

The RACE for Children Act: How Industry Can Accelerate Readiness Through Collaboration With Patient Organizations

Written by:

PRA Health Sciences in collaboration with
CureSearch for Children's Cancer





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This white paper is written for and dedicated to those individuals in industry who will champion the vision of the RACE for Children Act. We hope this white paper serves to inform and embolden you on the road ahead.

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About CureSearch for Children's Cancer

For more than 30 years, CureSearch has been a driving force in pediatric cancer research. Recognizing a broken system, growing obstacles, and unmet needs in drug development, we've launched an innovative and unique strategy to address the urgent, critical need for new childhood cancer treatments.

With the expert leadership of the CureSearch Scientific and Industry Advisory Councils, we fund research that's on the path to quickly becoming a drug accessible to the children who so desperately need new treatment options, and provides innovative platforms that allow stakeholders to work smarter, faster and more collaboratively.

We know that smarter research funding is just one part of the solution, and that long-term solutions will require a seismic shift to the existing pediatric drug development process and landscape. This change will require strategic collaboration among all players in the pediatric cancer ecosystem, including science, academia, regulatory, funding, patients and industry leaders.

Together, we're changing the drug development landscape from within and accelerating the pace of therapy development for children with cancer.



Introduction

As of August 18, 2020, pharmaceutical and biotechnology companies with oncology pipelines must navigate the implications of Title V of the FDA Reauthorization Act (FDARA), commonly known as the Research to Accelerate Cures and Equity For Children Act (RACE Act). These implications affect oncology clinical development, the most salient of which will be undertaking oncology studies in pediatric patients. The RACE Act requires that studies and investigations involving products that treat adult cancer must also assess the use of those products in children.

Companies will encounter a landscape that is completely different from the adult oncology environment they already know. The pediatric ecosystem is characterized by stakeholders with unfamiliar risk-reward profiles, deeply connected through networks and partnerships that have only recently included industry. For many companies, the barriers to navigating this shift will be high. Lack of expertise in pediatric clinical development and pediatric oncology within industry will amplify these barriers. Navigating all of this will take nothing short of organizational change within many companies.

However, the pediatric oncology landscape is defined by significant constraints against which remarkable progress has been made through effective collaboration. Identifying and partnering with key stakeholders, namely patient organizations and academia, will enable companies to efficiently overcome key barriers. Those companies that are able to do so with agility will have the advantage as the competitive landscape in pediatric cancer is not yet written and vast opportunities exist.

In light of the RACE Act, patient advocacy organizations have a huge role in providing knowledge and experience as pharmaceutical companies develop pediatric clinical trials. This white paper is based on a series of interviews with stakeholders from some of the leading pediatric cancer patient organizations, academia and industry. The intent is to inform and provide a high-level orientation around the key barriers to readiness and critical success factors for companies navigating the pediatric oncology space in the wake of the RACE Act. The primary focus of this white paper is on how collaboration with patient organizations will be critical to overcoming the obstacles most companies will encounter.

Three of the case studies presented serve to illustrate how collaboration with patient organizations is tackling many barriers that industry will confront across a range of settings in pediatric cancer research. An overview of the pediatric patient advocacy landscape is also included – this serves as a high-level orientation around its unique dynamic that differs from and contrasts with adult cancer advocacy.

Together, the elements of this white paper aim to support collaboration between industry and patient organizations as a valuable strategy to ensuring readiness for the RACE Act.



RACE Act Readiness: Critical Factors of Success

Many pharmaceutical and biotech companies with oncology pipelines must undertake organizational readiness efforts to navigate the shift in the oncology development landscape catalyzed by the RACE Act.

Interviews conducted in the development of this whitepaper identified the following five critical success factors as most salient in the initial stages of company readiness efforts. These critical success factors also broadly outline a roadmap for organizational readiness.

Critical Factors of Success	
Identifying an Internal Champion	A key theme that emerged in discussing successful initiatives with contributors to this whitepaper is the essential role of an internal champion. Identifying or recruiting an internal champion to drive the development of readiness for the RACE Act or to champion a pediatric clinical program will be a pragmatic first step for many organizations. Having an internal champion(s) driven by conviction and vision will be a key factor of successfully navigating organizational change required.
Building a Pediatric/ Pediatric Oncology Clinical Development Team	Create an internal team that is focused on driving forward the pediatric oncology agenda within the context of the company's competing priorities, then cultivate their expertise. Over time this will enable team members to become subject matter experts for internal teams, working to pull through insights to shape processes, functions, and practices to support and lay the groundwork for the establishment of pediatric oncology function within the company.
Developing Frameworks for Effective Collaboration with Pediatric Oncology Patient Organizations	Patient organizations are a key driver of pediatric cancer research and have enormous value to offer for companies, particularly in developing pediatric cancer expertise, advancing positive relationships with academia, and identifying and accessing key research resources such as registries and biobanks. Companies will find they need to invest time to understand the unique dynamic of the pediatric cancer advocacy landscape, which is vastly different from that of adult cancer patient advocacy, and to create tailored engagement strategies.
Developing Frameworks for Effective Collaboration With Academia	Pediatric cancers have fewer key opinion leaders (KOLs) with existing relationships and experience engaging with industry than adult cancers. However, companies will require their expertise to guide development. Unlike adult oncology trials where it may be feasible to accrue many patients from a single institution, pediatric oncology requires coordinated efforts of many institutions. Collaborations with relevant pediatric cancer consortia such as the Children's Oncology Group (COG) including the COG Pediatric Early Phase Clinical Trial Network (PEP-CTN), The Collaborative Network for Neuro-Oncology Clinical Trials (CONNECT Consortium), Pediatric Brain Tumor Consortium (PBTC), Pacific Pediatric Neuro-Oncology Consortium (PNOC), Pediatric Oncology Experimental Therapeutics Investigators' Consortium (POETIC), and New Approaches to Neuroblastoma Therapy (NANT) will be vital to clinical development.
Defining Pediatric Clinical Strategies Centered Around Flexibility and Innovation	The constraints imposed by the low number of pediatric patients, the unique context of pediatric clinical research, and the reality of low levels of pediatric oncology expertise in industry will require companies to approach clinical programs with a high degree of flexibility and tailored approach to risk. Examples include master trial designs, defining adolescent and young adult (AYA) target trial populations and focusing efforts on last-patient-in rather than focusing on first-patient-in.



Three Key Barriers: How Collaboration With Patient Organizations Can Support Readiness

Companies will encounter both internal and external barriers in navigating the RACE Act and thriving in the pediatric oncology space.

Among these, three significant barriers will be encountered by pharmaceutical and biotech companies to varying degrees. These include a lack of in-house expertise in pediatric oncology, a lack of established relationships with pediatric oncology academia, and a highly limited pediatric oncology patient pool to support clinical research.

Collaboration with key Patient Advocacy Organizations (PAOs) can help companies to address and overcome these three barriers.

1. Lack of expertise in pediatric oncology

Clinical research in children is vastly different from research in adults, both from a patient pathway perspective and from a trial design perspective. Developing viable pediatric endpoints, pediatric formulations and creating feasible initial Pediatric Study Plans (iPSPs) and pediatric clinical protocols require highly specialized expertise. Companies with a strong understanding of and key opinion leader (KOL) networks in adult oncology will find that they do not translate easily to the pediatric space. With few companies having experience in pediatric oncology, most will confront a lack of internal expertise as a key barrier to readiness for the RACE Act and to laying out a roadmap for success.

Critical Success Factors:

- Identifying an Internal Champion
- Building a Pediatric or Pediatric Oncology Clinical Development team

How collaboration with PAOs can help to address this barrier:

- Participation in industry councils and other collaborative forums established by pediatric cancer PAOs can provide companies with a forum for learning, networking and cultivating collaborative relationships in the pediatric oncology space.
- Key PAOs are anticipating the need for industry to connect to expertise and are already developing educational opportunities such as summits and symposia. Attendance at these events can provide a valuable opportunity for companies to orient themselves around the pediatric oncology landscape.
- Directly engaging with key PAOs, for example conducting pediatric oncology drug development gap analyses through ad-hoc educational or consulting remits, is another way that companies can build expertise. It is important to note, however, that supportive engagement of this nature requires companies to undertake meaningful relationship-building efforts with PAOs.

2. Lack of relationships between industry and pediatric oncology Academia

Companies will need to address internal gaps in expertise by connecting early with external KOLs to support RACE Act readiness. Engagement with pediatric oncology research consortia will be crucial for developing pediatric clinical strategy. The absence of established relationships and trust between industry and academia in the pediatric space will be an important key barrier. Identifying ways to network, connect and build relationships with academia will be imperative.

Critical Success Factors:

- Developing Frameworks For Effective Collaboration with Academia
- Developing Frameworks For Effective Collaboration with Pediatric Cancer PAOs



How collaboration with PAOs can help to address this barrier:

- PAOs are uniquely positioned to help companies to identify and connect to the right experts, institutions and consortia in pediatric oncology, by virtue of their close collaborative relationships and key role as funders of academic-led pediatric cancer research.
- PAOs can also play a role in tackling the lack of trust in industry among academia in the pediatric oncology space, facilitating networking and the development of trust-based collaboration.

3. Highly limited pediatric oncology patient pool to support clinical research

Childhood cancers are rare conditions, accounting for just 1% of overall cancer diagnoses. In the United States, the incidence of many of the leading childhood and adolescence cancers is numbered in hundreds of new cases per year¹. This fundamental constraint poses a significant barrier for pediatric cancer research at every level. Bench researchers, clinicians and patient organizations respond to this barrier through the pursuit of closer collaboration in a multitude of ways. Companies will encounter barriers to trial recruitment that will make collaborative innovation, in true partnership with researchers and PAOs, the only path to success.

Critical Success Factors:

- Developing Frameworks For Effective Collaboration with Pediatric Cancer PAOs
- Developing Frameworks For Effective Collaboration with Academia

How collaboration with PAOs can help to address this barrier:

- Engaging with PAOs in the protocol development process can help to ensure that studies are designed with feasibility for patients and families as a forefront consideration. This can help mitigate risk to overall study feasibility and timelines that may ultimately impact both pediatric and adult clinical programs, as an agreed iPSP is required prior to NDA submission.

- PAOs are well positioned to help companies deliver awareness and education about clinical trial options to patient communities through trusted channels. PAOs may also be able to provide guidance on how messaging can be tailored to the unique context of specific pediatric cancer patient communities.
- There are multiple ways in which collaboration with PAOs can support study recruitment, for instance by connecting sponsors to consortia and key patient registries and by collaborating on study awareness and education initiatives. In seeking support for study recruitment, companies should be prepared to cultivate relationships and trust over time with PAOs by partnering from the earliest stages of clinical development.

Other Barriers

In addition to the three key barriers outlined above, industry will encounter a number of other barriers in navigating the pediatric oncology landscape. These include the need for pre-competitive collaboration among competitors, navigating priority target lists and imperfect alignment between the US and European regulators, however it must be noted that efforts towards convergence are underway – the ACCELERATE Platform and the Innovative Therapies for Children with Cancer Pediatric Preclinical Proof-of-concept Platform (ITCC-P4) are examples of this. Identifying and accessing data to support benchmarking and other research resources is another important barrier to navigate.

¹ Cancer in North America: 2011-2015 (2018) Volume One: Combined Cancer Incidence for the United States, Canada and North America. NAACCR



Amgen's Roadmap for Readiness

Amgen has lead Pediatric trials in the Oncology space for several years (Neulasta, Xgeva) but the opportunistic approval of BLINCYTO® in two pediatric cancer indications created a greater consciousness of the pediatric oncology space. With the passing of the RACE Act in 2017, Dr. Anjali Sharma, Early Clinical Development and Pediatric Oncology Development Lead for Hematology-Oncology at Amgen, whose career experience included 10 years of clinical practice as a pediatric oncologist, understood change was coming.

In 2017, Dr. Sharma engaged with Amgen's leadership about the implications of the RACE Act and the need for organizational readiness to navigate its far-reaching impacts. Leadership empowered her in championing readiness and enabled her to establish a pediatric oncology working group at Amgen. The group was tasked with connecting to specialist expertise, conducting gap analyses and developing a framework for systematically integrating pediatric oncology into Amgen's clinical program development process.

Three years later, Dr. Sharma highlights that this approach has led to important wins at Amgen. Identifying molecules that may be used in pediatric indications is now systematically done at the very start of Amgen's clinical development process. The legislation helped to establish an infrastructure that not only supported oncology, but all therapeutic areas. The Pediatrics Working Group has established themselves as subject matter experts (SMEs) and clinical teams increasingly seek their expertise. "We've made a great deal of progress shifting the mindset away from 'why should we study this?' to a recognition of the importance of in-depth exploration to ensure potentially beneficial therapies are studied." Clinical teams now ensure that the data does not support the study before deciding not to explore the relevance of the therapy in pediatrics. Reflecting on the days when this could simply be a cursory exercise, Dr. Sharma unequivocally states "that time is over."

Developing mechanisms to connect to expertise through pediatric oncology KOLs and patient organizations is ongoing. Currently Amgen is working to establish a Patient Advocacy Framework adapted to the pediatric oncology space, alongside its robust adult cancer advocacy strategy. Amgen has been represented on CureSearch's Industry Advisory Council since August 2016. Dr. Sharma also engages with regulators, consortia, patient advocacy and industry stakeholders through her involvement in the ACCELERATE Platform.

Tackling Barriers in Pediatric Cancer Through Collaboration: Three Case Studies

Here, we present three case studies that exemplify how collaboration with patient organizations is driving progress in pediatric cancer research. From moving a breakthrough discovery from the bench to the clinic in less than 18 months to driving progress in "impossible" pediatric brain cancers to tackling institutional barriers that impede progress-partnership with patient organizations is a universal constant of this space.

In compiling these diverse case studies, a number of salient themes emerged. Among these is the vital role of a "champion" in tackling key barriers. Whether advocating for the provision of product for an innovative pediatric trial, tackling institutional barriers at the most granular levels, or taking on the toughest of cancers with the boldest of research strategies – the role of the "champion" in driving progress was central and universal. Another is the multi-dimensional nature of barriers encountered in pediatric cancer research by all stakeholders. This is a landscape defined by staggering constraints, against which incredible progress is made through collaboration and transparency.

The aim of these case studies is to inform and embolden industry stakeholders to champion the vision of the RACE Act and the value of partnership.



From Bench to Clinic in 18 Months: How collaboration enabled Yale teams and BeiGene to get an innovative trial to adolescent-young adult (AYA) patients

Dr. Ranjit Bindra is a physician-scientist at the Yale School of Medicine and Co-Director of the Yale Brain Tumor Center. In 2015, Dr. Bindra and his team made the startling discovery that IDH1/2-mutant tumors harbor a profound DNA repair defect that renders them sensitive to PARP inhibitors. "That was hard for a lot of people to believe because it was a very unexpected finding, that IDH mutations induce this 'BRCA-ness' state. We hypothesized that IDH-mutant cancers may also be sensitive to PARP inhibitors as hereditary breast cancers are," Dr. Bindra says. He immediately began laying the groundwork for a clinical trial in adults.

Upon the recognition that there is a population of AYA high-grade glioma patients that harbor IDH mutations, Dr. Bindra began to work with Dr. Asher Marks, Medical Director of the Pediatric Neuro-Oncology Program at Yale, to ensure that patients under the age of 18 could receive this treatment through a clinical trial. "When we initially looked at the pediatric data for 0-18 years, this was a fairly rare mutation that came up in maybe 2% of high-grade gliomas and garnered little interest," explains Dr. Marks. "However, when we parsed the data for patients ages 13-25 years old the frequency started to go up, all of sudden we were seeing it in 30% of cases."

While the path for an adult trial was well-defined and the team could advance rapidly, the prospects for a pediatric trial were not. This required the Yale team's industry partner, BeiGene, to agree to take on the risk of providing their PARP inhibitor for a pediatric trial. It required the development of a protocol that would work for an AYA population and stewarding it through the siloed pediatric and adult regulatory and clinical practice mechanisms common within academic institutions. Importantly, it required finding a pediatric cancer clinical trial consortium that would back the concept and securing funding for a trial – both of which can take years but needed to be moved in-step with readiness for the adult clinical program.

Drs. Bindra and Marks were able to move forward with a trial design focused on an AYA population, going from bench to clinic in under 18 months. Dr. Bindra emphasizes

that this incredible achievement was made possible through collaboration with three key partners: the Pacific Pediatric Neuro-Oncology Consortium (PNOC), CureSearch and BeiGene.

"PNOC focuses on rapid bench to bedside research and thought this was a great concept, even though it was very much pushing the envelope," notes Dr. Bindra. "Their backing was a tremendous step forward," adds Dr. Marks. "However, they don't offer significant funding. We needed foundation support." Applications for NIH grants came up against the typical barriers encountered when targeting a small group of patients. "We're talking subsets of subsets," Dr. Bindra emphasizes. Funding, as is often the case in pediatric cancer, would need to come from patient organizations.

"We were fortunate that CureSearch had just launched their Catapult Award program," notes Dr. Bindra. The award funds Phase I or Phase II trials that can get high-potential research out of the lab and into the clinic for researchers with industry partners committed to taking these onward to commercialization. "The Catapult mechanism was highly innovative at the time," Dr. Bindra shares, "It enabled researchers to access up to \$2.5M in funding over three years, through a streamlined application process, rather than contending with multiple applications for smaller grants which would have lengthened timelines. We had partnered with BeiGene, who had agreed to provide therapeutic product and we had the support of PNOC which gave CureSearch confidence in its potential. They were able to turn the application around in under a year which allowed the pediatric program to keep pace with adult program development."

Overcoming institutional barriers was a final, but considerable challenge. Targeting a patient population of 13-35 years old required navigating different regulatory mechanisms between the oncology IRB and pediatric IRB and confronting the highly siloed working of adult and pediatric oncology teams. Dr. Marks feels strongly that cutting across these siloes has the potential to enable better science. "By bridging that gap, I think we'd start to see more trials in AYA populations and see those trials aligned with adult trials run in a similar fashion so that we could compare the data and we'd start to see some interesting things as we did when we looked at data for patients ages 13-25," he says.



Tackling those barriers laid the groundwork for a smoother process for implementing AYA trials and the center now has several adult brain tumor trials open to pediatric populations. “We have now enrolled 3 pediatric patients into another trial that was originally designed for adults only,” highlights Dr. Marks. Of the incredible success of taking this innovative therapeutic approach from the bench to the clinic and to pediatric cancer research, Dr. Bindra notes, “It always comes down to being able to find people who are going to be champions and take risks.”

Where Barriers are Highest: Transforming the pediatric brain cancers research landscape with the boldest of strategies

Keith Desserich is founder and president of The Cure Starts Now and president of the Pediatric Brain Tumor Consortium Foundation. As a successful entrepreneur, his role in the fight against cancers is one he never imagined taking on until his daughter, Elena Desserich, was diagnosed with a rare, inoperable brain cancer that was ultimately life limiting.

Among cancers that affect children, brain cancers represent an area of extraordinarily high unmet need. They are difficult to remove with surgical methods and resilient to most chemotherapeutic approaches due to the blood brain barrier. In addition, radiation therapy yields largely ephemeral effects. Many brain cancer prognoses are measured in months – these are some of the toughest cancers to fight on the bench and in the clinic. From there the barriers only compound: pediatric brain tumors have extremely low prevalence (ranging from 0.3 to 5.14 cases per 100,000 children depending on region) and carry very high risk of R&D failure. Academia and industry have had little incentive to pursue research which has not advanced in recent decades. Mr. Desserich is aware that the fight against pediatric brain cancer is the toughest of battles, one that requires the boldest of strategies.

“Researchers have told us they’ve wanted to focus on these ‘impossible types of tumors’ but felt that it would take using radically different approaches. Nobody was giving them the funding to be able to do that,” he emphasizes. As a result, The Cure Starts Now pursues a unique approach to funding research: “We don’t direct research funding to those cancers with the greatest number of diagnoses. Instead we direct funds to research in those cancers which scientists believe have the greatest potential to yield breakthrough insights.”

“It always comes down to being able to find people who are going to be champions and take risks.”

This ambitious strategy is rooted in a perspective on the history of breakthroughs in cancer. Advances such as Sydney Farber’s development of modern approaches to chemotherapy, came about by focusing on the toughest cancers, not the most common. The Cure Starts Now believes this strategy ultimately has the potential to fundamentally change not only how we treat brain cancers, but other forms of cancer as well, and perhaps one day offer the prospect of a “home run cure.”

Guided by this vision, The Cure Starts Now, which was founded 2007 as a grassroots organization for families affected by Diffuse Intrinsic Pontine Glioma (DIPG) and other brain cancers, has grown to 40 chapters globally and established a collaborative network with 27 other international patient organizations focused on pediatric brain cancer. In the past 13 years, the organization has already reshaped the brain cancer research landscape by cultivating the Collaborative Network for Neuro-oncology Clinical Trials (CONNECT) Consortium, establishing the cutting-edge International Diffuse Intrinsic Pontine Glioma (DIPG) Registry, the largest registry available today and funded research in 15 different countries.

The CONNECT Consortium focuses on conducting clinical trial in high-risk pediatric brain tumors. The consortium aims to fill a critical gap in bench to bedside by conducting early stage pilot studies with a focus on nimble, scientifically rational, international trials.

The DIPG Registry works to facilitate sharing of data between experts in real time rather than waiting until publication. Despite the extraordinary imperative for this, Mr. Desserich recalls that “When we started doing it, no one wanted to contribute data.” To overcome this barrier, the registry implemented a model of incentives mirroring the ones that enabled the Human Genome Project to overcome these same barriers. Participating sites would receive an increased grant amount to institutions that provided data without any embargoes on the sharing of that data and gaining access to



data was conditional on contributing data. This quickly took the registry from about 150 patients enrolled to approximately 1,400 patients with 114 contributing hospitals, making it by far the most robust DIPG registry available today. Currently, the registry accepts data from academia not private industry; however considering ways to bring private industry into the fold is currently front of mind.

Reflecting on whether there is reason to believe The Cure Starts Now's vision 13 years onward, he offers, "We can look to very recent findings about the role of histone mutations in childhood brain cancers (specifically H3.1, H3.3 encoding genes as well as in chromatin modifiers ATRX and DAXX). Mutations in histones had never been described in any human disease and we've started to identify that it plays a role in other types of cancers. This has become an area of intense research interest."

Regarding the prospect of the RACE Act enabling progress for pediatric brain cancers, he feels its potential lies in facilitating a different approach to analyzing research data. "If it allows for more trials and allows for examining failures more closely for what they can tell us about how pediatric brain tumors work – that's going to open the doors to a lot of new research and new strategies."

As for the role of industry, Mr. Desserich offers a pragmatic take. "What we as a patient organization can do is offer industry incentives to choose this path (pediatric brain cancers). Those incentives are going to be access to data to help establish benchmarks, particularly for those companies walking into the pediatric space for the first time by virtue of the RACE Act." Another incentive that he sees potential room for is partnerships with patient organizations to share the cost of funding early trials. "Ultimately, the role of a cure isn't something that one organization can do alone. You need collaboration for innovation, funding and information," he says.

Helping to establish connections between industry and academia is another area where he sees a role for patient organizations. "I'm not afraid of private industry. I come from that background as an entrepreneur, but within all of our research channels there is a feeling of distrust there. That's not something that's easy to confront. I do think patient organizations have a role to play in addressing that."

Putting the Patient Perspective at the Center of Organizational Change: Weill Cornell Medicine's Unique Approach

New York's Weill Cornell Medicine (WCM), part of the New York-Presbyterian health system, participates in a collaborative network of institutions (including Columbia University Medical Center and Memorial Sloan Kettering Cancer Center) committed to excellence in pediatric neurosurgery and neuro-oncology. WCM is home to three of the leading pediatric neurosurgeons in the United States, all deeply invested in patient care and cutting-edge bench research. Over the years, there was growing awareness and discussion around the institutional barriers that slowed down scientific efforts in pediatric brain tumor research; lack of alignment between labs, siloed efforts, time constraints, and lack of alignment that would allow for efficient collecting and sharing of information and resources, including tumor tissue and genetic data. Drs. Jeffrey Greenfield and Mark Souweidane launched the Children's Brain Tumor Project in 2012 to create a framework for pushing the science forward, but as the program grew, so did the challenges.

In 2010 Dr. Greenfield met Cindy Campbell, who was facing her young son's cancer diagnosis at the time. For the next two years, Dr. Greenfield treated Ty Louis Campbell, who passed away from his rare and aggressive pediatric brain cancer, while Ms. Campbell grew into a pediatric cancer patient advocate. During Ty's treatment, Ms. Campbell participated in conversations around barriers to research with the WCM neurosurgery team. These informal discussions evolved into a formal "gap analysis", identifying the persistent roadblocks to progress specific to pediatric brain tumor research, and how Weill Cornell and its collaborative network might address them. "There was an awareness that these barriers were granular, institutional and administrative but that they were rate limiting to progress in patient care and research," she notes. "There was also an acknowledgment that systematically addressing these barriers required bandwidth and a unique skillset."

Today, Ms. Campbell is the Program Director at Weill Cornell Medicine Children's Brain Tumor Project and is working to remove these barriers one by one.



"My role is quite novel, and our laboratory network dynamics are very unique," she notes. "We've taken a different approach to collaboration because we're part of a multi-institutional network." Collaboration is the overarching theme of her role as Program Director. Her efforts focus on tackling barriers to efficient collaboration between the research labs within the network, between the labs and funding organizations, and between the network and key initiatives and resources to support research established by patient organizations. Her efforts extend to developing tools to improve dialogue and collaboration with patients and families treated at the center to make conversations about participation in research an ongoing dialogue through the patient journey.

Increasing efficiency between the network's research labs requires a great deal of work toward institutional alignment, efforts that are often highly logistical. "For example, sharing tumor tissue samples between labs, even within our own network, requires highly complex logistics," she notes. Improving the frameworks that enable this through improved communication and project management has been a key focus of Ms. Campbell's remit. Safety requirements of institutional IRBs can sometimes cause research slowdowns and Ms. Campbell works with the investigational teams to resolve those issues. Often, this involves continual follow up to identify the exact nature of the delays and to develop solutions. Slowdowns caused by institutional IRBs has been another key area of focus.

Strengthening collaboration between the labs and the "family organizations" is another key dimension of Ms. Campbell's role. Given that 90% of the funding for the Weill Cornell Medicine lab comes from disease-specific patient organizations, led by families, it was critical to ensure that these relationships could grow. Nurturing the pre-existing "Family Council" as a forum to enable efficient and regular exchange with funding organizations was one of Ms. Campbell's first priorities in her remit. Regular and transparent reporting back to funding organizations through the Council have helped to increase engagement and strengthen these vital relationships. "There are no stronger patient advocates than parents and parent-led organizations," said Ms. Campbell. "Having a research lab that is so highly accountable to – and inspired by – these families, accelerates progress."

Ms. Campbell worked closely with the lab's designated Clinical Trials Manager to help champion WCM's participation in the aforementioned DIPG Registry and its designation as a center of excellence by the Gift from a Child initiative. That initiative, established by the Swifty Foundation, enables post-mortem tissue donations through rapid autopsy. Ms. Campbell also helped maintain WCM's relationship with the Children's Brain Tumor Tissue Consortium, which includes 18 members from across the country and around the world. Stewarding these partnerships through the institution's regulatory mechanisms took concerted efforts for more than a year. Today, the resources that these initiatives provide enhance the network's ability to carry out cutting-edge research and exchanges with the wider scientific community.

"We have the teams in place, the consent framework in place, and this enables the center to ensure that opportunities for tissue donation that are immensely valuable to research are not missed," Ms. Campbell notes. "We designated a tissue navigation team to support the Gift from a Child initiative, and we have a framework for sharing tissue samples and data from biopsy and rapid autopsy through the Children's Brain Tumor Tissue Consortium. All of this collaborative activity requires complex logistical considerations."

Ms. Campbell highlights that continuing to identify and eliminate the barriers to progress is a role that, as a patient advocate, she is well suited for. "Where perhaps others might resign themselves to the status quo, we're not going to just let it go, because as advocates we're here to drive progress in getting treatments to children with cancer," she says.



The Pediatric Cancer Patient Advocacy Landscape: An Overview

Pediatric cancer research is driven by patient organizations at all levels of the ecosystem. Partnership with key patient organizations will be beneficial for any company pursuing clinical development in this space.

Broadly, patient organizations may have a remit that spans one or more of the following areas of focus: **patient support, education and information dissemination, research, and political activity.**



Patient Support

Providing medical and psychosocial support to patients and families.



Education and Information Dissemination

Inform and educate about risk factors, screening, treatment options, and burden of disease.



Research

Shaping the research agenda, cultivating research collaborations, oversight of the research process, and funding research.



Political Activity

Shaping the research agenda, oversight of the research process, and funding research.

The full spectrum of these areas of focus is reflected within the broad range of organizations active pediatric cancer patient advocacy space.

A Unique Dynamic

Dr. Vickie Buenger, President of the Coalition Against Childhood Cancer (CAC2), notes that “companies will find that the pediatric patient advocacy landscape differs substantially from that in adult cancer. With adult cancers, there are often large, national patient organizations in specific cancers that are professionally staffed and have extensive experience engaging with pharma. The pediatric cancer advocacy space is much more fragmented.” The dynamic of this space, she highlights, is closer to that of the rare disease advocacy landscape. In the United States there are more than 700 pediatric cancer specific patient organizations².

At the “macro level” of pediatric cancer advocacy, companies will encounter umbrella organizations. These networked organizations are the ideal starting place to find the PAO to fit industry’s goals.

At the “micro level” (disease-specific organizations), companies will encounter a kaleidoscope patchwork of small, predominantly family-led organizations focused on funding basic and translational research. Such disease-specific organizations have typically had little opportunity to interact with industry. Dr. Buenger notes that for companies, engaging with this subset of the community can prove challenging – “because of their personal experience through their child’s cancer journey, their concerns may prompt them to express different priorities or to speak in unfamiliar terms about their expectations.” Bridging the gap with these highly motivated and passionate advocates will require a substantial time investment and tailored strategies. “Companies may find the patient advocacy strategies leveraged in adult cancers do not translate well to the pediatric cancer space without some adjustments” she emphasizes.

In between, there are “pan-cancer” patient organizations, with a strategic focus across all pediatric cancers. These organizations consider the entire pediatric cancer ecosystem as they execute their mission. Many fund and support innovative research, form relationships with multiple stakeholders, and these highly sophisticated organizations have insightful understanding of the drug development process and research ecosystem.

² <https://www.guidestar.org>. Accessed May 1, 2019



Umbrella Organizations

Umbrella organizations work across broad strategies for policy, awareness, research for childhood cancers and to support and create efficiencies for disease specific groups at national level or international level - providing advocacy training, education, and forum for collaborative working. These organizations take a macro view of pediatric cancer research and have a sophisticated understanding of the drug development and clinical research process. They have established frameworks for engaging with industry stakeholders through membership opportunities, educational programs, and interactions at meetings and conferences.

In the US, examples of key umbrella organizations include:

- The Coalition Against Childhood Cancer (CAC2)
- The Alliance for Childhood Cancer (The Alliance)



Pan-Cancer Patient Organizations

Pan-cancer patient organizations can vary in size, geographic scope, and strategic focus. These organizations typically have a remit that covers multiple or all pediatric cancers. They can vary in degree of experience and openness to engaging with industry, with some having structured processes such as industry councils and others engaging in a more ad-hoc capacity.

In the US, examples of these organizations include:

- CureSearch for Children's Cancer
- St. Baldrick's Foundation
- Alex's Lemonade Stand Foundation
- The Cure Starts Now
- Leukemia & Lymphoma Society



Disease Specific Patient Organizations

In many pediatric cancers, these organizations are often founded and run by families affected by a particular childhood cancer. They are often active at local or state level rather than at a national or international level. Their focus is primarily funding research into their pediatric cancer of interest and can be as limited as funding one specific institution/ laboratory. Many have developed collaborative networks with other patient organizations focused on the same or similar cancers and with umbrella organizations in an effort to coordinate and streamline funding efforts to help speed development.

The International Landscape

A similar landscape characterized by umbrella organizations working in synergy with disease specific patient organizations can be found in Europe. Internationally, Childhood Cancer International (CCI) assembles groups from 88 countries, and within Europe, ACCELERATE, Unite2Cure and Pancare are leading umbrella organizations. Because of the structure of health care, regulations, and charity formation rules, there are fewer European patient advocacy organizations within the landscape.



Contact Information

For further information, or to discuss any aspect of PRA's services offered in the field of pediatric clinical development, please contact your Business Development Manager, or PRA's Center for Pediatric Clinical Development at CenterPediatricClinDev@prahealthsciences.com.

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