Canadian Blood Service

BLOOD
PLASMA
STEM CELLS
ORGANS
& TISSUES

Annual Report 2019–2020

Adaptability

Janrene Savellano
Cord blood collections specialist

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In responding to the COVID-19 pandemic, we've drawn on a legacy of preparedness and foresight built through more than 20 years of adapting to patients' changing needs. And we've focused on the core commitments of our promise to Canadians: to *safeguard* the quality of our products and services; to *engage* with donors and our health-care partners; and to continuously *improve* our systems and processes. Because we know that adaptability is the key to resilience.

OPTIMIZING BLOOD SYSTEM PERFORMANCE

CONTINUED PROGRESS IN MANAGING OUR SUPPLY CHAIN AND MEETING PATIENTS' NEEDS

Deanna Kitchen, *Blood donor*
Cole, *Blood recipient*

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The big picture

Stability and agility: strategically managing the nation's blood supply

Rick Prinzen,
Chief Supply Chain Officer and
Vice-President, Donor Relations

Canada's blood system maintained strong performance in fiscal 2019–2020, experiencing significant inventory fluctuations only in the final two months, with the onset of the COVID-19 pandemic. Through the first 10 months of the year, stable whole blood collection enabled us to meet the needs of our hospital customers and keep inventories consistently within target ranges. The progress we achieved, working with health systems across the country, builds on a multi-year effort by Canadian Blood Services to amplify the value we deliver by improving patient outcomes and enhancing system performance while optimizing cost-efficiency.

The COVID-19 outbreak required swift action to address the concerns of donors and employees by introducing additional safety protocols at donor centres. Now, as we move from crisis to recovery, the challenge will be to maintain effective blood collection — and keep donors informed and engaged — as hospitals resume deferred medical treatment and elective surgeries, and as more trauma patients (from increased vehicle traffic, as well as workplace accidents) fill emergency wards. **Rick Prinzen**, chief supply chain officer and vice-president, donor relations, discusses our level of preparedness and the further changes we can expect in a post-pandemic world.

Q: The COVID-19 crisis emerged at the end of a fiscal year in which Canada's blood system was performing well by most key metrics. How does this position you to manage the challenges ahead?

Rick Prinzen: We have to start by acknowledging that while the impact of COVID-19 can't be fully assessed at this point, it clearly changes everything, both in our organization and across the health systems we

COVID-19 response

Ensuring blood donors feel safe, confident — and needed

Top priority: To explain and reinforce the protective measures in place at Canadian Blood Services donor centres, adhering to public health guidelines across Canada and sharing information updates through a range of channels.

Please note: The information summarized here and throughout this report reflects the current state as of August 1, 2020. Our COVID-19 response has necessarily been dynamic and nimble, adapting to new evidence-based insights while staying focused on keeping donors, staff, volunteers and our health-system partners healthy and safe.

Transmission risk: Canadians count on us to keep the blood system safe, and we've always responded quickly and effectively to public health issues. We've reassured Canadians that COVID-19 does not appear, based on current scientific evidence, to be transmissible through blood or blood products. All of our mitigation efforts are therefore to ensure that people who are infectious do not spread the virus to others. That said, we continue to follow rigorous protocols to ensure the safety of all Canadian Blood Services products and services related to blood, plasma, stem cells, and organs and tissues — as do our contract manufacturers and health-system partners.

Donor eligibility: As the COVID-19 pandemic has unfolded, we've constantly reviewed and updated eligibility criteria based on the latest information about the virus and how it is spread. Following guidelines set out at the beginning of the crisis, prospective blood donors are ineligible if they have tested positive for COVID-19, or if they've developed a fever and cough after close contact with someone who has tested positive. We also disallow donors who show potential symptoms after returning from travel outside Canada, or after close contact with a symptomatic person who became ill within two weeks of travel abroad. Other donors exposed to those who fit the above criteria, whether at work or in the community, may also be temporarily ineligible. Anyone deemed ineligible can only resume blood donation 14 days after the last contact with an infected individual. (For details, see our COVID-19 information page: **blood.ca/covid19**)

(cont'd)

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serve. That said, it certainly helps that we're tackling this crisis from a position of relative strength, with steady blood collection over the past year and hospitals reporting that their inventories are consistently on target. As the pandemic strains resources in every area of health care, we can point to specific metrics that give us confidence moving forward. What's driving those numbers is disciplined, systematic planning — because that's where we've put a lot of effort in recent years.

As in any good planning system, we have a short-term horizon, where the focus is very tactical, and then we have a longer-term horizon, which looks ahead 18 to 24 months at productivity outcomes, budget implications, community impacts and other strategic factors. We used to do longer-term planning on an annual basis. Over the past year we moved to quarterly cycle, which positioned us well to rethink planning even more frequently as we responded to COVID-19.

PATHOGEN INACTIVATION

A promising tool to make blood transfusion even safer

Over the past decade or so, leading blood operators have welcomed the development of an effective new tool for ensuring the safety of blood products: pathogen inactivation technology. Rather than focus on specific pathogens, the technology neutralizes a broad spectrum of viruses, parasites and bacteria, as well as any residual white blood cells that may be present in collected blood units. The result: blood products that meet the highest standards of quality and safety, with no need for additional layers of time-consuming (and potentially incomplete) screening.

Pathogen inactivation technology is currently licensed in Canada for platelets and plasma. Canadian Blood Services, having completed the necessary development work, is now implementing a staged deployment of the technology, over the next three years, to safeguard Canada's platelet supply. And as we monitor evolving research on the use of similar technology to treat red blood cells, we're working with manufacturers and our regulator, Health Canada, to understand how it could be successfully introduced in Canada.

COVID-19 response *(cont'd)*

Ensuring blood donors feel safe, confident — and needed

Appointments only: To facilitate pre-screening of donors and minimize the number of people in our donor centres, we no longer accept walk-in visitors. Prospective blood donors can book appointments online, via the GiveBlood mobile app, or by telephone. As our COVID-19 response has evolved, we've modified opening hours at some donor centres while temporarily suspending collection at others — and in some cases moving mobile events to alternate locations — to ensure we meet physical distancing requirements.

Protecting donors: Respiratory infections are common in Canada, and our donor centres already had robust protocols in place to protect donors, volunteers and employees. Additional COVID-19 measures include wellness screening, physical distancing, supervised hand sanitizing, mandatory masks — and, of course, rigorous cleaning of all equipment and surfaces.

Personal protective equipment (PPE): From the onset of the pandemic, we've constantly reviewed our PPE practices to ensure they remain consistent with the latest science, government regulations and advice from public health authorities.

In our donor centres (both permanent and mobile), all employees and volunteers must wear surgical masks. Donors are required to wear cloth masks, which we provide if they don't have their own. In operational environments, including our testing, production and distribution facilities, surgical masks are mandatory at all times. In administrative settings such as offices, employees must wear cloth masks (their own or from our PPE inventory) except when they're alone at their workstations.

Face shields, intended to be worn with masks, are available to staff in situations where effective physical distancing is not possible. In many environments, we've installed clear acrylic barriers to add a further level of protection. We constantly assess how PPE practices may need to be further modified as blood collection, production and administrative processes continue to evolve. *(cont'd)*

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Q: So you can respond more quickly to changes in the environment?

A: That's right — and not in a reactive way, but with strategic intent. Over the past couple of years, our team has focused very purposefully on the fundamentals that underpin our business. As a result, we've built an even more stable, secure supply of blood and blood products. We've done it through what I call a "measured agile approach," where you do things in bite-sized chunks rather than trying to launch massive programs that may take several years and cost millions of dollars to implement. We make a plan that requires a relatively modest investment, and we build things incrementally. We may imagine an ideal state that we could reach in three to five years, but we start by asking where we want to be in the next six months. And we set key performance indicators to tell us if we're moving in the right direction. That doesn't mean you can't drive larger-scale, transformational change as well — but it's augmented by your ability to achieve regular incremental improvements over time. You develop organizational muscles.

Q: What are some of the metrics you use to gauge longer-term resilience?

A: Demand for red blood cells has been declining slowly in Canada and around the world, and the general downward trend continued last year. Against that backdrop, we achieved very strong performance, exceeding our 98-per-cent fulfillment target for hospital orders. And to be clear, anything we can't fill on an initial order — if a product has to be sourced from another region, for instance — is delivered within 24 hours. Our platelet fill rate was also 98 per cent, even though more platelets are being used in areas such as cancer treatment, stem cell transplants and the treatment of older patients.

In the past year, the discard rate for red blood cells was the lowest in our history at 5.7 per cent. Most discards occur when units are not the proper weight because of a problem gaining the full amount from a donor. In other cases, units may have to be discarded because of a refrigeration problem, or if they can't be used before their expiry date. By really focusing our quality management efforts, we've steadily reduced discards over the past five years — and avoided about $13 million in incremental costs.

Of course, COVID-19 created an upturn in the discard rate at the very end of the fiscal year, when we experienced a sudden drop in demand against very strong inventory levels. Also, we wanted to maintain healthy inventories to guard against the possibility of suddenly losing part of the supply chain as the result of COVID. It was a decision that required some very careful balancing of risks. But we're confident this will be a short-term phenomenon: early into the new fiscal year, the discard rate was already dropping back down again as we managed the resumption of demand.

COVID-19 response *(cont'd)*

Ensuring blood donors feel safe, confident — and needed

Immunity research: In April 2020, the federal government announced the creation of the COVID-19 Immunity Task Force, which is conducting population-based studies to determine the extent of COVID-19 exposure nationwide. The initiative requires testing the blood of as many as one million Canadians to detect the presence of antibodies. The role of Canadian Blood Services is to collect and store blood samples, leveraging our expertise in quality and supply chain management, and our capacity to retain approximately 15,000 samples a week and ensure their suitability for testing. We're proud to contribute to a landmark research enterprise that will give governments, policy-makers and health systems a comprehensive view of COVID-19 immunity in Canada.

Managing supply: In the first few months of the pandemic, there was a high degree of volatility in the demand for blood and blood products. At the same time, our collections capacity was constrained by physical distancing requirements and other impacts of COVID-19 on our supply chain. Despite these challenges, we maintained a sufficient national blood supply at all times.

Our first concern was donor availability, which we safeguarded by communicating with donors about the changes we were making to keep our donor centres safe, and by launching a broader public awareness campaign stressing our ongoing need for blood.

Initially, we saw a quick and significant drop in demand for blood from hospitals. This was driven by many factors, notably the deferral of elective surgeries, as well as the postponement of some cancer treatment and other therapies that rely on blood products. In addition, as many people isolated at home, road traffic decreased and there were fewer vehicle accidents requiring trauma care. We adjusted our supply and inventory plans to reflect this lower demand and mitigate against the unnecessary expiry of blood products held too long in inventory.

In May, demand began returning quickly to near pre-pandemic levels. Our collections capacity, however, remained constrained, creating the potential for blood shortages. After responding with a plan to increase collections, we've continued to closely monitor trends and our own performance while working to ensure that our already robust supply chain processes have the necessary agility to meet future changes in demand. *(cont'd)*

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With blood products generally, we often used to see the inventory of certain items drop to less than three days' worth on hand and we'd have to move quickly to correct the situation. Now that rarely happens. Even with O-negative blood — which is more in demand than ever, as it's the universal default for transfusion recipients — we've gone two months and longer without having the inventory drop down to that level. And I can tell you, the whole team is delighted. We went through the 2019 holiday season with no significant concerns, and I don't believe that's ever happened before.

Lastly, over the past year, we expanded our network optimization capability to get a better view of our risk management strengths in terms of continuity of supply. As we begin implementing some of the early findings, we're gaining greater flexibility in how we respond to supply chain disruptions.

Q: What are the main factors driving these successes?

A: It comes down to three things. First, as I've said, we're more planning-focused. We regularly evaluate our performance against business objectives and then course-correct as needed — not annually, but quarterly. Second, we're using analytics more effectively to predict what's going to happen over time — in a weekly cadence of plan-do-check-act cycles — and then make decisions based on data, not assumptions. And third, in recent years we've achieved a higher degree of integration between blood collection and donor recruitment. Because our supply chain doesn't start with products, it starts with people.

Q: One of the priorities in the Canadian Blood Services strategic plan is to "deliver an exceptional experience to donors." How has that work progressed in blood donation over the past year?

A: As we've introduced our Donor Concierge kiosk at donor centres across the country, people have welcomed the convenience of digital check-ins. We're better positioned than ever to respect their appointment times while ensuring the whole donation experience goes quickly and smoothly. We've also digitized other steps in the process — up next is the donor selection criteria manual, so staff will no longer have to deal with cumbersome binders of information. And we've extended real-time connectivity to our mobile centres, which brings all the donor experience benefits of our permanent centres to mobile donation as well. The upshot is that if we can save even five minutes of donors' valuable time, we know they'll appreciate getting on their way that much sooner.

At this point more than 60 per cent of donor centre visits are scheduled digitally, whether people book online, via the mobile app or using the Donor Concierge, which prompts you to make your next appointment when you check in. And we're now introducing a group booking option, so if there are several people in your organization who want to give blood together, we make it easier to coordinate scheduling.

We've launched a donor survey system that provides near-immediate feedback on the donation experience and allows us to track metrics like net promoter score — a measure of how likely someone is to recommend Canadian Blood Services to family and friends. The system uses natural language processing to discern donors' sentiments from their comments. And whenever the data tells us we could have done better, the system initiates a case-management process, prompting staff to follow up.

COVID-19 response *(cont'd)*

Ensuring blood donors feel safe, confident — and needed

Collaboration: As health systems increasingly felt the pandemic's impact, the National Emergency Blood Management Committee — which includes representation from Canadian Blood Services, the National Advisory Committee on Blood and Blood Products, and the provincial and territorial health systems' blood liaison committees — issued a series of "green phase" advisories warning of potential volatility, as opposed to shortages, in the supply of blood and blood products.

Communications: From late January 2020, we began providing donors, patients, physicians and other stakeholders with regularly updated information on our COVID-19 response through a wide array of channels and platforms, including the Canadian Blood Services website; regular email updates; text messaging via our mobile app; social and news media channels; on-site communications at donor centres; and open (virtual) meetings of our board of directors.

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"Now our job is to use all the tools and channels we've developed to turn those new donors into lifelong supporters."

Q: Retaining existing donors and recruiting new ones is a perennial challenge for Canadian Blood Services. How has COVID-19 added to that challenge?

A: There's no question that when the pandemic was declared, we saw donations fall off, as did blood systems around the world. Donors weren't sure if we were still operating as usual or if donation was even safe during a public health emergency of this scale. So our first priority was mounting a multi-channel communications campaign (see page 10) informing people of changes to our eligibility criteria and reassuring them that we had rigorous health screening and hygiene protocols in place — that the risk of infection at our donor centres was in fact much lower than in other public spaces. And that message has been well received: donors' confidence in our ability to protect their safety has remained above 90 per cent.

At the same time, we've been able to leverage the improvements and enhancements I've just talked about: digital booking and check-in, a streamlined donation experience, and donor centres that can easily be reconfigured to ensure physical distancing. Also, the work we've done over the past few years to build deeper connections with donors, using digital tools to strengthen existing relationships and build new ones — that's paying off as we reach out to donors and tell them what we're doing to continue meeting patients' needs during the pandemic, and how they can help.

This ongoing dialogue with donors is going to be all the more crucial as the acute threat from COVID-19 subsides and hospitals resume elective surgeries, trauma response and other activities that temporarily declined during the crisis. Fortunately, when demand for blood rises, we know we can count on Canadians to step up and generously donate — just as they did after high-profile tragedies like the Humboldt Broncos bus crash in Saskatchewan and the van attack in Toronto.

From mid-March 2020, when the pandemic was officially declared, through the end of June, we saw the number of first-time donors grow by about 20 per cent compared to previous years, which was really heartening. Now our job is to use all the tools and channels we've developed to turn those new donors into lifelong supporters.

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How we adapt

"We're helping to save lives. And that feels good."

Jett Woo, an NHL draft pick and star defenceman with the Calgary Hitmen, inspires others to donate as part of the Hockey Gives Blood campaign — while Jhoanna Del Rosario of the Canadian Blood Services Calgary team knows what it takes to build donor engagement, especially during a pandemic.

"To be honest, the idea of donating blood wasn't even on my radar," says Jett Woo. "But then I made my first donation and saw how just a few minutes of your time can make so much of a difference. I told all my buddies, 'Go and give blood. It's an easy experience, and you'll be helping a lot of people.' "

In fact, Jett's influence extends well beyond his friends and teammates, reaching hockey fans across Canada who follow the game's rising stars. Born in Winnipeg in 2000, he plays defence for the Calgary Hitmen of the Western Hockey League and recently achieved the critical next step in a professional career: a three-year contract with the Vancouver Canucks of the National Hockey League.

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Jett first got involved with supporting Canadian Blood Services at 17, when he was approached to help recruit potential stem cell donors. As a healthy young male, and especially as someone of mixed ethnicity (his parents are of Chinese and German heritage), he's a perfect candidate for the Canadian Blood Services Stem Cell Registry and a role model for other young people who can help build a more robust domestic donor base (see page 31). "I was happy to bring more awareness to the need for stem cell registrants," Jett says. "And I'm ready for that call to donate, if it comes."

"It's like a whole team is helping out."

On April 6, 2018, a semi-trailer truck crashed into a bus on a rural highway in Saskatchewan, killing 16 people and injuring 13 others. Nearly all of the victims were players with a junior hockey team, the Humboldt Broncos. The impact of the tragedy reverberated across Canada and worldwide, prompting a massive outpouring of concern and support. For young players like Jett, the news hit particularly hard: "I remember exactly where I was when I heard about it. And I know a lot of guys who were affected by the crash."

Thankfully, public anguish over the Humboldt tragedy has also yielded some positive outcomes — notably the success of Green Shirt Day (honouring the Broncos' team colours), which is now the centerpiece of National Organ and Tissue Donation Awareness Week. (Canadian Blood Services is a lead participant in both events; see interview with Amber Appleby, page 23). The crash survivors' recovery from traumatic injuries has also inspired another national campaign, Hockey Gives Blood, which brings together professional players at all levels with the wider hockey community to promote blood donation.

"There are a lot of hockey players out there helping to make a difference," says Jett, who links the campaign's success to the fundamental values of dedication and teamwork that drive his game. "If one person donates, that helps a lot. But it doesn't do the whole job. Every 60 seconds, someone else needs blood. And as more and more people donate, it's like a whole team is helping out the person who needs it."

Jhoanna Del Rosario

"At least I could still help other people."

"I try to remind people of how lucky we are," says Jhoanna Del Rosario, "to live in a country where we don't have to worry about finding blood for our families."

In 2012, Jhoanna's father was being treated for cancer in her native Philippines and needed blood transfusions. But for his care providers, it wasn't a simple matter of ordering units from the hospital blood bank. In the Philippines' health system, patients depend on volunteer donations from family and friends; if not enough donors are available, blood must be purchased. And when the cost of a single unit can be equivalent to half the average weekly wage, this adds a significant financial burden to the emotional stress of supporting a loved one who is gravely ill.

For Jhoanna, living more than 10,000 km away in Calgary, the pain of her father's illness and subsequent death was magnified by her sense of helplessness. "I was so frustrated, not being able to donate blood for my father," she recalls. "But if I had to be here in Canada, at least I could still help other people." And indeed, that's what she does every day at Canadian Blood Services — connect with prospective donors and show how they can improve and save lives.

"The people I work with keep me motivated because what we're doing matters. We're helping to save lives. And that feels good."

"We're always reaching out to new ethnic groups."
As territory manager for Calgary, Jhoanna is responsible for recruiting new blood donors and engaging with existing ones. Her role includes forging partnerships with businesses and other organizations, as well as with local media and marketing partners, to raise awareness of the need for blood and blood products.

Originally a sales rep with a large pharmaceutical company, Jhoanna now gets huge satisfaction from showing blood donors the impact their generosity can have on other people's lives. "Ten years ago, I left big pharma to join Canadian Blood Services and help secure Canada's blood supply," she says, "and I've never looked back. In a sense, I still work in sales, but now my targets aren't dollars but blood units."

Jhoanna focuses much of her energy on the Partners for Life program, working with volunteer champions at corporate and community organizations. The goal is to recruit at least 10 per cent of these organizations' members as regular donors. For Jhoanna and her team, that means working constantly to strengthen relationships, help organize group donations and provide support for awareness efforts. Partners range from tech companies to emergency first responders to not-for-profits promoting events such as Cancer Awareness Month.

Another key goal for the team is increasing the diversity of the donor base "We're always reaching out to new groups," Jhoanna says, "whether Syrian, Chinese, South Asian, Black, Indigenous or my own Filipino community. It's part of a longer-term commitment by Canadian Blood Services to ensure we reflect this country's changing population."

"It's all about having a passion for what you do."
COVID-19 naturally had a significant impact on donor relations, as Jhoanna and her colleagues moved quickly to get the word out regarding new donation protocols and to reassure the public that giving blood was still safe — and necessary (see page 7). "Calgarians are very community-oriented and giving," she says, "but we still had to let people know what we needed and get them out to the donor centres."

The team also had to adapt its donor engagement strategies, as in-person meetings were no longer possible. For example, "lunch-and-learn" presentations on the value of blood donation became virtual events. This established a model for other Canadian Blood Services teams across the country — one that will likely continue as many people keep on working remotely even after the risk of infection has eased.

The pandemic has transformed Jhoanna's workplace as well. "Our team normally gets together a lot and we really miss each other. So now we have a virtual touch-base every Tuesday morning where nobody is allowed to talk about work. It's helped us keep our sanity, especially during the peak months of COVID-19."

Beyond the camaraderie, what unites the team is a shared sense of purpose. "It's not just about the paycheque," Jhoanna says. "It's about having a passion for what you do. The people I work with keep me motivated because what we're doing matters. We're helping to save lives. And that feels good."

ENSURING CANADA'S PLASMA SUFFICIENCY

SECURING THE NEEDS OF CANADIAN PATIENTS AS GLOBAL DEMAND CONTINUES TO RISE

Dale Flannigan
Plasma donor

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The big picture

Homegrown plasma: building the model for Canada's future

Jean-Paul Bédard, Vice-President, Plasma Operations

More and more Canadian patients regularly receive plasma-derived products — especially immune globulin (Ig), which is used to treat various acquired and inherited immune disorders. As prescription rates continue to rise, at this point we're only able to meet 13.7 per cent of demand for Ig with products made from domestically sourced plasma, and we face an increased risk of supply interruptions and rising costs. Canadian Blood Services has therefore made expanding Canada's domestic plasma supply a key focus area of our current five-year strategic plan. In March 2019, after extensive consultations with provincial and territorial health ministries, we received approval and funding to establish three proof-of-concept plasma collection centres that will serve as models for a Canada-wide solution. **Jean-Paul Bédard**, vice-president, plasma operations, outlines the thinking behind this initiative and our progress to date on establishing a proven model for plasma self-sufficiency.

Q: Canadian Blood Services has been given the green light to launch three proof-of-concept plasma collection centres. How will you measure their success?

Jean-Paul Bédard: Ensuring plasma sufficiency is part of our mission as Canada's national blood operator. We proposed, on behalf of all Canadians, a comprehensive national plasma strategy. And now we're very pleased to have the support of our funding governments as we put that plan into action, because the need is getting more urgent all the time.

COVID-19 response

Protecting donors of plasma — a vital national resource

Top priority: To explain and reinforce the protective measures in place at donor centres, sharing information updates on-site, through the Canadian Blood Services website and via social and news media channels.

Plasma donation: Canadian Blood Services collects plasma in two ways. Recovered plasma is separated from whole blood donations and either shipped to hospitals for transfusion or used to manufacture specialized plasma protein products (PPPs — learn more about our national formulary for PPPs, page 17). Source plasma is obtained through apheresis, a process by which plasma is isolated during collection (at donor centres with the necessary equipment and expertise) and the remaining blood components are returned to the donor. Source plasma is generally used to manufacture PPPs.

Donor eligibility: The criteria for plasma donation are generally the same as for blood donations. (For details, see the eligibility section of blood.ca) Please note: To be eligible to give blood, men who have sex with men (MSM) currently have to wait three months from their last sexual intercourse with another man. This is also the case for MSM wishing to donate plasma. However, given the longer storage time of plasma, as well as the additional steps involved in the production of PPPs, it is feasible that alternative eligibility criteria could be developed enabling MSM to donate source plasma. This is one of the topics under investigation in the MSM research program supported by Canadian Blood Services and Héma-Québec, with funding from Health Canada.

Protective measures and communications: read more about how the blood system adapted during COVID-19, page 3.

Longer-term risk: Reduced blood and plasma collection worldwide during the pandemic is expected to have an impact on global plasma supply in the latter part of 2021 and beyond — underlining the importance of increasing Canada's domestic plasma sufficiency.

We've always collected plasma, of course. But we have to collect even more, and we need to do it differently, ensuring security of supply — and, as always, safety — while maximizing efficiency and cost-competitiveness. We also need to harmonize plasma collection with all other blood system activities to ensure we're effectively meeting the full range of needs. Because Canadian Blood Services, as a charitable organization working to deliver better patient outcomes, is accountable to all Canadians.

We've learned a lot through our own experience in collecting what is called "source plasma" — meaning plasma collected through apheresis (see Tanya Gray story, page 49). We've also learned from blood operators in other jurisdictions that have already increased their sufficiency targets.

The ultimate metric of success will be our ability to collect significant volumes of high-quality plasma, safely and consistently, at a unit price that's competitive with commercial collectors. And after a lot of detailed planning through the second half of 2019, we came into 2020 with momentum: acquiring the site for our first plasma donor centre in Sudbury, Ontario; recruiting and training staff; launching a campaign to attract donors (see page 14). Unfortunately, COVID-19 slowed down the construction work, but we quickly switched to contingency planning. We shifted training online and were able to open temporarily in the former blood donor centre in August. We expect to be in the new permanent facility by the end of this year. Meanwhile, work is proceeding at the other two sites in Lethbridge, Alberta, and Kelowna, British Columbia.

Q: How have these communities responded to the new centres?

A: We chose three mid-sized cities based on many factors, from demographics to real estate costs, guided by the leading practices of public and private sector plasma organizations worldwide. But an added bonus is that all three cities have high levels of community engagement. We've done extensive public education on plasma: how it's extracted from whole blood — because not everyone remembers the basic blood components from science class — and how plasma-derived products help to save and extend patients' lives. Then, when the COVID-19 crisis hit, people who were looking for a bit of hopeful news learned about the potential use of convalescent plasma to treat patients infected with the virus (see page 41). That has only deepened public appreciation for the value of what we're doing — and for the need to treat plasma, like all blood products, as a precious public resource.

Plus, we're investing in these communities. The Sudbury location has twice the footprint of our previous blood donor centre, as well as much longer opening hours. And all three communities are getting behind the bigger purpose: boosting Canada's plasma sufficiency, so patients can count on access to the treatment options they need.

Q: When do you expect to have the data you need to continue expanding the plasma collection network across Canada?

A: Our proof-of-concept plan assumes three to five years until we've fine-tuned the model and built the capacity to collect plasma with optimum cost-efficiency. As with any strong model, you want to see how quickly you can increase volume while controlling operating costs — and in our case, maintaining the highest standards of quality and safety. Based on the pace so far, I believe we'll be there in closer to three years. And then we'll leverage all the insights we've gained in this proof-of-concept phase to fulfill our responsibility to patients, physicians and all Canadians.

The independent performance review just completed by PwC recommends that Canadian Blood Services, as the national blood operator, "continue to examine options to increase plasma self-sufficiency within Canada to reduce dependency on U.S. and global suppliers." And that's exactly what we're doing.

How we adapt

"We're eager to show how we can step up our game as a country to better meet Canada's plasma needs."

For Teri-Mai Armstrong, helping to launch our pioneering plasma donor centre in Sudbury, Ontario, is the latest milestone in a career devoted to helping improve the lives of Canadians and the health of the nation.

"My dad was an avid blood donor," says Teri-Mai Armstrong. "We grew up understanding the importance of the cause from a donor's perspective. Then, when Canadian Blood Services opened its National Contact Centre (NCC) here in Sudbury, I had a chance to join the team and see the impact of donation through another lens."

Starting out as a telephone service representative in 2003, Teri-Mai progressed through many roles over the next 16 years, from managing donor feedback and online chats on the blood.ca website to working on the recruitment team for Canadian Blood Services Stem Cell Registry. She's also helped lead various aspects of the NCC's transition from phone-based to digital communications, including as part of the team that developed a new donor response portal.

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In early 2019, an exciting next step appeared: Canadian Blood Services announced that the first in a new generation of dedicated plasma donor centres would be opening in Sudbury. As planning got underway, a key priority was to engage with the community and educate people on the importance of plasma donation — not only to help patients with specific health needs, but also to better secure Canada's domestic supply at a time when global demand for plasma-derived therapies is growing rapidly.

Teri-Mai, with her knowledge, experience and passionate commitment, was a natural choice as business development manager for the new Sudbury centre. "I'm grateful and proud to be part of this new initiative," she says today, "and humbled by the opportunity to make an impact."

"We can step up our game as a country."

A key focus area of our current five-year strategic plan is to ensure a secure supply of Canadian plasma for immune globulin (read about Heydan Morrison, page 20). Over the past several years, we've consulted extensively with provincial and territorial governments on a national plasma strategy, mapping out a plan by which we believe domestic sufficiency can be increased safely, cost-effectively and sustainably. In March 2019, we were pleased to receive approval and funding for three proof-of-concept plasma donor centres in geographically diverse communities that fit our rigorous selection criteria.

The first step for the inaugural centre in Sudbury was to recruit nurses, phlebotomists and other staff. All but one of the new positions was filled by team members from Sudbury's existing blood donor centre, which was closed in January 2019, and from other areas of Canadian Blood Services. A site was chosen, and construction was soon underway on a facility with twice the footprint of the old centre, accommodating up to 16 donation beds. Staff began intensive training for their new roles, adapting the best practices of leading plasma collectors, both not-for-profit and commercial, around the world.

At the same time, Teri-Mai and her colleagues launched a series of community initiatives to build awareness of the new donor centre. They explained how plasma is collected and used, and shared patients' stories showing its impact in improving health outcomes. The response was dramatic: where the rollout plan had envisioned 500 donor appointments booked by March 31st (our fiscal year-end), the final tally was nearly 1,100. Community members not only understood the value of donating plasma but were also genuinely proud to be seen as leading the country.

"Sudburians are part of a hard-working, caring, community-focused city," Teri-Mai says. "We're eager to make a huge difference in the lives of Canadians, and to show how we can step up our game as a country to better meet Canada's plasma needs. We won't settle for only collecting 13.7 per cent of the source plasma that Canadians count on."

"This is a unique opportunity."

The COVID-19 pandemic inevitably presented some challenges as construction work slowed and community events were no longer possible. Despite some delays because of the COVID-19 pandemic, the new Sudbury centre began taking plasma donations at a temporary site in August 2020, with the permanent facility expected to open by December. At the same time, the momentum in donor recruitment has continued to grow.

"This is a unique opportunity for Canadian Blood Services," Teri-Mai says, "to show how committed we are to our promise: to help every patient, match every need and serve every Canadian." Being part of this landmark effort has also been gratifying personally: "My role allows me to make connections between donors, recipients, staff and stakeholders — some of the most caring individuals I've ever had the pleasure of meeting. To get in on the ground level of what will surely be one of this organization's biggest initiatives has lit a fire in my head and heart."

MANAGING THE NATIONAL FORMULARY

IDENTIFYING, PROCURING AND DISTRIBUTING LIFE-SAVING THERAPIES FOR CANADIAN PATIENTS

Lincoln
Plasma protein product recipient

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The big picture

The PPP formulary: evolving to keep pace with patients' needs

Dr. Isra Levy,
Vice-President, Medical Affairs
and Innovation

Over the past year, we continued our modernization of the national formulary for plasma protein products (PPPs). We've expanded our formulary team, which now includes four pharmacists, as well as a policy advisor and an administrative coordinator. We're updating the product selection process based on a rigorous analysis of current clinical practice and emerging patient needs and guided by the expertise of the Canadian Agency for Drugs and Technologies in Health (CADTH). We're also adding measures to track utilization, so we're better prepared for rapid shifts in demand or extraordinary events like the COVID-19 pandemic.

Balancing equity of access with economic sustainability, the redesigned formulary will provide more opportunities for consultation and collaboration with all stakeholders. We asked **Dr. Isra Levy**, vice-president, medical affairs and innovation, for an update on the evolution of this vital program.

Q: How will the national PPP formulary be changing?

Isra Levy: First, it helps to establish some context. When our organization was founded, we were empowered by Canadians to ensure safety, adequacy of supply and equitable access to blood and blood products, including PPPs. One of our responsibilities was to establish a national PPP formulary. As science and clinical practices have continued to evolve, pharmaceutical companies developed more and more plasma-derived therapies. Our formulary has evolved in step, and today it's comparable to the other drug programs operated by Canada's health systems, but with highly specialized technical and management expertise focused specifically on PPPs.

COVID-19 response

Maintaining safe, reliable access to PPPs

Top priority: To ensure that patients and their physicians can access the national formulary of plasma protein products (PPPs) and related products manufactured using recombinant technologies.

Immediate risks: Current scientific evidence indicates that COVID-19 is not transmissible through PPPs. In the initial phase of the pandemic, there were concerns about the impacts of border closures, particularly between Canada and the U.S. However, subsequent measures introduced in both countries have maintained the cross-border flow of medical products. It remains unclear what impacts COVID-19 might have had on U.S. plasma collection and other crucial elements in the supply chains of PPP manufacturers.

In the final weeks of fiscal 2019–2020, we saw dramatically increased demand for some PPPs as many clinics provided additional supplies for use in home-care settings.

We successfully addressed this spike by increasing the volume of products shipped to regional distribution centres from the formulary's national warehouse.

Decision-making: Leveraging the pandemic plan already in place, our response has been deliberate, integrated and system-focused. We have worked closely with the National Emergency Blood Management Committee, which includes representation from Canadian Blood Services, the National Advisory Committee on Blood and Blood Products, and provincial and territorial health ministries.

Refill quantities: We've worked to ensure that the national PPP inventory will support prescription refills of up to three months' supply, with specific quantities determined by each patient's physician. *(cont'd)*

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It's important to recall our program's genesis, though, and the fact that we manage the supply of PPPs as an integral part of the overall blood system. We've delivered value to patients, health-care providers and the provincial and territorial governments over a long period of time. We've achieved huge cost savings and avoidance by negotiating national bulk purchases. At the same time, all decision-making around PPPs is part of our holistic management of the entire system, and our close analysis and balancing of priorities — what we call hemovigilance — at every step in the supply chain.

All that said, we realize that in the view of some stakeholders, the formulary hasn't always met expectations — most recently, when we encountered supply challenges in 2019.

Q: There were constraints on the availability of several subcutaneous immune globulin products. What was the impact?

A: Some physician and patient groups felt we hadn't adequately anticipated those supply issues and could have managed them in a more timely and transparent way. Now, we agree that we could have done better in some areas. But demand for subcutaneous immune globulin products is especially hard to forecast. As they're adopted for a growing array of treatments, some of which require larger doses than earlier applications, this raises costs for our health systems. On the other hand, giving patients drugs they can inject at home avoids expensive and time-consuming hospital visits. So, there are many variables to balance in determining the optimum subcutaneous immune globulin supply, particularly when clinical practice is constantly changing.

What's critical to note is that despite last year's supply problems, no patient went without treatment. We worked with patient and clinician groups, as well as governments and health-care providers, to weigh all of the ethical and practical considerations — and together, we navigated our way to positive outcomes.

So, yes, it was a challenging time, from when the problem first arose in the second quarter to its resolution by late August 2019. But by managing all the complexities of supplier agreements, inventory control, just-in-time logistics and so on, we sustained our promise to Canadians — as we endeavour to do with any new challenge. And our expanded formulary team will be bringing even more focus and expertise to that commitment going forward.

Q: Patients and physicians want to feel assured they have access to the right choice of products for their needs. Will the modernized formulary give stakeholders more of a voice in the procurement process?

A: The short answer is yes. But procurement is just one of five key components of a well-managed formulary. First, there are the criteria for inclusion: what kinds of products should be included, based on agreements with governments regarding our scope of responsibility as the national blood operator.

COVID-19 response *(cont'd)*

Maintaining safe, reliable access to PPPs

Safe pickup/delivery: Patients who self-administer products from the national formulary generally obtain them from hospitals and clinics. With the onset of COVID-19, patient groups began discussing ways to reduce the risk of exposure during pickup, including sending designates to obtain prescribed allotments. Health ministries and supplying institutions across the country responded with a range of protocols and processes tailored for their jurisdictions.

Another option is home delivery. To support patients and health systems, Canadian Blood Services contracted a national courier service that hospitals could use to deliver home-infusion PPPs to patients at high risk of COVID-19 infection. We sent information packages to all of the jurisdictions we serve and local leaders have decided if a courier service is needed to augment other existing measures such as curbside pickup.

Longer-term risks: As the full force of the pandemic hit, a decline in plasma collection, as well as employee absenteeism, slowed production at some manufacturing facilities. The full impact on PPP production is not clear at the time of writing, as there is typically a lag of six to nine months before such impediments translate into supply constraints or potential product shortages. However, our suppliers anticipate significant long-term disruption to the global supply of PPPs beginning in the latter part of 2021.

To mitigate this risk, we've increased our inventories of PPPs. We also closely monitor our vendors' activities, staying alert to any potential impacts to their supply chains. And working with the National Emergency Blood Management Committee, we've developed a contingency plan in the event that any immune globulin products fall into limited supply. Both physicians and patient groups have been part of this proactive planning.

Taken together, all of these efforts are helping to secure our sources of PPPs and related products — while further underlining the importance of increasing Canada's domestic plasma sufficiency (see page 12).

Communications: We provide all stakeholders in the national formulary, and particularly patients and physicians who rely on PPPs and related products, with information on our COVID-19 response — including current inventory levels — through a regular newsletter, webinars and open meetings of the Canadian Blood Services board of directors and liaison committees. We also provide updates on our website and via social and news media channels.

→ Watch a video on how PPPs are made

"By finding better ways to work together on all dimensions of the formulary, we'll achieve a new level of overall excellence."

Once that's established, next is specific product selection. In a competitive market, there may be multiple options for treating some conditions. We need a transparent, evidence-based process for deciding which new products will be listed — plus a better mechanism for delisting products that have been superseded. During the past year, we took another important step forward by developing an interim product selection process in collaboration with the Canadian Agency for Drugs and Technologies in Health (CADTH). We've looked in depth at the various scientific, medical, social and economic factors that the formulary must weigh in its decision-making.

The third component is access management. We define the circumstances in which patients and physicians can obtain PPPs included in the formulary. We also provide for exceptional access, on a case-by-case basis, to products not currently listed if they're found to be more effective in treating particular patients.

The fourth element is utilization. To manage the formulary effectively, we need to track how products are used — at the patient level, and looking at broader utilization patterns that allow us to do more accurate demand forecasting.

Now we come to the fifth component: procurement. This is what tends to spark the most discussion, as the high expectations of stakeholders, many of them with very different perspectives, can be hard to reconcile. Patients and physicians understandably want the best possible treatment experience. Governments and health systems want the same — but also have to look holistically at a range of medical, scientific, social and economic factors to decide what will be sustainable for systems that don't have limitless funding.

Q: What do you say to those who feel the procurement process should include a greater degree of stakeholder consultation?

A: We agree and are implementing changes to achieve just that. We want a more robust and meaningful dialogue with all stakeholders to better understand their priorities and respond to their concerns. A good example is the forum we helped organize last year on hereditary angioedema, a rare disease that leads to spontaneous swelling in different areas of the body, and that physicians manage with a PPP called C1 Esterase Inhibitor. We brought together patients, clinicians, health system officials and our colleagues at CADTH to look at all aspects of C1 use, from patients' needs to product costs. And we have more of these stakeholder consultations in the works — in fact, a forum on immune globulin use had to be postponed because of COVID-19.

What all of this points to is a fundamental truth about effectively managing the formulary: Even if a specific decision proves disappointing to one group — because you can't please everybody all the time — they should feel that it was reached fairly and transparently, in a process that respected their point of view. And again, the focus shouldn't be solely on procurement. By finding better ways to work together on all dimensions of the formulary, we'll achieve a new level of overall excellence. And in working toward that goal, we at Canadian Blood Services need to be clear-eyed in reviewing past performance and addressing issues that need attention — while also, frankly, being confident enough in our record that we can weather occasional criticism. For more than 20 years, an open and collaborative approach has always been the key to earning and retaining the trust of all stakeholders.

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How we adapt

"As soon as he started on intravenous immune globulin, he was back to being the child he should have been all along."

For nine-year-old Heydan Morrison, enjoying life as a kid takes some added courage — and regular treatments with an immune globulin drug manufactured from the plasma of thousands of Canadians.

Heydan Morrison in most respects is a typical nine-year-old boy — fun-loving, full of energy, happy to spend hours playing basketball or recreating his favourite Star Wars movies with friends. But it wasn't always this way.

In the early months of Heydan's life, his family and physicians could see that he wasn't growing as quickly as he should. He was also frequently ill with ear and respiratory infections and had to have his tonsils and adenoids removed at 14 months. Even then, the toddler didn't thrive and the infections persisted. Finally, when Heydan was three, further testing led to a diagnosis: hypogammaglobinemia, a form of immune deficiency that prevents his body from making the antibodies required to fight off infection.

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"He was a lethargic kid before the treatments. Now, he's happier and healthier every day."

Some children who have this condition at a young age are able to outgrow it. But in Heydan's case, further surgery (to test lymph nodes in his neck) revealed that he would need therapeutic treatment for the rest of his life. And from that point, he began receiving regular infusions of intravenous immune globulin — manufactured from donated plasma and obtained through the national formulary of plasma protein products (PPPs) managed and operated by Canadian Blood Services.

"He's happier and healthier every day."

"As soon as he started on intravenous immune globulin, he began growing, he gained weight, he gained height and he was out running around," says Heydan's mother, Shannon Morrison, from the family's home in Sault Ste. Marie, Ontario. "He was back to being the child he should have been all along."

Every three or four weeks, Heydan receives another intravenous immune globulin treatment; each dose contains immune system components from as many as a thousand plasma donors. "I have to get needles," he says, "so I have to be brave. After I have my treatment, my mom takes me out for lunch. Then I run around a lot because I have a lot of energy."

For Shannon, a nurse at Sault Area Hospital, Heydan's transformation was remarkable. "He was a lethargic kid before the treatments. Now, he's happier and healthier every day." The whole family, which also includes Heydan's father, Sean, and his older sister, Charlotte, was relieved to see the young boy spending far less time in hospital and instead playing hockey or exploring the nearby woods. "He's probably the healthiest one in the house," Shannon says. "We're the ones with coughs and colds, while he's usually just fine."

Still, the family knows that Heydan is vulnerable. So, when COVID-19 brought added risk, especially for frontline health workers like Shannon, they decided that Heydan should go into isolation at his grandparents' home. Soon enough, though, the Morrisons will be back to their welcome routine — including, for Shannon, the regular blood donations inspired by her son's reliance on plasma. She also helps to promote the mobile blood donor centres operated in the Sault by Canadian Blood Services, several of which have been renamed in honour of her son.

For Heydan, the appreciation is mutual. "If I could meet a plasma donor," says the aspiring Jedi, "I would say, 'Thank you!'"

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COLLABORATING ON ACCESS TO ORGANS AND TISSUES

WORKING WITH OUR PARTNERS TO ENHANCE INFORMATION-SHARING AND SYSTEM PERFORMANCE

Shak Pawar
Kidney donor

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The big picture

The right match: organ and tissue donation and transplantation

Amber Appleby,
Director, Organ and Tissue
Donation And Transplantation

Canadian Blood Services has played a national leadership role in organ and tissue donation and transplantation (OTDT) since 2008. Today our commitment to driving collaborative efforts in OTDT — under the banner Organs and Tissues for Life — is one of the cornerstones of our mission as Canada's biological lifeline. Whether building and operating programs on behalf of all Canadians or helping to leverage provincial capabilities and make them accessible nationally, we deliver value by improving donation rates and access to transplants, and by developing leading clinical practices and education programs for health professionals and the general public. We asked **Amber Appleby**, director, organ and tissue donation and transplantation, for an update on our progress in creating better outcomes for Canadians ensuring the OTDT system is safe, equitable and performing to its full potential.

Q: During the past year, we saw some changes in how OTDT activities are organized at Canadian Blood Services. What prompted this realignment?

Amber Appleby: As our OTDT team has evolved to meet the needs of more and more stakeholders, the workload has grown quite heavy. Also, over the years, we've taken a kind of entrepreneurial approach to new opportunities, embracing challenges without always having time to fully assess how we should organize ourselves to tackle them. We felt there were opportunities to be even more effective in how we focused our collective energy and deployed resources. So we took a step back to re-evaluate our core business and ask some fundamental questions: What are we here to do, and how should we ideally be set up to achieve that?

COVID-19 response

Keeping the system safe while preparing for pent-up demand

Top priority: Working closely with our partners in the organ and tissue donation and transplantation (OTDT) community, as well as our national advisory committees, the Canadian Society of Transplantation and other stakeholders, Canadian Blood Services is focused on monitoring the impact of COVID-19 and preparing for the resumption and adaptation of OTDT activities in a post-pandemic environment — particularly in light of pent-up demand and the increased pressure on transplant wait lists.

Living donation: Although organ donation and transplantation are essential to save and preserve lives, we know that transplant recipients become immune-compromised during the process, and this places them at greater risk of severe outcomes related to COVID-19. In addition, living donors run the risk of increased exposure to the virus during the hospital stay for transplant surgery. Therefore, the consensus among health professionals in addressing the pandemic was that living donor transplants — except in cases of urgent medical need — could be safely delayed if this was in the best interest of donors and/or transplant candidates. As for living donors who were known or suspected to have active COVID-19, although there are no confirmed cases of the virus being spread through the donation of organs or tissues (or blood, plasma or stem cells), it was agreed that donations should be postponed for a minimum of 28 days after clinical symptoms of infection had been resolved.

Because the COVID-19 situation was evolving rapidly, with unique impacts in each jurisdiction across the country, we advised stakeholders to contact their provincial organ and tissue programs for the latest information. The decision to pause OTDT activities was made in mid-March; by late May, some programs were starting to resume. *(cont'd)*

We did a deep dive into each area of our existing structure, asking team members to share their vision and describe their responsibilities. We already knew, because of how we'd grown, that a lot of work was going on in silos. So we looked at how we could break those silos down to get teams with complementary goals and expertise working together more efficiently. The outcome was the reorganization of our OTDT activities into two main work streams: interprovincial organ sharing and system development.

Q: What kinds of initiatives are grouped together in those two streams?

A: Under interprovincial organ sharing, we operate three programs in collaboration with provincial partners: The Kidney Paired Donation program links living donors with compatible recipients. The Highly Sensitized Patient registry finds matches for hard-to-match kidney transplant candidates. And the National Organ Waitlist is a real-time database of non-kidney patients who are critically in need of transplants. All three programs are supported by the Canadian Transplant Registry, a web-based platform we've developed — and are continuously enhancing — to provide health systems with faster, easier access to information connecting organ donors with potential recipients. And anchoring these various programs is the work we do to develop interprovincial organ sharing policies, as well as the collection, organization and management of foundational data to inform and improve quality.

The other work stream, system development, includes identifying where leading practices in donation and transplantation are required; creating clinical practice guidelines; building and delivering professional education programs; spearheading forums and other initiatives within the OTDT community; promoting broader public education and awareness; and developing new strategies and tools to enhance overall system performance, including innovative applications of data and analytics.

Just to be clear: we've been engaged in all of these activities for some time. But going forward, we're going to be better aligned to leverage our resources, partner with other organizations and maximize our impact.

Q: What are some of the key achievements of the past year in interprovincial organ sharing and what lies ahead?

A: Well, it's hard to talk about 2019–2020 as a continuous year, when the final quarter was completely disrupted by COVID-19. Our team, like the entire OTDT community, was agile in responding to the pandemic (see page 23). But the fact is that donation and transplantation virtually came to a halt for many weeks, other than for urgent transplants. That said, in the nine months or so before COVID-19, we saw continued progress in many areas.

COVID-19 response *(cont'd)*

Keeping the system safe while preparing for pent-up demand

Deceased donation: Canada's OTDT system does not accept organs or tissues from donors who are known or suspected to have active COVID-19. Beyond that clear prohibition, our approach to deceased donation is framed by the same basic insight as our decisions regarding living donation: the transplant process typically causes those undergoing surgery — in this case, recipients — to become immune-compromised, which puts them at greater risk from COVID-19. The decision whether or not to proceed must therefore balance this infection risk against the other potential risks of suspending or delaying transplantation. Other key considerations are the prevalence of COVID-19 in areas where transplants are performed, as well as individual hospitals' treatment capacity, safety protocols and available resources.

Again, we advised stakeholders to contact their provincial organ and tissue programs for the latest information with regard to COVID-19.

Kidney transplants: All donation and transplant surgeries related to the Kidney Paired Donation (KPD) program were temporarily suspended in mid-March 2020 (subject to case-by-case review), based on several factors:

- The potential risk of COVID-19 exposure for donors travelling to donate.
- The potential risk to recipients who may receive an organ from someone with the virus who has not tested positive.
- The risk that planned surgeries will not go forward when multiple hospitals are facilitating a series of transplants and all related surgeries must be completed within a specific timeframe — and a single postponement will disrupt the entire chain of transplants.

This was not an easy decision to make. It meant we had to suspend 14 chains of multiple donors and recipients involving 39 active offers of kidneys for transplant. We're deeply sympathetic to all transplant candidates and donors affected by the postponement — but we also know that protecting their health from the additional threat of COVID-19 is paramount. As of late May, living donation programs across the country began to reopen, and KPD surgeries were once again being scheduled, provided there was a consensus among participating health professionals that the process would be safe for both donors and recipients. *(cont'd)*

As of year-end, we'd facilitated an additional 190 kidney transplants through the Canadian Transplant Registry. About half were via paired donation, in which patients are connected with willing donors who aren't matches for their intended recipients. The rest were through the Highly Sensitized Patient program for patients who are extremely hard to match because of the antibodies in their systems. So, to date we've enabled a total of 1,355 kidney transplants that might not otherwise have been possible.

At the same time, we're working to expand beyond kidneys, using the registry to link patients requiring other organs to prospective donors. Our first priority is interprovincial sharing of hearts for high-status and highly sensitized patients. Much of the groundwork has been laid, including a national consensus meeting to determine health system needs, implementation timing, a stakeholder engagement strategy and more. We expect to see the heart program active by early summer 2021.

In addition, we've undertaken a number of initiatives aimed at advancing living donation. Because so much of the public conversation focuses on deceased organ donation, many Canadians don't realize you can register to be a living donor as well. We're developing media and marketing campaigns to get that message out more widely. We've also been creating public awareness and education materials in 10 languages, including Cree and Ojibwe. We're helping to establish a national website where people can learn more about becoming living donors and then connect with programs in their regions. And during the past year we hosted a leading practice forum bringing together OTDT professionals to better understand the challenges of finding living donors and how we can develop new strategies for recruiting them.

Tracey Evans, a living liver donor.

COVID-19 response *(cont'd)*

Keeping the system safe while preparing for pent-up demand

HSP program: The Highly Sensitized Patient (HSP) program continued to operate during the pandemic, albeit at reduced capacity. It is up to the various transplant programs we serve to determine if an offer for a patient identified through our registry can be accepted, based on participating hospitals' policies and processes for deceased-donor organ transplantation.

Tissue donation: As many hospitals cancelled elective surgeries, we saw a reduction in demand for tissue and eye donations. At the same time, measures were implemented to ensure patients who needed tissue grafts for emergency surgery would receive them. The decision whether to go forward with deceased donation depends on the local prevalence of COVID-19 and hospitals' ability to support transplant procedures.

Communications: We provide potential donors and recipients, physicians and other OTDT stakeholders with regularly updated information on our COVID-19 response through the Canadian Blood Services website and via social and news media channels, as well as open (virtual) meetings of our board of directors and ongoing communications with OTDT organizations across the country. We've also augmented our education programs for health professionals with units on the psychological impacts of COVID-19, including managing grief and loss, and the moral implications of the difficult choices facing donors, recipients, families and care providers.

Of course, COVID-19 has also changed the living donation landscape — and it has sparked collaboration across the OTDT community on innovative responses. For example, we used to have donors journey to where the transplant surgery was being performed, and we haven't been able to do that with recent travel restrictions. This has given added momentum to work already underway: we've been conferring with the surgical community on a coordinated national approach to shipping kidneys safely and efficiently. Now those efforts have gained added traction out of necessity.

As we move past the peak of the COVID crisis, there's still significant inertia in getting transplant programs back up and running because of the logistical challenges for organ retrieval teams and other issues. But over the longer term, we expect that the advances we've been making will grow the overall number of living donations.

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Q: What about system development? What are the recent highlights and next steps in that work stream?

A: The work we're doing to engage living donors is part of a broader commitment to take all we've achieved in deceased donation — in terms of best practices, clinical guidelines, and professional and public education — and extend that across the other dimensions of OTDT, and so, not only living donation but also organ transplantation, and eye and tissue transplantation.

In the last quarter, we convened a leading practice forum on corneal transplants to identify opportunities and set priorities as we work to improve access for patients across Canada. The forum helped to cement partnerships that we've continued to build, despite COVID-19. We hold weekly meetings to discuss concerns about safeguarding supply in ocular and tissue, as well as testing and protective measures. Out of that dialogue, we've been asked to help develop a risk assessment framework for eye and tissue transplants, which we envision adapting for organ transplantation as well.

So that's one area of focus I'd highlight. Meanwhile, we're maintaining our pace in the professional education aspect of system development. During the past year, we added two new modules to our national curriculum — one on facilitating organ donation after circulatory death, the other on identifying and referring potential donors. As for public awareness, we once again joined OTDT community leaders in promoting National Organ and Tissue Donation Awareness Week, which had the first annual Green Shirt Day event as its focal point. This led to about 120,000 new donor registrations in April and May 2019. Not surprisingly, we didn't sustain that level of response during this year's campaign. But as the COVID situation evolves, we'll be working with our partners to generate even higher levels of public support — and save more lives.

Q: Canadian Blood Services is part of the national Organ Donation and Transplantation Collaborative. How does this extend the impact of OTDT efforts?

A: We've been part of the collaborative since it was formed by Health Canada in 2018, working alongside representatives of provincial and territorial governments, as well as transplant programs, patient groups (see page 18) and other stakeholders. Our collective goal is to improve Canada's donation and transplantation system by identifying priorities and guiding the transformative actions needed to fulfill them.

We're focusing our energy on three main projects in areas that historically have been the most challenging to address. The first, and most important in our view, is governance of the OTDT system. We need to establish more clarity around roles, responsibilities and accountabilities among stakeholders and to map out an agreed process for collective decision-making.

The second project is the development of a pan-Canadian data strategy. There are many areas where we can better integrate OTDT data from diverse sources, leveraging our existing Canadian Transplant Registry to which public investments have already been made, to enable more comprehensive data collecting and increasing our sophistication in analysis and reporting — which is foundational to improving experience of patients and donors, and the quality of health-system outcomes.

And the third project is advancing interprovincial organ sharing, which obviously aligns with our redefined work streams at Canadian Blood Services. The collaborative's main goals are to create a framework for how decisions are reached and implemented at the provincial level, and to open up further avenues — and remove barriers — for interprovincial organ sharing.

A number of other projects have been funded through the collaborative. But as we've sharpened our focus on where we can have the most meaningful impact — especially as many stakeholders divert time and resources to addressing COVID-19 — we're evaluating how the additional work will be carried out most efficiently and concentrating on the areas that we all agree are most important. It can be challenging, with so many perspectives to consider and priorities to balance, but I'm confident that we'll continue incrementally advancing our collective goals over the next few years.

Q: What about the outlook for OTDT generally? Do you have an overall message to Canadians on what's been achieved so far and what comes next?

A: I guess the short message would be: "It's not entirely built yet." We've accomplished a lot, but there's still much more to do. We're operating a successful interprovincial program for kidneys, but now we have to share other organs as effectively. We need to get the best matches for patients through the Canadian Transplant Registry — and we need to eliminate time-consuming manual and paper-based processes. On the system development side, we've created practice guidelines that ensure consistency, safety and quality. And we're extending this expertise to other areas, such as living donation and transplantation. As Canadians, we can feel proud of that progress and of the dedication and expertise we bring to all areas of OTDT. And as we gain even better access to data and achieve greater clarity around roles and responsibilities, we'll continue building consensus and moving forward. We'll get there. It just takes time.

How we adapt

"We have a second chance at life and we make the most of it."

As president of the Canadian Transplant Association, Brenda Brown works tirelessly on behalf of organ recipients and donors — thanks to her own life-saving kidney transplant.

"It all happened pretty quickly," Brenda Brown recalls. "Five years after first being diagnosed with kidney disease and trying to learn all I could about it, I found myself on dialysis and in critical need of a transplant."

Although her health was deteriorating rapidly, Brenda knew it might be many more years before a suitable donor was found. But the outlook changed dramatically when her 22-year-old daughter, who was not a match for Brenda, volunteered to donate one of her kidneys, and they registered as a pair through the Kidney Paired Donation program operated by Canadian Blood Services. This generous offer helped boost the odds of locating a donor, and in July 2013, Brenda received a life-saving transplant.

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Six months later, following a severe post-operative infection, the single mother of three was back at her job as a senior project manager with IBM in Vancouver. At the same time, she began volunteering with the Canadian Transplant Association, helping promote healthy lifestyles for transplant recipients. Brenda was soon the organization's provincial director for British Columbia, and in 2018 she was named president by the national executive board.

Juggling these various roles would be enough for the most energetic multi-tasker. Add in organizing and competing in the Canada Transplant Games, caring for a son with special needs, being a devoted grandmother to a six-year-old — plus somehow finding time to become a certified yoga teacher — and you have a remarkably full life for someone who not long ago faced a grim prognosis.

"All transplant recipients are a bit crazy," Brenda says with a laugh, "because we have a second chance at life and we make the most of it."

"The doctors assumed my condition was temporary."

Brenda first became aware of the challenges faced by organ recipients when her 11-year-old cousin had a double-lung transplant. Soon she was campaigning in support of all cystic fibrosis patients — and then for leukemia research when her aunt required a bone marrow transplant to treat the disease. But she never imagined she'd one day be advocating for transplant patients after receiving a donated organ herself.

"I developed kidney issues during my pregnancies," Brenda explains, "but the doctors assumed my condition was temporary." In her late 30s, though, more severe symptoms emerged and she was ultimately diagnosed with IgA nephropathy, a congenital disease in which a buildup of antibodies impedes the kidneys' ability to filter blood.

The nephrologist offered some reassurance: only about 25 per cent of patients with the condition required dialysis treatment, and typically not until their late 60s or older. But here again Brenda was unlucky. It wasn't long before she needed regular peritoneal dialysis and then more restrictive hemodialysis, in which blood is pumped from the body and filtered through a dialysis machine.

In February 2013, as Brenda sat watching the Super Bowl with a favourite uncle who was also on a transplant wait list — in his case, to replace his failing lungs — they were both very concerned about what the future might hold.

"Our mandate is to promote a healthy post-transplant lifestyle."

In the Kidney Paired Donation program, living donors are linked to compatible patients through the Canadian Transplant Registry, a platform developed and managed by Canadian Blood Services. When matches are found among several pairs of donors and recipients, it leads to a "chain" or "domino chain" of paired-exchange transplants, often coordinated across multiple hospitals and health systems. Each donor provides a kidney to an unrelated recipient, and in return, the person they're hoping to help receives an organ from a better-matched donor.

It was this type of chain that Brenda's daughter helped make possible. "Actually, I tried at first to talk her out of it," Brenda says. "But she'd been with me the whole way, sitting with me at every appointment, and she said, 'Mom, I need you in my life.' " And so, mother and daughter joined other recipients and donors as physicians performed the necessary surgeries to complete the chain of transplants.

Brenda's difficult recovery was eased by regular visits with her uncle, who'd been similarly fortunate in receiving a lung transplant. One day he showed her a newspaper ad for a "Transplant Trot" — a running and walking event to celebrate recipients' return to health and raise awareness about the value of organ donation. Brenda immediately signed up, happy to find a way to give back, and soon she was volunteering for the organization behind the event, the Canadian Transplant Association (CTA).

What drew her to the non-profit was its emphasis on the well-being of recipients and donors. "Increasing awareness around organ and tissue donation is vital," she says, "and we work with many groups, including Canadian Blood Services, to encourage registration of both living and deceased donors. But the CTA's primary mandate is to promote a healthy post-transplant lifestyle and to help ensure that recipients, wherever possible, only need one transplant for life."

"It's important to get input from patients."

One of Brenda's responsibilities as CTA president is to represent her membership in the Organ Donation and Transplantation Collaborative, which was launched by Health Canada in 2018. Bringing together representatives of the provincial and territorial governments (except Quebec) with patient and family groups, clinicians and researchers,

"If you get at the root of what people are trying to accomplish and help articulate goals in a way that's understood by the group, you can move past the hurdles and get to where you need to go."

organ donation organizations, transplant programs, hospital administrators and other key stakeholders — including Canadian Blood Services — the initiative works to improve Canada's organ donation and transplantation system while ensuring that donors and recipients have timely access to quality services.

"It's a great concept and the right thing to do," Brenda says, "bringing advocacy groups, government agencies and all the other players to the table because there can be redundancy in what different groups are trying to do. Researchers need to share information, so they know what other teams are doing. And of course it's important to get our input as patients on how we're treated and what we expect from the system."

As with all multi-stakeholder initiatives, Brenda acknowledges, there are many points of view to balance, and sometimes progress feels slow. This is where her background in managing complex technology projects is helpful: "Ultimately, I think the collaborative will improve the experience of patients and donors while also increasing efficiency and saving money. But it takes time to change any system, and sometimes that creates frustration. You need to be able to listen and understand that everybody has their own opinion. It can be challenging, but if you get at the root of what people are trying to accomplish and help articulate goals in a way that's understood by the group, you can move past the hurdles and get to where you need to go."

This optimistic, can-do-attitude drives every project Brenda takes on. When Vancouver was chosen to host the Canada Transplant Games in the summer of 2018, she volunteered to manage the event and enlisted more than two dozen family members as volunteers. She even found time to compete in tennis, ball throw and shot put. And when the World Transplant Winter Games were held in February 2020 in Alberta, at Banff and Canmore, Brenda was once again everywhere, welcoming participants on behalf of the CTA while also displaying her skills in skiing and curling.

"This is what the games, and our organization, are all about," she says, "gaining the courage and confidence to live a healthy, active post-transplant life. I look forward to many more adventures with this kidney that's given me the ultimate opportunity: a second chance."

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EXTENDING THE POWER OF STEM CELLS

INTENSIFYING OUR EFFORTS TO HELP PATI ACROSS CAN AND AROUND THE GLOBE

Stephanie Umejuru
Coordinator – Transplant Services

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The big picture

Stem cells: finding lifesaving matches in Canada and around the globe

Dr. Heidi Elmoazzen, Director, Stem Cells

Every year, hundreds of Canadian patients require stem cell transplants to treat a wide range of diseases and disorders, among them leukemia, lymphoma, aplastic anemia and sickle cell disease. Ensuring that Canada's health systems can locate well-matched donors and deliver life-saving treatment is the work of our Stem Cells for Life program, which includes our national donor registry, our cord blood bank and other processing, testing and storage facilities across the country. Canadian Blood Services is also part of a global network of stem cell organizations that coordinate efforts to match potential donors with patients in need.

For every Canadian patient who finds a match within their family, three will depend on generous stem cell donations from strangers. And of those who currently need donors, about half are still searching. We asked **Dr. Heidi Elmoazzen**, director, stem cells, to review recent progress on our Stem Cells for Life initiatives and outline future strategy for this key pillar of our promise to Canadians.

Q: There are now over 450,000 potential donors in Canadian Blood Services Stem Cell Registry. Where are you currently directing recruitment efforts?

A: We continue to focus on optimal donors, males aged 17 to 35, whose stem cells have been shown to carry a lower risk of post-transplant complications. But equally important is increasing the ethnic diversity of the registry to better reflect Canadian society. Patients who need stem cell transplants and can't find suitable donors within their families

COVID-19 response

Coordinating globally to resume services as soon as possible

Top priority: To ensure that all dimensions of the stem cell program remain safe for both donors and recipients, maintaining some services with appropriate protections and working to safely restore suspended activities as soon as circumstances allow.

Safe donations: During the COVID-19 pandemic, donating stem cells at our collection centres has continued to be safe. As with blood donations (see page 3), all prospective donors are carefully screened for any signs of illness, even if symptoms are very mild. Canadian Blood Services remains committed to ensuring a worry-free and rewarding experience for all donors. To that end, we've worked closely with hospitals and the provincial/territorial health systems, as well as Health Canada, the Public Health Agency of Canada, Héma-Quebec, international blood agencies and the World Health Organization to address the impacts of COVID-19 on stem cell donations.

Donor registry: Canadian Blood Services Stem Cell Registry has continued to conduct donor searches within Canada and in collaboration with other registries worldwide to help patients get the stem cells they need. As always, any Canadian donors that we identify are screened for active infections and potential exposures to illness while travelling. We share all relevant information with corresponding international registries and/or transplant centres to ensure that stem cells are provided safely to patients.

Buccal swabs: As part of the registration process, we collect buccal swabs containing cells from the inside of potential donors' cheeks. With the onset of COVID-19, we suspended all buccal swabbing events across Canada in light of the need to maintain physical distancing. Instead, we encouraged the public to register online and mailed out swab kits with postage-paid packaging for returning completed samples. (This was an approach we'd already begun taking before the pandemic, generating excellent response rates compared to live events.) *(cont'd)*

are far more likely to find a match among people who share their ethnic origins. So, we need to ensure their communities are represented proportionately in the registry. This is also crucial for patients of diverse ethnic or mixed-race backgrounds who have even more difficulty finding matches. But even though we've made steady progress in this area, right now only about 31 per cent of registered donors are ethnically diverse.

The good news is that over the past year, we met our target of 40-per-cent diversity among new registered [searchable] donors. This continues the upward trend in donors from other diverse groups that we've achieved since 2015–2016. Another measure of progress is the number of stem cells from Canadian donors that we provide internationally, which rose by 3 per cent in the past year to 71 transplant recipients. That growing capacity speaks to the increasing diversity of our registry.

Q: What about the volume of donated stem cells coming to Canadian patients from abroad?

A: We continue to rely heavily on international donors. While the number of Canadian transplants has risen steadily over the past five years, reaching 431 in 2019–2020, the proportion of stem cells from Canadian donors has been quite stable, averaging around 11 per cent. This isn't surprising for a country with a relatively small population. But going forward, as we continue to grow and diversify the Canadian Blood Services Stem Cell Registry, we expect to see more transplants supplied domestically. At the same time, we've seen a shift within our Canadian donations in the proportion of ethnically diverse donors, which was 26.5 per cent in the past year, compared to a previous high of 20 per cent in 2016–2017.

The important context here is that no country is completely self-sufficient in stem cells, whether they're obtained from adult blood, bone marrow or umbilical cord blood. Canadian Blood Services is part of a worldwide network of 80 stem cell registries and 57 public cord blood banks. We share a global database listing more than 36 million potential adult donors and over 790,000 available cord blood units. The search for life-saving stem cell matches is a highly collaborative effort that inevitably transcends national boundaries. And it's something we're working constantly to improve.

Of course, we'd like to meet more of our stem cell needs domestically; Canadian-to-Canadian transplants are easier to manage and, frankly, less costly for health systems. But as we further expand and diversify our registry, we'll also continue helping to enhance the international network — because lives are at stake.

COVID-19 response *(cont'd)*

Coordinating globally to resume services as soon as possible

Cord blood: Canadian Blood Services' Cord Blood Bank temporarily suspended collections in mid-March 2020 and resumed operations in late June, once it was deemed safe by public health officials. Regrettably, this decision affected families who had registered to donate their babies' cord blood at our four cord blood collection hospitals across Canada. Throughout the pandemic, we have continued to work with other cord blood banks and registries around the world to help provide stem cells to patients in need.

Impact on transplants: Stem cell transplants came to a near standstill as hospitals focused on addressing the COVID-19 pandemic while otherwise providing only essential services. In addition, travel bans and flight restrictions made it more difficult to transport stem cells internationally (although we successfully worked with the federal government to arrange for continued courier shipments into Canada). By early summer, we began seeing a return to normal and even above-average volumes of stem cell transplants as health systems worked to reduce patient waiting lists. Going forward, we expect that transplant centres in this country will rely more than ever on Canadian donors to provide life-saving matches for patients. We've therefore stepped up our donor recruitment efforts, encouraging healthy Canadians between 17 and 35 years of age — especially young males from diverse ethnic backgrounds (see page 8) to register online. As with plasma (see page 12), it's more important than ever that we build a robust domestic stem cell registry to reduce our dependence on international sources — while continuing to participate in the vital linking of donors and patients around the world.

Communications: We provide donors, patients, physicians and other stakeholders with regularly updated information on our COVID-19 response through the Canadian Blood Services website and via social and news media channels, as well as open (virtual) meetings of our board of directors. Canadian Blood Services Stem Cell Registry is a member of the World Marrow Donor Association (WMDA), an international network of registries and cord blood banks. The WMDA maintains a publicly accessible webpage on COVID-19, updating it as new information is shared by member organizations, professional associations and transportation and logistics providers.

Q: What kinds of international stem cell initiatives does Canadian Blood Services participate in?

A: We're an active member of the World Marrow Donor Association (WMDA), which promotes global collaboration and best practices for the benefit of stem cell donors and transplant patients. We get involved in many dimensions of the WMDA's work; for instance, I've been nominated to chair the WMDA international working group for cord blood.

One recent WMDA initiative that we strongly supported was the implementation of global registration identification for donors — GRID for short. The goal is to ensure that all stem cell donors are issued a unique, standardized identifier, reducing the risk of duplication or potential errors as stem cells are exchanged across borders.

It took a couple of years to adapt IT systems and the various operational processes involved, right down to the labelling of products at Canadian collection centres. But as of fall 2019, GRID is fully implemented — and stem cell donors, patients and health professionals worldwide benefit from having a safer and more efficient system.

Q: In January 2020, Canadian Blood Services' Cord Blood Bank marked the fifth anniversary of its partnership with hospitals across Canada to collect umbilical cord blood. How would you sum up the bank's progress to date?

A: As we reached that milestone, more than 34,000 new moms around the country had donated cord blood. And just to clarify: we began collecting our first units in September 2013 through our original partnership with The Ottawa Hospital. We added a second hospital collection site in Brampton the following year, then two more in Vancouver and Edmonton in January 2015. And from there, the momentum has grown steadily.

As of our 2019–2020 year-end, we'd banked 3,581 cord blood units, and 25 of those units had provided stem cells for transplant patients in Canada and around the world. That may not sound like a lot compared to our shipments of blood components, but the impact is dramatic. Stem cells can be used to treat more than 80 diseases and disorders, some of them quite rare, and having cord blood as an additional source significantly increases the range of treatment options — especially for patients who are hard to match.

Q: How does the cord blood bank help to improve ethnic diversity in the donor base?

A: One of the reasons we established Canadian Blood Services' Cord Blood Bank was to help close the diversity gap that challenges the adult registry. And it's paying off: today more than 60 per cent of units in the bank are from donors from other diverse groups. And over 25 per cent come from babies of mixed or multiple ethnicities, which is fantastic. We now have one of the most ethnically diverse cord blood banks in the world.

Q: In the past, hospitals disposed of cord blood as medical waste. Does all donated blood now get banked?

A: Each cord blood unit goes through rigorous testing and quality control, and as a result of that process, about 16 per cent are banked for potential transplantation. But the rest is also hugely valuable. We provide units to qualified scientists in hundreds of research initiatives across Canada, helping to advance both basic research and exciting new advances in cellular therapies.

Q: Last year Canadian Blood Services brought together the cord blood bank and the adult registry in a unified program called Stem Cells for Life. What are its strategic priorities?

A: We've redesigned our overall organization to build team capacity and help everyone work more efficiently. In terms of program operations, we've refreshed our recruitment strategy for the registry, setting new growth targets for the next three years, particularly among young males and ethnically diverse donors. As we work to keep pace with increasing transplant needs, we have to offset the natural attrition of registrants who reach the maximum age limit. We also have an attrition challenge among registrants who sign up in good faith but then change their minds about donating when they're identified as a match — which of course can be devastating news for patients.

The problem is that years may pass between registering and actually getting that call (see Melissa Deleary's story, page 35), and during that time donors' situations and ideas can change. At this point only about half of registrants we contact agree to proceed with a donation. So we're exploring additional ways to strengthen that long-term commitment, including through more robust communications with potential donors during their life cycle in the registry.

"By registering as a donor or donating cord blood, you can save a life — and we're working every day to make that process easier, safer and more effective."

In Canadian Blood Services Cord Blood Bank, our focus is on maximizing the number of bankable units, identifying variables we can adjust to refine our collection and production processes. This in turn should help us increase our ship rate of stem cells for transplant, which currently is comparable to the average performance of other cord blood banks worldwide but is still well below the global leader.

Our cord blood bank is recognized by the American Association of Blood Banking. It's also endorsed by the Foundation for the Accreditation of Cellular Therapy (FACT), as are our stem cell manufacturing programs in Ottawa and Edmonton, which serve the entire country. Moving ahead, we'll be closely monitoring research on the collection, processing and storage of cellular therapy products, and exploring collaborations in this area with our health-system partners.

Of course, COVID-19 has had a severe impact on our stem cell agenda, for both donations and transplants (see page 31). But the overarching message remains the same: By registering as a donor or donating cord blood, you can save a life — and we're working every day to make that process easier, safer and more effective.

How we adapt

"If they were calling me, then somebody really needed it."

When Melissa Deleary learned she'd been matched with a patient through Canadian Blood Services Stem Cell Registry, she didn't hesitate to donate her bone marrow — because she knew that for an Indigenous person like herself, the odds of finding the right match were that much harder

One day in June 2019, Melissa Deleary was out for a lunchtime stroll in downtown Toronto when her cellphone rang. She didn't recognize the name on the display, and as she stopped on the busy street with the phone pressed to her ear, it took a moment for the caller's words to sink in: A medical team searching for potential stem cell donors had identified her as a good match for their patient.

"I know that Indigenous people have a smaller pool to draw from," says Melissa, whose heritage includes both Dene and Anishinawbe roots. "Because of our genetic makeup, we're most likely to find stem cell donors within North America. So I knew it was lucky to find a match. And if they were calling me, then somebody really needed it."

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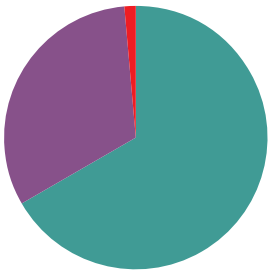
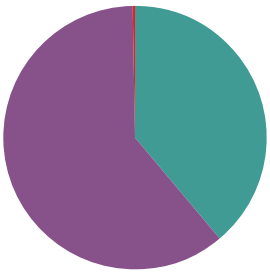
Canadian Blood Services Stem Cell Registry and Cord Blood Bank



Stem Cell Registry

White 66.63% Other diverse groups 31.97%
Indigenous (First Nations, Métis and Inuit) 1.4%



Cord Blood Bank

White 38.75% Other diverse groups 60.91%
Indigenous (First Nations, Métis and Inuit) 0.34%

Melissa had joined Canadian Blood Services Stem Cell Registry back in 2012. A health policy analyst with the Ontario Federation of Indigenous Friendship Centres, she organized a recruitment event in her workplace and showed her colleagues how to swab their cheeks to collect DNA samples. Now, seven years later, she had an opportunity to help someone in need. And the odds were good that the patient was Indigenous, as matches are far more likely within the same ethnic community.

"I knew I had to take up my responsibility."

Only 1.4 per cent of potential donors in Canada's stem cell registry are Indigenous — identifying as First Nations, Métis or Inuit — even though Indigenous people represent 4.9 per cent of the total population, and 7.7 per cent of Canadians aged 14 and younger. Similarly, only a very small proportion of mothers who donate their newborns' umbilical cords for potential stem cell transplants through Canadian Blood Services' Cord Blood Bank are of Indigenous heritage.

"If I or my family needed a donation, I would want somebody to be there to meet that need," Melissa says. "I would want as much done as possible to help save their lives. So I knew I had to take up my responsibility to do that for someone else." After moving quickly through the required health screenings, she was ready to donate just a few weeks later, in August 2019.

There are two ways that stem cells can be obtained from donors, depending on the patient's need. In what is called peripheral blood stem cell donation, a medical team administers a series of injections to increase the volume of stem cells in the donor's bloodstream, then draws a quantity of blood for use in treating the patient. The other approach is to extract stem cells from the donor's bone marrow during a surgical procedure under anesthesia. This was the method that Melissa's recipient required.

"I'm really rooting for them."

The prospect of surgery didn't make Melissa especially anxious. She saw it as both her civic duty and an extension of her professional role as someone who worked every day to help Indigenous people live healthy lives. She was concerned, however, about the health of the patient, who would already have begun chemotherapy to prepare for the transplant and would be counting on her to come through.

"I was really worried that something would happen to me," Melissa recalls, "that I would get sick at the last minute or maybe get into a car accident and not be able to do it."

But the surgery went well, and aside from general fatigue and some minor aches and pains, Melissa experienced a smooth recovery. She took a week off work and arranged for her three-year-old daughter to spend time with her grandparents. Buoyed by support from her proud wife and family, she regained her strength. She also received many appreciative notes from friends and colleagues telling her about people in their own lives who'd received life-changing stem cell transplants.

Melissa doesn't yet know who received her stem cells. Donors and recipients can agree to connect with each other one year after the transplant. For now, she's happy to continue sharing the hope and goodwill that inspired her selfless generosity — and that would motivate her to donate again, without hesitation.

"I want them to do well," she says of the patients she may never meet. "I want them to have more time, to live, to do things. I'm really rooting for them."

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CONTINUOUSLY IMPROVING HOW WE WORK

STRENGTHENING OUR CULTURE OF QUALITY AS WE ADVANCE ORGANIZATIONAL EXCELLENCE

Joanne Ross
Development assistant, Centre for Innovation

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The big picture

Our quality journey: turning strategic commitment into everyday action

Dr. Christian Choquet, Vice-President, Quality and Regulatory Affairs

In our 2019–2024 strategic plan, we've committed to further develop our quality management system (QMS) and foster a culture of continuous improvement. Aligned with the best practices of biologics manufacturers around the world, our QMS includes:

- policies, processes and procedures to guide how quality is managed
- a formal quality assurance program to ensure we meet all requirements
- the tools and resources needed to conduct these activities
- a system of quality metrics to monitor and evaluate effectiveness.

In recent years, we've improved service and productivity across our operations by increasing standardization, enhancing workflows and deploying new technologies. With valuable input from team members, we've eliminated unnecessary complexity in our documentation — and harmonized regional variations — to create clear, simple instructions for every task. And we've begun introducing an integrated learning management system to ensure everyone receives timely, consistent training. **Dr. Christian Choquet**, vice-president, quality and regulatory affairs, offers an update on how we leverage quality management insights to consistently deliver the safe, effective products and services our hospital customers rely on as they work to achieve better patient outcomes.

COVID-19 response

Protecting employees, contractors and other partners along our supply chain

Top priority: To minimize potential adverse impacts from COVID-19 on our production, testing and distribution operations while safeguarding the health of everyone who works, delivers products or provides contract services at our facilities.

People first: As part of our comprehensive quality management system, Canadian Blood Services has rigorous measures in place to ensure the safety and integrity of all processes at our facilities. In responding to COVID-19, we leveraged our proven continuous improvement methods to quickly implement any necessary operational changes. We could then focus our efforts on supporting and reassuring team members, most of whom have vital supply chain roles that make it impossible to work from home. Leaders have remained on-site as well to stay better connected to their teams.

For more on the steps we've taken to support Canadian Blood Services team members, including health and wellness services, financial assistance, employee recognition and ongoing communications about all aspects of COVID-19, please *see page 45.* *(cont'd)*

Damon Gyurics, a driver in London who is helping to meet patient need throughout the pandemic.

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Q: Canadian Blood Services began its transition to a more comprehensive quality management system (QMS) in 2014–2015. Are you pleased with how the system has matured over the past five years?

Christian Choquet: Quality was a primary focus of this organization from day one. After more than 20 years, that journey continues — but the whole point about quality management is that you're never there in terms of reaching a specific goal. Having said that, do I think we're making good progress? Our QMS has become increasingly ingrained in the organization, to the point where we can compare ourselves to other leading biologics manufacturers. We've introduced more automation to help monitor and respond to any deviations from our high production standards. We've also brought in requirements for corrective and preventive actions — CAPAs for short — when processes or procedures are "nonconforming" relative to established guidelines. It's a very methodical, analytical approach, also supported by automation, and it's integrated into our overall quality management. But it starts with empowering every team member to take action on quality-related issues.

So yes, we're making very good progress from where we were three or five years ago, absolutely. But you always want to get better.

Q: What kind of metrics do you apply to measure quality improvement?

A: When we began our transition to a formal QMS, we worked with an outside consultant to identify performance gaps across our operations. And to be very clear, I'm not talking about risks to product safety; that was never at issue. These are gaps we've pinpointed where a process could be executed with greater effectiveness or could be better integrated with other systems and processes to further improve quality performance. One example would be when you isolate a nonconforming product — we call it "quarantining" — until you can determine exactly how it deviates from standards and what action is required. Of course, we've always done that. But there are ways we can do it more effectively by adding a technology solution that gives us more refined monitoring and control. So that's how we're working to bridge that particular gap. By the end of 2019–2020, we'd closed about 70 per cent of all identified gaps, and we're on track to complete the rest within 18-24 months.

Now, it's important to keep in mind one big difference between Canadian Blood Services and most biologics manufacturers: We don't do bulk manufacturing. When you make large quantities of widely prescribed drugs, each production run is managed as a single lot. But for us, one unit of blood or a blood product is in effect a lot — and the opportunities for deviation on that single lot are much greater for us. So, while our quality management approach has the same basic design as in other biologics environments, it has to accommodate many more events, which requires added focus, capacity and resources.

COVID-19 response *(cont'd)*

Protecting employees, contractors and other partners along our supply chain

Workplace measures: We've implemented physical distancing in all of our production and distribution facilities, and cleaning procedures have been enhanced everywhere. All packaging is disinfected before shipments are sent to or received from hospitals.

Personal protective equipment (PPE): In operational environments, including our testing, production and distribution facilities, surgical masks are mandatory at all times. In administrative settings such as offices, employees must wear cloth masks (their own or from our PPE inventory) except when they're alone at their workstations. (For more details, please see page 4.)

Ensuring we have an appropriate supply of PPE is essential to keep everyone safe. We've therefore created an online PPE inventory tracker, updated weekly, where staff and other stakeholders can check current levels and get perspectives on any inventory changes from our supply chain and procurement teams.

Wellness screening: Our non-donation facilities nationwide have instituted mandatory screening of all team members, contractors and service providers. Anyone who is deemed by screeners to pose a potential health risk is directed to return home and seek medical attention or contact public health authorities. Team members can only return when they've been symptom-free for at least 24 hours and/or have been cleared by our Employee Health Services team.

"When products meet defined clinical needs, and when there are fewer discards and fewer recalls, then care is delivered more efficiently and costs are lower."

Q: How do you integrate this constant search for small quality improvements into everyday operations?

A: One of our key continuous improvement tools is the CAPA. And as we integrate CAPAs into our operations, we measure success in three ways. First, once we've identified an issue, how quickly are we able to investigate it and look at possible solutions? Second, how fast can we move to put the right solution in place? And the third measure is how effectively that solution performs once we've implemented it. Did it correct the problem? We're very good at the latter two — at fixing things with solutions that work. Where we have more of a challenge is on the initial investigation. And one of the main reasons is that our processes and systems are highly technical and often quite complex. It takes subject matter experts from many different areas to fully analyze an issue and propose options.

Let me give you an example: According to our packaging criteria for plasma, the volume shown on a bag label has to be within 10 per cent of the actual volume. But sometimes, when a bag is issued into inventory and we then do a quality control check, we find there's a difference of more than 10 per cent. So we need to find out why and then come up with a solution ideally to prevent it from reoccurring or at least to ensure that it gets caught earlier. To do that, you need people with specialized expertise — from supply chain process management, from quality assurance, and from product and process development. You also need someone from the CAPA team to lead and coordinate corrective action. And, of course, you want insights from whoever is doing the actual work. This is why we've made a CAPA process integral to our QMS.

What can seem at first to be a localized issue ends up involving a lot of busy people, all balancing different responsibilities. It can take a while before the problem is fully understood and we move on to developing and implementing solutions — at which point, as I said, we move quickly. So now we're focused on improving the initial investigation stage.

Q: What is the impact of these kinds of quality improvements on health care?

A: The benefits are mainly invisible to patients and that's as it should be. But higher quality translates into greater consistency, which is a key part of our promise to patients, to health-care professionals — to all Canadians. Of course, these are biological products, so you're going to get variations. But by putting in place measures to further reduce and control those variations, we improve the consistency with which we provide safe, effective products and services.

From the health systems' perspective, when products meet defined clinical needs, and when there are fewer discards and fewer recalls, then care is delivered more efficiently and costs are lower. Whether a physician is treating a patient with red cells or plasma or platelets, she can have a higher level of confidence about what's in the bag and that it will be consistent from one bag to the next — which means the clinical outcome, which is how she measures efficacy, will be more predictable. And that's good for everyone — patients, doctors, the whole system.

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How we adapt

"I feel like I'm doing something good today."

→ Watch a video on First Convalescent Plasma Donor

When Jerry Glubisz was diagnosed with COVID-19, his first priority was simply to survive the illness. But once he'd recovered, he found a way to potentially help others battle the novel coronavirus — by donating his antibody-rich convalescent plasma to a clinical trial supported by Canadian Blood Services.

"It started off like the seasonal flu," recalls Jerry Glubisz, "but it got a little worse and I was really tired for a week. I had a fever of about 101, 102 the whole time and I didn't have much energy. About halfway through, I got a very nasty cough and I kept that for at least two weeks."

As his symptoms intensified, the 63-year-old Vancouver resident went to his local hospital, where medical staff performed a chest X-ray and tested for COVID-19. And when the results came back positive, Jerry joined the growing list of diagnosed cases in British Columbia, the province initially hit hardest by the pandemic.

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Fortunately, Jerry's experience with COVID-19, while unpleasant and exhausting, was not so dire that he required hospitalization. "It was like a seasonal flu times two," he says. "And then it went away on its own." That might have been the end of it — other than lingering relief at having survived a potentially fatal illness — had Jerry not been alerted to a way he could help others potentially fight the illness: Canadian Blood Services had joined a national research initiative investigating the benefits of using survivors' plasma to treat patients with COVID-19.

And so, on April 29, 2020, Jerry — a regular blood donor for 15 years — became the first Canadian Blood Services donor to provide what is called "convalescent plasma" in support of COVID-19 research.

"We're making an important contribution."

The plasma of patients who've recovered from a viral illness contains antibodies that shield them from possible future infection. In theory, these antibodies could be used to treat others who have the same virus. This is not a new idea; more than a century ago, convalescent plasma was administered to patients during the 1918 influenza outbreak.

Currently, there is insufficient scientific evidence to determine whether this is a safe and effective treatment option for COVID-19. That's why Canadian Blood Services is supporting three major clinical trials by collecting convalescent plasma that physicians across the country can test with their patients. Two of the trials — one involving adults, the other children — focus on treating the infection in its early stages. The third study is aimed at severely ill adults in intensive care.

Leveraging our expertise and infrastructure as the national blood operator, our responsibility is to collect convalescent plasma from designated donor centres and distribute it to practitioners treating patients at more than 50 hospitals. In addition, scientists from our Centre for Innovation are working alongside clinical investigators on several of the trials' research teams.

Building on a proven platform

The convalescent plasma initiative benefits from the same strengths in safety, process and quality management that define all Canadian Blood Services operations. Our first challenge was to identify recovered COVID-19 patients who would be willing to donate plasma. One potential avenue was public health labs across the country, which have records of everyone who has tested positive for the coronavirus. However, strict patient privacy laws, which differ from province to province, slowed down recruitment efforts.

Fortunately, convalescent plasma trials around the world had begun to attract media attention, which sparked queries about parallel efforts in this country. Taking advantage of this interest, our donor recruitment team quickly mounted a public awareness campaign employing advertising and social media. At the same time, we sent informational brochures to physicians in the clinical trials to share with COVID-19 patients and their families.

Potential donors are directed to an online registry on the Canadian Blood Services website, blood.ca. In addition to meeting the eligibility criteria for plasma donors generally, participants in the convalescent plasma trial must:

- be younger than 67 years old
- have previously tested positive for COVID-19
- be fully recovered from the virus and symptom-free for at least 28 days.

Preliminary telephone screening confirms that prospective donors have either been formally diagnosed for COVID-19 or are presumptive cases because of prolonged exposure to an infected patient — for instance, a domestic partner. We initially prioritized male recruits, as female plasma donors require additional testing. (A woman who has been pregnant can develop antibodies in her blood that may trigger an immune response in plasma recipients, often accompanied by lung congestion that is especially dangerous for COVID-19 patients.) As the program evolved, additional testing measures have made it possible to create a donor pool that is more balanced by gender.

Screened donors are directed to the Canadian Blood Services National Contact Centre, where they can book appointments at 11 locations across the country that are equipped for plasma collection. Convalescent plasma donations fall outside our usual purview: clinical trials require special authorization from Health Canada, as well as approval from the research ethics boards of both Canadian Blood Services and participating hospitals. At the donor centre, though, all of the standard steps are the same — as are our rigorous quality management processes, including the heightened safety protocols necessitated by the pandemic (see page 12).

"With our clinical trial partners, we're making an important contribution to global research that could help COVID-19 patients in Canada and around the world."

"Everyone has pulled together to make things happen."
While units of convalescent plasma are flagged in our digital blood management system, they must also be tagged by hand and processed with human oversight, as participating hospitals — especially during a health crisis — can't be expected to update their IT systems to support end-to-end digital tracking. However, with relatively few donations to manage (compared to the overall scale of our blood supply chain), the Vancouver team is able to manually coordinate shipments to regional hub hospitals, which then forward plasma units to the clinical trial sites.

Before any unit is shipped, a sample is first sent to a specialized testing facility to ensure that the donated plasma does in fact contain the neutralizing antibodies that scientists believe could play a role in combatting COVID-19. This added quality step makes our approach unique among convalescent plasma trials worldwide. We also provide researchers with the vital donor data — including age, gender, donation history and reported illness symptoms — captured by our quality management system.

"The convalescent plasma initiative really shows our agility," says Dr. Dana Devine, chief scientist with Canadian Blood Services. "In a pandemic, things change so fast that successful organizations must be able to pivot — and that's what we've done, as everyone has pulled together to make things happen. With our clinical trial partners, we're making an important contribution to global research that could help COVID-19 patients in Canada and around the world."

That sentiment was echoed by Jerry Glubisz as he made the historic first donation: "I'm pleased that my unfortunate situation can help somebody else. Hopefully this will go to a good research cause and somebody will get better. I feel like I'm doing something good today."

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ENGAGING AND EMPOWERING EMPLOYEES

STRENGTHENING THE VALUES-BASED WORKPLACE CULTURE THAT WILL DRIVE OUR MISSION

Emmanuel Magalong
Donor care associate

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The big picture

Employee experience: building individual and organizational success

Andrew Pateman,
Vice-President, People, Culture and Performance

One of the key focus areas of our five-year strategic plan is to create an engaging and empowering employee experience at Canadian Blood Services. To ensure we have the focused, high-performing team we need to support Canada's health systems, we work constantly to enhance each team member's day-to-day impact; to recruit talented people with the right skills for the future; to develop the next generation of inspiring leaders; and to foster a diverse and inclusive culture, anchored by mutual respect and a concern for everyone's well-being. We asked **Andrew Pateman**, vice-president, people, culture and performance, to expand on the various dimensions of employee experience and the shared sense of mission that drives our organization forward.

Q: It seems that "employee experience" encompasses far more than team members' job satisfaction or progress in their careers. How do you define it?

Andrew Pateman: Through the many steps in their journey from initial recruitment to retirement, employees engage in many touch points with the organization. Each has the potential to create an emotional response — either positive or negative — and contributes to the overall "experience" of an employee.

During the past year, we asked team members to identify the points in that journey with the greatest impact on their experience at Canadian Blood Services. Take onboarding, for example: how we welcome someone into the organization can cement goodwill and sustain

COVID-19 response

Protecting the health of our employees, volunteers and contractors

Top priority: To safeguard the health and wellness of everyone who works, volunteers or provides contract services at any of our facilities — and at the same time, to help Canadian Blood Services employees deal with the broader economic, social and mental health challenges presented by the COVID-19 pandemic.

Protective measures: see our COVID-19 response for blood donors, page 4.

Wellness checkpoints: see our COVID-19 response for blood donors, page 3.

Work from home: Beginning in mid-March 2020, about 1,100 Canadian Blood Services employees whose roles do not require them to be on-site at our facilities were encouraged to work from home. We provided human resources and IT support to help them continue collaborating effectively on vital administrative and management tasks.

At the same time, we began developing a return-to-office plan, guided by advice from public health officials and medical experts. The plan will unfold in three phases, with progress through each phase determined by the public health requirements of local jurisdictions and the readiness of our various facilities to receive employees. Going forward, we envision that some team members may work only virtually, while others may work only in the office — and some may do both. In deciding who works where, we will consider operational requirements, the extra space required for physical distancing, employees' ability to work virtually and individual preferences. The ultimate goal is not to restore the pre-pandemic status quo, but rather to create new ways of working that best fit the realities of a transformed world. At the time of writing, we have not yet established exact timelines or determined who will participate in each phase. As always, the number one priority guiding all decisions is to safeguard the health and well-being of all Canadian Blood Services employees, volunteers and contractors. *(cont'd)*

someone's sense of belonging for years. So we've come up with a set of 12 points we call "moments that matter" — the critical interactions that determine how team members are supported by leaders, how their performance is evaluated, how their work environment is organized and so on.

These moments that matter, taken together, define the employee experience. But just because we've pinpointed them doesn't mean they're static. We're continually reexamining each moment, considering its implications, thinking about what we can do to make it better. So we've mapped out a series of projects, framed by our strategic plan, that are designed to optimize every aspect of a team member's journey, from developing their skills and leadership potential to fostering health and wellness. And it all falls under the umbrella of employee experience.

Q: For this kind of strategy to succeed, everyone has to feel part of it. How do you recognize each person's contribution — and respect their differences?

A: Reinforcing our commitment to diversity, equity and inclusion is central to our employee experience strategy. This isn't new to Canadian Blood Services. We've always prided ourselves on having a culture and a set of values that are welcoming and fair. But this can make it harder to recognize where we need to do more. We take great pride in our mission and values — and for that reason, we need to be extra aware of where we may minimize or fail to appreciate the experiences of employees in situations where things haven't been so great. Over the past year, events affecting all of society have really awakened us and made us listen to these stories with greater empathy and care — and then commit to action.

As leaders, we must ensure that we address unconscious bias at its root. We need to create an environment where such barriers do not impede an employee's progress at Canadian Blood Services or prevent their feeling fully included in the life of the organization. That means fostering a more inclusive culture in which all feel welcome and able to be authentically themselves.

Q: Have you set priorities for where this work needs to focus?

A: The first rule for this kind of initiative is to assume nothing. It can be tempting to feel that gender equity is less of an issue when more than 50 per cent of all people-manager roles across our organization are held by women, with the exception of the Executive Management Team. That's why we've supported a grassroots employee resource group focused on advancing women leaders. And it's why I expect, over time, we'll see more representative gender balance in our executive team as well.

COVID-19 response *(cont'd)*

Protecting the health of our employees, volunteers and contractors

Supporting employees: Recognizing the heightened anxiety caused by the COVID-19 pandemic, Canadian Blood Services is more committed than ever to nurturing a healthy workplace by supporting all aspects of employees' health, including their mental and emotional well-being. Our web-based employee wellness portal is designed as a one-stop source for information on practicing safe hygiene, staying physically healthy and fostering positive mental health. The portal guides those seeking additional support to our Employee Assistance Program (EAP), which offers immediate guidance on urgent issues — by telephone, online chat or email — followed by free, confidential mental health support from licensed professionals.

Financial security: From mid-March 2020 onward, we maintained compensation for employees who could not work because they were ill (whether with COVID-19 or another illness), immunocompromised, providing care to family members, unable to secure appropriate childcare, or had their hours reduced or suspended because of the pandemic.

Employee recognition: To celebrate the remarkable collective effort of Canadian Blood Services employees during the pandemic, we've held a number of virtual lunches and other team events. We've also developed a series of stories — Canada's Lifeline: Our frontline — which are shared via our website and social media. Through these profiles, we celebrate the dedication and achievements of exemplary individuals with their colleagues across the organization and with all Canadians.

Communications: The Canadian Blood Services leadership team is in regular contact with public health experts and the wider medical community about the use of PPE and other health protocols in our facilities. As our approach has evolved to reflect new insights about COVID-19 and its spread, we've provided regular updates through our intranet and other employee communications channels — including live video Q&A sessions with our CEO, Dr. Graham Sher — as well as via the Canadian Blood Services website and social media. Other initiatives include facilitated team conversations about working together virtually and Wellness Wednesday events featuring online classes in yoga, cooking, gardening, mindfulness and physical fitness.

We've also helped launch an LGBTQ+ employee resource group to ensure that people representing those identities feel accepted, free to express themselves and empowered to pursue career opportunities. And it's a chance for us to better understand, for example, the challenges that arise when employees who self-identify as gay interact with members of their communities who disagree with our policies on blood donation for men who have sex with men.

At the same time, we need to learn more about how employees see themselves, not only in terms of gender or sexual orientation, but across the full range of possible identities — and the intersections between them. As in everything we do, it starts with getting good data and listening hard. In fact, we were about to launch the most comprehensive employee feedback survey we've ever done, inviting team members to share various aspects of identities in relation to their experience at Canadian Blood Services. Unfortunately, COVID-19 interrupted our plan — but we'll get it back on track as soon as circumstances allow.

Q: In responding to the pandemic, Canadian Blood Services has moved to protect employees' physical health and provide financial support. What about the mental health dimension of wellness?

A: We've always seen this as one of our key responsibilities as an employer. And with the emotional toll COVID-19 has taken — on all of us, but particularly those already living with mental health challenges — it's more important than ever. In terms of broad principles, we're aligned with the Mental Health Commission of Canada, which identifies 13 factors affecting employees' psychological or emotional wellness and shares best practices for creating spaces that are supportive and safe.

When it comes to specific actions within our overall Healthy Workplace strategy, we recently enhanced our benefits program to cover more counselling services from a wider range of mental health professionals. We regularly review our employee assistance program to ensure it's robust, easy to access and gives employees the concrete help they need. And perhaps most importantly, we integrate mental health awareness and guidance into our leadership development programs. As both leaders and colleagues, we need to recognize when others are in distress, treat them with empathy and show that we're here to support them with understanding, not judgment.

Q: As the world slowly transitions from crisis to recovery, how will the employee experience change?

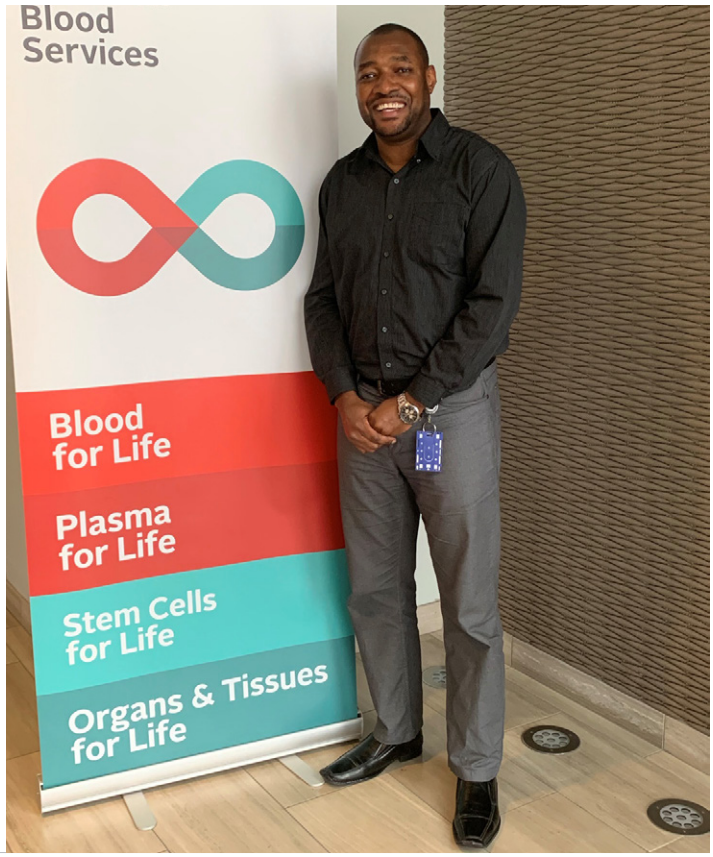
A: At this point it's hard to know with any degree of certainty. But given that nearly a third of our team members have shifted to working from home, it seems likely we'll see a new degree of flexibility around where people choose to do their jobs. We still have more to learn about helping teams work together remotely and finding the right balance between virtual work and in-person meetings — when those become possible again. As for our Workplace of the Future initiative, which envisioned redesigning our work environments to incorporate more collaborative spaces, that's clearly going to have to be rethought in light of the need for physical distancing.

Of course, two-thirds of our team members have continued to work outside their homes, whether in testing and production, at donor centres, or delivering products to and from our facilities. They've done an incredible job under very challenging circumstances. But moving forward, we'll need to make further adjustments to how work gets done. From my perspective, there are two priorities. The first is safeguarding the work environment: maintaining and reinforcing the protections that people need and expect to confidently perform their roles. And the second is what I'd call predictability. We've shown our capacity to be agile, adapting quickly to a situation we'd never encountered before. This organization is built for that. But over the longer term, our frontline teams need to feel that continuity has been restored, that schedules are more regular, and the path ahead is clearly mapped out.

But for all that's changed and will continue to evolve in the employee experience, more fundamental is what remains the same. Team members continue to lean on our values and our mission. Whether we're ensuring donor safety or helping fight COVID-19 as part of the convalescent plasma trial (see page 41), people across Canadian Blood Services are inspired by our purpose and impact as Canada's biological lifeline. The energy and passion they bring to their roles reach far beyond this organization, helping to create a better donor experience, a better hospital experience and a better health-care experience for all Canadians.

How we adapt

"What we do matters to millions of Canadians and folks around the world."



For Dujon Donaldson in Brampton and Tanya Gray in Halifax, being Canadian Blood Services employees means feeling engaged, respected and empowered while helping to achieve our mission as ***Canada's Biological Lifeline***.

"Working with diverse teams to unravel and resolve complex issues is the coolest part of my job," says Dujon Donaldson. "There's never a dull moment."

As assistant manager, quality assurance, at our Brampton testing, production and distribution facility, Dujon collaborates closely with hospitals and other business partners to ensure Canadian Blood Services products and services meet our exacting quality standards and comply with all regulatory requirements. An avid soccer player, he understands the importance of rallying a group of colleagues around a common goal. "You have to have a team spirit in soccer," he says, "and I try to bring that to work as well. If I'm not committed or passionate about my job, how can I expect the same from the team I lead?"

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"It's important that we're responding and taking action."
Since joining Canadian Blood Services in 2012 as a medical laboratory technologist, Dujon has seen a lot of changes in the organization. One that stands out for him is our strengthened commitment to diversity, equity and inclusion (see page 46). "Making this a place where everyone feels included and is treated with dignity, fairness and respect is deeply meaningful to me," he says. "Collaborating with colleagues from diverse backgrounds enriches our work and promotes new ideas and solutions to tackle challenges."

This evolution has become all the more meaningful in light of recent events. "When you look at what's going on in the world with movements like Black Lives Matter," Dujon says, "it's important that we're responding and taking action. Making those adjustments is not an easy task, but we're 100 per cent on the right track. And it means a lot to hear [Canadian Blood Services CEO] Graham Sher say what he's said about the commitment to change."

What gives that commitment momentum is a workplace culture grounded in shared values. "We talk a lot about the 'moments that matter' as employees," Dujon says. "One that really matters to me is employee appreciation and the way we celebrate milestones. This organization cares about the years you spend here, and they show it — not just by presenting you with a plaque, but by making you feel that what you're doing serves a purpose. The mission of Canadian Blood Services matches my primary career goal: to make a difference in the lives of patients and their families. Nothing gives me more pleasure than knowing what we do matters to millions of Canadians and folks around the world."

Tanya Gray

"It's really rewarding to be able to help."
In late 2004, Tanya Gray was working at the YMCA in Halifax when a group of her colleagues arranged a blood donation event. "It was my first time giving blood," she recalls, "and I remember feeling a bit nervous, so it was good to do it at work." Not only did the donation go smoothly, but when the event wrapped up with a charity draw, she was one of the winners.

"A few days later, I went to pick up my prize at Canadian Blood Services," Tanya says. "I immediately made a connection with the woman who met me, because we knew a lot of the same people in the community. She ended up showing me all around the donor centre and giving me her card. I emailed her soon after about an employment opportunity — and the rest is history."

Fifteen years on, Tanya works in the donor centre with people who donate via apheresis — a process by which plasma or platelets are isolated during collection, while the remaining blood components are returned to the donor. Tanya's role requires balancing medical knowledge with sensitivity to donors' needs.

"I'm a people person, so I really enjoy interacting with donors," she says. "Some of them have been coming in for years. There's one man, for instance, who's been donating weekly since before I started. He always shows me videos of his grandchildren, and at the end of the year, he brings in a box of his homemade wine for the donor centre staff. I enjoy having that kind of relationship with donors and sharing a personal connection."

"When you're working with donors and patients, you have to give 100 per cent — because if the shoe was on the other foot, that's what you would want."

Strong relationships are especially valuable when a donor has to cancel an appointment or is found to be unexpectedly ineligible — at which point Tanya swings into action, reaching out to potential replacements: "It helps that I know our donors well, because I can guess who might be available and how long it will take them to get here. Often I can get another donor here within 15 minutes."

Tanya is also responsible for contacting prospective platelet donors for patients with very specific needs. "Donors are usually ecstatic when they're a match," she says, "because they know their donation is going to help someone who really needs it. Sometimes we have to work quickly, whether it's for a local patient who isn't doing well or someone in another part of the country. It's really rewarding to be able to help in those situations."

"COVID-19 has hit very close to home for me."

The extra precautions required by the pandemic naturally had a big impact on donors, volunteers and donor centre staff. "To be honest, it's quite tiring to wear a mask all day," Tanya says. "On the other hand, it has actually been a bit easier than usual to bring in donors, because people are reachable and a lot of them have more flexibility in their schedules." Indeed, the Halifax donor centre became extremely busy once public health protocols were in place, averaging more than 60 donations a day.

The pandemic has also had a personal impact on Tanya: "My cousin in Ottawa, who's in her 40s, is recovering from COVID-19 after being in an induced coma in hospital. And my grandmother and great aunt live in a long-term-care facility that had an outbreak. In fact, my grandmother tested positive, though fortunately she had no symptoms. So COVID-19 has hit very close to home for me."

To unwind from stress, Tanya has revived a few longtime hobbies, including knitting, sketching and gardening. Above all, she counts on her strong work ethic and affinity for people to see her through: "When you're working with donors and patients, you have to give 100 per cent — because if the shoe was on the other foot, that's what you would want. I'm a team player and I think I adapt well to change; you have to keep up with the times and there's always room for improvement. Also, while I'm pretty laid-back and easygoing, I still voice my opinion to help people at the top understand how things really are on the front lines. So these are different aspects of why I like working at Canadian Blood Services. Most of all, I enjoy my relationships with donors, helping patients in need and being part of a bigger cause."

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A message from our chair

Mel Cappe
Chair, board of directors

For 21 years, the Canadian Blood Services annual report has documented the milestones of change in this organization and our evolving efforts to serve patients, donors, care providers and the other stakeholders in Canada's health systems. But in the final months of our 2019–2020 fiscal year, we confronted a level of disruptive change that none of us — and indeed few living Canadians — had faced before. The COVID-19 pandemic has transformed our lives. And it continues to challenge public health and economic well-being in ways that will test our resolve for some time to come.

On behalf of the board of directors, I want to express our appreciation for how effectively Canadian Blood Services has responded to the crisis. People in every part the organization — from truck drivers to phlebotomists, from directors to dispatchers, from scientists to the executive team — have shown remarkable focus, agility and determination in the face of rapidly changing events. They have demonstrated, as the theme of this report suggests, the crucial importance of adaptability in building and sustaining resilience.

A history of effectively managing risk

For most of the fiscal year ending March 31, 2020, performance metrics across all areas of Canadian Blood Services were strong, indicating solid progress against our strategic priorities. Then, as the full impact of the pandemic became evident from late January onward, the organization had to immediately shift gears and begin developing new policies and processes to address the crisis. In every operating area — blood, plasma, stem cells, and organs and tissues — teams moved quickly and decisively while working to ensure, as always, the safety and quality of products and services. This extraordinary collective effort continues. And what drives its success is a legacy of steadily improving performance extending back over many years.

In overseeing the organization's response to COVID-19, the board has amplified two key dimensions of our governance role: first, to serve as the directing mind of Canadian Blood Services, providing a strategic framework for management decision-making; and second, to hold management accountable for its actions, evaluating progress against clearly defined measures. There is a healthy tension between these two functions, and keeping them in balance depends, first and foremost, on the careful weighing of risk. Every proposed action and its outcomes must be assessed for its potential impacts, both positive and negative, on patients, donors, employees and other stakeholders. This fundamental principle has always guided Canadian Blood Services, and its importance has only been underscored as the board has worked with management to evaluate, prioritize and mitigate possible risks arising from the pandemic.

Committed to diversity, equity and inclusion

While the response to COVID-19 dominated our agenda at year-end, through most of 2019–2020 we had made significant progress against our strategic plan. Of the areas of focus showcased in this annual report, two deserve special mention:

Securing and growing Canada's domestic plasma supply remains a top priority as demand for plasma-derived products continues to grow worldwide, and now, as COVID-19 puts supply chains under additional stress. Canadian Blood Services is ideally positioned to manage the nation's plasma resources as an integral component of the blood system. This has been part of our mandate since 1998 and is grounded in the principles set out by Justice Horace Krever in his Royal Commission of Inquiry on the Blood System in Canada — including the principle of non-remuneration for blood and plasma donors. The board and management will continue to focus on the challenge of plasma sufficiency during the coming year and beyond.

The other area that merits highlighting is our commitment to diversity, equity and inclusion as Canadian Blood Services strives to more closely reflect the communities we serve and the donors we work to attract. While our organization has always welcomed people of diverse backgrounds and points of view, we recognize that the current social climate calls for a

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"Patients and health-care practitioners rightly assume that when they need us, we will be here."

more robust and proactive inclusiveness, assuring everyone has opportunities to contribute to their full potential. To that end, we are committed to promoting more representative diversity across Canadian Blood Services — including on the board as new directors are appointed.

A lifeline created by people — and built on trust

Foundational to these and the other initiatives mapped out in our strategic plan is the trust that Canadians invest in this organization. Patients, donors and our health system partners count on us to maintain safe, secure, accessible and sustainable operations. And as with all essential services, the ultimate proof that we are meeting expectations is when we are simply taken for granted: patients and health-care practitioners rightly assume that when they need us, we will be here.

At the same time, we know that trust, while difficult to build, is all too easy to lose. That Canadian Blood Services has retained such strong support from our stakeholders as we face COVID-19 together speaks to the resilience of an organization dedicated from day one to effectively managing risk. It attests to the skills and experience of the executive team led by our CEO, Dr. Graham Sher. And more fundamentally, it is a testament to the thousands of team members who work each day to transform our mission and values into reality. The people who greet first-time donors and make them comfortable, who test, process and store blood products in our warehouses, who deliver those products to hospitals where patients have urgent needs — everyone across the organization plays a vital role in creating **Canada's Lifeline**.

On behalf of the board, my sincere thanks to all of you who have worked tirelessly, whether on the front lines or at home while balancing family responsibilities, to ensure that lifeline remains intact during an extremely challenging time. As Canadian Blood Services embarks on a third decade of advancing health care across the country and around the globe, I know the talent, dedication and passion that drive this organization are appreciated by all Canadians.

Mel Cappe
Chair, board of directors

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A message from our chief executive officer

Dr. Graham D. Sher
Chief Executive Officer

This annual report spans what we now see as two distinct periods: the time before COVID-19, and the new era still unfolding, as the world continues to grapple with the most devastating public health crisis in a century. Through much of fiscal 2019–2020, we reported strong performance in all areas of Canadian Blood Services. The emergence of the pandemic during the final quarter changed some of the metrics — but not the underlying foundation. Indeed, it is the inherent strength of this organization, built on capabilities, processes and structures evolved over two decades, that helped ensure we were well positioned to address the COVID-19 crisis, as challenging as it has been.

In seeking a theme for this year's report, we wanted to underline the point that our response to the pandemic, while in many ways unprecedented, is grounded in the core purpose of this organization. And when we looked at the values that define Canadian Blood Services — integrity, collaboration, adaptability, respect, excellence (I CARE, in our team members' shorthand) — one stood out as the most relevant to the current moment: adaptability.

Canadian Blood Services was founded on the need for unwavering vigilance and preparedness. We respond rapidly and, wherever possible, proactively to potential risks affecting the safety and integrity of the blood system. Equally important, we constantly seek opportunities to better meet patients' changing needs and expectations. In fulfilling our mission as ***Canada's Biological Lifeline***, we continuously improve our products and services while helping to advance innovations in clinical treatment and care. And by remaining perpetually alert to changes in the health-care environment, we're better prepared to change ourselves.

This readiness to adapt, so critical to our response to COVID-19, has driven the progress of Canadian Blood Services since we commenced operations in 1998. Our organization, like the blood system we manage on behalf of Canadians, is designed for resilience.

Ensuring quality and continuity

As the scale and potential impact of the pandemic became evident in early 2020, we identified two key priorities for Canadian Blood Services: to ensure the continued safety and quality of our products and services, and to maintain continuity in our operations. A fundamental step in achieving both of these aims was safeguarding the well-being of our employees, volunteers and donors.

We already had a robust business continuity strategy in place, including a pandemic response plan that we could rapidly build on, rather than creating it from scratch. As part of our coordinated response to COVID-19, we enhanced the structure and governance of our business continuity program to address the complexity and sheer number of emerging challenges. We established project teams focusing on four key areas: medical surveillance and intelligence; communications, both external and within the organization; people, particularly with regard to workplace health and safety; and operations. Across the country, local emergency response teams were deployed to strengthen communications and gather intelligence from donors and frontline employees.

Insights from these initiatives helped to drive a wide range of risk-mitigation actions, from the adoption of new public health protocols at donor centres and blood collection events to weekly consultations with the National Emergency Blood Management Committee. Our business continuity efforts also included working closely with hospitals and health ministries to better understand fluctuations in demand, which varied from region to region. The Canadian Blood Services executive management team received regular reports on all COVID-related activities, along with updates on the adequacy of essential supplies and other issues that might require us to modify systems or processes.

We saw some initial volatility in the supply of fresh blood products as a drop in donations, triggered by the climate of uncertainty, was offset by reduced demand from hospitals that had deferred elective surgeries and were treating fewer

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trauma cases (mainly because of decreased road traffic). We adapted our supply and inventory planning to respond more nimbly to this volatility. Then in May, as demand began quickly rising again, our collections capacity risked falling short; we promptly developed a plan to increase donor engagement, and by midsummer, inventory was approaching optimum levels. Overall, by making agile adjustments to our operating model and refocusing teams across the organization, we were able to consistently meet the needs of our hospital customers throughout the first six months of the pandemic.

The protocols introduced at our donor centres to protect the health of donors, volunteers and staff (specifics of which are summarized in this report) inevitably had an impact on the donation experience, as well as on the capacity of our operations to maintain normal levels of efficiency. But here again, our teams demonstrated agility and focus. Thanks to extraordinary efforts in both planning and execution, we stabilized the crucial "front end" of our supply chain and reliably met customer requirements.

At the same time, thanks to widespread adoption of our digital platforms for communications and appointment booking, we were able to keep donors informed and engaged. As for the safety measures adopted at donor centres — including new screening criteria, wellness checks, physical distancing and the use of personal protective equipment — these helped to cement the confidence of both donors and staff, and we expect that most will remain standard practices for some time.

Adjusting to the new reality

In implementing these various strategies, we were able to leverage a long record of constantly improving performance that continued through fiscal 2019–2020, as we met or exceeded virtually all of the key indicators by which we measure safety, quality, productivity and financial sustainability. We maintained robust collection levels for whole blood through most of the year, consistently meeting targets for health systems and individual hospitals (see page 5). As the pandemic hit, healthy inventory levels enabled us to avoid the drastic declines in supply experienced by some national blood operators.

Going forward, as health systems resume the full scope of treatment and care, we're confident that our strong donor base and effective recruiting strategies will allow us to keep pace. There is one proviso: in a post-COVID environment, changing public perceptions of risk could present challenges in attracting and retaining donors. But if this proves to be the case, we will be ready as always to adapt to the new reality.

Building Canada's plasma sufficiency

The past year also saw significant progress in our efforts to secure Canada's plasma sufficiency as demand for immune globulin products continues to rise. After extensive consultation and planning, we received support and funding from provincial and territorial governments for three proof-of-concept plasma donor centres across the country. Unfortunately, as work got underway on site selection, donor engagement, and recruitment and training of staff, COVID-19 created some delays. Nevertheless, we remain on track to meet our performance goals for the site. By late summer we'd opened our first plasma donor centre at a temporary location in Sudbury, Ontario (see page 14). We expect to launch the next centre in Lethbridge, Alberta, by the end of the year and to add a third site in Kelowna, British Columbia, by early 2021.

The need for these centres, and for a comprehensive national plasma strategy to address ongoing concerns around security of supply, is more urgent than ever. Worldwide, the use of plasma-derived therapies continues to grow rapidly. And in a post-pandemic environment, additional risks are becoming more evident, including collection shortfalls in the commercial plasma market, manufacturing disruptions in global supply chains and the effect of protectionist policies on international trade in medical products. These factors will have consequential impacts on the pricing and availability of plasma-derived therapies. Before the pandemic, there was already an urgent need to address the security of our domestic supply of immune globulin — the principal product made from plasma. That urgency is now greatly amplified by the myriad impacts of COVID-19 on the supply chains Canada's health systems rely upon.

Therefore, building domestic plasma sufficiency — currently at 13.7 per cent — remains a top strategic priority for Canadian Blood Services. Our proof-of-concept plasma donor centres are a welcome step in the right direction. But they are only a start; it will take considerably more than three sites to address growing supply risks in a meaningful way. Moving forward, there is much more work to do, in concert with our funding governments and health-system partners, if we hope to safeguard the future well-being of Canadians.

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"Despite the countless ways this pandemic has disrupted their lives... people across this organization have only worked harder than ever."

A foundation of sound fiscal management

The plasma sufficiency initiative is an investment in the future. So too are our ongoing efforts to further enhance the donor experience, digitize work processes and bring new analytical precision to how we manage everything from the blood supply chain to the Canadian Transplant Registry and Canadian Blood Services' Cord Blood Bank. The foundation for all of these efforts — and many others reviewed in this annual report — is sound financial management.

In 2019–2020, we met all of our productivity and efficiency targets. We once again realized significant costs savings and avoidance, both from continuing operational improvements and through effective procurement practices — notably our negotiation, on behalf of Canada's health systems, of additional long-term agreements with providers of plasma protein products. As a result, we continue to deliver tangible value to our funding governments.

COVID-19, of course, has dramatically changed the fiscal landscape. Governments' response to the pandemic has required massive public expenditures and strained already-lean budgets. As the crisis continues to unfold and its long-term consequences become clearer, Canadian Blood Services will continue to manage prudently, plasn effectively and deliver added efficiencies. At the same time, we will do all that is necessary to mitigate risk and protect the blood system — including our donors, volunteers, employees and, ultimately, the patients who depend on us.

The key to resilience: adaptability

The trajectory of the COVID-19 pandemic is far from complete. We remain on alert for further waves of infection, whether regionally focused or nationwide, that could affect our workforce, supply chain and other aspects of our operations. But while we're still wrestling with many unanswered questions, we're confident that Canadian Blood Services has the organizational readiness, the business continuity infrastructure and, above all, the right balance of agility, innovative thinking and rigorous quality management to sustain resilience.

In closing, I wish to thank our board of directors for its strategic counsel and unwavering support over the past year, particularly as we've navigated the unknown territory of COVID-19. Under the leadership of our chair, Mel Cappe, board members have provided invaluable risk management oversight as we've continued to deliver medically essential products and services to Canadians through a global health crisis.

Lastly, I want to echo Mel's appreciation for the commitment and passion of the thousands of Canadian Blood Services team members who each day bring our mission to life. Despite the countless ways this pandemic has disrupted their lives, and the lives of so many Canadians, people across this organization have only worked harder than ever, because they know they're doing work that matters. And as they continue to tackle the complex challenges before us, they're inspired by a simple belief: We will adapt — and by adapting, we will prevail.

Dr. Graham D. Sher
Chief Executive Officer

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Management analysis

This management analysis outlines Canadian Blood Services' financial results for the year ended March 31, 2020. It should be read in conjunction with Canadian Blood Services' audited consolidated financial statements and accompanying notes for the year ended March 31, 2020. The financial statements have been prepared in accordance with Canadian accounting standards for not-for-profit organizations. This management analysis should also be read together with the complete annual report, which provides context on the programs and operations of Canadian Blood Services. The information in this analysis is current to June 23, 2020, unless otherwise indicated.

Readers are cautioned that this management analysis includes forward-looking information and statements. By their nature, forward-looking statements require management to make assumptions and are subject to important known and unknown risks and uncertainties that may cause actual results to differ materially from those disclosed here. Although we consider our assumptions to be reasonable and appropriate, on the basis of current information, actual results may vary from those predicted in the forward-looking information and statements.

Funding

Together, we — donors, recipients, employees, partners and volunteers — are **Canada's Lifeline**. Our role is to provide lifesaving products and services in transfusion and transplantation for Canadian patients and to safeguard Canada's systems of life essentials in blood, plasma, stem cells and organs and tissues. To achieve this end, we receive most of our funding from our corporate members, the provincial and territorial ministers of health across Canada, with the exception of Quebec. Our blood, plasma, stem cells and organs and tissues programs are block funded, whereas our systems for procurement and distribution of plasma protein products to hospitals and our diagnostic services are funded on the basis of products issued and services rendered. We also receive federal and Quebec government funding for our role in organ and tissue donation and transplantation (OTDT), which includes management of national registries for interprovincial organ sharing, development of leading national practices and activities related to professional education, public awareness and system performance. Federal funding also supports research and development activities aimed at improving patient outcomes and the health and safety of donors. For both OTDT and research and development activities, the federal funding we receive complements funding for related activities received from our corporate members. We also generate revenue from the sale of stem cells to international recipients and receive income from our investments held in our captive insurance companies. As a not-for-profit charitable organization, Canadian Blood Services also receives financial donations from individuals, corporations and foundations.

Canadian Blood Services has established two wholly owned captive insurance corporations: CBS Insurance Company Limited (CBSI) and Canadian Blood Services Captive Insurance Company Limited/ Compagnie d'assurance captive de la société canadienne du sang limitée (CBSE). Together, these captive insurance companies provide Canadian Blood Services with comprehensive blood risk insurance covering losses up to $1.0 billion. The primary policy held by CBSI provides coverage up to $300.0 million, while the excess policy held by CBSE provides coverage up to $700.0 million. The corporate members provided funding for the CBSI policy in its early years. Those funds were invested, and the investments have increased in value to the point where no further injections of funding have been required for several years. The CBSE policy is not funded, with the corporate members indemnifying any potential loss. The CBSI also holds a contingent risk insurance policy for a safety emergency or emerging threat resulting in urgent responsible costs, as well as a cyber damage and expense policy and a stock-throughput policy.

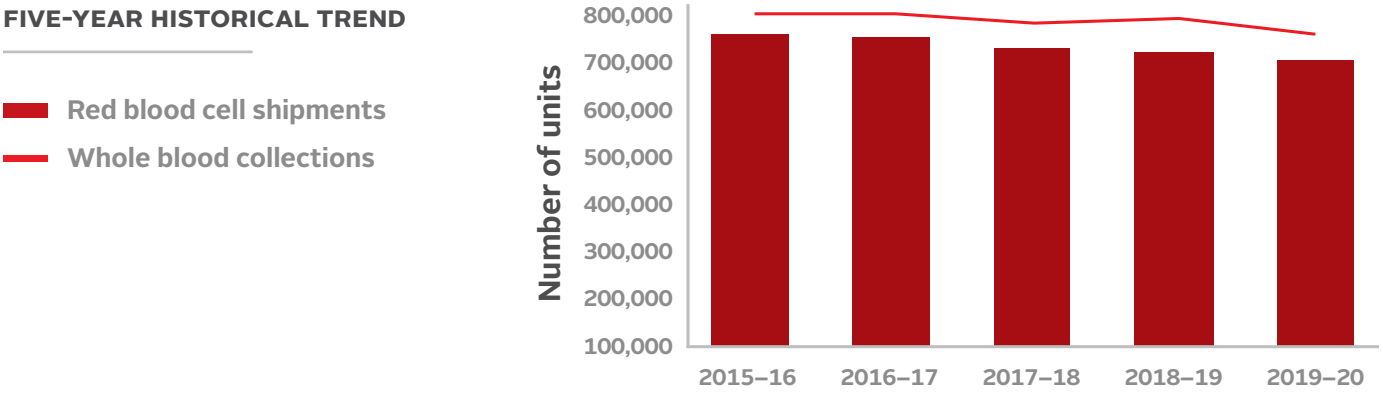
FINANCIAL HIGHLIGHTS

Our context

We collect, test and manufacture blood and blood products, including red blood cells, platelets and plasma. We also conduct research, which yields new knowledge, processes and technologies for the manufacturing environment while helping to improve quality and efficiency in the blood supply chain. There has been a long-term decline in demand for red blood cells, which is expected to continue; however, the rate of decline is diminishing. Although patient blood management activities and restrictive transfusion policies continue to be implemented across the country, the greatest decreases in demand may already have been achieved, particularly in larger hospitals. The number of red blood cell units routinely required as part of massive transfusion protocols is also lower than in the past. Additionally, we expect the increased transfusion requirements of the growing, aging population to contribute to a flattening of the declining demand trend over time.

Making the most effective use of funds, we have continued to maintain and grow the stem cell program, expanding our registries of potential adult stem cell donors and available high-quality cord units. We have also continued to maintain and evolve programs and services supporting the interprovincial allocation and sharing of organs (namely the Kidney Paired Donation program, the Highly Sensitized Patient program and the National Organ Waitlist), which has led to significant progress in organ donation and transplantation for Canada.

FIVE-YEAR HISTORICAL TREND

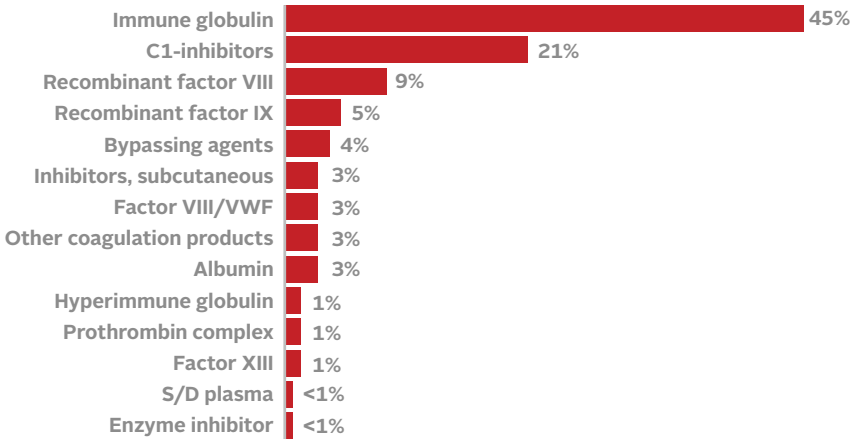


We also collect plasma from unpaid volunteer donors in Canada. We retain some of this plasma to meet the transfusion needs of Canadian patients, but most of it is shipped to contract manufacturers of plasma protein products. We then distribute approved plasma protein products — those derived from our own plasma, as well as finished products that we purchase from manufacturers — to hospitals in Canada (excluding Quebec) for the treatment of immune disorders, bleeding disorders such as hemophilia and numerous other clinical indications.

FORMULARY OF PLASMA PROTEIN PRODUCTS AND PROPORTION OF TOTAL COSTS

VWF – von Willebrand factor

S/D – solvent/detergent treated plasma

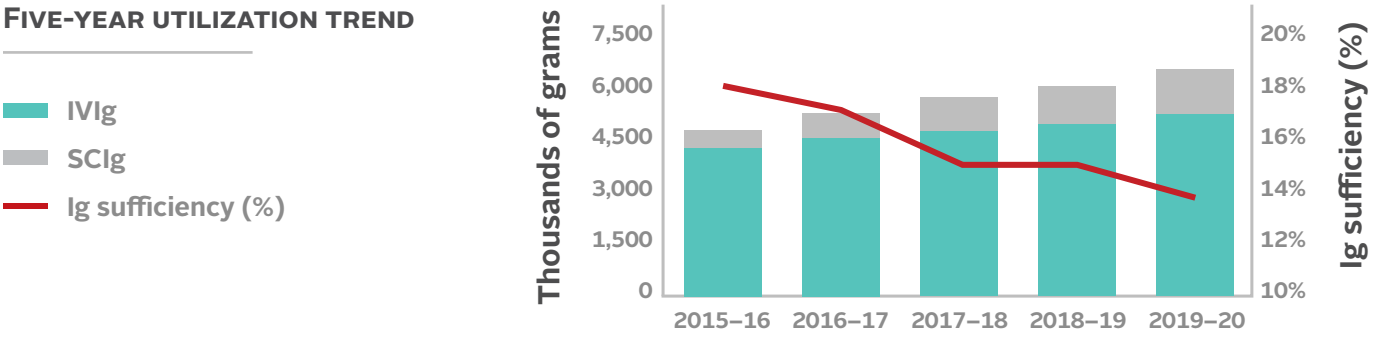


More than 45 brands of products are currently being managed on the formulary, procured from Canadian and international suppliers. Immune globulin (Ig), C1-inhibitors and recombinant factor VIII account for 75 per cent of the total formulary cost.

Even though we have been able to manage certain of our costs through successful requests for proposal and/or contract renegotiations, increases in demand have resulted in increases to program costs in recent years. The decline in the value of the Canadian dollar relative to the U.S. dollar, from an average of $1.14 in 2014–2015 to $1.33 in 2019–2020, has also contributed to our increasing costs.

The chart that follows shows the five-year utilization trend for intravenous Ig (IVIg) and subcutaneous Ig (SCIg), as well as Ig sufficiency. Demand for and use of SCIg continues to grow more quickly than the demand for IVIg. The increase in SCIg use in late 2018–2019 and early 2019–2020 was specifically related to transitioning from IVIg to SCIg, especially among patients with neurological disorders, as well as to initiation of SCIg therapy for patients with newly diagnosed immunodeficiency disorders. In some provinces, the shift to SCIg as the first-choice Ig therapy is being driven by a desire to reduce the administration of IVIg in hospital day unit settings and to instead provide care and offer better quality of life to patients through SCIg treatment at home. The COVID-19 pandemic, which reached Canada in late March, also caused an increase in demand for at home products as patients took home more product.

FIVE-YEAR UTILIZATION TREND



In an effort to increase Canada's plasma sufficiency and reduce reliance on international (US) source plasma, we have embarked on a strategy to increase plasma collections in Canada. In 2019–2020, we began implementing three proof-of-concept collection sites that will serve as models for a Canada-wide solution. Decreased blood and plasma collection during certain phases of the COVID-19 pandemic will negatively affect global supplies in the coming year and beyond, which underlines the importance of increasing Canada's domestic plasma sufficiency.

Captive insurance company investments

Results for the captive insurance companies, which were created primarily as risk-financing vehicles for claims arising from Canadian Blood Services' operations, are consolidated in the financial statements. Funds received from the corporate members have been invested and are closely monitored, with the objective of holding sufficient assets to meet potential obligations. With the realization of positive returns, the investments have grown to a level where it was deemed prudent to increase the primary policy held by CBSI from $250.0 million to $300.0 million, with a corresponding decrease in the CBSE policy, which is indemnified by the provinces and territories, from $750.0 million to $700.0 million. This change was implemented effective April 1, 2019.

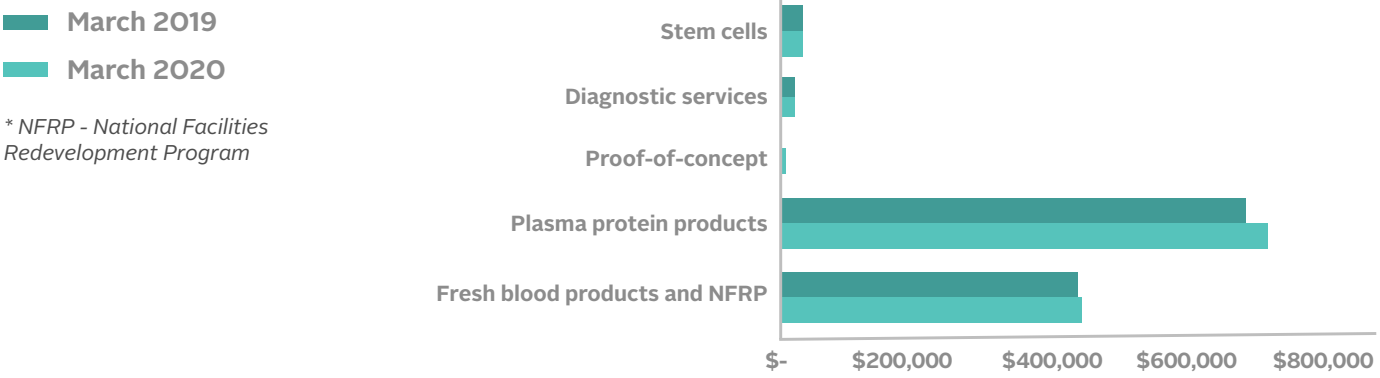
Statement of operations

On a consolidated basis, expenses for 2019–2020 exceeded net revenues by $40.9 million, compared with a $12.1 million excess of net revenues over expenses in the prior year. This deficit was driven mainly by the results for the captive insurance companies (comprising a $50.0 million planned non-cash insurance expense created by the increase in the primary insurance policy and $17.6 million of unrealized losses on investments primarily in March 2020, due to impacts of the COVID-19 pandemic) and partially offset by $26.1 million of realized net investment income generated during the year. The non-cash insurance expense recorded because of the increase in the primary policy noted above reduces the potential exposure for our corporate members by the same amount. In addition, the forward currency contracts held at year-end resulted in an offsetting unrealized gain of $6.5 million.

Total expenses in 2019–2020 increased by $96.7 million or 8 per cent over the prior year. Excluding the planned non-cash insurance expense of $50.0 million, expenses increased by $46.7 million or 4 per cent.

Expenses for fresh blood products and the National Facilities Redevelopment Program (NFRP) and expenses for diagnostic services were relatively flat, with year-over-year increases of $7.6 million or 1.8 per cent and $0.3 million or 1.5 per cent, respectively. Although there were increases in staff costs within fresh blood products, resulting from a reorganization, closure of sites related to the proof-of-concept initiative and incremental staffing to deliver on various projects, these increases were offset by efficiency gains within the donor recruitment and supply chain divisions. Reductions in costs for consulting and other professional services and research grants also contributed to keeping costs relatively flat.

Expenses by program



** NFRP - National Facilities Redevelopment Program*

Expenses for stem cells increased by $1.9 million or 6.5 per cent, primarily because of increased imports and exports, increased advertising costs to support the stem cell registry and professional fees for stem cell projects and strategic initiatives.

During the 2019–2020 fiscal year, Health Canada provided $2.4 million of additional funding to advance organ transplantation in Canada, which allowed for investments in new initiatives, in turn leading to an overall increase of $1.6 million or 19.2 per cent in expenses for OTDT.

Plasma protein products experienced an overall increase of $30.5 million or 4.5 per cent, mainly as a result of increased product issues to hospitals.

The following chart provides an overview of the factors contributing to the increase in consolidated expenses.

2018–2019 to 2019–2020 total expenses

** "Other" comprises increases in medical supplies and depreciation and amortization.*

PPP - Plasma Protein Products

G&A - General and Administrative expenses

Aside from the $50.0 million planned non-cash insurance expense previously discussed, the most significant increase was in the cost of plasma protein products, which rose by $27.4 million.

Key variables influencing the cost of plasma protein products are product demand, product mix, the per-unit cost of the products and foreign exchange. The main drivers of the increase in the cost of plasma protein products were higher product issues to hospitals, especially in the C1-inhibitor and factor VIII categories and for fibrinogen. Also contributing to the cost increase was the growth in demand for SCIg in the final quarter of the year. This demand growth resulted from clinics seeking to increase the volume of supply sent home with patients in the context of the COVID-19 pandemic. These cost increases were partially offset by costs saving from the introduction of Hemlibra, whereby product issues of bypassing agents have decreased resulting in cost reductions that exceed the cost of the the Hemlibra product issues.

Volume increases continued to be the main contributors to increases in the overall costs of plasma products. In fact, volume increases have eroded the substantial price benefits gained through recent cycles of procurement. The table to the right shows the volume, price and foreign exchange changes **since 2012–2013** for the three largest products.

Product volume		Price	FX
Ig	Up 104 per cent	Down 32 per cent	Up 41 per cent
rFVIII	Up 57 per cent	Down 64 per cent	n/a
C1	Up 1,022 per cent	Up 7 per cent	Up 41 per cent

Note: Ig = immune globulin, rFVIII = recombinant factor VIII, C1 = C1 esterase inhibitor, FX = foreign exchange.

Staff costs increased by $10.5 million because of a reorganization in one division, closure of some sites (related to the plasma proof-of-concept initiative) and a change in the benefits program. Additional resources to deliver the plasma proof-of-concept sites and the NFRP[1] also contributed to the increase. These increases were partially offset by decreases from efficiency gains within our donor recruitment and supply chain.

General and administrative expenses increased by $4.9 million because of costs related to the plasma proof-of-concept sites, costs related to OTDT strategic objectives, advertising costs in support of the stem cell registry, stem cell import and export costs and professional fees for the stem cell projects and strategic initiatives. These increases were partially offset by a reduction in consulting and other professional services and a decrease in funding, which resulted in lower costs for blood donation research relating to men who have sex with men.

The $2.6 million decrease in the foreign exchange gain was related to a smaller spread between the forward currency contract rates and the average market rate during the year. We enter into forward currency contracts to mitigate foreign exchange exposure on a substantial portion of our U.S. dollar purchases of plasma protein products. Seventy per cent of the realized gains on forward currency contracts are considered to represent an accounting hedge and are recorded in the cost of plasma protein products, whereas 30 per cent of the realized gains are recorded as foreign exchange gains in the consolidated statement of operations.

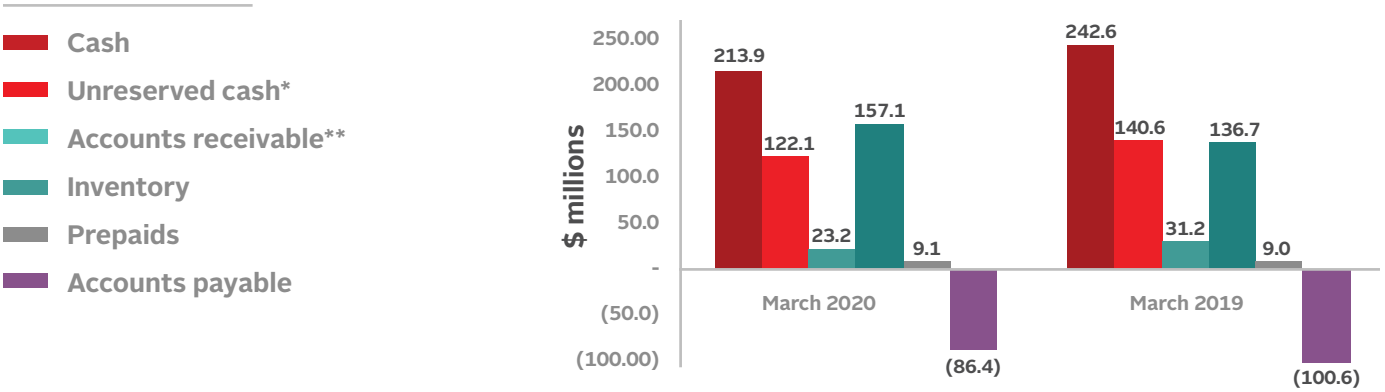
Statement of financial position

At March 31, 2020, we had a healthy working capital ratio of 4:1, with working capital of $225.1 million, compared with $216.9 million at March 31, 2019. The unreserved cash[2] balance on hand was $122.1 million or 37 days, down slightly from the prior year (by $18.5 million or approximately six days). Cash days on hand were well within the target of 14 to 45 days.

Our liquidity is largely influenced by the timing of receipt of funds from corporate members, the volume of inventory held, the demand for plasma protein products, the amount of deferred contributions and the number of large capital-intensive projects. As the operator of a national system, Canadian Blood Services is also exposed to varying payment terms on balances owed to and owed by the organization within each jurisdiction. Although working capital was strong at March 31, 2020, this position could degrade if provinces do not remain current on their contributions or if additional cash outlays are required to invest in inventory to mitigate the risk of Ig supply disruptions.

[1] *The National Facilities Redevelopment Program is discussed in more detail in the following section.*
[2] *Refer to the definition and composition of unreserved cash in the chart on page 62.*

The following chart summarizes the most significant current assets and current liabilities as at March 31, 2020, and March 31, 2019.



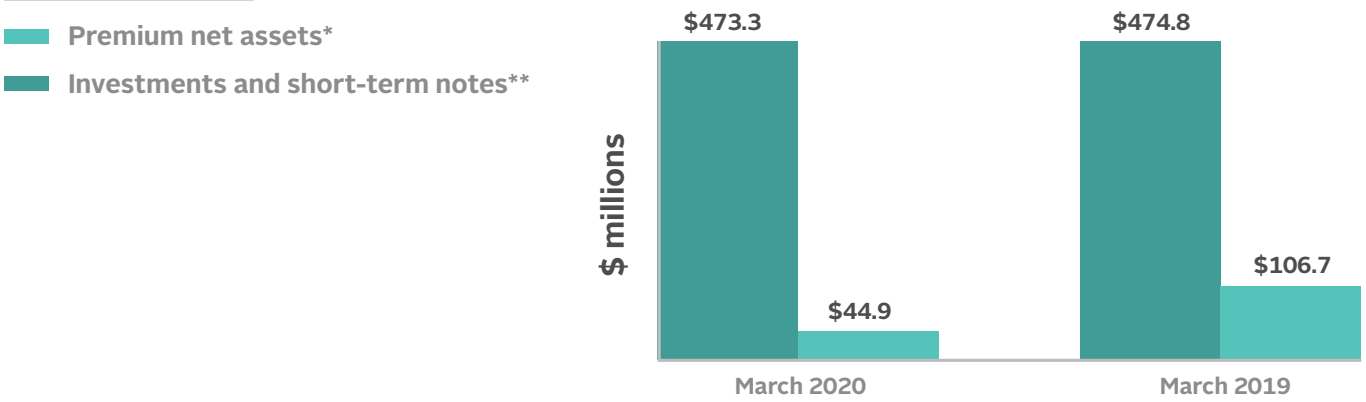
** Unreserved cash represents cash ($213.9 million at March 31, 2020; $242.6 million at March 31, 2019) less internally reserved cash balances relating to certain deferrals reserved for future expenses ($58.9 million at March 31, 2020; $62.6 million at March 31, 2019) and other post-retirement and post-employment benefit liabilities ($32.9 million at March 31, 2020; $39.4 million at March 31, 2019).*

*** Accounts receivable represent corporate members' contributions receivable ($7.1 million at March 31, 2020; $19.6 million at March 31, 2019) and other amounts receivable ($16.2 million at March 31, 2020; $11.6 million at March 31, 2019).*

Accounts receivable decreased by $7.9 million, a change that was mainly driven by a reduction in the amount owed by one of the corporate members. This decrease was partially offset by increases in contributions receivable from other corporate members and other amounts receivable.

We have increased our inventory holdings relative to the prior year. The inventory of plasma protein products increased by $19.1 million, whereas fresh blood product inventory remained relatively flat. Most notably, Ig inventory increased because of planned purchases of SCIg to meet forecasted demand growth. Within the last few months of the year, there was an increase in SCIg enrolments as patients moved to at-home treatments, which signalled higher SCIg demand in the future. The COVID-19 pandemic has caused unprecedented supply chain disruptions for industries around the world. It is not yet clear how, and to what extent, the global Ig supply chain could be affected, but there are early signs of disruption. For example, overall plasma collections in the United States are expected to decrease by 15 to 20 per cent in the longer term, which could lead to disruptions in the Ig supply. In early 2020–2021, we have secured additional Ig inventory to mitigate the risk of Ig shortages due to the COVID-19 pandemic, and we are working closely with suppliers to ensure that a safe level of inventory is maintained by our vendors. We are also working closely with the National Emergency Blood Management Committee to monitor supply chain issues and are engaging with physicians and patients with regard to our early proactive contingency planning. The National Emergency Blood Management Committee comprises the National Advisory Committee on Blood and Blood Products, representatives of the Provincial Territorial Blood Liaison Committee and key Canadian Blood Services personnel. The group develops recommendations and provides advice to the provincial and territorial ministries of health, hospitals and regional health authorities, and Canadian Blood Services to support a consistent and coordinated response to critical blood shortages in Canada.

Accounts payable and other accruals decreased by $14.4 million primarily because of the timing of vendor payments and tax remittances, lower holdbacks and payables related to NFRP construction and procurement delays as a result of the COVID-19 pandemic.



** Premium net assets comprise net current assets (primarily investments) held by CBSI, measured in accordance with International Financial Reporting Standards ($481.8 million at March 31, 2020; $484.5 million at March 31, 2019), less the aggregate limits of insurance policies held by CBSI ($340.0 million at March 31, 2020; $290.0 million at March 31, 2019) less statutory reserves ($44.9 million at March 31, 2020; $37.5 million at March 31, 2019) and the market volatility reserve ($52.0 million at March 31, 2020; $50.3 million at March 31, 2019). The statutory reserves are calculated as 15 per cent of the aggregate limits of the insurance policies, and the market volatility reserve is determined in consultation with a third-party investment adviser.*

*** Investments and short-term notes comprise investments (primarily held by CBSI), measured in accordance with Canadian accounting standards for not-for-profit organizations ($467.4 million at March 31, 2020; $469.0 million at March 31, 2019), and short-term notes, classified as cash and cash equivalents in the consolidated statement of financial position ($5.9 million at March 31, 2020; $5.8 million at March 31, 2019).*

Investments were also negatively impacted by the COVID-19 pandemic, which caused a downturn in equity markets in the final month of the year. This downturn caused the unwinding of gains that had been realized through January 2020 and resulted in an overall decline in the investment balance of $1.5 million relative to the prior year. The situation is dynamic, and the ultimate duration and magnitude of effects on the economy and the ensuing financial effects on the organization are not known at this time. Notably, there could be further fluctuations in the fair value of our investments and future declines in investment income.

Despite this situation, the CBSI continues to be in a healthy position, with sufficient assets to fully fund the extent of its insurance limits and its regulatory and market volatility reserves. Premium net assets (assets less insurance limits and reserves) amounted to $44.9 million[3] at March 31, 2020 ($106.7 million at March 31, 2019). The CBSI primary policy increase from $250.0 million to $300.0 million, effective April 1, 2019, reduced net premium assets. To a lesser extent, the slight decrease in investments and increase in the statutory and market volatility reserves also contributed to the decrease.

Fiscal year 2019–2020 saw continued investment in our infrastructure, with significant advancement in our NFRP. This investment in facilities infrastructure is allowing us to move forward in three vital areas: quality, productivity and service. Phase IIa of the NFRP is a multi-year investment to transform and modernize our national infrastructure in Alberta and Saskatchewan. A total of $8.4 million was invested in the construction of the Calgary facility during the year. By the end of 2020–2021, the testing, production, distribution and warehousing facility in Calgary will become operational, consolidating functions formerly in Calgary, Edmonton and Regina. The donor centres in Calgary and Saskatoon have been moved to new leased sites, and the existing facility in Saskatoon has been sold, with the proceeds used to offset the costs of the program. Construction of a new donor and distribution centre in Regina will follow.

[3] Measured on an International Financial Reporting Standards basis.

National facilities redevelopment program phase IIa - Calgary

Canadian Blood Services sponsors two defined-benefit pension plans (one for employees and the other for executive employees) and a defined-contribution pension plan, as well as providing other non-pension post-retirement and post-employment benefits to eligible employees. The COVID-19 pandemic has also affected the employee future benefit liability. First, there was a significant non-cash remeasurement gain resulting from a large increase in the discount rate (90 basis points for the defined-benefit plan and up to 80 basis points in the post-retirement and post-employment plan). Second, the value of the investment assets was negatively affected by the downturn in the equity markets in March 2020. Both of these impacts have been recorded directly in net assets and did not result in a gain or loss in the statement of operations. Impacts on the liability and pension and benefit costs may continue as the pandemic plays out.

COVID-19 and effect on financial planning for 2020–2021

We have taken several actions, and continue to assess and adjust our plans, to increase our financial resilience in the face of the COVID-19 pandemic. These actions include the deliberate reduction of travel and training budgets in the first half of the year, as well as the reprioritization of capital and other related expenditures. Reductions in collection volumes in the first two months of the fiscal year, due to a reduction in demand because of the cancellation of elective surgeries, also helped to generate additional savings on medical supplies.

We will reallocate funds to expenses originally anticipated to be incurred in March 2020 that were delayed to 2020–2021 because of the pandemic, as well as to several incremental funding requirements, including but not limited to additional personal protective equipment, retrofitting of sites to enable physical distancing and wellness checks.

We believe that Canadian Blood Services is currently able to manage these costs through the existing 2020–2021 budget, with the reduction of travel and training budgets and the reprioritization of capital expenditures described above. However, in this uncertain environment, our financial situation could change. In the event that we require additional funds beyond what can be made available through reprioritization activities, we can access our contingency funds.

Optimizing cost-efficiency

As a partner in health care, Canadian Blood Services has an obligation to ensure that every dollar entrusted to us by Canadians is invested wisely and managed effectively. Although our first priority is to safeguard the processes, practices and systems that help us to ensure the quality, safety and sufficiency of our products and services, we constantly look for opportunities to become more productive and to maximize the impact of our investments.

We manage this effort through the Productivity and Efficiency Program, which has been in place since 2008, leveraging continuous improvement concepts, operational consolidation, organizational redesign, the implementation of technology, the shift to digital donor interactions and successful procurement practices to improve efficiencies and manage costs. The tangible benefits arising from these efforts have been observed through two consecutive independent performance reviews:

- $70 million in cost savings were achieved between fiscal years 2008–2009 and 2011–2012; and
- $60 million in cost savings were achieved between 2012–2013 and 2018–2019.

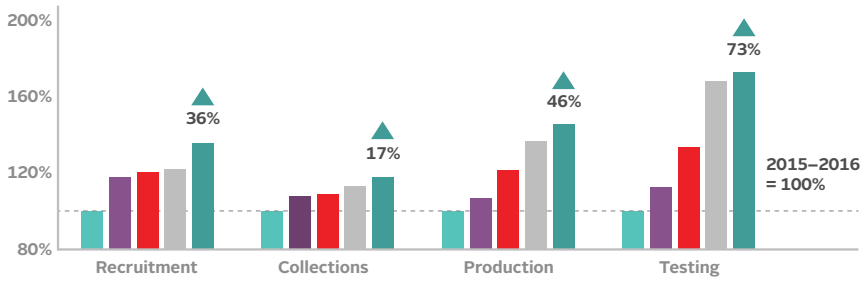
The cumulative savings between 2008–2009 and 2019–2020 have thus been $132 million. We are targeting an additional $40 million, for $170 million in total efficiencies, largely through our blood program.

Beyond efficiencies for the blood program, our corporate members have benefited in recent years (and continue to benefit) from product choice and favourable pricing obtained through our value-based procurement activities related to plasma protein products. Through these procurement processes, we have provided brand diversity, product choice and state-of-the-art products while obtaining favourable pricing. The cumulative benefits provided (in terms of savings and cost avoidance) are expected to be in excess of $1.2 billion between 2013–2014 and 2020–2021. Realized savings and cost avoidance of $857 million from requests for proposal and contract renegotiations between 2013–2014 and 2018–2019 were confirmed in an independent performance review.

The milestones that we have reached to date reflect our commitment to cost containment and give us confidence that we are on course. Even while our productivity journey continues, the COVID-19 pandemic and our response to it are affecting our metrics in the short term. This effect is most pronounced in collections productivity, because additional staff hours are required for wellness checks, modified processes and additional cleaning, as well as to ensure proper distancing in clinics. These additional hours are expected to result in a downward adjustment in collections productivity in fiscal year 2020–2021. Production and testing operations have been less affected by COVID-19–related changes, and continued improvement is still planned for these areas. The chart below shows progress in each of the productivity metrics[4] between fiscal years 2015–2016 and 2019–2020.

Annual average year-end productivity results

Productivity continues to improve across four key areas



[4] *The four productivity metrics include recruitment (number of units collected from donors per recruitment full-time equivalent), collections (number of units collected per collections full-time equivalent), production (number of weighted products processed per production full-time equivalent) and testing (number of samples tested per testing full-time equivalent).*

Governance

Canadian Blood Services is a not-for-profit charitable organization that operates independently at arm's length from government. It is regulated by Health Canada through the federal *Food and Drugs Act* and is governed and guided by the principles of accountability, engagement and transparency. The organization was created through a memorandum of understanding among the federal, provincial and territorial governments. In 2019–2020, Canadian Blood Services and the provincial and territorial governments, as corporate members, finalized the National Accountability Agreement, which sets out the accountability relationships among the parties.

Corporate members

Under bylaws governed by the *Canada Not-for-profit Corporations Act*, the provincial and territorial ministers of health (except Quebec's minister) serve as corporate members of Canadian Blood Services and appoint our board of directors. The board of directors is accountable to the corporate members.

The ministers also collectively approve Canadian Blood Services' three-year corporate plan and annual budget. A lead province is designated every two years. Effective April 1, 2019, Prince Edward Island assumed this role, replacing Saskatchewan.

Board of directors and committees

Our board consists of 13 directors, who are appointed by the corporate members. The board's role is broad oversight of Canadian Blood Services' management and direction, as well as helping to maintain and protect the soundness and integrity of the blood system in Canada.

Number of board of directors and committee meetings during 2019–2020

	Number of meetings held in 2019–2020
Board	6
Talent Management Committee	6
Finance and Audit Committee	5
Governance Committee	4
Safety, Research and Ethics Committee	4

Board attendance and compensation paid during 2019–2020

Director	Chair	Number of board meetings attended	Number of committee meetings attended	Honorariums paid
Melvin Cappe	Board	6/6	10/10	$47,250
Judy Steele	Finance and Audit Committee	5/6	10/11	$12,000
Glenda Yeates	Board Vice-Chair	6/6	10/10	$24,500
Dr. Brian Postl		4/6	4/8	$14,750
Lorraine Muskwa		5/6	9/9	$23,625
Robert Adkins		5/6	6/8	$20,500
Kelly Butt	Governance Committee	6/6	8/8	$29,375
Victor Young		5/6	7/9	$23,750
Craig Knight	Talent Management Committee	6/6	11/11	$29,875
David Lehberg		6/6	9/11	$18,125
Anne McFarlane	Safety, Research and Ethics Committee	6/6	8/8	$24,750
Dunbar Russel		5/6	9/9	$21,250
Dr. Jeff Scott		6/6	10/10	$23,250

Board of directors' retainer and honorariums

Canadian Blood Services' bylaws stipulate that directors be remunerated for attendance at meetings of the board of directors and committees, as set by the corporate members. The chair receives an annual retainer, other directors receive meeting honorariums, and all directors are reimbursed for their travel expenses. Directors are also entitled to per diems when they are required to conduct business on behalf of the board.

The table below shows the structure of honorariums paid to the directors of the board.

Board of directors' retainer and honorariums	
Annual retainer for the chair	$15,000 per annum
Meeting participation honorarium	$750 per day
Meeting preparation honorarium	One preparation day for directors at $750 per each meeting day Up to two additional days for chair and vice-chair at $750 per day Up to one additional day for committee chairs at $750 per day
Special meeting preparation honorarium	$750 per day One preparation day for participating directors per each meeting day Up to one additional day for special meeting chair
Travel to meetings	Up to two days (depending on origin and destination) per meeting at $500 per day
Travel	Travel costs according to Canadian Blood Services' expense policy. Details of these travel costs can be found on our website at blood.ca/en/about-us/our-board-directors
Days on business honorarium	$750 per day (for events such as meetings on behalf of Canadian Blood Services)

Executive management team compensation

Canadian Blood Services is founded on the principles of safety, transparency, integrity and accountability — traits deeply rooted in our culture. The manner in which we compensate executives reflects these principles. As such, Canadian Blood Services has a comprehensive and rigorous executive performance management and compensation program, following best-practice principles in corporate governance.

The CEO, who reports to the board of directors, oversees the vice-presidents and our internal auditor. Each year, the performance of members of the executive management team, including the CEO, is measured through the use of executive performance agreements. These agreements contain goals, defined by the board of directors, that are linked to achieving corporate performance objectives. Performance against these goals is used to derive the specific calculations for either merit increases or performance awards.

The CEO's evaluation is the responsibility of the full board, with the process being largely overseen and managed by the Talent Management Committee. The CEO is subject to two performance reviews during each fiscal year: an interim review in the second quarter and a full review at the end of the fourth quarter. This full board review tracks in detail the CEO's performance against specific, measurable performance goals. Any compensation adjustments flow from this review, after deliberation by the board, and such adjustments are solely at the board's discretion.

Every two years, the Talent Management Committee also commissions an independent study to gather comparative compensation data for the CEO. Every third year, the committee independently commissions outside expertise to lead a 360° performance review of the CEO.

Members of the executive management team are reviewed through a similar process. The CEO meets with all of the executive management team members and reviews their performance in relation to achievement of the goals set out in their respective performance agreements. The CEO's recommendations for compensation adjustments are presented to the Talent Management Committee of the board for approval.

Canadian Blood Services aims to align our total compensation for executives with the market median for comparator groups.

Total compensation for executives

Executive	Fiscal year	Base salary	Compensation at risk as a percentage of base salary
Dr. Graham D. Sher *Chief Executive Officer*	2019–2020 2018–2019	$636,300 $606,000	30% 30%
Jean-Paul Bédard *Vice-President, Plasma Operations*	2019–2020 2018–2019	$308,359 $296,499	22.5% 22.5%
Judie Leach Bennett *Vice-President, General Counsel and Corporate Secretary*	2019–2020 2018–2019	$280,000 $260,000	22.5% 22.5%
Dr. Christian Choquet *Vice-President, Quality and Regulatory Affairs*	2019–2020 2018–2019	$286,624 $276,932	22.5% 22.5%
Dr. Isra Levy *Vice-President, Medical Affairs and Innovation*	2019–2020 2018–2019	$468,650 $455,000	25.0% 22.5%
Ralph Michaelis *Chief Information Officer*	2019–2020 2018–2019	$251,323 $245,193	22.5% 22.5%
Andrew Pateman *Vice-President, People, Culture and Performance*	2019–2020 2018–2019	$341,771 $328,625	22.5% 22.5%
Pauline Port *Chief Financial Officer and Vice-President, Corporate Services*	2019–2020 2018–2019	$391,938 $378,684	25% 25%
Rick Prinzen *Chief Supply Chain Officer and Vice-President, Donor Relations*	2019–2020 2018–2019	$342,220 $332,252	25% 25%
Ron Vezina *Vice-President, Public Affairs*	2019–2020 2018–2019	$234,000 $220,000	22.5% 22.5%

Compensation also includes:

- a $10,000 annual vehicle allowance, with the exception of the CEO, who receives an annual allowance of $18,000
- vacation entitlement: Year 1, four weeks; Year 2, five weeks; Year 3, six weeks; and for the CEO, Year 20, seven weeks
- benefits package: defined-benefit pension and health-care spending account; executive benefit package covering health, dental, life insurance and long-term disability

Consolidated Financial Statements of

And Independent Auditors' Report thereon

Year ended March 31, 2020

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INDEPENDENT AUDITORS' REPORT

To the Members of Canadian Blood Services

Opinion

We have audited the consolidated financial statements of the Canadian Blood Services (the "Entity"), which comprise:

- the consolidated statement of financial position as at March 31, 2020;
- the consolidated statement of operations for the year then ended;
- the consolidated statement of changes in net assets for the year then ended;
- the consolidated statement of cash flows for the year then ended; and
- notes to the consolidated financial statements, including a summary of significant accounting policies.

(Hereinafter referred to as the "consolidated financial statements").

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Entity as at March 31, 2020, and its consolidated results of operations and its consolidated cash flows for the year then ended in accordance with Canadian Accounting standards for not-for-profit organizations.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "***Auditors' Responsibilities for the Audit of the Consolidated Financial Statements***" section of our auditors' report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

KPMG LLP is a Canadian limited liability partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. KPMG Canada provides services to KPMG LLP.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the consolidated financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group Entity to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

KPMG LLP

Chartered Professional Accountants, Licensed Public Accountants

Ottawa, Canada

June 23, 2020

Canadian Blood Services
BLOOD PLASMA STEM CELLS ORGANS & TISSUES

Consolidated Statement of Financial Position

As at March 31, 2020, with comparative information for 2019
(In thousands of dollars)

	2020	2019
Assets		
Current assets:		
Cash and cash equivalents (note 4)	$ 213,931	$ 242,578
Members' contributions receivable	7,061	19,595
Other amounts receivable	16,175	11,561
Inventory (note 5)	157,097	136,720
Forward currency contracts (note 16)	11,044	4,549
Prepaid expenses	9,066	9,011
	414,374	424,014
Investments, captive insurance operations (note 6)	467,397	469,040
Capital assets (note 7)	277,180	281,405
	$ 1,158,951	$ 1,174,459
Liabilities, Deferred Contributions and Net Assets		
Current liabilities:		
Accounts payable and accrued liabilities (note 8)	$ 86,385	$ 100,586
Current portion of obligations under capital leases	164	411
	86,549	100,997
Employee future benefit liabilities (note 9)	69,792	92,679
Obligations under capital leases	97	272
Deferred contributions (note 11)	446,942	464,331
Provision for future claims (note 17)	299,916	250,000
Net assets (note 12):		
Invested in capital assets	24,006	24,171
Restricted for fair value of forward currency contracts	11,044	4,549
Restricted for captive insurance purposes	178,575	225,971
Unrestricted net accumulated surplus	42,030	11,489
	255,655	266,180
Guarantees and contingencies (note 18)		
Commitments (note 19)		
	$ 1,158,951	$ 1,174,459

See accompanying notes to the consolidated financial statements.

On behalf of the Board

Mel Cappe, Director and Chair

Judy Steele, Director

Canadian Blood Services BLOOD PLASMA STEM CELLS ORGANS & TISSUES

Consolidated Statement of Operations

Year ended March 31, 2020, with comparative information for 2019
(In thousands of dollars)

	2020 (note 14)	2019 (note 14)
Revenue:		
Members' contributions	$ 1,179,975	$ 1,154,611
Federal contributions	11,158	10,448
Less amounts deferred	(39,925)	(47,374)
	1,151,208	1,117,685
Amortization of previously deferred contributions:		
Relating to capital assets	21,935	20,267
Relating to operations	16,337	7,656
Total contributions recognized as revenue	1,189,480	1,145,608
Net investment income (note 13)	26,103	15,693
Stem cells revenue	16,840	15,585
Other income	2,330	1,783
Total revenue	**1,234,753**	**1,178,669**
Expenses:		
Cost of plasma protein products	683,752	656,351
Staff costs	311,475	301,008
General and administrative	144,726	139,782
Medical supplies	57,852	57,583
Losses and loss expenses incurred	50,000	–
Depreciation and amortization	21,017	19,994
Foreign exchange gain	(4,294)	(6,904)
Total expenses	**1,264,528**	**1,167,814**
(Deficiency) excess of revenue over expenses before the undernoted	**(29,775)**	**10,855**
Change in fair value of forward currency contracts	6,495	297
Change in fair value of investments measured at fair value	(17,621)	977
(Deficiency) excess of revenue over expenses	**$ (40,901)**	**$ 12,129**

See accompanying notes to the consolidated financial statements.

Canadian Blood Services BLOOD PLASMA STEM CELLS ORGANS & TISSUES

Consolidated Statements of Changes in Net Assets

Year ended March 31, 2020, with comparative information for 2019
(In thousands of dollars)

March 31, 2020	Invested in capital assets	Restricted for fair value of forward currency contracts	Restricted for captive insurance purposes	Unrestricted net accumulated surplus	Total
Balance, beginning of year (note 12)	$ 24,171	$ 4,549	$ 225,971	$ 11,489	$ 266,180
(Deficiency) excess of revenue over expenses	–	–	(47,396)	6,495	(40,901)
Remeasurements and other items related to employee employee future benefits	–	–	–	30,376	30,376
Change in investment in capital assets	(165)	–	–	165	–
Release of net asset restriction for realized gain	–	(4,682)	–	4,682	–
Change in fair value of forward currency contracts	–	11,177	–	(11,177)	–
Balance, end of year (note 12)	$ 24,006	$ 11,044	$ 178,575	$ 42,030	$ 255,655

March 31, 2019	Invested in capital assets	Restricted for fair value of forward currency contracts	Restricted for captive insurance purposes	Unrestricted net accumulated surplus	Total
Balance, beginning of year (note 12)	$ 24,171	$ 4,252	$ 211,718	$ 16,417	$ 256,558
Reclassification (note 24)	–	–	2,421	(2,421)	–
Excess of revenue over expenses	–	–	11,832	297	12,129
Remeasurements and other items related to employee future benefits	–	–	–	(2,507)	(2,507)
Release of net asset restriction for realized gain	–	(6,894)	–	6,894	–
Change in fair value of forward currency contracts	–	7,191	–	(7,191)	–
Balance, end of year (note 12)	$ 24,171	$ 4,549	$ 225,971	$ 11,489	$ 266,180

See accompanying notes to the consolidated financial statements.

Canadian Blood Services BLOOD PLASMA STEM CELLS ORGANS & TISSUES

Consolidated Statement of Cash Flows

Year ended March 31, 2020, with comparative information for 2019
(In thousands of dollars)

	2020	2019
Cash and cash equivalents provided by (used for):		
Operating activities:		
(Deficiency) excess of revenue over expenses	$ (40,901)	$ 12,129
Items not involving cash and cash equivalents:		
Depreciation and amortization of capital assets	21,017	19,994
Amortization of deferred contributions	(38,272)	(27,923)
(Gain) loss on sale of capital assets	(1,651)	113
Net realized gains on sales of investments, captive insurance operations	(6,020)	(1,404)
Change in fair value of equity investments, captive insurance operations	17,621	(977)
Interest amortization of bonds, captive insurance operations	509	(18)
Change in provision for future claims	49,916	–
Employee future benefit expenses in excess of cash payments	7,489	6,178
Change in fair value of forward currency contracts	(6,495)	(297)
	3,213	7,795
Change in non-cash operating working capital:		
Decrease in Members' contributions receivable	12,534	14,086
(Increase) decrease in other amounts receivable	(4,614)	6,775
(Increase) decrease in inventory	(20,377)	25,228
Increase in prepaid expenses	(55)	(873)
(Decrease) increase in accounts payable and accrued liabilities	(14,358)	3,251
Increase (decrease) deferred contributions received for expenses of future periods	2,959	(1,940)
Total operating activities	(20,698)	54,322
Investing activities:		
Proceeds on sale of investments, captive insurance operations	157,398	112,320
Purchases of investments, captive insurance operations	(167,865)	(119,130)
Proceeds on sale of capital assets	2,734	160
Purchases of capital assets	(17,718)	(52,012)
Total investing activities	(25,451)	(58,662)
Financing activities:		
Repayment of bank indebtedness	–	(14,000)
Deferred contributions received related to capital assets	17,924	53,602
Repayment of obligations under capital leases	(422)	(463)
Total financing activities	17,502	39,139
(Decrease) increase in cash and cash equivalents	(28,647)	34,799
Cash and cash equivalents, beginning of year	242,578	207,779
Cash and cash equivalents, end of year	$ 213,931	$ 242,578
Cash and cash equivalents are comprised of:		
Cash on deposit	$ 207,986	$ 236,806
Short-term notes	5,945	5,772
	$ 213,931	$ 242,578

See accompanying notes to the consolidated financial statements.

1. Nature of the organization and operations:

Canadian Blood Services/Société canadienne du sang (the Corporation) owns and operates the national blood supply system for Canada, except Québec, and is responsible for the collection, testing, processing and distribution of blood and blood products, including red blood cells, platelets, plasma and cord blood, as well as the recruitment and management of donors. In addition, the Corporation provides the following services: (ii) developing and managing donor registries for stem cells, cord blood stem cells and organs, (iii) providing diagnostic services for patients and hospitals across Western Canada and some parts of Ontario, (iv) supporting policy and leading practice development, professional education and public awareness over transfusion practices and organ and tissue donation and transplantation, and (v) conducting and supporting research in transfusion science, medicine, cellular therapies and organ and tissue transplantations.

The Corporation was incorporated on February 16, 1998, under Part II of the Canada Corporations Act. Effective May 7, 2014, the Corporation transitioned its incorporation to the Canada Not-for-Profit Corporations Act. It is a corporation without share capital and qualifies for tax-exempt status as a registered charity under the Income Tax Act (Canada). The Members of the Corporation are the Ministers of Health of the Provinces and Territories of Canada, except Québec. The Members, as well as the Federal and Quebec governments provide contributions to fund the operations of the Corporation. The Corporation operates in a regulated environment, pursuant to the requirements of Health Canada.

The Corporation has established two wholly-owned captive insurance corporations; CBS Insurance Company Limited (CBSI) and Canadian Blood Services Captive Insurance Company Limited/Compagnie d'assurance captive de la société canadienne du sang limitée (CBSE). CBSI was incorporated under the laws of Bermuda on September 15, 1998 and is licensed as a Class 3 reinsurer under the Insurance Act, 1978 of Bermuda and related regulations. CBSE was incorporated under the laws of British Columbia on May 4, 2006 and is registered under the Insurance (Captive Company) Act of British Columbia.

2. Basis of presentation and significant accounting policies:

Significant accounting policies:

The consolidated financial statements have been prepared by management in accordance with Canadian accounting standards for not-for-profit organizations in Part III of the CPA Canada Handbook – Accounting.

2. Basis of presentation and significant accounting policies (continued):

Significant accounting policies (continued):

A summary of the significant accounting policies used in these consolidated financial statements are set out below. The accounting policies have been applied consistently to all periods presented.

(a) Consolidation:

The consolidated financial statements include the results of the operations of Canadian Blood Services and the accounts of its wholly-owned captive insurance subsidiaries.

(b) Use of estimates:

The preparation of the consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses in the consolidated financial statements. Estimates and assumptions may also affect disclosure of contingent assets and liabilities at the date of the consolidated financial statements. Actual results could differ from these estimates. Significant estimates include assumptions used in measuring pension and other post-employment benefits and the provision for future insurance claims, which are described in more detail in notes 9 and 17, respectively.

(c) Revenue recognition:

The Corporation follows the deferral method of accounting for contributions for not-for-profit organizations.

Members' and Federal contributions are recorded as revenue in the period to which they relate. Amounts approved but not received by the end of an accounting period are accrued. Where a portion of a contribution relates to a future period, it is deferred and recognized in the subsequent period.

Externally restricted contributions are recognized as revenue in the year in which the related expenses are recognized. Contributions restricted for the purchase of capital assets other than land are initially deferred and then amortized to revenue on a straight-line basis, at a rate corresponding with the depreciation rate for the related capital asset. Contributions restricted for the purchase of land are recognized as direct increases in net assets invested in capital assets.

Unrestricted funding is recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

Restricted investment income is recognized as revenue in the year in which the related expenses are recognized. Unrestricted investment income is recognized as revenue when earned.

Revenue from fees and contracts is recognized when the services are provided, or the goods are distributed.

2. Basis of presentation and significant accounting policies (continued):

Significant accounting policies (continued):

(c) Revenue recognition (continued):

Restricted donations are recognized as revenue in the year in which the related expenses are recognized. Unrestricted donations are recognized as revenue in the year received.

(d) Donated goods and services:

The Corporation does not pay donors for whole blood, plasma, platelets or cord donations. Additionally, a substantial number of volunteers contribute a significant amount of time each year in support of the activities of the Corporation. The value of such contributed goods and services is not quantified in the financial statements.

(e) Inventory:

Inventory of the Corporation consists of plasma protein products, fresh blood components, cord blood and supplies related to the collection, manufacturing and testing of fresh blood components.

Inventory is measured at the lower of cost and current replacement cost. Cost for plasma protein products and supplies inventories is measured at average cost. Cost for fresh blood components and cord blood inventory includes an appropriate portion of direct costs and overhead incurred in the collection, manufacturing, testing and distribution processes.

Plasma protein products, cord blood and fresh blood components inventory is charged to the statement of operations upon distribution to hospitals.

Management regularly performs reviews and when necessary, writes off slow moving or obsolete inventory.

(f) Capital assets:

Purchased capital assets are recorded at cost. Contributed capital assets are recorded at fair value at the date of contribution. Assets acquired under capital leases are amortized over the estimated life of the assets or over the lease term, as appropriate. Repairs and maintenance costs are expensed. Betterments, which enhance the service potential of an asset are capitalized.

When capital assets can be segregated into major components that have different useful lives, these components are separately identified and amortized over their respective estimated useful lives.

2. Basis of presentation and significant accounting policies (continued):

Significant accounting policies (continued):

(f) Capital assets (continued):

Capital assets are reviewed for impairment whenever events or changes in circumstances indicate that the asset no longer contributes to the Corporation's ability to provide goods or services, or that the value of future economic benefits or service potential associated with the asset is less than its net carrying amount. In this event, recoverability of assets held and used is measured by reviewing the estimated the estimated fair value or replacement cost of the asset. If the carrying amount of an asset exceeds its estimated fair value or replacement cost, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds the fair value or replacement cost of the asset. In instances where a tangible capital asset is integrated with other assets such that it may be necessary to consider the value of the tangible capital asset's future economic benefits or service potential for the group of integrated assets as a whole; a write-down may be recognized and measured for the group of assets rather than for an individual tangible capital asset. Any write-down is allocated to the assets of the group on a pro rata basis using the relative carrying amounts of those assets. When a capital asset is written down, the corresponding amount of any unamortized deferred contributions related to the capital asset would be recognized as revenue, provided that the Corporation is in compliance with all restrictions. Write-downs are not reversed.

Depreciation is recorded on a straight-line basis over the estimated useful lives of the assets at the rates indicated below:

Asset	Useful life
Buildings and building components	25 to 65 years
Machinery and equipment	8 to 25 years
Furniture and office equipment	5 to 10 years
Motor vehicles	8 years
Computer equipment	3 years
Computer software	2 to 5 years

Leasehold improvements are depreciated on a straight-line basis over the shorter of the lease term or their estimated useful lives. Assets under construction are not depreciated until they are available for use by the Corporation.

The right to the blood supply system represents the excess of the purchase price of the system over the fair value of the tangible net assets acquired in 1998 and is being amortized on a straight-line basis over 40 years.

2. Basis of presentation and significant accounting policies (continued):

Significant accounting policies (continued):

(f) Capital assets (continued):

The Corporation has future obligations associated with the disposal of certain equipment in an environmentally responsible manner, and the restoration of leased premises to an agreed upon standard at the end of the lease. Where there is a legal obligation associated with the retirement of equipment or restoration of leases premises, the Corporation recognizes an accrual and the costs are capitalized as part of the carrying amount of the related asset and depreciated over the asset's estimated useful life.

(g) Foreign currency transactions:

Foreign currency transactions of the Corporation are translated using the temporal method. Under this method, transactions are initially recorded at the rate of exchange prevailing at the date of the transaction. Thereafter, monetary assets and liabilities are adjusted to reflect the exchange rates in effect at the consolidated statement of financial position date. Gains and losses resulting from the adjustment are included in the consolidated statement of operations.

(h) Employee future benefits:

The Corporation sponsors two defined benefit plans, one for employees and the other for executives. In addition, the Corporation sponsors a defined contribution pension plan and provides other retirement and post-employment benefits to eligible employees. Benefits provided under the defined benefit pension plans are based on a member's term of service and average earnings over a member's five highest consecutive annualized earnings.

The Corporation accrues its obligations under employee benefit plans as the employees render the services necessary to earn pension and other retirement and post-employment benefits.

The defined benefit obligations for pensions and other retirement and post-employment benefits earned by employees is measured using an actuarial valuation prepared for accounting purposes. The obligation is actuarially determined using the projected benefit method pro-rated on service and management's best estimate assumptions including discount rate, inflation rate, salary escalation, retirement ages and expected health care costs. Plan assets are measured at fair value. The measurement date of the plan assets and defined benefit obligation coincides with the Corporation's fiscal year. The most recent actuarial valuations for the employee and executive benefit pension plans for funding purposes were as of December 31, 2017 and January 1, 2020, respectively. The next required valuation for the employee and executive benefit plans will be as of December 31, 2020 and January 1, 2023, respectively. The most recent actuarial valuation of the other retirement and post-employment benefits was as of April 1, 2018 and the next valuation will be as of April 1, 2021.

2. Basis of presentation and significant accounting policies (continued):

Significant accounting policies (continued):

(h) Employee future benefits: (continued):

The defined benefit pension plan for employees is jointly sponsored by the employer and participating unions. To reflect the risk-sharing provisions of this plan, the Corporation recognizes the 50 percent of the defined benefit liability or asset that accrues to the employer.

The Corporation also has a defined contribution plan providing pension benefits. The cost of the defined contribution plan is recognized based on the contributions required to be made during each period.

Termination benefits result from either the Corporation's decision to terminate employment or an employee's decision to accept the Corporation's offer of benefits in exchange for termination of employment. The Corporation recognizes contractual termination benefits when it is probable that employees will be entitled to benefits and the amount can be reasonably estimated. Special termination benefits for voluntary terminations are recognized when employees accept the offer and the amount be reasonably estimated. Special termination benefits for involuntary terminations are recognized when management commits to a detailed plan that establishes the termination benefits, it is communicated in sufficient detail to employees, and the plan will be executed in a reasonable time such that significant changes are not likely.

(i) Financial Instruments:

Upon initial recognition, financial instruments are measured at their fair value. Financial assets and financial liabilities are recognized initially on the trade date, which is the date that the Corporation becomes a party to the contractual provisions of the instrument.

Fixed income securities are measured on the consolidated statement of financial position at amortized cost. Interest income is recognized on the accrual basis and includes the amortization of premiums or discounts on fixed interest securities purchased at amounts different from their par value.

Mortgage funds and pooled funds are measured at fair value with changes in fair value recorded directly in the consolidated statement of operations. Dividends and distributions are recorded as income when declared.

2. Basis of presentation and significant accounting policies (continued):

Significant accounting policies (continued):

(i) Financial Instruments: (continued):

Forward currency contracts not in a qualifying hedging relationship are measured at fair value with changes in fair value recorded directly in the consolidated statement of operations. A forward currency contract designated in a hedging relationship is not recognized until the earlier of the date it matures and the date of the anticipated transaction (the hedged item). The hedged item is recognized initially at the amount of consideration payable based on the prevailing foreign exchange rate on the date of goods or service receipts. At this time, any gain or loss on the forward currency contract is recognized as an adjustment of the carrying value amount of the hedged item when the anticipated transaction results in the recognition of an asset or a liability. When the hedged items are recognized directly in the consolidated statement of operations, the gain or loss on the forward currency contract is included in the same expense or revenue category.

All other financial instruments are subsequently measured at cost or amortized cost.

Transaction costs incurred on the acquisition of financial instruments measured subsequently at fair value are expensed as incurred. All other financial instruments are adjusted by transaction costs incurred on acquisition and financing cost, which are amortized using the effective interest rate method.

Transaction costs are comprised primarily of legal, accounting, underwriters' fees and other costs directly attributable to the acquisition, issuance or disposal of a financial asset or financial liability.

Financial assets measured at cost or amortized cost are assessed for indicators of impairment on an annual basis at the end of the fiscal year. If there is an indicator of impairment, the Corporation determines if there is a significant adverse change in the expected amount or timing of future cash flows from the financial asset. If there is a significant adverse change in the expected cash flows, the carrying value of the financial asset is reduced to the higher of the present value of the expected cash flows, the amount that could be realized from selling the financial asset or the amount the Corporation expects to realize by exercising its right to any collateral. If events and circumstances reverse in a future period, an impairment loss will be reversed to the extent of the improvement, not exceeding the initial carrying value.

3. Adoption of new accounting policies

The Corporation has adopted the following new Canadian Not-for-Profit Accounting Standards effective on April 1, 2019:

(i) Section 4433, to replace Section 4431, Tangible Capital Assets Held by Not-for-Profit Organizations

(ii) Section 4434, to replace Section 4432, Intangible Assets Held by Not-for-Profit Organizations

(iii) Section 4441, to replace Section 4440, Collections Held by Not-for-Profit Organizations

The key changes in these standards are the requirement for capital asset componentization and partial impairment assessments. The cost of a tangible capital asset made up of significant separable component parts will be allocated to the components when practicable and when an estimate can be made with regards to the life of the separate components. Tangible capital assets are written down to fair value or replacement cost to reflect partial impairments when conditions indicate that the assets no longer contribute to an organization's ability to provide goods and services, or that the value of future economic benefits or service potential associated with the tangible capital assets are less than their net carrying amounts.

There were no tangible asset acquisitions requiring componentization for the year-end March 31, 2020. The Corporation will apply the componentization approach for capitalization and amortization to significant tangible capital assets acquired in future years, as required under Section 4433.

The Corporation has determined that there are no indications of impairment of its intangible assets, and therefore, no need for a write-down of their net book value upon adoption of Section 4434.

The Corporation does not have assets that meet the definition of a collection under Section 4441.

The adoption of these new accounting standards did not result in any adjustments to the amounts previously reported in prior year financial statements.

4. Cash and cash equivalents:

Cash and cash equivalents include deposits with financial institutions that can be withdrawn without prior notice or penalty, and short-term notes.

Cash and cash equivalents include $6,272 (2019 - $6,308) that is restricted for captive insurance operations. Cash and cash equivalents also include Members' contributions received in advance for expenses of future periods (note 11(a)).

(In thousands of dollars)

5. Inventory:

Inventory comprises:

	2020	2019
Raw materials	$ 5,980	$ 5,239
Work-in-process	23,504	24,173
Finished goods	127,613	107,308
	$ 157,097	$ 136,720

Raw materials include supplies available for use in the collection, manufacturing and testing of fresh blood components. Work in process consists of plasma for fractionation and fresh blood components. Finished goods include plasma protein products, red blood cells, platelets and plasma for transfusion and cord blood inventory that are available for distribution to hospitals. Work in process and finished goods inventories include direct costs and overhead incurred in the collection, manufacturing, testing and distribution process.

6. Investments, captive insurance operations:

All investments are restricted for captive insurance operations. The amortized cost and fair value of investments are as follows:

	2020	2019
Measured at amortized cost:		
Fixed income securities	$ 284,143	$ 273,924
Measured at fair value:		
Mortgage funds	30,502	29,706
Pooled funds	152,752	165,410
	$ 467,397	$ 469,040

(In thousands of dollars)

7. Capital assets:

	Cost	Accumulated depreciation	2020 Net book value	2019 Net book value
Land, buildings, software and equipment				
Buildings and building components	$ 181,437	$ 61,913	$ 119,524	$ 123,856
Machinery and equipment	108,309	82,985	25,324	26,662
Land	24,006	–	24,006	24,171
Furniture and office equipment	27,252	20,400	6,852	7,121
Leasehold improvements	29,412	21,141	8,271	7,323
Computer equipment	59,137	53,187	5,950	7,849
Motor vehicles	17,193	11,933	5,260	7,101
Computer software	38,860	36,998	1,862	2,293
Equipment under capital leases	5,090	4,401	689	994
Assets under construction	63,160	–	63,160	56,873
	553,856	292,958	260,898	264,243
Right to the blood supply system	35,203	18,921	16,282	17,162
	$ 589,059	$ 311,879	$ 277,180	$ 281,405

During the current year, cash payments of $17,718 (2019 - $52,012) were made to acquire capital assets. Capital assets no longer in use with cost of $5,954 (2019 - $7,851) and accumulated amortization of $4,871 (2019 - $7,580) were sold or written off.

Cost and accumulated amortization of capital assets at March 31, 2019 amounted to $577,138 and $295,733, respectively.

8. Accounts payable and accrued liabilities:

Included in accounts payable and accrued liabilities are government remittances payable of $442 (2019 - $3,088) which include amounts payable for sales and payroll taxes.

9. Employee future benefits:

The Corporation sponsors two defined benefit pension plans, one for employees and the other for executives. In addition, the Corporation sponsors a defined contribution pension plan and provides other retirement and post-employment benefits to eligible employees.

(In thousands of dollars)

9. Employee future benefits (continued):

The Corporation's defined benefit liabilities included in the consolidated statement of financial position are comprised of the following:

	2020	2019
Defined benefit pension plans	$ 36,914	$ 53,234
Other retirement and post-employment benefit plans	32,878	39,445
Employee future benefit liability	$ 69,792	$ 92,679

(a) Defined benefit pension plans:

Information about the Corporation's defined benefit plans are combined and summarized as follows:

	2020	2019
Defined benefit obligation	$ 504,252	$ 541,788
Fair value of plan assets	432,220	438,279
Defined benefit liability before adjustment for risk sharing provisions	72,032	103,509
Adjustment for risk sharing provisions	35,118	50,275
Defined benefit liability	$ 36,914	$ 53,234

The significant actuarial assumptions adopted in measuring the Corporation's defined benefit plans, defined benefit obligation and benefit cost are summarized as follows:

	2020	2019
Defined benefit obligation:		
Discount rate	4.20%	3.30%
Inflation rate	2.00%	2.00%
Rate of compensation increases	2.50% - 3.25%	2.00% - 3.25%
Mortality Table	CPM 2014-B CPM 2014Publ-B	CPM 2014-B CPM 2014Publ-B
Benefit cost:		
Discount rate	3.30%	3.60%
Rate of compensation increases	2.00% - 3.25%	2.00% - 3.25%

(In thousands of dollars)

9. Employee future benefits (continued):

(a) Defined benefit pension plans (continued):

Other information about the Corporation's defined benefit plans is combined and summarized as follows:

	2020	2019
Employer contributions	$ 14,072	$ 14,654
Employee contributions	9,408	9,006
Benefits paid	15,296	15,894
Net expense	19,129	18,207
Remeasurement (gain) loss	(21,377)	6,002

(b) Defined contribution pension plan:

The expense for the Corporation's defined contribution pension plan was $4,027 (2019 - $4,110).

(c) Other retirement and post-employment benefits:

Information about the Corporation's other retirement and post-employment benefits is as follows:

	2020	2019
Benefits paid	$ 1,644	$ 1,757
Net expense	4,076	4,212
Remeasurement gain	(8,999)	(3,399)
Past service credit	–	(96)
Defined benefit liability	32,878	39,445

(In thousands of dollars)

9. Employee future benefits (continued):

(c) Other retirement and post-employment benefits (continued):

The significant actuarial assumptions adopted in measuring the Corporation's other retirement and post-employment defined benefit obligation and benefit cost are as follows:

	2020	2019
Defined benefit obligation:		
Discount rate	3.60% -4.20%	3.10% -3.40%
Rate of compensation increases	2.50% - 3.25%	2.00% - 3.25%
Mortality Table	CPM 2014-B CPM 2014Publ-B	CPM 2014-B CPM 2014Publ-B
Benefit cost:		
Discount rate	3.10% - 3.40%	3.30% - 3.70%
Rate of compensation increases	2.00% - 3.25%	2.00% - 3.25%

Hospital costs – 4.00% (2019 - 4.00%) per annum;

Drug costs – 6.39% (2019 - 6.50%) per annum, grading down to 4.00% (2019 - 4.00%) per annum in and after 2040 (2019 - 2040);

Other health costs – 4.00% (2019 - 4.00%) per annum.

Termination benefits have been recognized in accounts payable and accrued liabilities on the consolidated statement of financial position and in staff costs in the consolidated statement of operations. At March 31, 2020, $9,247 (2019 - $5,633) is accrued for termination benefits on the consolidated statement of financial position. During the year ended March 31, 2020, movements relating to the accrual included payments of $2,486 (2019 - $4,887), a reversal to opening accrual of $561 (2019 - $432) and the establishment of new termination benefits of $6,661 (2019 - $4,380).

10. Credit facilities:

(a) Demand operating credit:

This facility has been arranged as an operating line of credit in the amount of $100,000 and is secured by the plasma protein products inventory. At March 31, 2020, $Nil (2019 - $Nil) was outstanding under the facility.

(b) Demand installment loan:

A demand installment loan in the amount of $25,000 (2019 - $25,000) was arranged to cover contingencies or events not anticipated in the annual budget. Through March 31, 2020, no amounts had been borrowed under this facility.

(c) Standby letters of credit:

Standby letters of credit in the amount of $2,000 (2019 - $2,000) were arranged to cover municipal requirements with regard to the redevelopment of the Corporation's facilities. At March 31, 2020, $82 (2019 - $82) had been issued under the facility.

Pursuant to the arrangements above, the Corporation has provided a general security agreement in favour of the bank over receivables, inventory, equipment and machinery, a floating charge debenture over all present and future assets and property. Amounts deferred for contingency purposes are excluded from the general security agreement and debenture.

(d) Operating loan:

The Corporation has entered into two credit facilities to finance a portion of the National Facilities Redevelopment Program phase IIa (NFRP IIa) focused in Alberta and Saskatchewan. The first facility was negotiated as an $85,000 term loan reducing to $68,000 at March 30, 2019. At the completion of the project, the first facility converts to a committed term loan to a maximum of $55,300. The credit facilities are secured by first ranking on the NFRP IIa assets and any member funding received under the NFRP IIa program. Through March 31, 2020, no amounts had been borrowed under these credit facilities.

(In thousands of dollars)

11. Deferred contributions:

	2020	2019
Expenses of future periods		
Balance, beginning of year	$ 207,147	$ 216,743
Increase in amounts received related to future periods	12,144	32,957
Less amounts recognized as revenue in the year	(16,337)	(7,656)
Less capital assets purchased from deferred contributions	(10,157)	(35,809)
Add income earned on resources restricted for contingency	493	447
Add income earned on other restricted resources	479	465
	193,769	207,147
Capital Assets		
Balance, beginning of year	257,184	223,849
Deferred contributions received	17,924	53,602
Less capital assets sold	(918)	(273)
Less amounts amortized to revenue	(21,017)	(19,994)
	253,173	257,184
	$ 446,942	$ 464,331

(a) Expenses of future periods:

Deferred contributions represent externally restricted contributions to fund expenses of future periods.

The capital assets purchased represent purchases from contributions that were deferred at March 31, 2019, as well as contributions received and deferred in the year ending March 31, 2020.

(In thousands of dollars)

11. Deferred contributions (continued):

(a) Expenses of future periods (continued):

At March 31, deferred contributions comprise:

	2020	2019
Members' funding received in advance	$ 58,218	$ 62,178
Deferred contributions restricted for specific projects or programs:		
Fundraising:		
Campaign for all Canadians	968	644
Other	773	607
Programs - Members funding:		
National facilities redevelopment program	7,352	18,990
Diagnostic services - Manitoba	767	750
Inventory:		
Plasma protein products inventory working capital	47,653	47,653
Medical supplies	5,980	5,239
Fresh blood components inventory	28,477	27,964
Projects:		
Digitalization	6,733	6,578
Laboratory Information System - Manitoba	1,157	1,264
Other:		
Prepaid rent	769	1,537
Research and development	13,275	12,589
Contingency	21,647	21,154
	$ 193,769	$ 207,147

(b) Capital assets:

Funds received to acquire capital assets are recorded as deferred contributions on the consolidated statement of financial position. They are amortized to revenue in the consolidated statement of operations at the same rate as capital assets are depreciated to expenses.

(In thousands of dollars)

12. Net assets:

Net assets restricted for captive insurance purposes are subject to externally imposed restrictions stipulating that they be used to provide insurance coverage with respect to risks associated with the operations of the Corporation.

Net assets restricted for forward contracts are subject to internally imposed restrictions on the unrealized fair value of the forward currency contracts not in a qualifying hedging relationship. This restriction will be released once the forward currency contracts mature.

Unrestricted net assets comprise of the following:

	2020	2019
Accumulated pension remeasurement gains (losses)	$ 4,207	$ (26,169)
Unrestricted accumulated surplus	37,823	37,658
	$ 42,030	$ 11,489

13. Net investment income:

	2020	2019
Interest income on unrestricted funds	$ 4,227	$ 3,324
Net investment income earned on investments restricted for captive insurance	21,876	12,369
Interest income on restricted resources	967	912
	27,070	16,605
Less amounts deferred	(967)	(912)
	$ 26,103	$ 15,693

Included in net investment income earned on investments restricted for captive insurance is $15,856 (2019 - $10,965) of investment income and $6,020 (2019 - $1,404) of realized gains on sales of investments.

Year ended March 31, 2020
(In thousands of dollars)

14. Canadian Blood Services revenue and expenses detail:

	Fresh Blood Products and NFRP[1]		Plasma Protein Products and Proof of Concept Sites		Diagnostic Services		Stem Cells		Organs and Tissues		Total Canadian Blood Services		Captive Insurance Operations		Intercompany Transactions		Total Consolidated	
	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
Revenue:																		
Members' contributions	$ 425,731	$ 437,318	$ 718,216	$ 680,853	$ 17,088	$ 17,091	$ 15,200	$ 15,769	$ 3,740	$ 3,580	$ 1,179,975	$ 1,154,611	$ –	$ –	$ –	$ –	$ 1,179,975	$ 1,154,611
Federal contributions	5,501	6,202	–	–	–	–	–	–	5,657	4,246	11,158	10,448	–	–	–	–	11,158	10,448
Less amounts deferred	(27,737)	(40,718)	(6,850)	–	(63)	(232)	(1,535)	(2,715)	(3,740)	(3,709)	(39,925)	(47,374)	–	–	–	–	(39,925)	(47,374)
	403,495	402,802	711,366	680,853	17,025	16,859	13,665	13,054	5,657	4,117	1,151,208	1,117,685	–	–	–	–	1,151,208	1,117,685
Amortization of previously deferred contributions:																		
Relating to capital assets	21,935	20,267	–	–	–	–	–	–	–	–	21,935	20,267	–	–	–	–	21,935	20,267
Relating to operations	7,800	4,082	4,702	–	95	4	–	–	3,740	3,570	16,337	7,656	–	–	–	–	16,337	7,656
Total contributions recognized as revenue	433,230	427,151	716,068	680,853	17,120	16,863	13,665	13,054	9,397	7,687	1,189,480	1,145,608	–	–	–	–	1,189,480	1,145,608
Gross premiums written and earned	–	–	–	–	–	–	–	–	–	–	–	–	410	861	(410)	(861)	–	–
Net investment income	4,227	3,324	–	–	–	–	–	–	–	–	4,227	3,324	21,876	12,369	–	–	26,103	15,693
Stem cells revenue	–	–	–	–	–	–	16,840	15,585	–	–	16,840	15,585	–	–	–	–	16,840	15,585
Other income	1,333	687	155	196	–	–	11	6	831	894	2,330	1,783	–	–	–	–	2,330	1,783
Total revenue	438,790	431,162	716,223	681,049	17,120	16,863	30,516	28,645	10,228	8,581	1,212,877	1,166,300	22,286	13,230	(410)	(861)	1,234,753	1,178,669
Expenses:																		
Cost of plasma protein products	–	–	683,752	656,351	–	–	–	–	–	–	683,752	656,351	–	–	–	–	683,752	656,351
Staff costs	280,682	271,708	4,094	2,016	12,251	12,764	8,232	8,575	6,216	5,945	311,475	301,008	–	–	–	–	311,475	301,008
General and administrative	111,138	114,162	5,294	2,281	1,366	1,183	21,265	18,006	4,012	2,636	143,075	138,268	2,061	2,375	(410)	(861)	144,726	139,782
Medical supplies	52,500	51,731	795	772	3,503	2,916	1,054	2,164	–	–	57,852	57,583	–	–	–	–	57,852	57,583
Losses and loss expenses incurred	–	–	–	–	–	–	–	–	–	–	–	–	50,000	–	–	–	50,000	–
Depreciation and amortization	21,017	19,994	–	–	–	–	–	–	–	–	21,017	19,994	–	–	–	–	21,017	19,994
Foreign exchange loss (gain)	53	(33)	(4,312)	(6,771)	–	–	(35)	(100)	–	–	(4,294)	(6,904)	–	–	–	–	(4,294)	(6,904)
Transfer of recovered plasma costs	(26,600)	(26,400)	26,600	26,400	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total expenses	438,790	431,162	716,223	681,049	17,120	16,863	30,516	28,645	10,228	8,581	1,212,877	1,166,300	52,061	2,375	(410)	(861)	1,264,528	1,167,814
(Deficiency) excess of revenue over expenses before the undernoted	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**(29,775)**	**10,855**	**–**	**–**	**(29,775)**	**10,855**
Change in cumulative fair value of forward currency contracts	–	–	6,495	297	–	–	–	–	–	–	6,495	297	–	–	–	–	6,495	297
Change in fair value of investments measured at fair value	–	–		–	–	–	–	–	–	–	–	–	(17,621)	977	–	–	(17,621)	977
(Deficiency) excess of revenue over expenses	**$ –**	**$ –**	**$ 6,495**	**$ 297**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ 6,495**	**$ 297**	**$ (47,396)**	**$ 11,832**	**$ –**	**$ –**	**$ (40,901)**	**$ 12,129**

(1) National facilities redevelopment program

(In thousands of dollars)

15. Fresh blood products and national facilities redevelopment program details:

	Fresh Blood Products		National Facilities Redevelopment Program		Total	
	2020	2019	2020	2019	2020	2019
Revenue:						
Members' contributions	$ 419,638	$ 431,225	$ 6,093	$ 6,093	$ 425,731	$ 437,318
Federal contributions	5,501	6,202	–	–	5,501	6,202
Less amounts deferred	(21,644)	(34,625)	(6,093)	(6,093)	(27,737)	(40,718)
	403,495	402,802	–	–	403,495	402,802
Amortization of previously deferred contributions:						
Relating to capital assets	21,450	20,267	485	–	21,935	20,267
Relating to operations	1,639	1,704	6,161	2,378	7,800	4,082
Total contributions recognized as revenue	426,584	424,773	6,646	2,378	433,230	427,151
Net investment income	3,827	2,368	400	956	4,227	3,324
Other income	1,333	687	–	–	1,333	687
Total revenue	431,744	427,828	7,046	3,334	438,790	431,162
Expenses:						
Staff costs	277,751	270,703	2,931	1,005	280,682	271,708
General and administrative	107,120	111,868	4,018	2,294	111,138	114,162
Medical supplies	52,403	51,696	97	35	52,500	51,731
Depreciation and amortization	21,017	19,994	–	–	21,017	19,994
Foreign exchange loss (gain)	53	(33)	–	–	53	(33)
Transfer of recovered plasma costs	(26,600)	(26,400)	–	–	(26,600)	(26,400)
Total expenses	431,744	427,828	7,046	3,334	438,790	431,162
Excess of revenue over expenses	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**	**$ –**

16. Financial instruments:

Risk management:

The Board of Directors has responsibility for the review and oversight of the Corporation's risk management framework and general corporate risk profile. Through its committees, the Board oversees analysis of various risks facing the organization that evolve in response to economic conditions and industry circumstances.

The Corporation's financial instruments consist of cash and cash equivalents, members' contributions receivable, other amounts receivable, investments, accounts payable and accrued liabilities, and forward currency contracts.

The Corporation is exposed to risks as a result of holding financial instruments. The Corporation does not enter into transactions involving financial instruments, including derivative financial instruments such as forward currency contracts, for speculative purposes. The following is a description of those risks and how they are managed.

(In thousands of dollars)

16. Financial instruments (continued):

Risk management (continued):

(i) Market risk:

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: interest rate risk, foreign currency risk and other price risk. These risks are discussed below:

Interest rate risk:

Interest rate risk pertains to the effect of changes in market interest rates on the future cash flows related to the Corporation's existing financial assets and liabilities.

The Corporation is exposed to interest rate risk on its cash and cash equivalents and investments. At March 31, 2020, this exposure was minimal due to low prevailing rates of return and due to majority of fixed income investments having fixed rates.

Foreign currency risk:

Foreign currency risk is the risk that the value or future cash flows of financial instruments will fluctuate as a result of changes in foreign exchange rates. The Corporation is exposed to foreign currency risk on purchases that are denominated in currencies other than the functional currency of the Corporation. To mitigate this risk, the Corporation has a formal foreign currency policy in place. The objective of this policy is to monitor the marketplace and, when considered appropriate, fix exchange rates using forward contracts to reduce the risk exposures related to purchases made in foreign currencies. Generally, forward currency contracts are for periods not in excess of twenty months.

Excluding the investments held by the CBS Insurance Company Limited, at March 31, the Corporation had the following instruments denominated in U.S. dollar (USD):

	2020 CDN		2019 CDN	
	Carrying value	Fair value	Carrying value	Fair value
Financial assets:				
Cash	$ 2,392	$ 2,392	$ 916	$ 916
Accounts receivable	–	–	53	53
Financial liabilities:				
Accounts payable and accrued liabilities	(10,160)	(10,160)	(12,256)	(12,256)
Forward currency contract assets:				
Designated as hedges	–	27,497	–	10,956
Not designated as hedges	11,044	11,044	4,549	4,549

16. Financial instruments (continued):

Risk management (continued):

(i) *Market risk (continued):*

Foreign currency risk (continued):

During the years ended March 31, 2020 and 2019, the Corporation entered into forward currency contracts to hedge its foreign currency exposure on a substantial portion of its USD purchases of plasma protein products. The contracts are intended to match the timing of the anticipated future payments in foreign currencies.

At March 31, 2020, forward currency contracts in the amount of USD $316,100 (2019 - USD $274,406) were designated as being in a hedging relationship with the equivalent amount of the 2020-2021 future forecasted plasma protein product payments. Hedge accounting has been applied in accordance with CPA Canada Handbook - Accounting, Section 3856, as these hedges are considered to be effective. The forward currency contracts designated as hedges mature monthly from April 2020 through March 2021 (2019 - April 2019 through March 2020), at an average rate of 1.32 (2019 - 1.29). The USD purchased under the hedging forward currency contracts will be used to pay USD $26,342 per month (2019 - USD $22,867) of USD plasma protein product purchases, creating a net cost for these products that fixes the foreign exchange rate to 1.32 (2019 - 1.29).

The forward currency contracts included on the consolidated statement of financial position represent forward currency contracts that have not been designated in a hedging relationship. The contracts fix the currency rate at 1.32 (2019 - 1.29) on USD $132,000 (2019 - USD $117,602) notional amount and one twelfth of the non-designated forward currency contracts mature monthly from April 2020 through March 2021. These forward currency contracts are recorded at fair value. The fair value of the forward currency contracts is determined using a quote from its forward exchange dealers.

In addition to operational foreign currency risk, investments held by CBS Insurance Company Limited denominated in currencies other than the Canadian dollar expose the Corporation to fluctuations in foreign exchange rates. Fluctuations in the relative value of foreign currencies against the Canadian dollar can result in a significant impact on the fair value of investments. The Corporation's exposure to foreign currency arises from its investment of $111,033 in pooled funds (2019 - $116,406) which hold international equities and global fixed income of which $106,799 (2019 - $111,492) is denominated in foreign currencies.

16. Financial instruments (continued):

Risk management (continued):

(i) Market risk (continued):

Other price risk:

Other price risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices (other than those arising from interest rate risk or foreign exchange risk), whether those changes are caused by factors specific to the individual financial instrument or its issues, or factors affecting similar financial instruments traded in the market.

The Corporation is exposed to other price risk on its mortgage funds and pooled funds due to changes in general economic or stock market conditions, and specific price risk which refers to equity price volatility that is determined by entity specific characteristics. These risks affect the carrying value of these securities and the level and timing of recognition of gains and losses on securities held, causing changes in realized and unrealized gains and losses. The Corporation mitigates price risk by holding a diversified portfolio. The portfolio is managed through the use of third party investment managers and their performance is monitored by management and the Board of Directors of the captive insurance operations.

(ii) Credit risk:

The Corporation is exposed to the risk of financial loss resulting from the potential inability of a counterparty to a financial instrument to meet its contractual obligations. The carrying amount of cash and cash equivalents, Members' contributions receivable and other amounts receivable, forward currency contracts, and investments, captive insurance operations represent the maximum exposure of the Corporation to credit risk.

Cash and cash equivalents are mainly held with Canadian financial institutions rated by Standard & Poor's credit rating as A+ with a negative outlook and short-term notes consisting of Canadian treasury bills. All forward currency contracts must be transacted with Schedule I or Schedule II financial institutions as per the Corporation's foreign currency policy.

The Corporation is also exposed to credit risk on fixed income securities investments. The investment policy requires an average credit rating of 'A' on the credit quality of its fixed income portfolio, related to captive insurance operations.

Members' contributions receivable are current in nature and management considers there to be minimal exposure to credit risk from Members due to funding agreements in place and third party Member credit ratings. Standard & Poor's available credit ratings for Members range from A credit watch stable to AAA credit watch stable.

16. Financial instruments (continued):

Risk management (continued):

(ii) Credit risk (continued):

Other amounts receivable consists primarily of amounts due from federal and provincial agencies and is considered to be low credit risk. The carrying amount of amounts receivable for these parties represents the Corporation's maximum exposure to credit risk.

(iii) Liquidity risk:

Liquidity risk is the risk that the Corporation will not be able to meet its financial obligations as they fall due. The Corporation's approach to managing liquidity is to evaluate current and expected liquidity requirements to ensure that it maintains sufficient reserves of cash and cash equivalents. In addition, the Corporation has credit facilities described in note 10 that it can draw on as required.

At March 31, 2020, the Corporation's accounts payable and accrued liabilities and forward currency contracts are all due within one year.

The provision for future claims has no contractual maturity and the timing of settlement will depend on actual claims experience in the future.

The liabilities for employee future benefits are generally long-term in nature and fall due as eligible employees in the Corporation's defined benefit pension plans retire or terminate employment with the Corporation.

17. Captive insurance operations:

The Corporation has established two wholly-owned captive insurance subsidiaries, CBS Insurance Company Limited (CBSI) and Canadian Blood Services Captive Insurance Company Limited/ Compagnie d'assurance captive de la société canadienne du sang limitée (CBSE). CBSI provides insurance coverage up to $300,000 with respect to risks associated with the operation of the blood system. CBSE has entered into an arrangement whereby the Members have agreed to indemnify CBSE for all amounts payable by CBSE under the terms of the excess policy up to $700,000, which is in excess of the $300,000 provided by CBSI. No payment shall be made under CBSE until the limit of the liability under the primary policy in CBSI, in the amount of $300,000, has been exhausted. As a result, the Corporation has $1,000,000 total in coverage. Prior to April 1, 2019, the insurance coverage provided by CBSI was up to $250,000 and the excess insurance coverage provided by CBSE was up to $750,000. This change resulted in an increase to the provision for future claims by $50,000 and a corresponding expense was recognized in the Consolidated Statement of Operations during the year ended March 31, 2020.

17. Captive insurance operations (continued):

The provision for future claims is an actuarially based estimate of the cost to the Corporation of settling claims relating to insured events (both reported and unreported) that have occurred to March 31, 2020 and 2019, respectively.

A significant proportion of both the future claims expense for the period and the related cumulative estimated liability of the Corporation for these future claims at March 31, 2020, of $300,000 (2019 - $250,000) covers the manifestation of blood diseases, which is inherently difficult to assess and quantify. There is a variance between these recorded amounts and other reasonably possible estimates.

18. Guarantees and contingencies:

(a) Guarantees:

In the normal course of business, the Corporation enters into lease agreements for facilities and assets acquired under capital leases. In the Corporation's standard commercial lease for facilities the Corporation, as the lessee, agrees to indemnify the lessor and other related third parties for liabilities that may arise from the use of the leased premises where the event triggering liability results from a breach of a covenant, any wrongful act, neglect or default on the part of the tenant or related third parties. However, this clause may be altered through negotiation. In the Corporation’s assets acquired under capital leases both the lessee and the lessor agree to indemnify each other for death or injury to the employees or agents of either party, where the event triggering liability results from negligent acts, omissions or willful misconduct.

The maximum amount potentially payable under any such indemnities cannot be reasonably estimated. The Corporation has liability insurance that relates to the indemnifications described above.

Historically, the Corporation has not made significant payments related to the above-noted indemnities and, accordingly, no liabilities have been accrued in the consolidated financial statements.

(b) Contingencies:

The Corporation is party to legal proceedings in the ordinary course of its operations. In the opinion of management, the outcome of such proceedings will not have a material adverse effect on the Corporation’s financial statements or its activities. Claims and obligations related to the operation of the blood supply system prior to September 28, 1998, and the Canadian Council for Donation and Transplantation prior to April 1, 2008, are not the responsibility of the Corporation.

(In thousands of dollars)

19. Commitments:

At March 31, 2020, the Corporation had the following contractual commitments:

	Vendor commitments	Research and development grants	Operating leases	Total
2020-2021	$ 120,352	$ 1,933	$ 7,111	$ 129,396
2021-2022	1,410	1,144	6,044	8,598
2022-2023	–	212	4,855	5,067
2023-2024	–	–	3,080	3,080
2024-2025	–	–	2,419	2,419
Thereafter	–	–	3,024	3,024
Total	$ 121,762	$ 3,289	$ 26,533	$ 151,584

The research and development grants are funded by contributions included in deferred contributions for future expenses.

20. Research and development:

For the year ended March 31, 2020, the Corporation incurred $12,605 (2019 - $12,925) of expenses related to research and development. These costs are reported in note 14 and 15 under Fresh Blood Products and National Facilities Redevelopment Program and are included in general and administrative and staff costs.

21. Related party transactions:

The Members provide funding for the operating budgets of the Corporation. The Corporation enters into other transactions with these related parties in the normal course of business.

University Health Network (UHN) is an entity controlled by our Ontario Member and as a result, UHN and Canadian Blood Services are related parties. Upon creation of the Corporation, certain land and buildings were purchased from Canadian Red Cross. One of the land and building purchases resulted in the transfer of an existing agreement containing certain restrictions benefiting UHN. These restrictions included a provision for free rental space for UHN and a requirement that, upon sale of the land and building, UHN would be provided a put option to purchase the land and building for $1, or at the end of the term of the agreement in 2029, UHN could execute a call option to purchase the land and building for $1. For the year-ended March 31, 2020, no value was assigned to the UHN free rent or the put or call options.

21. Related party transactions (continued):

Effective April 1, 2020, the ownership of the land and building were transferred to UHN from Canadian Blood Services for $1. On April 1, 2020, this transaction resulted in a decrease to capital assets, deferred contributions and net assets invested in capital of approximately $12 million, $9 million and $3 million, respectively. In addition, effective April 1, 2020, UHN is providing Canadian Blood Services rental space at this same building for a nominal consideration for a period of 10 years, with an option to renew for up to 10 additional years. For the year-ended March 31, 2021, Canadian Blood Services will record the rent expense at the notional value paid to UHN.

Transactions with the defined contribution pension plan, the two defined benefit pension plans, and the other defined retirement and post-employment benefits plan are conducted in the normal course of business. The transactions with these plans consist of contributions as disclosed in note 9, as well as administrative charges totaling $107 (2019 - $66). At March 31, 2020, the net amount due from the Corporation's pension plans is $659 (2019 - $294).

22. Capital disclosures:

The Corporation is a non-share capital corporation and plans its operations to essentially result in an annual financial breakeven position. The Corporation considers its capital to be the sum of its net assets. This definition is used by management and may not be comparable to measures presented by other entities. The Corporation manages capital through a formal and approved budgetary process where funds are allocated following the underlying objectives below:

(a) to provide a safe, secure, cost-effective and accessible supply of blood and blood products, including red blood cells, platelets, cord blood, and plasma protein products, to all Canadians. The Corporation also provides the management of donor registries for stem cells, cord blood stem cells and organs, diagnostic services in certain parts of Canada, and research and development;

(b) to support the Corporation's ability to continue as a going concern;

(c) to meet regulatory and statutory capital requirements related to captive insurance operations; and

(d) to ensure the funding of working capital requirements.

The Corporation evaluates its accomplishment against its objectives annually. The Corporation has complied with all externally imposed capital requirements and there were no changes in the approach to capital management during the period.

The Corporation's captive insurance operations are required to maintain statutory capital and surplus greater than a minimum amount determined as the greater of a percentage of outstanding losses or a given fraction of net written premiums. At March 31, 2020, the Corporation's captive insurance operations were required to maintain a minimum statutory capital and surplus of $44,987 (2019 - $37,500). The actual statutory capital and surplus was $181,824 (2019 - $234,453) and the minimum margin of solvency was therefore met.

22. Capital disclosures (continued):

The Corporation's captive insurance operations were also required to maintain a minimum liquidity ratio whereby the value of its relevant assets is not less than 75% of the amount of its relevant liabilities. At March 31, 2020, the Corporation's captive insurance operations were required to maintain regulatory assets of at least $225,177 (2019 - $188,939). At that date, regulatory assets were $482,060 (2019 - $486,371) and the minimum liquidity ratio was therefore met. The value of regulatory assets differs from that reported on the consolidated statement of financial position as it is determined under a different accounting framework, *International Financial Reporting Standards*.

23. Statutory disclosures:

As required under the Charitable Fundraising Act of Alberta, included in staff costs is $774 (2019 - $853) paid as remuneration to employees whose principal duties involve fundraising.

24. Reclassification:

Certain 2019 comparative information has been reclassified to conform with the consolidated financial statements presentation adopted in the current year.

During the year ended March 31, 2019, the Corporation recorded a transfer of unrestricted net assets to net assets restricted for captive insurance in the amount of $2,421 to adjust the balances for the impact of intercompany eliminations recorded on consolidation in prior years. This reclassification had no impact on the consolidated statement of operations.

25. Impact of COVID-19:

In March 2020, the COVID-19 outbreak was declared a pandemic by the World Health Organization. This resulted in governments worldwide, including the Canadian federal and provincial governments, enacting emergency measures to combat the spread of the virus. The outbreak of COVID-19 and related global responses have caused material disruptions to the businesses around the world, leading to an economic slowdown.

The market volatility created by the COVID-19 pandemic has resulted in a decline in the value of investments, mainly on the equity funds. This impacts the investments held by Canadian Blood Services wholly-owned captive insurance corporations CBSI and CBSE, and the investment assets held in the defined benefit pension plans. The situation is dynamic and the ultimate duration and magnitude of the impact on the economy and the financial effect on the Company is not known at this time. These impacts could include fluctuations in the fair value of the investments, future declines in investment income and fluctuations in the employee future benefits liability.

The impact of COVID-19 on the healthcare system has also resulted in the cancellation and delay of several surgeries across Canada, which led to a reduction in demand for red blood cells.

25. Impact of COVID-19 (continued):

The ultimate duration and magnitude of the COVID-19 pandemic's impact on the Corporation's operations and financial position is not known at this time. These impacts could include a decline in future cash flows, changes to the value of assets and liabilities, and the use of the Corporation's $20 million cash contingency fund, the $20 million contingency insurance policy held with CBSI and accumulated net assets to sustain operations. An estimate of the financial effect of the pandemic on the Corporation is not practicable at this time.

Canadian Blood Service

BLOOD
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STEM CELLS
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& TISSUES

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