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# Season's Greetings



*This issue of the Polio PostBox is dedicated to long time Polio Regina member our dear friend Jan Staples who passed away October 29, 2017.*

## **Janis Elizabeth Staples**

August 24, 1945 – October 29, 2017

Jan passed away with her family by her side. Jan will be lovingly remembered by her husband Don; Children Tim (Avens) and Tammy (Andrew) Waithe; sister-in-law Jackie Staples; siblings Lorraine, Bob and Harry as well as many other family and friends. A Celebration of Jan's life was held November 6, 2017 at Heritage United Church in Regina.

Jan had Polio when she was nine years old. It left her right arm paralyzed. She had some surgery at the

Mayo Clinic in Minneapolis where they tied some tendons or muscles to give her some use of her arm but it was without much success. Despite having only one good arm she was able to live a normal life which included playing the organ, needlework and typing.

Jan worked at Auto Electric in Regina as an accounting clerk until the children arrived. Once they were grown she worked as Secretary-Treasurer at St. Andrew's United Church in Regina.

Don and Jan then moved to Winnipeg in 1997, where Jan became active in the Winnipeg Post-Polio group. In 2007 they returned home where Jan rejoined Polio Regina where she was a very active member.

Jan has always had an interest in dogs and had two purebred shetland sheepdogs, she was active both in Regina and Winnipeg with different dog sports among them flyball racing. Once they no longer had their own dogs she was still very involved in volunteering and helping at different events (it was a love of her life).

Jan had difficulty walking and used a cane for support. She decided to have both knees replaced and went in for surgery on October 27th but she passed away from complications from the surgery on October 29th.

From her room at the Pasqua Hospital the family was able to see the houses where Don and Jan lived next door to each other when they were children. Jan had come full circle.

*The following story is by Polio Regina member Betty Williams. Barry and Betty moved to BC in 2009 but are still in contact with us at Polio Regina.*

## **Traveling on Amtrak and taking the Circle Tour**

*By Betty Williams*

On June the 5th we took the West Coast Express Train from Mission into Vancouver. We then waited until we could board the Amtrak Cascades Train to Seattle. This was the most awesome train to be on. There was a lift for my motorized wheelchair and once on the train I could go into the coach and park. I could sit in my chair or move to a seat. I could also go down the coach into the next car which was the Bistro and there I could order my supper. If I had wanted to; I could have gone to the dining car where you could take your meal to go and eat. I could also go down to the business class car.

The train goes along the coast most of the way and we got into Seattle at 10:00 at night. We asked the conductor to call for a wheelchair accessible taxi for us. Once off the train we went to the taxi area and the taxi boss checked and said a taxi had been ordered for us. Each half hour the boss checked until 12:00 midnight when he was told there would be

no wheelchair accessible taxi coming. Amtrak had locked their doors and their security had left. Left with us where two taxi drivers who would not leave us stranded. Barry and the taxi drivers put their heads together. Barry was told our hotel was about a mile. So one taxi driver took me and the luggage to the hotel and Barry got in my motorized wheelchair



*Betty boarding the train.*



*Betty in the bedroom on the train.*



*Wheelchair accessible bedroom.*

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and the other taxi driver showed him where to go.

What we did not know starting this adventure was that Barry would be going through a slummy area of Seattle at 12:30 at night with his brand new camera and a lot of cash. There were people sleeping in doorways and more people gathered in small groups. Barry put my chair on top speed and away he went. Barry ran into construction and had trouble getting off a sidewalk. One corner did not have signs easy to find so he got out of my chair and walked around to see the signs. Then he got back in my chair and it was about 1:00 when Barry arrived.

We were so tired and in our hotel room the bed was not made. It had two single duvets folded up on the bed. Barry was going to call down to say our bed was not made but I said to get into bed and cover up I was too tired. The next morning early we read the sign in the room that it was European style bedding and you make your own bed. I noticed in zippered plastic container sheets and bedding. We were going to be back at this hotel when we got back to Seattle so I knew about making our own bed.

The taxi did not come at 7:30. So the clerk at the desk said they had a van and one of their staff would drive us if I could get in the van and they would lift my chair into the back. We agreed and the lady gave us a card with the phone number so that when we came back to Seattle we could call if stranded.

The Coast Starlight train we got on next had a ramp onto the train which was lowered to the track. I went down a hall and into the wheelchair accessible room and turned around and parked in the middle. The toilet and sink and lots of room for luggage; was on one side. Two seats facing each other on the other side. There were big windows on both sides so you could see the scenery from both sides. There was a table that could be pulled out between the seats. The seats were very comfortable as well. The one bad part of the room was the upper bunk. It was only two feet (1/2 meter) wide and you could barely sit up. There were steps on one side of a seat to the upper bunk.

We had the same style of room on each train. On three trains I was given a menu so I could choose my meals and the car attendant was to bring me whatever I needed. I like to drink hot water and I drink a lot

of water in a day. The first train the car attendant came to ask if I needed anything. None of the other three trains did the car attendant ask me if I needed anything. Barry would go to the dining car to ask for hot water for me and they would get annoyed saying the car attendant was to do that. The last train the car attendant insisted I ring for him for anything I would need and would not give me a menu and would take 1/2 to come sometimes.

We went from Seattle to Las Angeles and I really enjoyed that we went along the coast a lot of the way. We got to LA and got a wheelchair taxi right pretty quickly and went to our hotel. Amtrak planned the trip, picked the hotels and picked the tours. They did really well in all of it. The desk clerk decided to upgrade our room and we were on the 19th floor overlooking the city and the room was huge. There was a kitchen with fridge, microwave and coffee. The living room had a TV and there was a separate bedroom and very large accessible bathroom.

In the morning you could go to another floor and choose what you wanted for breakfast and no cost.

We planned to go on the Hop on Hop Off tour and got a wheelchair taxi to Hollywood where the tour began. That cost us \$35 but the taxi driver gave us his personal number and said to call him when ready to go back and he would get in the area close to us when we would call the company for a taxi. He was a very nice driver. The buses had a lift for me to get on the bus and park on the lower level.

Hollywood was a bit of a disappointment. For such an historic area it was a dirty and paper strewn city and many old historic stores were shabby looking. We got off the bus and walked to the next stop so we could see more of the buildings around. At 3:00 we called our taxi driver and he eventually found us. Diane Keaton was in the area to receive an award and the buses could not go to their start point with the street closed and all the security around.

We later found out that we could have taken the bus right into the city and right by our hotel. So it would have been nice to know all that information before we took the tour.

The next day we took the Sunset Ltd. train to New Orleans and went through mountainous areas,

desert areas and swampland. New Orleans has no wheelchair accessible taxis. However just about every taxi driver drives a van. So Barry and the driver would lift my chair into the back of the van. It worked well when the taxi driver listened to Barry.

We had a power pass for New Orleans and there were about 20 activities you could take part in. We chose to go on the Paddlewheel, an hour long trip of music and food and then a tour of an historical military area. Then a 1 hour paddlewheel back. We were going to look for Mardi Gras World when the rain started coming down in torrents and continued through the day like that. So we did not get our Paddlewheel event. We did go to Mardi Gras World and had an awesome tour of the factory from Styrofoam to the finished parade figure. Most figures were based on actors and actresses. We also saw a film of the history of the parades dating back to 1850. We had King Cake when the film was done.

We boarded the City of New Orleans Train the next morning and went through swamp like Louisiana and Mississippi then north to Chicago. Chicago Train Station is huge and on several floors. We were fortunate to have a staff member we asked for directions show us how to get out to the street and got us a wheelchair taxi right away. Chicago has 300 wheelchair accessible taxis. It is a separate company and owned by a man in a wheelchair.

We stayed in a very grand a lovely old hotel also huge. The room was amazing however it is the first hotel we have stayed in that did not provide a coffee machine, bottled water and you could only get Wi-Fi if you were there with a business.

We did the Hop On Hop Off tour again, this time we rode around the whole tour which took 2 hours, then we went again and got off where we wanted to. One place we got off was to go up the Willis Tower which used to be a Sears building. We went to the top where you could see over the city from all sides.

The next day we boarded the Empire Builder Train to head back to Seattle. We arrived in the morning so we were able to get a wheelchair accessible taxi back to the hotel we stayed in overnight on our way down. We walked down to the river front and Pike place and had lunch in nice restaurant. It was a nice day although somewhat overcast.

The next morning we caught the Cascades train to come back to Vancouver and in the afternoon we took the West Coast Express back to Mission on June 19.

If you would be interested in taking this tour, I recommend you go through a travel agent as our travel agent negotiated changes to meet our needs. The tour actually started in Chicago but we started in Seattle and ended in Seattle. It is wonderful to travel by train and we meet so many people. We made friends with a lady from Louisiana and with another couple from Georgia.

Barry had been concerned that I had to stay in the room all the time while he roamed the train. But I found I could see so well and enjoyed this trip and I am just so happy that Amtrak has such a nice accessible room we could have. The trip cost us about \$6,000 after the exchange was done.

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*The following articles are reprinted with permission from Dr. Richard Bruno.*

## **Cardiac Drugs, High Blood Pressure and Polio Survivors**

*Dr. Richard L. Bruno,  
Chairperson International Post-Polio Task Force and  
Director The Post-Polio Institute and International  
Centre for Polio Education*

### **NEW BLOOD PRESSURE GUIDELINE: 130/80!**

“According to the new guidelines, anyone with at least a 10 percent risk of a heart attack or stroke in the next decade should aim for blood pressure below 130/80.

But simply being age 65 or older brings a 10 percent risk of cardiovascular trouble, and so effectively everyone over that age will have to shoot for the new target.”

As with all things post-polio, there are special considerations when choosing medications to treat hypertension. Over years of practice, physicians typically become comfortable with and use just a small number of drugs. The problem is that medications doctors may regularly use to treat high

blood pressure can be problematic for polio survivors.

For years, the first drug prescribed to treat hypertension would be a diuretic, a “water pill.” Diuretics, like Diazide and Furosemide, lower blood pressure by decreasing the amount of fluid in your arteries, like taking water out of an overlyfull balloon. But, diuretics decrease fluid by making you pee...and pee and pee. Frequent trips to the bathroom may not be an issue for other folk. But it’s not a good idea for polio survivors with fatigue and weaker arms and legs to be running (or rolling) to find the nearest accessible bathroom and getting on and off the throne a dozen times throughout the day and night.

Another older antihypertensive is the beta blocker, Inderal being the granddaddy of the group, which lowers blood pressure by blocking adrenaline from stimulating the “beta” receptor on heart muscle, thereby decreasing the speed and force with which your heart beats. The problem is that these drugs block adrenaline from stimulating beta receptors in other places, including the brain, and thereby decrease brain activation. Polio survivors, especially those with fatigue, don’t need a drug that further reduces brain activation. Of all the antihypertensives, beta blockers are probably the worst offenders when it comes to producing fatigue as a side effect. If you look at the drug companies’ own studies for medications currently listed in the Physicians Desk Reference, fatigue was a side effect in 2% to 6% of subjects on beta blockers Naldolol, Tenormin or Timolol, versus about 1% to 5% of those taking a placebo. What’s more, Timolol caused cold hands and feet--like fatigue, a symptom polio survivors need no help in developing--in 8% of subjects versus 1% of those given placebo. Further, beta blockers can make asthma symptoms worse.

Other older antihypertensives that causes fatigue are the alpha blockers. These drugs stop adrenaline from stimulating the “alpha” receptors on blood vessels and thereby allow arteries to open, lowering pressure by increasing the size of the “pipes” blood can flow through, just as using a bigger hose will reduce the pressure of water flowing out of it. But, as with beta blockers, anything that blocks the stimulating effects of adrenaline can cause brain “deactivation” and fatigue. Fatigue was reported in more than 7% of

subjects taking alpha blockers Cardura, Hytrin and Minipress, versus 2% to 3% of those on placebo.

Over the years, newer antihypertensives were developed that don’t block adrenaline and are less likely to cause fatigue. The calcium-channel blockers (CCBs) open blood vessels and reduce the force of contraction of the heart by reducing the flow of calcium into muscle cells. CCBs Procardia and Norvasc caused fatigue in from 4% to 6% of subjects, versus 3% to 4 % of those given placebo. But, fatigue was not reported with CCBs Cardene and Verapamil.

Differences in the ability to produce fatigue were seen among another class of newer antihypertensives, the angiotensin receptor blockers (ARBs). These drugs prevent angiotensin, a hormone that causes blood vessels to narrow, from stimulating arteries and making them constrict. ARBs Diovan and Avalide caused fatigue in 4% to 5% of subjects, versus 1% to 3 % of those on placebo. Fatigue was not reported with ARBs Atacand, Micardia, and Cozar.

A varying ability to produce fatigue was also seen among a related group of antihypertensives, the angiotensin converting enzyme (ACE) inhibitors, which block the production of angiotensin. ACE inhibitors Accupril, Lotensin, Vasotec and Zestril were found to cause fatigue in about 2% to 5% of subjects, versus 1% to nearly 3% of those given placebo. However, fatigue was not reported with ACE inhibitors Aceon, Altace and Monopril.

Considering their side effects, should polio survivors never take certain of these antihypertensives and always ask to use others? If only it were that simple. First, some of these “antihypertensive” medications have applications other than lowering blood pressure. Beta blockers are used to treat abnormal heart rhythms; they also are used to treat angina by reducing the force of contraction of a heart that has too little blood flowing to it. Calcium-channel blockers are also used to treat angina and to prevent migraines. And alpha blockers are used to treat enlarged prostates and can actually help to warm cold hands and feet. Second, since some people have hypertension that is difficult to manage with only one medication, a combination of drugs may be needed that might necessarily include a beta or alpha blocker.



When taking any new medication, it is important that polio survivors keep a log of side-effects and discuss these with their doctors. The dose or time of day when you take a medication, for example taking a fatigue-producing medication before bed, or taking a long-acting, slow-release form of a drug, may minimize its side effects. As we've discussed before, don't let doctors get away with telling you that a drug couldn't be causing new fatigue or weakness because they haven't seen those symptoms in other patients. Polio survivors are not like other patients. If your doctor doesn't listen to you, get another. And if you're not comfortable with the medications your family doctor or internists is using to treat your hypertension, or if your blood pressure isn't coming down in spite taking a combination of drugs, don't hesitate to consult a cardiologist who's also a hypertension specialist. Remember: The stroke you prevent by keeping your blood pressure down will be your own!

*I asked Dr. Bruno some questions about other medications; the following are his answers:*

*Q. The drugs that most of our members are on are Crestor (Rosuvastatin Calcium) or Lipitor (Atorvastatin) which some people have complained about having side effects of muscle aches and tiredness.*

*A. They are 2 statins that can cause muscle pain. Tiredness would be concerning. That's why the enzyme CK (Creatine Kinase) must be measured before polio survivors go on statins to make sure the drugs aren't killing muscle.*

*Q. Other medications are: Micardis (Telmisartan), Cilazapril, Spironolactone and Hydrochlorothiazide. Do you have any comments about them?*

*A. Only that the concern is that older patients, especially polio survivors, will be more likely to fall getting out of bed in the night if their blood pressure is too low: Telmisartan is for high blood pressure. Cilazapril is for high blood pressure and heart failure Spironolactone and Hydrochlorothiazide are diuretics.*

Take a look at this:

<https://www.nytimes.com/2017/11/15/opinion/blood-pressure-guidelines.html?ref=todayspaper>

Read blood pressure meds caution for polio survivors:

## On the topic of Statins and Polio Survivors

*Posted (January 12, 2016)*

Dr. Bruno's Original Post: I'm not posting this for you to worry if you are taking a statin. It's just something to keep in mind, and to show your Doctor. You need to have blood drawn to measure CK before you take a statin. Statin-Induced Myopathy in a Patient with Previous Poliomyelitis AMERICAN JOURNAL OF PHYSICAL MEDICINE & REHABILITATION, 92(11); JANUARY 2013 From the University Hospital, Turku, Finland. This report describes a patient with a history of poliomyelitis who developed new, progressive symptoms of muscle fatigue and weakness, suggestive of post-poliomyelitis syndrome. However, comprehensive investigations led to the diagnosis of statin-induced myopathy as the cause of the patient's symptoms. This case highlights the possibility of statin-induced myopathy in patients with a history of poliomyelitis and the differential diagnosis between post-poliomyelitis syndrome and statin-induced myopathy in these patients. The possibility of statin-induced myopathy should be considered when patients with previous poliomyelitis who take statin medication develop symptoms suggestive of post-poliomyelitis syndrome.



## Dormant Polio Virus

*Posted by Dr. Richard Bruno July 10, 2017*

A Coffee House member asked about poliovirus being found in the spinal fluid. Here's what I wrote in *The Polio Paradox* about all the studies, not just the NHI study:

“Just over a dozen studies have looked for evidence that the poliovirus can lie dormant in the spinal cord, waiting to begin killing motor neurons once again. In those studies, researchers did spinal taps, collecting the fluid that bathes the spinal cord and the brain, on more than two hundred polio survivors who were reporting new symptoms. Antibodies to the poliovirus or actual pieces of poliovirus were found in the spinal fluid in, at most, 21 percent of polio survivors who had PPS, and in a few polio survivors without new symptoms. The poliovirus pieces were noninfective—they were simply chunks of poliovirus protein and could not infect, reproduce inside of, or kill motor neurons, either in the polio survivors in whom the pieces were found or in anyone else.

Do these antibodies and pieces indicate that the poliovirus does cause new symptoms in polio survivors? No. What Albert Sabin said to me on NIGHTLINE was right: PPS is not caused by “a recurrence of poliovirus activity in the spinal cord.” If poliovirus were lying in wait to kill off remaining motor neurons, you would expect many more than 21 percent of polio survivors with PPS—if not all those with new symptoms—to have poliovirus antibodies plus the entire poliovirus, not just broken pieces.

Poliovirus antibodies do not indicate that there is a new infection; they may just be the immune system's response to the poliovirus pieces or possibly old antibodies.

And the pieces themselves? In 1995 virologist M. E. Leon-Monzon, who herself found antibodies or poliovirus pieces in only about 10 percent of those with PPS, concluded that pieces of poliovirus had been “harbored in some motor neurons that survived after the acute infection,” and that only a small percentage of those with PPS “shed” pieces.

That's exactly what we thought back in 1985 when the first study reporting poliovirus antibodies in

spinal fluid was published. We predicted that pieces of poliovirus protein would also be discovered, what we called the “Take Out the Garbage” Theory. I wrote that virus pieces would remain inside motor neurons that had recovered after poliovirus infection, neurons that are now releasing those pieces as they die and disintegrate because they can no longer take the strain of having been damaged, over-sprouted, and turning on double-sized muscle fibers for forty years. So, the presence of antibodies and poliovirus pieces is a secondary effect of new muscle weakness, not its cause.”



*Dr. Bruno's Original Post: Here's a new article from John Bach, Lord of the Lungs. 10/24/2017)*

## The Hazards of Oxygen

*By Dr. John Bach*

One of the most common treatment errors for people with neuromuscular disorders is oxygen therapy, which Bach likens to “putting a Band-Aid on a cancer.” He says that oxygen should never be used for people with neuromuscular conditions unless pneumonia has resulted in the need for intubation and intensive care.

Oxygen turns off the brain's drive to breathe and greatly increases the likelihood of ventilatory failure, basically allowing the blood's carbon dioxide to increase to levels that render a person unconscious and cause him to stop breathing entirely (respiratory arrest).

Usually decreases in blood oxygen levels are caused by airway secretions that the patient is not strong enough to clear without training in Bach's methods and the secretions themselves can also result in respiratory arrest.

<http://www.doctorbach.com/>

*Posted by Dr. Richard Bruno July 11, 2017*

## **Chiropractic: A Crock, a Crack or a Cure?**

*By Dr. Richard L. Bruno*

Q. You talk about back muscle spasm pain and various ways to treat it. Can't polio survivors just go to a chiropractor and get their backs "cracked?"

A. The answer is a very cautious "sometimes." Before you see a chiropractor you need to know what chiropractic is. Chiropractic is an American creation that was developed in 1895. Chiropractic treatment is based on the theory that there is a "strain or sprain" between spinal vertebrae that causes a misalignment, called a "subluxation." Subluxation is thought to trigger muscle spasm and back or neck pain by reducing the movement of the vertebrae. Chiropractors "adjust" or "manipulate" the spine with their hands, or with a device called an "activator," which "pops" the vertebra back into proper position, restores spinal movement and decreases pain. However, chiropractor Howard Vernon, writing in *Chiropractic in the United States: Training, Practice, and Research* says that this theory remains "largely speculative" and that "all of the theories of the effects and mechanisms of action of spinal manipulation still lack adequate research."

There isn't just a lack of research documenting how chiropractic treatment for back pain works. It is more than a little disturbing that, in spite of admitting there is no research to support its claims, the American Chiropractic Association (ACA) says that chiropractors treat not only back pain, but also allergies, asthma, digestive disorders, childhood ear infections, and even attention deficit disorder in children. There are some studies showing that manipulation can be effective in treating back pain. But with such broad claims about chiropractic and so little research documenting its mechanism of action and effectiveness, should polio survivors ever see a chiropractor?

There are two situations where spinal manipulation could help: when back pain is caused either by the sacroiliac (SI) joints in the pelvis or mid and lower back spinal vertebrae going out of alignment after a

fall, an auto accident or just by turning, bending or lifting improperly. After the initial muscle spasm is calmed down, the SI joints or vertebrae can often be moved back into place and pain reduced. Although some chiropractors recommend adjusting the entire spine to treat back pain, there is no evidence that this is more helpful than adjusting only the low back or SI joints. What's more, spine adjustments that include neck vertebrae are risky. Neck manipulation has been reported to cause spinal cord injury, damage to blood vessels supplying the brain, and stroke. Even low back spinal adjustment is not recommended if you have a history of spinal surgery or a spinal fusion, osteoporosis, or have neurological symptoms -- numbness, tingling or recent loss of muscle strength in an arm or leg -- that may indicate a pinched nerve or a severely herniated disc.

As with all symptoms in polio survivors, the cause of pain must be identified, or potential causes ruled out, before spinal manipulation is attempted. And you should also know that it's not just chiropractors who can adjust the spine. Medical doctors of osteopathy and specially trained physical therapists can also perform spinal manipulation. But regardless of who's doing the "back cracking," polio survivors should talk to their physicians before being adjusted by anyone.

Unfortunately, even when spinal manipulation does help to relieve back pain, chiropractors don't usually teach "painless posture," which is vital to maintain the alignment of the spine and SI joints (see *THE POLIO SURVIVORS HANDBOOK* at [postpolioinfo.com](http://postpolioinfo.com).) This leads some patients with chronically poor posture to depend on frequent adjustments to realign their spines. The Mayo Clinic concluded that four to eight chiropractic sessions are reasonable to treat new back pain, but that there is no evidence additional treatments are helpful. Repeated adjustment can cause irritation, inflammation and continued or additional pain. So, once the SI joints or vertebrae have been moved back into proper position, patients should see a physical therapist with experience treating both PPS and chronic pain for help in learning proper posture in sitting, standing and walking. PTs can also suggest braces, forearm crutches and lumbar and seat cushions to help keep your pelvis and spine straight.



## On the topic of using a “Patch” to Deliver the Polio Vaccine (10/14/2017)

*Dr. Bruno's Original Post: I love Science!*



This is just drops of live, attenuated vaccine that can mutate and cause paralysis. The vaccine isn't live, it is attenuated poliovirus. It's killed like the “Salk” vaccine.

An attenuated vaccine is a vaccine created by reducing the virulence of a pathogen, but still keeping it viable (or “live”). Attenuation takes an infectious agent and alters it so that it becomes harmless or less virulent. These vaccines contrast to those produced by “killing” the virus (inactivated vaccine).

### **A Study: This Novel patch can better deliver Polio Vaccines.**

The microscopic vaccine delivery platform called Nanopatch is a significant step forward in the efforts to rid the world of polio, researchers said.

Queensland, Australia (Scicasts) — “Efforts to rid the world of polio have taken another significant step, thanks to research led by University of Queensland bioscience experts and funding from the World Health Organisation (WHO).

A fresh study of the Nanopatch - a microscopic vaccine delivery platform first developed by UQ researchers - has shown the device more effectively combats poliovirus than needles and syringes. Head of UQ's School of Chemistry and Molecular Biosciences Professor Paul Young said the breakthrough provided the next step in consigning polio to history.

“Polio was one of the most dreaded childhood diseases of the 20th century, resulting in limb disfigurement and irreversible paralysis in tens of millions of cases,” Professor Young said. “This most recent study showed the Nanopatch enhanced responses to all three types of inactivated poliovirus vaccines (IPV) - a necessary advancement from using the current live oral vaccine.

“We are extremely grateful to the WHO (World Health Organization) for providing funding to Vaxxas Pty Ltd, the biotechnology company commercializing the Nanopatch. “The support specifically assists pre-clinical studies and good manufacturing practices.” Patch inventor Professor Mark Kendall said the study exhibited a key advantage of the Nanopatch. “It targets the abundant immune cell populations in the skin's outer layers, rather than muscle, resulting in a more efficient vaccine delivery system,” Professor Kendall said. “The ease of administration, coupled with dose reduction observed in this study suggests that the Nanopatch could facilitate inexpensive vaccination of inactivated poliovirus vaccines.”

UQ Australian Institute for Biotechnology and Nanotechnology researcher Dr. David Muller said effectively translating the dose could dramatically reduce the cost. “A simple, easy-to-administer polio Nanopatch vaccine could increase the availability of the IPV vaccine and facilitate its administration in door-to-door and mass vaccination campaigns,” said Dr. Muller. “As recently as 1988, more than 350,000 cases occurred every year in more than 125 endemic countries. “Concerted efforts to eradicate the disease have reduced incidence by more than 99 per cent.” “Efforts are being intensified to eradicate the remaining strains of transmission once and for all.”

Data from the study encourages efforts by Vaxxas - established by UQ's commercialization company UniQuest - to bring the technology to use for human vaccinations. “The research we are undertaking in conjunction with UQ and WHO can improve the reach of life-saving vaccines to children everywhere,” Vaxxas chief executive officer David Hoey said.

There is an additional article “Research Finds Nanopatch Polio Vaccine Delivers” from Nanotechnology in Australia.

<https://scicasts.com/channels/nanotechnology//1863-nanomedicine/12951-research-finds-nanopatch-polio-vaccine-delivers/>



## On the topic of sibling having a “mild” case of Polio

Posted (6/20/2017)

Original Post: My husband has PPS. At the age of 18 months, his older sister had a cold, he got her cold. She had arm pain and tingling that went away. He got Polio and spent over a year in hospital. Later they felt that the “cold” was a mild case of polio. She has been extremely active entire life. She has many aches and pains and for the past year, arm, hip, leg weakness. The physician(s) are having trouble pinpointing a diagnosis. Is it possible for her to have PPS? It’s so hard to see this very active woman using a walker.

Additional Post: I had a stiff neck, a doctor’s home visit, and stayed in bed for an unknown amount of time before regaining my mobility by crawling on all fours. My parents never spoke directly about it. I was shocked to hear that Mom had told my wife my legs had been paralyzed for a short time. Sadly, parents secrets about that period was not that unusual.

Dr. Bruno’s Response: “On average, if one child in a household became ill, he “shared” polio with one other sibling of similar age. (I say “he” because more boys contracted polio than did girls.) Just over half of those who became ill were paralyzed, while the others had flu-like symptoms ranging from a fever, sore throat, and nausea to a stiff neck and muscle pain. Such a “minor illness” was caused by the poliovirus but may never have been diagnosed as polio at all, or may have been called “abortive” or “nonparalytic” polio. In three-quarters of households the first case of polio was paralytic and the second “nonparalytic.” The bottom line: There’s about a one-in-five chance that if you had paralytic polio, one of your brothers or sisters had “nonparalytic” polio— and may not even have known it. Polio was the shameful, frightening “AIDS” of the 1940s-50s (except the poliovirus was easy to transmit).



## Poliovirus Therapy Induces Immune Responses Against Cancer

Investigational therapy directly kills tumor cells and un.masks them to the body’s defenses

Article ID: 681262

Released: 18-Sep-2017 10:05 AM EDT

Source Newsroom: Duke Health

Credit: Duke Health

Dr. Bruno’s Remarks:

### NEW INFORMATION ON HOW THE POLIOVIRUS KILLS CANCER WITH A DOUBLE PUNCH...

“...poliovirus starts by attaching to malignant cells, which have an abundance of...the poliovirus receptor. The modified virus then begins to attack the tumor cells, directly killing many, but not all. By killing the cancer cells, the modified poliovirus triggers an alarm within the immune system, alerting the body’s defenses to go on the attack.”

<http://www.newswise.com/articles/view/681262/?sc=mwhn>

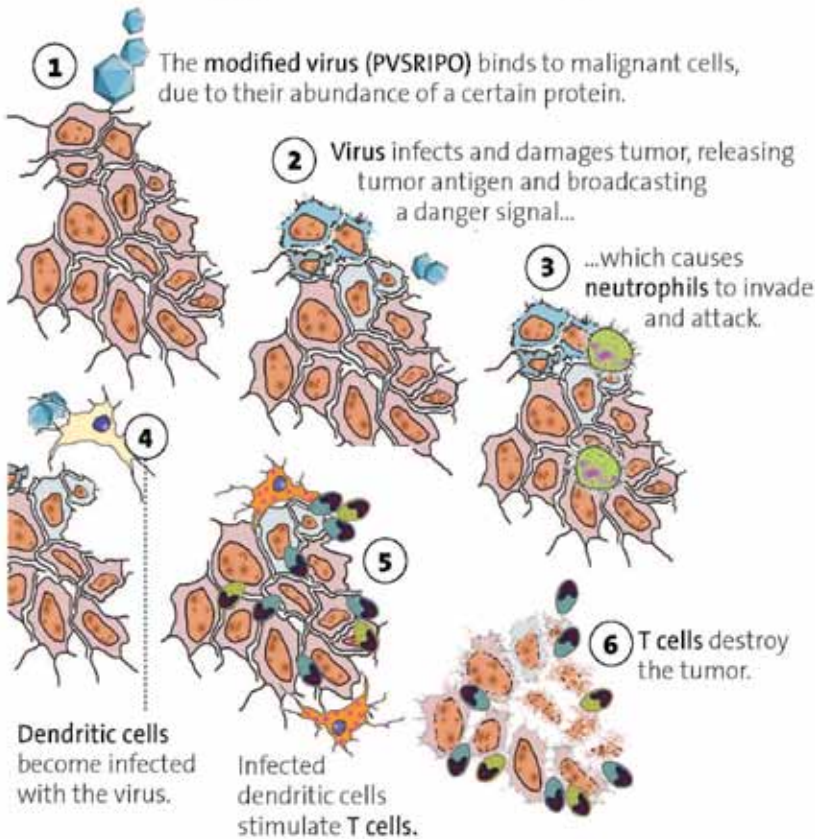
Newswise — DURHAM, N.C. – An investigational therapy using modified poliovirus to attack cancer tumors appears to unleash the body’s own capacity to fight malignancies by activating an inflammation process that counter’s the ability of cancer cells to evade the immune system.

Describing this process in a paper published Sept. 20 in the journal Science Translational Medicine, Duke Cancer Institute researchers provide the first published insight into the workings of a therapy that has shown promise in early clinical trials in patients with recurrent glioblastoma, a lethal form of brain cancer. The modified poliovirus received a breakthrough therapy designation from the Food and Drug Administration last year, expediting research.

“We have had a general understanding of how the modified poliovirus works, but not the mechanistic details at this level,” said co-senior author Matthias

## An old virus fighting a new battle

A modified polio vaccine has shown success in clinical trials at killing cancer cells and destroying tumors. Scientists have learned more details in how this virus engages the bodies' own immune system to attack.



Duke Health



Gromeier, M.D., a professor in the Duke Department of Neurosurgery who developed the therapy. "This is hugely important to us. Knowing the steps that occur to generate an immune response will enable us to rationally decide whether and what other therapies make sense in combination with poliovirus to improve patient survival."

Gromeier, with expertise in cancer biology, collaborated with fellow Duke researcher and co-senior author Smita Nair, Ph.D., an immunologist and professor in the Department of Surgery. The research team elucidated how the poliovirus works not only to attack cancer cells directly, but also to trigger a longer-lasting immune response that appears to inhibit regrowth of the tumor.

Using human melanoma and breast cancer cell lines, and then validating the findings in mouse models, the researchers found that the modified poliovirus therapy starts by attaching to malignant cells, which have an abundance of CD155 protein.

The CD155 protein is otherwise known as the poliovirus receptor. The modified virus then begins to attack the tumor cells, directly killing many, but not all. This releases tumor antigens.

The second phase of assault is more complicated. By killing the cancer cells, the modified poliovirus triggers an alarm within the immune system, alerting the body's defenses to go on the attack.

This appears to occur when the modified poliovirus infects dendritic cells and macrophages. Dendritic cells then present tumor to T cells to launch an immune response. Once the immune system is activated against the poliovirus-infected tumor, the cancer cells can no longer hide and they remain vulnerable to ongoing immune attack.

"Not only is poliovirus killing tumor cells, it is also infecting the antigen-presenting cells, which allows them to function in such a way that they can now raise a T-cell response that can recognize and infiltrate a tumor," Nair said. "This is an encouraging finding, because it means the poliovirus stimulates an innate inflammatory response."

Nair and Gromeier said further studies will focus on the additional immune activity following exposure to the modified virus.

In addition to Gromeier and Nair, study authors include Michael C. Brown, Eda K. Holl, David Boczkowski, Elena Dobrikova, Mubeen Mosaheb, Vidya Chandramohan and Darell D. Bigner.

The study received support the Public Health Services (CA197264, CA124756 and CA190991), the Department of Defense, (W81XWH-16-1-0354); the Lefkofsky Family Foundation, Hope & Gavin Wolfe, and the BLAST Glioblastoma Foundation.

Nair and Gromeier, along with Brown, Chandramohan and Bigner, own intellectual property related to this research, which has been licensed to a company, Istari Oncology, Inc. Gromeier and Bigner are cofounders and equity holders in the company.



## You Are Invited

Polio Regina is inviting people who have had poliomyelitis and are now experiencing new symptoms such as fatigue, muscle weakness and cold intolerance, to join our self-help support group to learn how they can cope with post polio syndrome. Spouses and partners of polio survivors are also welcome. Polio Regina Inc. was formed to help people from southern Saskatchewan.

### Our Objectives:

- To develop, promote and increase awareness of Post Polio Syndrome.
- To disseminate information concerning research and treatment pertaining to Post Polio Syndrome.
- To provide support to survivors of polio, other than financial aid.

### Where to Meet

The next two Polio Regina meetings will be held at Nicky's Café, on the corner of Eighth Avenue and Winnipeg Street, on Thursday March 22, 2018, and Thursday April 28, 2018 at 3:30 p.m. Nicky's has extra parking at the back and it is wheelchair

accessible. Our Spring Picnic will be held at a time and location yet to be determined.

### Web Site:

Check out our website for more information on Polio Regina and links to other useful related information at: <http://nonprofits.accesscomm.ca/polio/> or you can just Google **Polio Regina**. Our email address is: [polio@accesscomm.ca](mailto:polio@accesscomm.ca)

### Disclaimer

Information published in the Polio PostBox may not represent the opinion of Polio Regina. It is not to be regarded as Polio Regina's endorsement of treatment, products or individuals. If you have or suspect you may have a health problem, please consult your health care professional.

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*The executive of Polio Regina would like to wish all our members and their families a Merry Christmas and a Healthy and Happy New Year.*

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## MEMBERSHIP APPLICATION POLIO REGINA Inc.

Name \_\_\_\_\_  
Active ( ) if you had polio    Associate ( )    New ( )    Renewal ( )

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Postal Code \_\_\_\_\_ Phone: \_\_\_\_\_

Annual membership fee: (Jan.- Dec.) *Membership Fees are due January 6, 2018*

\$10 Single; \$15 family                      \$ \_\_\_\_\_  
My donation to Polio Regina Inc.:\*        \$ \_\_\_\_\_  
Total \$ \_\_\_\_\_

(If you require sponsorship for your fee, inform our membership chairman)

Please make cheque payable to: **Polio Regina Inc.** and mail this application form and cheque to:  
Polio Regina Inc., 825 McDonald St. Regina, Sk. S4N 2X5

\*(Official receipt of donation for income tax purposes will be mailed.)