THE FIGHT

For a Healthier Tomorrow

2022 Community Impact Statement
Pursuing Science in the Service of Humanity

New York Blood Center Enterprises
My Memaw inspired me to give blood for the first time when I was 20 years old. We were in the American Legion together and loved to give back to the community and help whenever we could. I love to give…it’s my way of serving with a purpose.

The staff at Blood Bank of Delmarva are like a second family. Almost everyone knows me by name.

April Miller
Kohl’s Associate & Kohl’s Cares Captain
Historically, Community Blood Center (CBC), a division of New York Blood Center Enterprises (NYBCe), has received 70% of its blood (red cell) collections from mobile drives at businesses, schools, and churches and 30% from dedicated collection centers. Over the past two years, though, these numbers have shifted. Now, CBC receives half of its red cell collections from mobile operations and half from collection centers. And with more organizations committing to telecommuting full-time due to the ongoing COVID-19 pandemic, this 50/50 split is likely to continue. That means CBC’s mobile blood donor recruitment teams are spending twice the effort to collect half the amount.

Similar changes have occurred at NYBCe’s five blood center divisions: New York Blood Center (NYBC), Blood Bank of Delmarva (BBD), Memorial Blood Centers (MCB), Nebraska Community Blood Bank (NCBB), and Rhode Island Blood Center (RIBC).

New York’s healthcare system requires 1,500 blood donations every day to meet patients’ clinical treatment needs, including trauma victims, newborn babies and their mothers, cancer patients, and others. However, with the severe decrease in local blood drives, blood donations are at just 65% of pre-pandemic levels. Likewise, 100,000 donors still haven’t returned to donate since the pandemic.

Other factors, such as COVID-19 variant surges and inclement weather, can also cause supply shortages. Meanwhile, the need for blood does not stop.
While the need to replenish the nation’s blood supply is paramount, we also have to think about the lasting effect the COVID-19 pandemic could have on donor recruitment.

As repeat volunteer blood donors age and stop giving, NYBCe must recruit younger donors to replace them. If these younger generations aren’t introduced to blood donation through mobile blood drives at schools and other community groups, then the future of a reliable blood supply may be in jeopardy.

According to a report published by NYBCe and the Association of Donor Relations Professionals (ADRP), 20% of the U.S.’s overall donor base consisted of 16- to 18-year-olds before the pandemic.
There’s no denying the critical importance of mobile blood drives and donor recruitment to the national blood supply.

Now more than ever, NYBCe needs the community’s help to replenish the nation’s blood supply through blood donations and raise critical funds to support our donor recruitment efforts, groundbreaking blood research, and daily operations.

With your support, we can serve communities on a local, national, and international scale — not just today but for generations. Together, we can achieve a healthier tomorrow.
New York Blood Center (NYBC) was founded in 1964 to fulfill a four-part mission: provide high-quality blood products and stem cell services, conduct innovative research, develop new products and technologies that make a humanitarian impact, and train the next generation of industry leaders.

Today, this mission remains the same — except the blood center leverages the power of New York Blood Center Enterprises. Comprising nine total divisions, NYBCe amplifies the blood center’s work to serve communities beyond New York City.
Throughout our 50+ year legacy, NYBCe has served more than 75 million patients and over 600 hospitals in the Tri-State area (NY, NJ, CT), Mid Atlantic area (PA, DE, MD, VA), Missouri and Kansas, Minnesota, Nebraska, Rhode Island, and Southern New England. Annually, we provide more than 450,000 laboratory and multi-assay infectious disease tests and over 12,500 specialty clinical procedures to hospitals nationwide. Our investigators have also published over 4,000 scholarly articles in scientific journals in collaboration with colleagues at world-renowned institutions. Through these partnerships, and our numerous landmark patents and licenses, we’re continuously shaping the landscape of global healthcare and scientific discovery.
Since the inception of NYBCe in 1964, the organization has operated in times of crisis, such as 9/11 and Hurricane Sandy. However, the unanticipated complexity of operating through a pandemic and quarantine requires strong leadership, organizational unity, creativity, dedication, and perseverance.

President and CEO Christopher D. Hillyer, MD, has built on NYBCe’s 55+ years of experience to develop strategies that address the unique considerations of a pandemic and quarantine. The organization’s Executive Team and Transfusion Medicine experts joined forces to ensure the safety of staff, blood donors, and blood supply levels. Dr. Hillyer implemented an interdepartmental task force to plan for continuing operations while addressing safety for blood collection sites and corporate offices across all operational areas.

In 2021, he was named to New York’s “Power Players in Health Care” list and was an honoree on City & State Magazine’s “Health Power 100” for his exceptional and visionary leadership, which has been crucial to NYBCe’s ability to save lives during the COVID-19 pandemic and beyond.

Throughout his career, Dr. Hillyer has authored more than 25 issued and pending U.S. and international patents, served as Clinical Investigator, Program Director, Principal and Co-Principal Investigator, and Mentor on more than 65 sponsored research and clinical studies, authored/edited more than 200 scientific papers and articles, 75 book chapters, and 12 books, and secured more than $70 million in grant funding to advance the study of blood and blood products, transfusion medicine, vaccines, and cell therapies.
From organ transplants to heart surgeries, blood transfusions are among the most common medical procedures. Today’s advanced medical care relies on an ample and readily available blood supply. When a person donates one unit of blood, it can be separated into individual components to save multiple lives.

Plasma, for example, helps patients with blood diseases, low platelet counts, or non-functioning platelets at high risk of bleeding, such as chemotherapy and bone marrow transplant patients. On the other hand, platelets are essential to ensuring a patient’s blood can clot when needed and contain growth factors that help repair damaged body tissue.

On average, NYBCe strives to collect 4,000 units of blood each day and distributes almost 1 million blood products annually through on-site donor centers and mobile blood drives. As the COVID-19 pandemic threatens the national blood supply, we rely on financial gifts to support our donor recruitment efforts.

**DID YOU KNOW?**

1 in 3 people will need a blood transfusion in their lifetime.
1. Donor Site Procurement & Development
Because blood drives are crucial to increasing blood collections, a portion of donations to NYBCe support the procurement of additional donor sites. With the community’s support, we can establish fixed sites in high-traffic areas around our Center East headquarters, including the Bronx, Lower Manhattan, and Queens.

A donated location with the opportunity for a long-term lease is optimal. However, individual and corporate donations are crucial and will help us maintain and expand these static blood donor sites through building upgrades, signage, privacy screens, underwriting, naming rights, and sponsorships.

2. Blood Donor Recruitment
Donor outreach is also integral to the expansion of blood collections. The Enterprise uses various communication methods such as social and digital communications, TV, billboards, video production, and direct mail to reach and schedule repeat blood donors. These messages also help NYBCe target specific age groups, including younger generations, that can help us maintain our donor base.

On average, it costs $5 to connect and schedule an appointment with one new blood donor. If each unit of blood benefits three patients, that means a simple $5 donation has the potential to help three patients in need. This impact increases with the size of the gift.

Twenty-five dollars, for example, has the potential to bring in five donors whose blood could benefit 15 patients. Fifty dollars could bring in 10 donors and help 30 patients. Now, imagine how far $100 or more could go.

3. Scholarships, Education & Awareness
As mentioned previously, the number of 16- to 18-year-olds donating blood in the U.S. decreased by 46.5% between 2019 and 2020. Therefore, to address the long-term impact of this trend on the nation’s blood supply, we must invest in initiatives that teach younger populations how blood donation supports the health of the community.

NYBCe scholarships such as the High School Scholarship Program, the Bloodstock® Scholarship Program, and the Little Doctor’s Program® work with local youth to demonstrate the importance of volunteerism and community service. They also emphasize the importance of blood donations and reward students for organizing their own blood drives.

Scholarships aren’t the only way NYBCe inspires youth to become the next generation of blood donors. Funds also go towards producing and distributing educational videos like this one, which emphasize the need for healthy blood donors.

Finally, our donor base must reflect our community. When you give to NYBCe, you support initiatives that raise awareness about the value of blood donations within diverse populations and communities of color.
Ryan P.
Cancer Survivor

Like other 25-year-olds, Ryan thought he was immortal, even as his health began declining rapidly. He put off visiting his doctor until, one day, he nearly went completely blind and deaf.

His doctor ran a few tests and diagnosed Ryan with leukemia, a severe type of blood cancer. The young man was eventually cured thanks to a bone marrow transplant from his brother — but not before Ryan received between 200 and 300 units of blood.

Ryan was grateful for the exceptional medical care he received and all the donors who made all his blood transfusions possible. "Fast forward to now after 99 rounds of chemotherapy, and my hair is back," he explains. "It's a different color now, but I'm flying again. Sailing again. I'm alive because of those donations."

Gillian G.
Maternal Hemorrhage Survivor

On October 6, 2014, Gillian woke up with intense pain. She was rushed to Lenox Hill Hospital, where doctors discovered the expectant mother had suffered a placental abruption, a condition in which the placenta tears away from the uterus, causing immense blood loss for the mother and baby.

Physicians performed an emergency hysterectomy to stop the bleeding and save Gillian’s life. Her baby, they explained, did not survive.

Gillian required 86 blood, platelet, and plasma products that day — products that Lenox Hill Hospital had received from New York Blood Center.

Gillian and her husband celebrate their son — and acknowledge how Gillian’s life was saved — by giving blood each year on his birthday.

“The fact that they could find enough blood to keep me alive, there’s no way I cannot be part of that process,” Gillian told Lenox Hill. “I’m living proof of why blood donation should not be taken lightly.”
ON THE FOREFRONT OF BLOOD RESEARCH

We seek to conduct innovative research and develop new products and technologies that make a humanitarian impact. With assistance from financial gift-givers and investors, NYBCe’s Lindsley F. Kimball Research Institute (LFKRI) can continue to control the spread of infectious diseases and deepen our understanding of various blood disorders.

Investing in NYBCe’s research serves an immediate need to understand key areas of study such as:

• **Transfusion Medicine**: Developing new molecular approaches and tools to advance safer transfusions.

• **Infectious Disease**: Discovering new vaccines and developing prevention strategies against infectious diseases.

• **Hematology**: Elucidating the molecular and cellular basis of hematological disorders.

• **Epidemiology**: Conducting behavioral, biomedical, clinical, and transfusion epidemiology, blood safety surveillance, and statistical and data analysis.

• **Cell Therapy**: Defining the utility of stem cells in transplantation and regenerative medicine.

LFKRI leverages NYBCe resources and the highest caliber research scientists to integrate basic, clinical, and translational research, thus paving the way for new blood-related products, techniques, and therapies that improve patient outcomes.
Heparin is an anticoagulant used in hospitalized patients and most cardiac surgical procedures. Heparin-Induced Thrombocytopenia (HIT) and subsequent thrombosis (HITT) are severe complications of heparin therapy resulting in the blockage of blood vessels. The consequences of HITT are dire and can cause blood clots to form within the blood vessels, resulting in limb amputations, strokes, heart attacks, and death.

Current drugs used for treating HIT/HITT are generally not very effective. They have safety issues regarding bleeding, while the newer oral anticoagulants currently on the market have FDA boxed warnings regarding increased risk of thrombotic events.

Under the leadership of Senior Vice President and Enterprise Chief Medical Officer, Bruce Sachais, MD, PhD, the Platelet Research Laboratory focuses on improved diagnosis and novel therapeutics for heparin-induced thrombocytopenia/thrombosis (HITT). Dr. Sachais’ research has identified a novel approach to the treatment and prevention of HIT that directly addresses the disorder’s pathophysiology with little or no increased risk of bleeding and has good drug properties for IV administration.

This research aims to request authorization from the Food and Drug Administration (FDA) to administer this preclinical, investigational drug to humans and seeks pharmaceutical partnership(s) to do so.
Sickle cell disease is an inherited red cell disorder affecting an estimated 100,000 individuals in the U.S and millions worldwide. It’s caused by a single genetic mutation that affects the shape of the oxygen-carrying red blood cells, making it difficult for them to get through small blood vessels. The cells clog blood flow and cut off oxygen delivery to the organs.

Studies led by LFKRI’s Karina Yazdanbakhsh, PhD, have found that the hemolytic stress resulting from hemoglobin and its byproducts can alter the behavior of major immune cell types and cells in the bone marrow, worsening the sickle cell complications. These same cell types are impacted by transfusions, a lifesaving treatment for patients with sickle cell disease.

Our goal is to fill the gaps in our knowledge to advance our understanding of transfusion outcomes, focusing on the role of hemolysis and developing novel approaches to improve transfusion efficacy for those with the disorder.

"We strive to understand at the molecular level how transfusions can switch these key immune cells and bone marrow cells to function normally and to discover new transfusion protocols and combination therapies to reverse the hemolytic insult in sickle cell disease."

Karina Yazdanbakhsh, PhD
Head, Laboratory of Complement Biology
Controlling the spread of HIV is no small feat. To do so, NYBCe’s Laboratory of Infectious Disease Prevention conducts intervention trials to develop innovative ways to help participants reduce their risk of HIV infection. It also runs studies spanning all phases of HIV vaccine research as part of an international effort to find a preventive HIV vaccine. Vaccine trials are conducted in collaboration with Columbia University Medical Center.

The Laboratory of Infectious Disease Prevention is a leader in HIV and infectious disease epidemiology and prevention research led by Dr. Hong Van Tieu. With the continued effort in community outreach and concern for the underrepresented community, Dr. Tieu conducts her epidemiology and clinical studies and community engagement through the research site, Project ACHIEVE.

As part of the global response to COVID-19 caused by the SARS-CoV-2 virus, Dr. Tieu and Project ACHIEVE team are also part of the clinical trials program devoted to finding effective ways to prevent COVID-19 infection in the population most impacted by COVID-19 and recruiting more participants.

We are at the forefront of exciting research evaluating vaccines and monoclonal antibodies to prevent HIV and COVID-19, two pandemics that share similar challenges with inequity and intersecting stigma.

Hong Van Tieu, MD, MS
Head, Laboratory of Infectious Disease Prevention
Babesiosis can be a life-threatening infection of the red blood cells usually spread by ticks. It’s caused by tiny parasites that enter a human’s bloodstream when an infected deer tick bites them. From a blood safety perspective, transfusion-transmitted infections involving Babesia species have become increasingly problematic worldwide, with increased cases causing morbidity and mortality reported each year. The study of this blood-borne parasite is considered a research priority as the human-to-human transmission of the Babesia parasite is well recognized to occur through blood transfusion.

The Laboratory of Blood-Borne Parasites, led by LFKRI’s Cheryl Lobo, PhD, studies the Babesia parasite to deepen our understanding of its invading molecules and proteins and develop novel therapies for treating the infection and screening blood donors for the Babesia infection.

Subsequently, transfusion-transmitted pathogens such as Babesia can pose a significant morbidity and mortality threat to sickle cell disease recipients due to hemolytic complications. Dr. Lobo and her teams’ goal is to explain the higher degree of hemolysis seen in these infected patients. Because NYBCe has access to many reagents that are not available to anyone else, we can continue to protect the nation’s blood supply.

We believe that our research, focusing on babesia as a model parasite for blood-borne infections will create a standpoint from where other infectious threats to the blood can be addressed and believe that hemolysis is a common theme in the pathogenesis of many infectious diseases. So, results from our research can have implications for hemolytic complications caused by other infectious agents.

Cheryl Lobo, PhD
Head, Laboratory of Blood-Borne Parasites
Anemia, a condition in which an individual lacks enough healthy red blood cells to carry adequate oxygen to their body’s tissues, is a major health problem affecting millions of individuals worldwide. Anemia has three leading causes: blood loss, lack of red blood cell production, and high rates of red blood cell destruction.

Thalassemias are inherited blood disorders. If you have one, your body makes fewer healthy red blood cells and less hemoglobin. These disorders can be mild or severe in which some individuals have no symptoms or mild anemia. People with it may have severe anemia, slowed growth and delayed puberty, and problems with the spleen, liver, heart, or bones.

With over 30 years of research, 340 peer-reviewed publications, and 100 review articles and book chapters, Dr. Mohandas Narla leads The Laboratory of Red Cell Physiology, in which he has focused on understanding the functions and production of red blood cells along with the conditions typically observed during anemia and thalassemia disease states.

The current objective of Dr. Narla’s lab is to develop an improved understanding of the production of red blood cells. It also seeks to define the pathophysiological mechanisms that result in anemia due to the ineffective production of red blood cells, known as erythropoiesis. This research has and continues to improve how patient care is delivered.

Without red blood cells, you cannot have life, and our hematology research continues to impact patient care and develop new therapeutic strategies for management of many red cell membrane disorders, including anemia.

Mohandas Narla, DSc
Head, Laboratory of Red Cell Physiology
SARS-CoV-2, the virus that causes COVID-19, must enter human cells to continue its lifecycle. The virus needs to bind to a human cell protein or receptor. SARS-CoV-2 utilizes Human Angiotensin-Converting Enzyme 2 (ACE2) as a receptor.

Under the leadership of Asim K. Debnath, PhD, The Molecular Modeling and Drug Design Laboratory leverages 20 years of research in designing HIV entry/fusion inhibitors. The team hypothesized that targeting the entry pathway of SARS-CoV-2 would be ideal for both prevention and treatment as it blocks the first step of the viral lifecycle.

By creating a decoy of the α-helical, smaller, and drug-like ACE2 receptor, the virus could be “fooled” into binding with it, thereby preventing it from binding to the real ACE2 receptor. The team designed a portfolio of 30 amino acid stapled peptides from the ACE2 binding site of SARS-CoV-2 by hydrocarbon stapling. Three of the four peptides showed potent inhibition in a single-cycle virus inhibition assay. Most significantly, none of the stapled peptides show cytotoxicity at the highest dose tested.

Recently, his team discovered a series of small molecules that also target the spike protein and potently inhibit SARS-CoV-2 and SARS-CoV and MERS-CoV, confirming their pancoronavirus inhibitory activity. These inhibitors also showed an excellent toxicity profile. Dr. Debnath’s group is interested in developing one of these inhibitors as a clinical candidate.
Hematopoietic stem cells (HSC), which reside in the bone marrow of adults, can replenish all cell types found in the blood over an entire lifetime. As a treatment of last resort, patients with hematological failure or malignancy currently receive transplantation of immunologically compatible bone marrow from healthy donors to regenerate the patient blood system with healthy cells. However, immunotolerance and donor accessibility make bone marrow transplants a high-risk and potentially complicated treatment. The ability to expand and bank patient-specific HSCs for future transplantation would revolutionize the treatment of many hematological diseases. Still, the in-vitro expansion of clinically transplantable HSCs has not been achieved to date. Thus, understanding the mechanisms by which HSCs renew and give rise to multiple cell types would vastly accelerate this clinical goal.

Almost 200 genes have been implicated in the regulation of HSC function. Yet, the events necessary to impart stem cells with self-renewal and multipotency remain elusive. Under the leadership of Dr. Larry Luchsinger, PhD, The Laboratory of Stem Cell Regenerative Research focuses on investigating novel signal transduction machinery and molecular pathways that have yet to be associated with HSC maintenance and self-renewal. The lab’s goal is to leverage this information to devise novel pharmacological molecules, culture techniques, and expansion technologies that may successfully expand sufficient quantities of HSCs for clinically relevant applications.
BECOMING A GLOBAL LIFE SCIENCE HUB

As evident by the success of life science hubs in cities like Boston and San Francisco, investment in the life sciences and biopharmaceutical industries will not only make New York a more resilient city in the future. Still, it will serve our immediate recovery needs by creating thousands of new jobs and stimulating significant economic growth in a critical, future-focused sector.

On November 23, 2021, the New York City Council approved NYBCe’s zoning application for an applied life sciences hub called Center East on the Upper East Side. It will serve as the heart of the city’s life science innovation ecosystem and a crucial part of its pandemic response infrastructure.

This project will ensure we can continue providing safe, affordable blood services for the region’s hospitals; supercharge the city’s life science industry; and create jobs and career pathways for underrepresented groups in the industry like low-income and low-income New Yorkers as well as Black, Indigenous, and people of color. It will also enable us to create an ‘Incubator Space’ for life science start-ups helping us create a healthier future.
“NYBCe thanks the Council and City leaders for approving this critical project. Center East will position New York as a global public health hub, create jobs, stimulate billions in economic output annually, and open career opportunities for local students and young professionals,” said Rob Purvis, Executive Vice President and Chief of Staff, New York Blood Center. “NYBCe’s vision for a state-of-the-art life science facility will ensure the nonprofit Blood Center continues to provide safe, affordable blood services to the region’s hospitals and enable the center to significantly expand its research on COVID-19 and blood-related diseases in collaboration with institutions and biotechnology partners all under the same roof.”

In addition to the Council’s overwhelming vote of support, New York City Mayor Eric Adams has stated his support, and a grassroots coalition representing thousands of New Yorkers endorsed the Blood Center’s proposal. This broad, citywide group of individuals and organizations — including elected, labor, educational, community, and economic development stakeholders — have been vocal in their support for the Blood Center’s proposal:
“It’s important to show that the city can move projects like the Blood Center forward that are key to public health and good for the economy. Stakeholders should work together to get to yes.”
- Mayor of the City of New York Eric Adams

“The importance of updating the institutions that support the health of all New Yorkers has never been clearer than at this moment. That’s why we support the proposed plan to develop a new home for the New York Blood Center, which supplies almost all the blood for procedures in our city, and conducts vital research for diseases that disproportionately impact New Yorkers of color, such as HIV and sickle cell anemia. The project promises to create good permanent jobs and will be an important part of our city’s recovery.”
- John Santos, Assistant to the President, 32BJ

“The Blood Center has organized a model project in which the build-out of an important infrastructure priority that serves our city’s post-pandemic health care system will simultaneously offer opportunities for a diverse workforce and career advancement for low-income women. Our city desperately needs projects like Center East.”
- Kathleen Culhane, President, Nontraditional Employment for Women

“The vision for a state-of-the-art campus for research with the Blood Center as its anchor will stimulate our economy and generate thousands of jobs — both in the near-term during build-out and in the long-term — with thousands of high-quality, well-paying healthcare positions allowing for career development and economic mobility and wealth, from PhD to administration roles. This is more important than ever given the disproportionate impact of the COVID-19 pandemic on historically low-income and disenfranchised communities.”
- Melva M. Miller, Association for a Better New York, Chief Executive Officer

“This rezoning is not just about a building. It’s about enabling New York to set up one of the most productive life science hubs in the world. We need these companies and jobs to accelerate the city’s recovery.”
- Manhattan Chamber of Commerce
In addition to providing high-quality blood products and conducting innovative research, we strive to train and educate the next generation of blood banking and transfusion medicine leaders. We accomplish this goal through various opportunities such as lectures, webinars, a fellowship program, and other educational resources.

While covered last in this document, training and education are just as crucial as the other three parts of our mission.

“Our resources give our customers and the blood banking and transfusion medicine communities a chance to learn from some of the best and brightest experts in the field,” says Lynsi Rahorst, MHPE, MT(ASCP) SBBCM, NYBCe’s Manager of Education and Training for the Immunohematology Reference and Genomics Laboratories.

These initiatives go beyond individual professional development, though. By sharing our resources and knowledge, NYBCe helps to advocate for STEM fields as well as shape the landscape of global healthcare and scientific discovery. As a result, NYBCe is paving the way for new technologies, treatments, and more.

Professional education is just one way NYBCe fights for a healthier future, and your generous gifts help us continue to offer quality programming.
NYBCe has faced many new challenges throughout the COVID-19 pandemic. We have increased expenditures related to necessary public health measures such as social distancing. Our monthly revenue has been more difficult to sustain due to elective surgery cancellations and overall reductions in blood collection and distribution.

We have the experience and expertise to help ensure a healthier future for all — but we need your help. With your support, we will:

- Improve and expand our donor recruitment efforts to replenish the local, regional, and national blood supply.
- Advance LFKR’I’s research to develop the next generation of therapeutic agents across areas of high unmet need.
- Advance our vision for a state-of-the-art life science facility that will fuel innovation for years to come and serve New York City’s immediate recovery needs by creating thousands of new jobs and stimulating major economic growth.
- Offer high-quality educational opportunities that help train the next generation of leaders in blood banking and transfusion medicine.

We can’t succeed without your partnership and support. Show your love for the power of blood and help us achieve a healthier future for all.

Please consider making a financial contribution online now.