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MEDIA PLANET

RARE DISEASES

FIGHTING FOR ACCESS TO LIFE-TRANSFORMING THERAPIES

Suffering from a rare form of Cystic Fibrosis, 12-year-old Madi Vanstone, pleads to the Government to fund her medication.

PHOTO: JESSICA VANSTONE

Featuring

A PUBLIC DRUG PLAN
A standardized and sustainable solution

ACCURATE DIAGNOSIS
How technological advances are increasing the odds

NATIONAL DRUG POOLING
Equal drug access, regardless of province and employer

An optimistic future for rare diseases in Canada

DURHANE WONG-RIEGER
PRESIDENT & CEO,
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FOR RARE DISORDERS

Thirty years ago, a newborn was withheld from adoption because she displayed low muscle tone, sporadic head movements and poor sucking response. The infant tested negative for the three newborn screening tests offered by the province. The birth parents were foreign so medical histories were limited, but they reported no known neurological disorders. The birth mother had no symptoms of drug or alcohol abuse.

The foster mother was trained to do physical therapy, and at nine months, the infant was placed for adoption having made steady progress, although with no diagnosis but an optimistic prognosis that she could meet age-appropriate milestones by two years of age. My husband and I adopted her when she was 10 months old, and she is absolutely incredible, but we felt like we were "flying blind" and still didn't know if there was an underlying genetic cause.

Pressing fast forward

Let's fast forward some three to five years from this day. Born in Ontario, Baby A is tested for 30 genetic disorders as a matter of routine. Although the results are negative, the physician notes some irregularities and sends her blood to the Children's Hospital. There, internationally renowned genetic researchers have implemented "state of the art" whole-exome sequencing, which tests for up to 4,000 rare genetic conditions.

Baby A is diagnosed with an extremely rare condition. The prospective parents live in a rural community, but no one is concerned. The family receives counseling, and the infant is enrolled in a registry where her progress can be tracked as part of an international database. The family physician and the parents develop a plan for preventive therapy based on international guidelines; they receive ongoing support and access to a multidisciplinary team at the Sick Kids' (Rare Disease) Center of Excellence. When the child turns three, the family physician is notified about a clinical trial for a new therapy.

Canada's orphan drug regulatory framework

Due to the success of Canada's Orphan Drug Regulatory Framework, the research company has decided to seek "orphan designation" and launch clinical trials in Canada at the same time as they are setting up sites in Europe and the UA.

With the parents' consent, the company has immediate access to the child's medical records. The family is invited to meet with the company, Health Canada, and the health service providers not only to learn about but also to provide input into the design of the clinical trial. They will have access to the findings from the trial as they become available, and will be able to participate in regular monitoring so they can all keep track of how well the drug is working and whether there are serious side effects.

Adopting the Canadian strategy for rare diseases

This future scenario is neither a fairy tale nor a pipe dream but a very real possibility if Canada adopts the Canadian Strategy for Rare Diseases. Most European countries, including Romania and Poland, have already adopted Rare Disease Plans, so Canada is playing "catch-up."

The Canadian Organization launched the Framework for the Strategy on Rare Disease Day 2014, in collaboration with the Canadian Institutes for Health Research, Genome Canada, Care 4 Rare, BIOTECanada, Rx&D, University of Alberta PRISM Project, and the Rare Disease Foundation as well as other stakeholders.

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FIGHTING FOR OUR PEOPLE
75 percent of rare diseases present in childhood.

Right now, only 60% of treatments for rare disorders make it into Canada and most get approved up to 6 years later than in the USA and Europe. **People with rare disorders in Canada are missing out on treatments that could save or significantly improve their lives.** This needs to change.

Appropriate, responsible, and sustainable drug funding

Let's say the principles for an appropriate, responsible, and sustainable public drug plan were:

1 **Fund therapy only for those patients for whom there is a benefit**

2 **Ensure that patients are monitored and receive good care to get the most from their drug therapy**

3 **Keep the overall drug budget at an affordable level**

How can Canada fund both common and rare disease drugs for all patients who would benefit from therapy?

"In Canada, less than 1 percent of our public drug budget is for rare diseases. In Europe, the impact in countries with the very best access is still only about 2.5 percent to 3.5 percent of drug costs."

A sustainable solution

We know that it costs just as much, if not more, to develop a drug for a rare disease as it does for a more common disease. So if a hypothetical new drug developed to treat 500,000 "common disease" patients costs $1,000 per patient per year, it is not unreasonable that a drug developed to treat 1,000 rare disease patients would be priced at $500,000 per patient per year in order to generate the same return on investment (ROI). Except, the patient with the rare disease doesn't have $500,000 per year. Although if all patients with common and rare diseases belonged to the same "family" and pooled their resources, then the family could treat all patients at a cost of $1,996 each, which is actually not unaffordable.

Analyzing the ROI

We also know that most drugs, common or rare, work for only about 60 percent of the population. For common diseases, because therapy is relatively cheap, we prescribe it for everyone regardless of whether it works (unless there are serious side effects.) For the rare diseases with expensive treatments, we do genetic tests, we monitor to make sure it works, and we stop therapy for nonresponders. So, for the common disease, we are spending $500 million and getting only 60 percent ROI; for the rare disease, we are spending $300 million and getting 100 percent ROI. And our average cost is now $1,598 per patient, plus the rare disease patient is getting better care. If we tracked all our patients, the average cost is now $1,197 per patient, which is actually very affordable. And we are giving all patients best care.

Current use of the public drug budget

In reality, while some rare disease drugs are very expensive, many are not. The average cost of a rare disease drug ranges from $1,750 to $550,000 per patient, per year with an average cost of about $44,000 per patient per year. Given the number, the total budget impact remains very small. In Canada, less than 1 percent of our public drug budget is for rare diseases. In Europe, the impact in countries with the very best access is still only about 2.5 percent to 3.5 percent of drug costs. Moreover, even though the number of new drugs is increasing every year, the total budget impact is not expected to exceed 6 percent in 2020 even in the very best funded environments.

Take action now

To contribute to developing an appropriate, responsible, and sustainable drug plan for common and rare diseases, join the Canadian Organization for Rare Disorders in our regional forums, planned for April to June.

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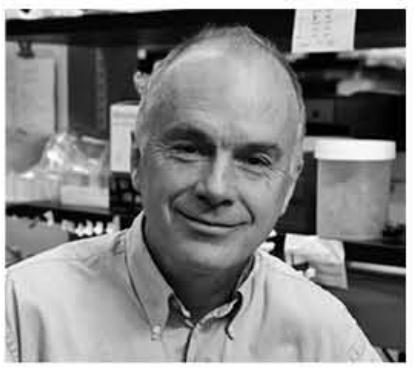
CANADA AT THE HELM OF RARE DISEASE RESEARCH

After decades of dwelling in the shadows, the compelling narrative of rare inherited diseases appears to be making its way into Canada's collective consciousness; conditions affecting every body system, impacting millions of Canadians (rare diseases aren't rare), bound neither by geography, nor ethnicity nor socio-economic status.



ALEX MACKENZIE AND KIM BOYCOTT
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No. 1 cause of infant death

Rare diseases are compelling on a number of levels, a large number of small groups impacting as many as 3 million Canadians, affecting children disproportionately; often serious and usually untreatable. Their impact is distilled in this sobering reality: rare diseases are the most common cause of infant death in Canada.

DNA sequencing creates hope

Yet it is a remarkable time for rare disease research. With the advent of the disruptive technology of next generation DNA sequencing, the trajectory from clinical description to recognition of the disease-causing gene has dropped from many years to mere weeks. So with the gene for approximately half of the estimated 7,000 disorders now identified, the number that remain is decreasing steadily. Furthermore, with each new rare disease gene identification comes not only a diagnosis where there was none — no small thing even in the absence of treatment — but unprecedented insight, a new page of human biology is written, a better understanding of how we are strung together at a molecular level, and possibly, hope for therapies.

Canada leading the way

Canadians are playing a central role in this revolution; with the support of funding agencies such as Genome Canada and Canadian Institutes of Health Research, our large scale national projects have discovered rare disease genes at a pace that has outstripped that of any other country, Canadian scientists have pioneered the international computational capture and comparison of the clinical and genetic profiles of those refractory to diagnosis, a Canadian sits as the Chair of the EU based International Rare Diseases Research Consortium, we expect within the foreseeable future both the tabling of orphan disease drug legislation from Health Canada and, for the first time, a Canadian National Plan for rare diseases.

Care and treatment need attention

Clearly these are exciting times for rare disease research; nonetheless the challenges that remain are enormous. For instance, although Canada leads in research, the same cannot be said for our care and treatment of rare diseases.

How we effectively address so many conditions that so drastically affect such individually small numbers of Canadians will call upon our best — a creativity and generosity that looks past each condition's individual rarity and asks what can be done for all affected by rare disease.

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EDITOR'S PICK

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Provincial drug funding decisions having tragic consequences

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INSIGHT

CANADIANS NEED RAPID, ACCURATE AND ECONOMIC DIAGNOSIS

An estimated **7,000 rare diseases collectively affect 1 in 12 or approximately 2.7 million Canadians** and their families. Rare diseases include conditions like cystic fibrosis and muscular dystrophy; over 80 percent have a genetic basis and 75 percent present in childhood.

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Genetic testing

Rare diseases cause chronic illness, disability, and often premature death while consuming a disproportionate share of spending in health care, education and social support. Canadians require rapid, accurate and economic rare disease diagnoses: the "genetic revolution" means that as new genes and cellular pathways are discovered, the array of possible tests and diagnoses expands regularly, leading to long, costly (upwards of $10,000) and often unproductive diagnostic journeys for patients. Less than 6 percent of the 2,500 rare disease genetic tests are performed in Canada, so millions are spent annually for out-of-country testing (specifically $18M in Ontario in 2012).

Advancing technologies make way for better diagnosis

One-third of Canadians who actually have a rare disease currently never receive the right diagnosis even after a "diagnostic journey," and thus don't know about potential complications, life expectancy, or reproductive risks. Accurate diagnosis is essential; moreover, with advancing new technologies is more and more likely. Finding cures and effective therapies is critically important given that more than 90 percent of rare diseases are currently untreatable. Where treatments exist, unequivocal evidence of benefit can prove elusive and, (largely because lack of incentives to develop therapies) costs can be astronomic ($25 million for metabolic disease enzyme replacement therapy annually in B.C.). Dozens of therapies are in the drug development pipeline, but clinicians and regulators alike need new approaches to test and judge their effectiveness.

Catching up with international players

Internationally, numerous forces are at play to improve the situation for patients with rare diseases. Although, efforts to address the gaps in Canada are fragmented, inefficient, and underfunded. Canada has no legislation to set regulations or incentives for studies in children. Health Canada's Food and Drugs Act and many sections in the Food and Drug Regulations include provisions established in the 1960s. The 50-year-old regulatory frameworks make it difficult for Health Canada to respond efficiently and effectively to new and emerging science, medicines and technologies. Furthermore, because Canada's Health Act is silent about how care should be organized and delivered, the country's 14 jurisdictions make independent decisions about standards of care, including availability and access to rare disease diagnostic tests and approved therapies.

Child health and genetic communities hard at work

The complex clinical, social, scientific, ethical, economic, and moral challenges of rare diseases cannot be tackled in the absence of a national strategy. No center or region in Canada has a critical mass of patients or expertise to meet what has become a global challenge. Despite that, Canada enjoys highly collaborative child health and genetics communities that are uniquely poised to engage in a national rare disease partnership; all 17 child health research organizations are united in the Maternal Infant Child & Youth Research Network (MICYRN) and have set up research-enabling infrastructure. They have also established an internationally-renowned rare disease gene identification consortium ("Care for Rare"), which engages all 21 clinical genetics centers in the country. A partnership that considers the needs of multiple stakeholders while striking an ethical and fiscally responsible balance would catalyze development of Canadian solutions for rare diseases. It would also position Canada to serve as an international model for innovative, equitable and effective rare disease research and care, within a universal health care system.

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INSIGHT

A Canadian action plan for rare diseases

Technological advances in the past few years have enormously increased our capacity for genome sequencing and have reduced its cost by a millionfold.

DNA SEQUENCING TECHNOLOGY
Canadian researchers are playing a central role.

Canada leading in research

These advances permit the use of genomics for individual diagnosis, particularly in the area of genetically-inherited rare diseases. Patients who before may have undergone 10 or 20 years of diagnostic testing, can now receive a diagnosis based on DNA sequencing. Several thousand rare diseases exist, such as Duchenne muscular dystrophy, and metabolic disorders, such as phenylketonuria (PKU). Canada is a leading nation in rare disease research thanks to numerous federal and provincial funding opportunities built around a solid partnership between the Canadian Institutes for Health Research (CIHR) and Genome Canada.

Researchers funded through these initiatives can often further leverage federal money with matching funds from provincial agencies, health charities, or industry. In addition to providing resources for research, this also ensures that appropriate collaborations are in place to rapidly translate new discoveries into effective interventions.

Moving away from "one size fits all"

At CIHR, rare disease research is a key priority area of the Personalized Medicine Signature Initiative, which launched in 2012. The same technologies used to diagnose rare diseases also show that common diseases like cancer are often just collections of many rare diseases. This allows cancer patients to be classified into groups that will respond optimally to different therapies.

Consequently we are moving away from a "one size fits all" approach towards treatments that are better tailored to the individual. This method promises increased efficacy — both for the patients and for the healthcare system.

Canada plays a leading role in the International Rare Diseases Research Consortium (IRDiRC). IRDiRC is a global association of nearly 40 public and private research funders that have together pledged over $1 billion in research funding to develop 200 novel therapies and new diagnostic tools for most rare diseases by 2020. Canada also launched a national node of the Orphanet database in 2012. Orphanet is a comprehensive portal for rare diseases and orphan drugs that operates in 37 countries, and provides information aimed at patients and their families, clinicians, and researchers.

Getting early access to new therapies

To ensure that Canadian rare disease patients optimally benefit from these investments, we must develop a Canadian rare disease strategy. Nineteen of 28 European Union member states have adopted such plans that have had a significant, positive impact on rare disease patients and their families.

Following on from the Government of Canada's very welcome decision in 2012 to create a new approach for the authorization of orphan drugs, adoption of a Canadian national plan for rare diseases will help to ensure that Canadian patients receive early access to novel therapies by attracting international clinical trials to Canada and strengthening our private-sector research.

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The responsibility to manage public benefits lies in the hands of the government

A basic premise of all societies is that the group will contribute to protect its most vulnerable or disadvantaged members.

On the other hand, a basic responsibility for all governments is to manage public benefits in a fiscally responsible manner. In Canada, this process has generally worked well when a large group of individuals with a well-known important disease makes its case to the public and/or government. However, the voice of a small group affected by a rare disease can easily go unheard.

Cystinosis

One example involves the rare genetic disease, cystinosis which is caused by mutations of the gene that provides for free movement of cysteine from one compartment to another within our cells. In the first decade of life, affected children have progressive kidney failure that usually requires kidney transplantation by the age of 10 years; they suffer from highly irritant crystals that form in the cornea. Slow deterioration of organs usually limits survival to about 30 years of age.

Medical advances

Although there is still no "cure" for cystinosis, several medical key advances have shifted the natural history of the disease. Canadian children participated in a North American study showing that the oral drug cysteamine could reduce tissue cystine accumulation, delaying the need for kidney transplantation by 5-10 years; a new long-acting form of oral cysteamine (Procysbi) was recently developed that allows twice-a-day dosing. A new topical form of cysteamine (Cystaran) is administered in the form of eye drops to treat the crystal accumulation that Cystinosis patients experience in their eyes. Both drugs have been tested and approved by the FDA in the US but neither has been approved by Health Canada. Instead, the government has chosen to use cheaper forms - which must be administered more frequently (difficult in adolescents) or compounded locally without quality control oversight. A brief survey of cysteamine eye drops in Quebec revealed lack of uniformity in the concentration of cysteamine of eye drops prepared by individual pharmacies.

Pricing issue

The new formulations are expensive. For example, the cost of new drugs that replace missing enzymes in the brain or liver can be as high as $300,000/year in the United States. The cost of the new long-acting form of cysteamine is estimated to be $150,000/year. To date, Health Canada has denied access to these drugs through the Special Access Programme, arguing that the older (inexpensive) formulations and formulations compounded from basic ingredients in local pharmacies are sufficient. Yet there are only about 100 Canadian children with cystinosis and the cost of these improved formulations would represent a miniscule part of the overall health care budget. Recently, a young American studying in Toronto was unable to arrange for local pharmacies to dispense his long-acting cysteamine medication even though the cost was entirely underwritten by his private insurance in the US.

> "There are only about 100 Canadian children with cystinosis and the cost of these improved formulations would represent a miniscule part of the overall health care budget."

This illustrates concern that if costly new drugs are approved for a few patients with rare disease, it might set a precedent and elicit similar (unaffordable) demands from larger patient groups in Canada? Somehow we must find mechanisms that honour our instinct to protect vulnerable small groups in society, while living within the broad constraints on the cost of health care.

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INSPIRATION

PROVINCIAL DRUG FUNDING DECISION HAVING TRAGIC CONSEQUENCES

Josh is just like every other 12-year-old in Canada. All he wants to do is run around outside with his buddies, play the drums at home and head out to school every morning without a worry in the world, just like every child should.

JOSH WITH HIS MOM
Josh recieves his infusion once every two weeks, in the comfort of his own home.
PHOTO: BETH DANIHER

Not the typical childhood

Unfortunately, things haven't been that simple for Josh. In 2011, years of minor health problems came to a head when he was rushed to SickKids hospital, as his skin was jaundiced. After being admitted, he vomited blood for four days and his condition deteriorated rapidly.

Josh was in hospital for five weeks and at one point came close to death, but doctors were stumped when it came to giving a conclusive diagnosis. Finally, after numerous tests and a process of elimination, Josh was diagnosed with Atypical Hemolytic Uremic Syndrome (aHUS), an extremely rare chronic and life-threatening genetic condition, which causes the immune system to attack the body's healthy blood cells, often resulting in extreme fatigue, nausea, organ damage and kidney failure.

Life changing medication

"At first, Josh was treated with dialysis and plasma infusion, and that was seven or eight hours a day of machines on his body," explained Josh's mother, Sonia. "It was incredibly terrifying because you don't want to see anyone go through that, let alone your own child."

During this time, there was a clinical study on aHUS happening at SickKids for a new drug called Soliris. The family was approached but was understandably apprehensive because, at that point, the drug hadn't yet been approved by Health Canada. When they discovered that Josh would need plasma infusions for the rest of his life if he didn't get the new drug, they decided to enter him into the study.

"It's almost two years to the day since he started on the new drug and he's incredibly healthy — he plays the drums, he has a paper route, he gets in trouble," said Sonia. "He gets his infusions at home every two weeks so he doesn't have to go down to SickKids. It's been an unbelievable change in our lives."

Restricted availability

For a young man who has had such a difficult few years, it seems absurd to say that Josh is one of the lucky ones. The Common Drug Review (CDR) has made a recommendation for provincial and territorial drug programs not to fund the medication, even though it's been approved by Health Canada.

This decision leaves the estimated 60 to 90 Canadian aHUS sufferers without access to the only proven medication that effectively treats their condition. These unfortunate Canadians are left to rely on plasma infusions, which do nothing to improve their health. "Governments say that plasma is an effective treatment, but it's not," says Sonia "It's a therapy. A drug that has been proven to work? Now that's a treatment."

Sonia is disillusioned by the provincial governments' reluctance to fund this life-saving drug; she finds it cruel and unjust.

For Josh, life is great. He's loving being a carefree kid again and he's even joined a band. "I'm so much better than I was, and it's no trouble getting the medication in the morning," said Josh. "If I didn't have the medication I wouldn't be able to do much, like go outside and play with my friends."

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Access to medication: the physician's view

The reluctance of some provincial governments to fund life saving treatments for rare diseases is both frustrating and heartbreaking for sufferers and their families, but what do the physicians who care for patients with conditions like Atypical Hemolytic Uremic Syndrome (aHUS) make of these bewildering drug policies?

Knowledge gap

"The problem is that the knowledge surrounding these rare diseases is not widespread," explains Dr. William Clark, who treats patients with aHUS. "So, unfortunately, because of the low frequency rates, disorders like aHUS don't really meet the interests of regulatory bodies."

Dr. Clark believes that by lacking the knowledge of specialist physicians, provincial decision makers may be inclined to offer negative reviews and recommendations when it comes to the question of funding the expensive yet lifesaving medication necessary to treat a condition like aHUS.

"The situation would be better if provinces were forthcoming with sending out information about how they make decisions," says Dr. Clark. "But, at the present time, we don't have that dialogue."

Life saving treatment

It's important to realize that part of the reserve of the provincial governments relates to the difficulty of clearly distinguishing cases of aHUS from more common forms of Thrombotic Microangiopathy (TMA), notes Dr. Clark.

Currently, all patients who present with an undiagnosed TMA will be provided with plasma therapy. Those who fail to respond to plasma in the absence of a secondary cause should then be diagnosed with aHUS and receive Soliris, as plasma therapy is not an adequate treatment.

"Those patients need Soliris to survive, and provincial governments have a responsibility to provide optimal care for the population as a whole," says Dr. Clark. "Treating the small number of patients with aHUS wouldn't threaten the financial supply of the health care system. It's a tiny number of individuals."

> "Provincial governments have a responsibility to provide optimal care for the population as a whole."

At the current time, the Ontario government doesn't feel that there's adequate reasoning to fund this life-saving treatment, even though there's a compelling body evidence to suggest otherwise.

"The New England Journal of Medicine — the heaviest impact journal in medicine — did a study on 37 patients at different stages of aHUS, and then published an article that suggests Soliris is a necessary treatment," says Dr. Clark. "It's going to be hard to see better evidence than that."

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NEWS

SUPPORT PROGRAMS DESIGNED TO ASSIST PATIENTS AND THEIR FAMILIES

If you or a family member have had the misfortune of being diagnosed with a rare disorder, you likely have benefited from the types of services or support pharmaceutical manufacturers offer to patients and physicians who require the use of their medications. Most Canadians, however, are unaware that these critical services exist as a complement to public and private healthcare services.

DIAGNOSED WITH A RARE DISORDER? Patient support programs offer a variety of options.
PHOTO: AMERISOURCEBERGEN SPECIALTY CANADA

Being diagnosed with a serious illness is an overwhelming event in anyone's life, but it really is only the beginning of the journey for the patient, as well as their families. It is also a time when a patient can begin to feel lost and uncertain of what their next steps are.

The services offered by Patient Support Programs focus on easing this burden and can include several options.

■ **Reimbursement navigation** Assistance with identifying public and private drug coverage options for the patient, as well as offering assistance to ease the burden of paperwork.

■ **Clinic and nursing services** Medications for rare disorders often require a nurse to administer the product, either at a private clinic or at the patient's home, when the services aren't covered under the public system.

■ **Education, training, and adherence** Many patients require additional support on how best to manage their disease. This can include ongoing education of the diagnosis itself, self-infusion/self injection training, lifestyle or diet counseling, reminder calls, and many other services to assist the patient in taking their medication appropriately.

■ **Health outcomes and safety monitoring** Given the significant costs of treatment and small patient populations associated with rare disorders, many programs maintain ongoing contact with patients in order to monitor and track the efficacy of their treatment.

■ **Financial support** Some programs may offer some additional support to families and caregivers who have limited insurance coverage and may not be able to afford their out-of-pocket expenses.

■ **Special access programs** Support for physicians and patients in securing access to medications that are currently only available outside of Canada.

The specific combination of services offered will vary by each program; however, the focus is always on easing the burden on the patient and their families as they attempt to access the critical lifesaving medications they need. Programs also allow patients and their families to develop a relationship with their dedicated Case Manager who can work with patients and their families throughout the entire process to ensure the coordination of all services is as seamless as possible.

While not well known to many Canadians, these programs play a critical role for patients with rare disorders each and every day.

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Highly complex rare diseases require extensive expertise

Neuroendocrine cancer is one of the rarest forms, affecting less than six people per 100,000. Individual treatment plans are key to fighting these complex tumours.

Long lag in diagnosis can narrow options

Five to seven years — that's how long it can take to diagnose neuroendocrine cancer, reports Dr. Simron Singh, a Toronto oncologist. That delay can reduce treatment choices.

One encouraging development is the emergence of the Susan Leslie Clinic for Neuroendocrine Tumours at the Odette Cancer Centre, part of Toronto's Sunnybrook Health Sciences Centre. Dr. Singh co-heads this clinic, the largest in Canada.

Neuroendocrine tumours are typically found in the small bowel, rectum, appendix, pancreas, or stomach, though they can appear elsewhere. Why is this cancer so hard to detect? The symptoms can apply to other conditions, and are sometimes vague: bloating, wheezing, diarrhea, persistent cough, loss of appetite, abdominal pain, and a flushed face.

The need for extensive expertise

It's easy to misdiagnose, comments Dr. Singh. Sometimes, patients return to the doctor repeatedly with the same complaints. "They're common symptoms, but you shouldn't dismiss these concerns as benign," Dr. Singh says.

He describes one patient whose symptoms began in her home country and worsened after she immigrated to Canada. Her first doctor passed it off as move-related stress, and sent her to a psychiatrist. That doctor put her on medication for an anxiety disorder. The patient insisted she wasn't anxious, searched her symptoms online, and finally stumbled onto the Susan Leslie Clinic where she received treatment.

> "At our clinic, everybody sees the surgeon and medical oncologist together, and we come up with an integrated plan."

Multi-disciplinary team consults with doctors across Canada

Neuroendocrine cancer it's not only rare, but is also highly complex, says Dr. Singh. The tumours can be slow-growing or aggressive. They can be in multiple sites. Treatments can range from medication to chemotherapy to surgery, and the combination and sequencing of treatments can differ greatly.

"It's important to have an individualized treatment plan," says Dr. Singh. "At our clinic, everybody sees the surgeon and medical oncologist together, and we come up with an integrated plan."

The Susan Leslie Clinic is considered a Centre of Excellence for neuroendocrine tumours. That means having multi-disciplinary teams, a group of clinicians with experience in treating these cancers, access to most treatment modalities, as well as access to the latest research and new clinical trials.

The clinic is also a regional and national resource. Through monthly videoconferences, the clinic reviews radiology and pathology with doctors from centres across Ontario. Doctors in other parts of Canada can contact the clinic for consultations around managing their patients and treatment options.

Last year, the clinic saw 200 new patients, and followed up with 400. If this type of Centre of Excellence didn't exist, "patients would probably bounce around from doctor to doctor to get a treatment plan, or struggle to even get a diagnosis," says Dr. Singh.

"We want to improve awareness," he continues, "so we can diagnose earlier, and have more treatment options."

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TOP:
MADI AND HER MOM
Beth: Madi is currently on a life-saving treatment, but her family won't be able to fund it for long.

BOTTOM:
LITTLE CYSTIC FIBROSIS FIGHTER
Madi will not give up this fight.
PHOTO: STAN BEHAL

ONE FAMILY'S FIGHT TO GET THE ONTARIO GOVERNMENT TO FUND AN ESSENTIAL, LIFE-SAVING MEDICATION

Like every mother, Beth Vanstone will do whatever it takes to ensure the health and safety of her kids. It's trickier for Vanstone, though. Her daughter, Madi, suffers with a rare form of cystic fibrosis, a genetic disease that creates a thick mucus build up which causes serious damage to the lungs, digestive track and sinuses.

Life changing medication

Madi is currently taking the drug Kalydeco, and it has had a fantastic effect. Within 30 days of taking the medication, her lung function increased from 78 to 115 percent of its expected value. In the following five months she had gained 17 pounds — more weight than she was able to put on in three years. All of her headaches from sinus issues have stopped, as have her bowel and digestive problems. "Her energy is through the roof," says Beth. "She's like a normal kid now."

Although there's a problem; Kalydeco costs around $349,000 a year, and is not currently being funded by the Ontario government. Vertex, the drug's manufacturer, has agreed to pay 30 percent of costs, Glenn — Beth's husband — has a work insurance plan that covers 50 percent, and the local community has come together to raise the remaining money. Although Beth knows that the community, and possibly Glenn's insurance plan, won't be able to help forever. She wants her province to fund Madi's medication.

Lengthy negotiations

The Ontario government has been in negotiations with Vertex about the price of Kalydeco for over 14 months, but they can't come to an agreement. It seems as though there's reluctance on the part of the provincial government to pay the cost of the medication, and as they hesitate, patients like Madi are left waiting, with their lives on pause.

While the medication is expensive, Vertex hasn't plucked the price for Kalydeco out of thin air. These medications require huge investment in research, development, and technology,

and that has to be reflected in the price. Fifteen other countries have agreed a price with Vertex without too much fuss. These lengthy negotiations could have serious consequences — sometimes you have to stop haggling, realize the value of what's on offer, and pay up.

Beth hasn't taken this lying down. After months of having calls and letters ignored, she was granted a meeting with Premier Kathleen Wynne and Health Minister Deb Matthews. "The best that I got from them was an assurance that they'd keep me updated on a bi-weekly basis," says Beth. "Our experiences with the Ontario government have been frustrating, to say the least."

Make it happen

Canada needs continued investment into the research and development of these life-changing medications, but for biotech and pharmaceutical companies to continue making breakthroughs, they need to see a return on the millions they spend. Provincial money is being put before life and quality of life, and for Beth Vanstone it's impossible to hide her frustration and anger.

"I strongly feel that if this was happening to the daughter of somebody in the cabinet, it wouldn't be an issue to fund the drug," says Beth. "This is not a drug that just treats symptoms. It addresses the underlying causes of cystic fibrosis. This can be sorted out very easily and it needs to be done."

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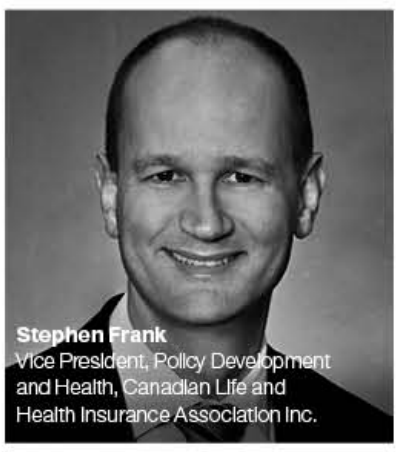
CANADA'S INSURERS: IN IT FOR THE LONG-HAUL

Canada's insurers are acutely aware of the emotional and financial burden Canadians face when diagnosed with a rare disease. In fact, this is exactly when the true value of insurance comes to the fore, and Canada's insurers want to make sure they can continue to be there when Canadians need them the most.

In 2012, Canada's private insurance industry reimbursed over $10 billion in prescription drug costs. A significant portion of this was for orphan drugs and other rare and high-cost biologics.

No Canadian should fall between the cracks

There are some important and exciting changes on the horizon with respect to how Canada approves orphan drugs as well as how provinces and private insurers provide access to them. Health Canada's plan to introduce a new regulatory approval pathway for orphan drugs is an important and positive initiative that the industry fully supports. While the details of the new regime are still being finalized, the industry is proactively implementing new solutions and structures to ensure it can continue to pay for orphan drugs going forward.



Stephen Frank
Vice President, Policy Development and Health, Canadian Life and Health Insurance Association Inc.

National drug pooling

For instance, in January 2013, Canada's insurers launched a national drug pooling solution for all insured drugs plans. This unique pooling arrangement protects these plans from the full financial impact of high-cost, recurring drug claims. One year in, all insured plans are now covered and millions of Canadians can feel secure that their benefits will be there when they need them.

> "Providing fair and equitable access to orphan drugs to Canadians, regardless of which province they live in, or who their employer is, is critical."

In addition, the industry is taking a leading role in advocating for fundamental change in the regulation of patented drug prices. We know that Canadians face some of the highest drug prices in the developed world — including for orphan drugs whose prices can sometimes put them beyond reach. The industry is advocating for changes to the mandate of the federal agency that regulates drug prices to ensure that it actively seeks the lowest possible prices, while still ensuring that there is access to breakthrough drugs.

A standardized and sustainable approach

Finally, providing fair and equitable access to orphan drugs to Canadians, regardless of which province they live in or who their employer is, is critical. The industry is working collaboratively with a number of stakeholders, including CORD, to design and establish a standardized and sustainable approach to determining which drugs should be covered. Ideally, this approach will be harmonised with the provinces so that no Canadian fall between the cracks.

There are important and positive changes on the horizon for those with a rare or orphan disease. Canada's life and health insurers have always played a critical role in helping pay for these drugs and are actively working to make sure that we continue to do so for the very long term.

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More consistent coverage of drugs for rare diseases

Back when Medicare was initiated, outpatient drugs were not added to the system. There weren't that many drugs and they didn't cost very much. Although times have changed. Drugs now account for a significant part of health care delivery and have enhanced the whole aspect of outpatient care. Governments have added drug plans for selected populations and private drug plans cover others, but not all Canadians have coverage. There are coverage differences across the country, and nowhere is this difference seen more than in the area of drugs for rare diseases (DRDs).

Getting patients what they need

The private insurance companies came together and in 2013 implemented an industry-wide pooling arrangement. The intention was to guard the solvency of insurance companies, while allowing eligible patients to get the drugs they needed. We'll see the real impact of this in the years ahead, but it's a good start for the private sector.

Provincial governments also cooperate, but there are significant differences in the plans across the country. Some provinces have tried to address the issue of coverage for DRDs; however, some are still struggling.

Funding depends on geographic location

Rare diseases are rare in that there may be only 100 people affected in the country. Although, they can occur in clusters. This may mean that 50 percent of the people affected in Canada may be in 1 province. If that group is in a small province, it could place a significant burden on that province and the drug may not be covered in that province because the province may not be able to cover the cost. This could mean that 50 percent of the affected people could get coverage in provinces where there is a not a big budgetary hit — but not get covered where the problem is most significant.

Analyzing the options

So what to do? Should we look at new approaches like Coverage with Evidence Development? Should public drug plans look at a similar pooling arrangement that the private sector uses? I asked public drug plans in Canada about these ideas.

Coverage with Evidence Development sounds good, but has yet to be broadly adopted largely due to the workload and uncertainty. Provinces want something that they can measure and which does not place undue administrative burden on them. It is not a quick fix and patients need faster coverage decisions. This poses a challenge for the pharmaceutical industry.

> "It's like fire insurance. We have it and hope we never have to use it, but we are glad we have it when a fire hits."

The pan-Canadian pooling idea also has its pros and cons. Provinces don't want to give up control of health care decision-making. Provinces also fear that if they agree to join, they might have to pay for patients that are not in their province. On the other hand, smaller provinces would be spared the burden of a huge budget hit if a new treatment emerged for a cluster of patients in their provinces. One province suggested that the federal government could play a role by topping up the funding; this has happened in other areas.

Risk-pooling approach

Weighing the pros and cons, the provinces I spoke with generally feel that the pooling approach has a chance of working. Yes, there are details to sort out, but that way every Canadian has something invested and can benefit if the need arises. It's like fire insurance. We have it and hope we never have to use it, but we are glad we have it when a fire hits. Perhaps this is the next step in an approach to a national coverage plan for DRDs. We have to keep the up the positive momentum. Patients are dying to know.

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INSIGHT

Patients face inconsistent care and unequal access

What if you waited 20 years to finally get a treatment for your condition but learn it's only available in certain parts of Canada? That just happens to be a reality for many people who suffer from a treatable rare disease.

The Canadian Organization for Rare Disorders (CORD) has played an instrumental role in the fight to give patients universal access to lifesaving treatments while increasing the portability of healthcare in Canada.

LEFT: Durhane Wong-Rieger, President & CEO, CORD.

RIGHT: Angela Covato, Managing Director, CORD.

PHOTO: JIM MCQUAID

Health care system fails those with uncommon needs

In Canada, rare diseases affect nearly three million people. That's sizeable, until you realize there are over 7,000 such diseases but only a fraction have treatments today. Many strike less than fifty people across Canada, and in the rarest cases, a disease may only affect a single person. "The challenge with rare diseases is that the numbers are so small. It's almost impossible for patients to get equal access because the system doesn't know how to treat these special cases," says Durhane Wong-Rieger, President of the Canadian Organization for Rare Disorders (CORD).

This harsh truth is having a devastating impact on those individuals who are sick in Canada, but it shouldn't act as an excuse for provinces to not make every attempt to treat their residents who are most in need. Fortunately many provinces do treat these rare conditions but the sad reality is that not all provinces do. This leaves patients neglected in areas of Canada and it restricts the freedom of all Canadians to move for fear of losing healthcare.

New Brunswick is one such province not to embrace treatments for patients dying of a treatable rare disease.

Lack of portability

In a country with Canada's economic stability, there should be portability of healthcare. A patient in Alberta should be able to expect the same level of care as a patient in Prince Edward Island, and vice versa. This is what we expect under the Canada Health Act. But the reality is that our health care system currently offers very limited portability, and New Brunswick's reluctance to provide care for rare diseases only exacerbates the problem.

> "A basic principle of health care is that treatment should be portable."

There is the case of a child suffering with mucopolysaccharidosis (MPS), who while living in Ontario was getting the treatment that she so badly needed, but when her family had to relocate to New Brunswick that treatment was discontinued. Had she moved to any other province, the likelihood is that she would be receiving treatment and getting medication. Should this disorganized approach to the treatment of a sick child really be accepted in Canada in 2014?

No more excuses

CORD is pushing for approval of a federal Orphan Drug Regulatory Framework, which would aim to speed up clinical trials and approval of rare disease drugs, and help many people access new therapies. Although this framework would definitely be a move in the right direction, the fact that it's not currently in place doesn't present a problem for 9 provinces to treat patients in need.

There is a common misconception that adopting a more flexible approach to the funding of treatments would make a serious dent in provincial budgets. This is way off the mark, as Wong-Rieger explains: "The reality is that rare disease drugs could never "cripple" healthcare budgets in Canada or anywhere in the developed world. For example, of Ontario's $48.9 billion health-care budget, less than 0.07 per cent (or $34 million) goes to treat rare diseases. That's because the number of patients needing these drugs is so very, very small." And yet the need to live is so great. Why the disconnect?

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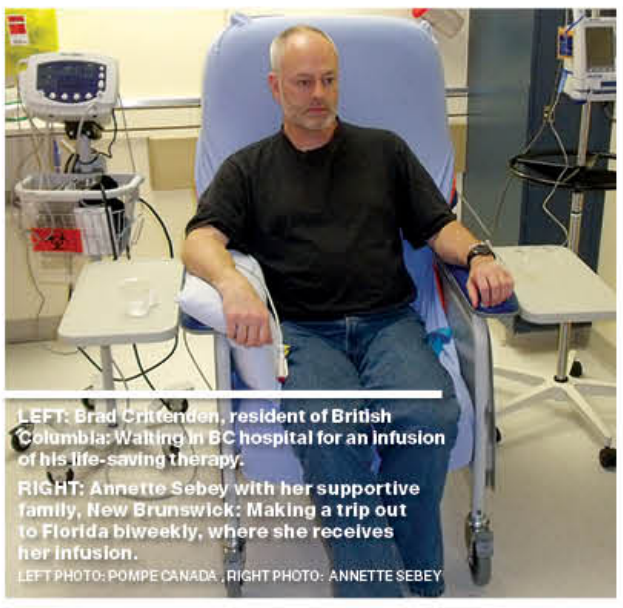
New Brunswick's damaging provincial drug policy

"For someone in Canada suffering with a rare disease, there is no worse place to live than New Brunswick" says Brad Crittenden.



LEFT: Brad Crittenden, resident of British Columbia: Waiting in BC hospital for an infusion of his life-saving therapy.

RIGHT: Annette Sebey with her supportive family, New Brunswick: Making a trip out to Florida biweekly, where she receives her infusion.

LEFT PHOTO: POMPE CANADA , RIGHT PHOTO: ANNETTE SEBEY

Brad Crittenden suffers with Pompe disease, an often-fatal disorder that severely weakens the heart and skeletal muscles and is only suffered by 40 Canadians nationwide. As a resident of British Columbia, Crittenden has access to the medication that allows him to live a fulfilled life, but as president of the Canadian Association of Pompe, he isn't only concerned with his own situation. Two people in New Brunswick with a rare disease have been profiled in the media lately as needing approved therapy but are being denied treatment.

A matter of life and death

It seems to be a question of money, and the province's unwillingness to commit funds to safeguard the health of its citizens. New Brunswick's Health department has been unwavering in opposition to treatment for this handful of patients. A stance that's having dire consequences for sufferers of rare diseases in New Brunswick, who under the current system cannot get access to the treatments that have been proven to slow or even halt their conditions.

"Without treatment, two years ago I would have had to be mechanically ventilated and probably left in a wheel chair," Crittenden says. "Treatment has made a huge difference to me, I'm even able to play sports I had given up."

The other side of the fence

Annette Sebey, from Perth-Andover, New Brunswick, also suffers with Pompe, but she isn't so lucky. Based purely on where she lives in the country, she doesn't have access to the Health Canada approved medication that could transform her life.

"I am the single Canadian patient excluded from either access or the review process because I live in New Brunswick. I am essentially disenfranchised from what is supposed to be a universal healthcare system. Those decision makers who prevent access to this treatment appear to have decided that my life has no value," Sebey says. Sebey is currently forced to travel to Florida every two weeks to treat her Pompe disease. For her, living in New Brunswick is a death sentence.

It upsets Crittenden when he sees how Sebey and other New Brunswickers are being treated. He's frustrated that the decision makers are not finding ways to fund essential treatments. "The people who draft policies are not making this work," he says. "It's really their job to find a way to just make it work."

Although the initial work is being done on a national orphan drug program, which may help patients with rare diseases in the future, the majority of provinces have found a way to help patients today. Patients in New Brunswick are, sadly, not getting the care or treatment they deserve. "Our health system invites big differences between provinces, and this difference is catastrophic for families in New Brunswick," Crittenden says. "There has to be a way to put the patient first, we need to get past the rhetoric and actually think about the patient and what's best for them."

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