hospital staff are not eager to move or lift patients. Unfortunately, X-ray and examining tables are built at heights that are convenient for the professional, not the patient. Many polio survivors cannot step on a stool to get onto a high table, or even pull themselves over onto a table from a stretcher. Thus, polio survivors must ask for help in transferring.

Since most polio survivors have no experience asking for help under any circumstances, they need to find a phrase with which they are comfortable that will communicate whatever their needs are. Long explanations about having had polio or PPS or the specifics of which muscles are weak or paralyzed are not necessary.

For example, a simple, “My legs (arms) are paralyzed and I can’t get onto that table. I will need help,” should suffice. This phrase may have to be repeated before the polio survivor will be assisted.

If the professional replies, “Oh, I bet you can move by yourself if you try!” or “Don’t expect me to lift you,” an appropriate response is, “I cannot get onto the table. Please ask someone else to help me or let me speak to your supervisor.” A pleasant but steadfast refusal to do difficult or dangerous transfers is the polio survivor’s best defense against injury before or after surgery.

General Anesthetics.

Polio survivors are exquisitely sensitive to anesthetic. It has been known for 50 years that the poliovirus damaged the area of the brain stem - called the reticular activating system (RAS) - responsible for keeping the brain awake.4,5 Because the RAS was damaged in those who had paralytic and non-paralytic polio, a little anesthetic goes a long way and lasts a long time.

For example, the pre-operative medication used to “calm” surgical patients - often a combination of Valium and Demerol - may by itself put polio survivors to sleep for 8 hours. (Such excessive and prolonged sedation does occur when I.V. Valium is used alone in patients undergoing invasive but non-surgical procedures, like endoscopy.)

Add to a pre-operative “calming cocktail” an intravenous anesthetic (like sodium pentothol) or a gaseous anesthetic, and polio survivors have been known to sleep for days. In addition, polio survivors with respiratory problems may have trouble clearing the gaseous anesthetics. A number of our patients have awakened from anesthetic on a respirator in I.C.U. to the frightened faces of their family, surgeon and anesthesiologist several days after surgery.

Here is the first of rule of thumb - we call “Rules of 2" - for polio survivors having surgery:

***ANESTHETIC RULE OF 2 — Polio survivors need the typical dose of anesthetic divided by 2.**

This first ‘Rule of 2’ is certainly not intended to dictate the dose of anesthetic, but merely to

remind anesthesiologists that polio survivors need much less anesthetic than do other patients. This does not mean that a given polio survivor might require less than 1/2 the typical anesthetic dose, or that another won't need more anesthetic. As always, the dose of anesthetic must be individually adjusted (for body weight, lipid space, etc.) and be adequate to keep patients under during surgery but not cause them to sleep for a week.

Even applying the 'Anesthetic Rule of 2,' polio survivors may be very sedated, if not asleep, for many hours after the surgery. This is one of the reasons why same-day surgery - even for complicated dental procedures - is not advisable for polio survivors. Sleeping or excessively sedated polio survivors cannot be expected to return home and take care of themselves after same-day surgery, since surgical complications may go unnoticed and sedation-impaired coordination makes falling likely. In spite of HMO pressure, NO POLIO SURVIVOR SHOULD HAVE SAME-DAY SURGERY FOR ANY REASON except for the most simple procedures that require only a local anesthetic.

Nerve Blocks.

However, there are also problems with local anesthetics that numb only one area of the body. Spinal anesthetics, like epidural or saddle blocks used for childbirth and lower body procedures, often allow surgery without the patient being asleep and are therefore more desirable for polio survivors. However, the injection of a local anesthetic near the spine results in both pain-conducting nerves and motor neurons being anesthetized.

Polio survivors are very sensitive to anything that further impairs their poliovirus-damaged motor neurons and a spinal anesthetic may cause polio survivors to be paralyzed for many hours. If a spinal anesthetic is used, polio survivors cannot be expected to get up and walk after surgery.

Curare-like drugs that are intended to paralyze muscles (e.g., succinylcholine) are typically used during major surgery to relax muscles that are going to be cut and make it easier for the ventilator to fill the lungs while patients are on the table. Again, any drug that interferes with muscle functioning will prevent polio survivors from walking or even moving for hours longer than it would for patients who didn't have polio.

Regardless of whether a local, spinal or general anesthetic is used, the following applies:

***POST-ANESTHETIC RULE OF 2 — Polio survivors require 2 times as long to recover from the effects of any anesthetics.**

Blood and Guts.

There are yet additional concerns. Polio survivors with muscle atrophy, especially in the thigh muscles, will have a smaller blood volume than would be expected for their height or weight. Therefore, bleeding during surgery may be more of a problem. Polio survivors may want to bank their own blood slowly over the course of weeks, even for procedures where excessive blood loss is not typically expected. However, since polio survivors may be significantly more fatigued and prone to faint after giving blood, relatives' blood may need to be banked instead.

Also, polio survivors can be sensitive to atropine-like drugs used to dry secretions during surgery.6 Atropine-like drugs also slow the gut, and polio survivors may be excessively constipated after surgery or, rarely, actually have their intestines stop moving (paralytic ileus) for a period of time. These problems can be treated symptomatically as they would in someone who did not have polio.

Positioning.

One overlooked problem is the positioning of the post-polio patient on the operating table. Muscle atrophy, scoliosis and spinal fusions may make certain positions problematic, especially those involving extension of the spine. Since the polio survivor is usually unconscious during positioning, there will be no report of pain that

would normally warn of potential damage.

A number of polio survivors have experienced severe back pain for months post-op, and even permanent traction injuries of nerves, after being placed for hours in damaging positions. It would be advisable for the patient to be awake during positioning on the table to prevent such post-op complications.

POST-OPERATIVE CARE

Cold.

If the dose of anesthetic is carefully regulated, a polio survivor's first post-op experience will be waking in the recovery room. Often, polio survivors awaken from anesthetic shivering violently. Research has shown that polio survivors are extremely sensitive to cold because they have difficulty regulating their body temperature.

Polio survivors' automatic (autonomic) nervous systems were damaged by the poliovirus from the brain (hypothalamus) through the brain stem (reticular formation and vagal nuclei) to the spinal cord (intermediolateral columns).4-8

Polio survivors cannot control the size of their blood vessels, since the nerves that make the smooth muscle around veins and capillaries contract were paralyzed by the poliovirus. Therefore, polio survivors' blood vessels open under anesthetic and dump the heat of their warm blood into the cold recovery room. Recovery room nurses need to know about this problem and help polio survivors stay warm. Additional blankets will help, and the surgeon can even write an order for a heated water blanket to be used in recovery.

Vomiting.

Another post-op problem related to brain stem damage is vomiting. As in anyone who receives a general anesthetic, polio survivors can develop nausea and vomit. However, polio survivors are more apt to faint (have vasovagal syncope and even brief asystoles) when they attempt to vomit.6

It is very important that post-operative emetic control be discussed with the anesthesiologist and administered before polio survivors go to the recovery room and that additional medication is written as needed in the post-op orders.

Choking.

Yet another concern is difficulty swallowing as the patient is awakening.9 Polio survivors who are aware of having swallowing problems, and sometimes in those without apparent swallowing difficulty, cannot clear secretions and may choke (or feel like they are choking) when they are lying on their backs, still half asleep, as the anesthetic is clearing.

Polio survivors' secretions need to be monitored in the recovery room and they should be positioned on their side if possible so that secretions can drain.

Pain.

The single most troublesome problem after surgery is pain control. A number of studies have shown that many surgical patients are under-medicated for pain. Under-medication is a serious problem for the post-polio patient since two research studies have shown that polio survivors are twice as sensitive to pain as those who didn't have polio.8

Increased pain sensitivity is apparently related to poliovirus damage to endogenous opiate-secreting cells in the brain (paraventricular hypothalamus and periaquiductal gray) and spinal cord (Lamina II of the dorsal cord).4,8

***RULE OF 2 for PAIN — Polio survivors need 2 times the dose of pain medication for 2 times as long.**

Since polio survivors are known to be extremely stoic, they are not likely to abuse or become dependent upon narcotics.

RECOVERY

In keeping with the "get 'em up, move 'em out" trend in medicine, there will be the tendency to get polio survivors up and walking almost immediately after surgery. This is not advisable for a number of reasons. When polio survivors reach the nursing unit, they may still be twice as sedated from the anesthetic as are other patients. Since polio survivors need a very clear head to be able to control their weakened, polio-affected muscles to stand and walk, a fuzzy-headed polio survivor is at serious risk for falling.

Even if a polio survivor's head is clear, the anesthetic or other drugs may have temporarily weakened or even paralyzed the muscles needed to stand and walk. What's worse, the surgery may have cut muscles (especially abdominal muscles) that substitute for muscles paralyzed by polio (it is often muscle substitution that actually allows polio survivors to stand and walk, even though the muscles that are typically needed to walk were permanently paralyzed).

Not only will post-polio patients be unable to stand or walk, they may also be unable to even move to position themselves in bed. Polio survivors may also have low blood pressure after surgery that could itself cause lightheadedness, fainting and falls.

***RULE OF 2 for RECOVERY — Polio survivors should stay in bed 2 times longer than other patients.**

Under any circumstances, polio survivors should get up slowly, first sitting up in bed, then sitting with feet dangling, then getting into a bedside chair with assistance, then standing with assistance; and, finally, walking with assistance and appropriate assistive devices.

With the necessity of additional additional bed rest, anti-embolism stockings to prevent blood clots may be a prudent precaution. Gentle physical therapy in bed may be advisable to maintain range of motion and for stretching, since polio survivors are prone to developing painful muscle spasms if they are not up and moving.

***RULE OF 2 for LENGTH OF STAY — Polio survivors need to stay in the hospital 2 times longer than other patients.**

While polio survivors may become deconditioned with bed rest somewhat faster than others patients, because of autonomic nervous system damage, the dangers of getting them up and walking too quickly far outweigh those of moving too slowly. Polio survivors have learned to be very aware of what their bodies can and can't do. They are the best judges of when they can move, stand and walk safely.

Nursing Care and Nurse Caring.

Polio survivors often have difficulty merely being in the hospital. They may have insomnia, anxiety, and even have panic attacks. These symptoms are easy to understand when it is remembered that as young children, polio survivors were ripped away from their families and admitted to rehabilitation hospitals for months or even years.2,10,11 Post-polio children underwent multiple surgeries and painful physical therapy, procedures administered often without explanation and certainly without their consent.

Many post-polio patients have had multiple experiences of psychological, physical and even sexual abuse at the hands of hospital staff. Questions or complaints about painful and frightening therapies were not infrequently met by staff anger or punishment. Patients report having been locked in dark closets overnight when they asked questions, spoke out or cried.

Necessary nursing care could be withheld for no apparent reason. Many post-polio children were slapped and some were actually beaten with rubber truncheons by physical therapists to 'motivate' them to stand up and walk.10

It is not surprising that polio survivors can be terrified of again becoming powerless patients at the mercy of hospital staff. Nursing staff's appreciation of the childhood trauma polio survivors experienced at the hands of medical professionals, and taking a moment to actually listen and respond to the real needs of the adult

post-polio patient, will go far toward making the patient feel safer and more comfortable during their stay.

Returning Home.

There is another "Rule of 2" when surgical patients return home:

***RULE OF 2 for WORK — Polio survivors need 2 times the number of days of rest at home before they return to work or household duties.**

For all of the reasons described above, the entire recovery process takes longer for polio survivors. It is not uncommon for typically overachieving, hyperactive Type A polio survivors, who were taught as children to "use it or lose it," to return to work or household duties the day after they return home from the hospital.10,11

Polio survivors must be encouraged to rest and to return to activities slowly, especially if they are somewhat deconditioned and feel weaker or more fatigued post-op. Polio survivors should ask their surgeon for a note that allows them to stay home from work twice as long as the typical patient.

Post-Op PPS?

The 1985 National Survey of Polio Survivors has shown that emotional stress is the second most frequent cause of PPS (after physical overexertion).11 Certainly, there are few emotional or physical stressors more potent then surgery. So, polio survivors should expect some increase in fatigue and muscle weakness resulting from the combination of the physical and emotional effects of the surgery, anesthesia, other medications, and bed rest. However, only a handful of post-polio patients permanently lose function after surgery.

Strength or endurance lost after surgery are typically recovered. To aid recovery, gentle physical therapy may be advisable. Passive stretching, range of motion exercises and slowly increasing endurance are more valuable than muscle strengthening exercise which can actually cause muscle weakness.

Especially if a polio-affected part of the body has been operated on (stomach, back, arms or legs), a physiatrist who is thoroughly knowledgeable and experienced about the care of polio survivors and PPS should be consulted before surgery so that a post-op rehabilitation plan can be in place. A short stay in a rehabilitation hospital after surgery (especially after back or leg surgery) may make a polio survivor's recovery safer, faster and more complete.

Polio survivors need to remember:

***RULE OF 2 for FEELING BETTER — Polio survivors need 2 times longer to feel 'back to normal' again.**

CONCLUSION

All of the "Rules of 2" are suggestions for polio survivors and the surgical team; they are not a substitute for specific information about the individual patient and communication among all members of the treatment team, including the patient. All polio survivors must be evaluated and managed according to their individual needs. Please take the time to read the following references so that you will be fully knowledgeable about and be able to help meet polio survivors' special needs.

REFERENCES

1) Bruno RL. Ultimate burnout: Post-polio sequelae basics. New Mobility, 1996; 7: 50-59

2) Frick NM, Bruno RL. Post-Polio Sequelae: Physiological and psychological overview. Rehabilitation Literature, 1986; 47: 106-111.

3) Bach JR, Alba AS. Pulmonary dysfunction and sleep disorder breathing as post-polio sequelae: Evaluation and management. Orthopedics, 1991; 14: 1329-1337.

4) Bodian D. Histopathological basis of clinical findings in poliomyelitis. Am J Med. 1949; 6: 563-578.

5) Bruno RL, Frick NM, Cohen J. Polioencephalitis, stress and the etiology of Post-Polio Sequelae. Orthopedics, 1991; 14: 1269-1276.

6) Bruno RL, Frick NM. Parasympathetic abnormalities as post-polio sequelae. Archives of Physical Medicine and Rehabilitation, 1995; 76: 594.

7) Bruno RL, Johnson JC, Berman WS. Vasomotor abnormalities as Post-Polio Sequelae. Orthopedics, 1985; 8: 865-869.

8) Bruno RL, Johnson JC, Berman WS. Motor and sensory functioning with changing ambient temperature in post-polio subjects. In LS Halstead and DO Wiechers (Eds.): Late Effects of Poliomyelitis. Miami: Symposia Foundation, 1985.

9) Bucholtz DW, Jones B. Post-Polio dysphagia: Alarm or caution. Orthopedics, 1991; 14: 1303-1305.

10) Bruno RL, Frick NM. The psychology of polio as prelude to Post-Polio Sequelae: Behavior modification and psychotherapy. Orthopedics, 1991; 14: 1185-1193.

11) Bruno RL, Frick NM. Stress and "Type A" behavior as precipitants of Post-Polio Sequelae. In LS Halstead and DO Wiechers (Eds.): Research and Clinical Aspects of the Late Effects of Poliomyelitis. White Plains: March of Dimes Research Foundation, 1987.

Bruno RL. Preventing complications in polio survivors undergoing surgery. PPS Monograph Series. Volume 6(2). Hackensack:Harvest Press,1996.

POLIO SURVIVORS' PRE-OP CHECKLIST

( ) Give articles to surgeon and discuss:

( ) Pre-op lung tests.
( ) Lower blood volume and blood banking?
( ) Authorization for a longer stay in the hospital.
( ) Orders for post-op anti-vomiting medication.
( ) Positioning on the table during surgery.
( ) Orders for staying warm in the recovery room.

( ) Difficulty clearing secretions in the recovery roomand on the nursing unit.
( ) Orders for increased dose of pain medication.
( ) Physical therapy for stretching and range of motion in hospital.
( ) Placing articles about polio in the medical chart.

( ) Give articles to anesthesiologist and discuss:
( ) Lung problems?
( ) Lower dose of pre-op calming medication.
( ) Lower dose of anesthetic.
( ) Longer-term paralysis of muscles with spinal anesthetic and curare-like drugs.
( ) Orders for post-op anti-vomiting medication.
( ) Difficulty clearing secretions in the recovery room.

( )Give articles to nursing supervisor and discuss:

( ) Longer-term sedation with anesthetic.
( ) Difficulty clearing secretions on the nursing unit.
( ) Orders for increased dose of pain medication.
( ) Needing help in moving in bed and in the room.
( ) Not standing or walking until you are fully awake and able.
( ) Anti-embolism stockings.

( ) Meet with PPS physiatrist before surgery and discuss:

( ) Post-op rehabilitation plan.
( ) Physical therapy for stretching and range of motion in hospital.
( ) Possible admission to a rehab hospital before going home.
( ) Physical therapy for walking and increasing endurance at home.

X-mas

The Christmas Social was fantastic again thanks to the hard work of the committee led by Inga MacPherson, Maurice Denzin and Verna Copeland. Everyone enjoyed entertainment from Moose Jaw and the Jolly Couple from the North Pole.