

## The global COVID-19 observatory and resource center for childhood cancer

Moreira, Daniel C; Sniderman, Elizabeth; Mukkada, Sheena; Chantada, Guillermo; Bhakta, Nickhill; Foster, Whitney; Avula, Meghana; Homsy, Maysam R; Faughan, Lane; Happ, Brooke; Andujar, Allyson; Sonnenfelt, Jason; Dalvi, Rashmi; Frazier, A Lindsay; Hessissen, Laila; Kearns, Pamela; Luna-Fineman, Sandra; Moreno, Arturo; Khan, Muhammad Saghir; Sullivan, Michael

DOI:  
[10.1002/pbc.28962](https://doi.org/10.1002/pbc.28962)

License:  
Other (please specify with Rights Statement)

*Document Version*  
Peer reviewed version

*Citation for published version (Harvard):*

Moreira, DC, Sniderman, E, Mukkada, S, Chantada, G, Bhakta, N, Foster, W, Avula, M, Homsy, MR, Faughan, L, Happ, B, Andujar, A, Sonnenfelt, J, Dalvi, R, Frazier, AL, Hessissen, L, Kearns, P, Luna-Fineman, S, Moreno, A, Khan, MS, Sullivan, M, Devidas, M, Santana, V, Caniza, M, Pritchard-Jones, K & Rodriguez-Galindo, C 2021, 'The global COVID-19 observatory and resource center for childhood cancer: a response for the pediatric oncology community by SIOP and St. Jude Global', *Pediatric Blood & Cancer*, vol. 68, no. 5, e28962. <https://doi.org/10.1002/pbc.28962>

[Link to publication on Research at Birmingham portal](#)

**Publisher Rights Statement:**

This is the peer reviewed version of the following article: Moreira, DC, Sniderman, E, Mukkada, S, et al. The Global COVID-19 Observatory and Resource Center for Childhood Cancer: A response for the pediatric oncology community by SIOP and St. Jude Global. *Pediatr Blood Cancer*. 2021; 68:e28962., which has been published in final form at <https://doi.org/10.1002/pbc.28962>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions.

**General rights**

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

**Take down policy**

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact [UBIRA@lists.bham.ac.uk](mailto:UBIRA@lists.bham.ac.uk) providing details and we will remove access to the work immediately and investigate.

**The Global COVID-19 Observatory and Resource Center for  
Childhood Cancer: A Response for the Pediatric Oncology  
Community by SIOP and St. Jude Global**

Journal:	<i>Pediatric Blood &amp; Cancer</i>
Manuscript ID	PBC-20-2121.R2
Wiley - Manuscript type:	Global Oncology: Brief Report
Date Submitted by the Author:	01-Feb-2021
Complete List of Authors:	<p>Moreira, Daniel; St Jude Children's Research Hospital, Global Pediatric Medicine            Sniderman, Elizabeth ; St Jude Children's Research Hospital, Global Pediatric Medicine            Mukkada, Sheena; St Jude Children's Research Hospital, Global Pediatric Medicine; University of Tennessee Health Science Center College of Medicine,            Chantada, Guillermo; Fundacion Perez Scremini-Hospital Pereira Rossell; Hospital Sant Joan de Déu            Bhakta, Nickhill; St Jude Children's Research Hospital, Global Pediatric Medicine            Foster, Whitney; St Jude Children's Research Hospital, Global Pediatric Medicine            Avula, Meghana; St Jude Children's Research Hospital, Global Pediatric Medicine            Homsj, Maysam; St Jude Children's Research Hospital, Global Pediatric Medicine            Faughan, Lane; St Jude Children's Research Hospital, Global Pediatric Medicine            Happ, Brooke; St Jude Children's Research Hospital, Global Pediatric Medicine            Andujar, Allyson; St Jude Children's Research Hospital, Global Pediatric Medicine            Sonnenfelt, Jason; St Jude Children's Research Hospital, Global Pediatric Medicine            Dalvi, Rashmi; Bombay Hospital Institute of Medical Sciences and SRCC Children's Hospital            Frazier, Lindsay; Dana-Farber/Boston Children's Cancer and Blood Disorders Center, Pediatric Oncology            Hessissen, Iaila; Université Mohammed V de Rabat, hematology and pediatric oncology department            Kearns, Pamela; University of Birmingham Institute of Cancer and Genomic Sciences, Cancer Research UK Clinical Trials Unit, National Institute for Health Research Birmingham Biomedical Research Centre, UK; Birmingham Children's Hospital,            Luna-Fineman, Sandra; Children's Hospital Colorado, Associate Professor of Pediatrics Hematology/Oncology/SCT Center for Global Health Children's Hospital Colorado School of Medicine            Moreno, Arturo; Hospital Universitario de Puebla            Khan, Muhammad; Tawam Hospital, Al-Ain, Abu Dhabi- United Arab Emirates, Paediatric Haematology/Oncology            Sullivan, Michael; The Royal Children's Hospital, Children's Cancer Centre; The University of Melbourne Faculty of Medicine Dentistry and</p>

	Health Sciences, Paediatrics Devidas, Meenakshi; Saint Jude Children's Research Hospital, Department of Global Pediatric Medicine Santana, Victor; St Jude Children's Research Hospital, Global Pediatric Medicine Caniza, Miguela; St Jude Children's Research Hospital, Global Pediatric Medicine and Infectious Diseases Pritchard-Jones, Kathy ; University College London, UCL Institute of Child Health Rodriguez-Galindo, Carlos; St Jude Children's Research Hospital, Global Pediatric Medicine
Keywords:	COVID-19, Knowledge transfer, Collaboration, Pediatric oncology

SCHOLARONE™  
Manuscripts

**The Global COVID-19 Observatory and Resource Center for Childhood Cancer: A Response for the Pediatric Oncology Community by SIOP and St. Jude Global**

Daniel C. Moreira MD<sup>1</sup>, Elizabeth Sniderman MSN APRN<sup>1</sup>, Sheena Mukkada MD MPH<sup>1</sup>, Guillermo Chantada MD PhD<sup>2,3</sup>, Nickhill Bhakta MD MPH<sup>1</sup>, Whitney Foster BA<sup>1</sup>, Meghana Avula MS<sup>1</sup>, Maysam R. Homsy MPH CCRP<sup>1</sup>, Lane Faughan BSN<sup>1</sup>, Brooke Happ MPH<sup>1</sup>, Allyson Andujar BA<sup>1</sup>, Jason Sonnenfelt MPA<sup>1</sup>, Rashmi Dalvi MD DCH<sup>4</sup>, A. Lindsay Frazier MD<sup>5</sup>, Laila Hessissen MD<sup>6</sup>, Pamela R. Kearns MD PhD<sup>7</sup>, Sandra Luna-Fineman MD<sup>8</sup>, Arturo Moreno MD<sup>9\*</sup>, Muhammad Saghir Khan MD<sup>10</sup>, Michael Sullivan MD PhD<sup>11</sup>, Meenakshi Devidas PhD MBA<sup>1</sup>, Victor Santana MD<sup>1</sup>, Miguela Caniza MD MPH<sup>1</sup>, Kathy Pritchard-Jones MD PhD<sup>12</sup>, Carlos Rodriguez-Galindo MD<sup>1</sup>

<sup>1</sup>St. Jude Children's Research Hospital, Memphis, USA

<sup>2</sup>Fundacion Perez Scremini-Hospital Pereira Rossell, Montevideo, Uruguay

<sup>3</sup>Hospital Sant Joan de Déu, Barcelona, Spain

<sup>4</sup>Bombay Hospital Institute of Medical Sciences and SRCC Children's Hospital, Mumbai, India

<sup>5</sup>Dana-Farber/Boston Children's Hospital Cancer and Blood Disorders Center, Boston, USA

<sup>6</sup>Mohammed V University, Rabat, Morocco

<sup>7</sup> NIHR Birmingham Biomedical Research Centre, Institute of Cancer and Genomic Sciences and Birmingham Children's Hospital, Birmingham, UK

<sup>8</sup>Children's Hospital Colorado, University of Colorado, Aurora, USA

<sup>9</sup>Hospital Universitario de Puebla, Puebla, Mexico

<sup>10</sup> Tawam Hospital, Al Ain Abu Dhabi, United Arab Emirates

<sup>11</sup>University of Melbourne and Royal Children's Hospital, Melbourne, Australia

<sup>12</sup> University College London Great Ormond Street Institute of Child Health, London, England

\*Deceased

Corresponding author: Daniel C. Moreira, [daniel.moreira@stjude.org](mailto:daniel.moreira@stjude.org), Department of Global Pediatric Medicine, St. Jude Children's Research Hospital, Memphis, USA; (901) 595-1911

Declaration of interests: The authors declare no competing interests.

Running title: Global COVID-19 Observatory and Resource Center

Key words: COVID-19, pediatric oncology, collaboration, knowledge transfer

Word count: Abstract 100, Main text 1191

Abbreviation key:

GCORCCC	The Global COVID-19 Observatory and Resource Center for Childhood Cancer
SIOP	International Society of Pediatric Oncology
SJCRH	St. Jude Children's Research Hospital

**ABSTRACT**

The COVID-19 pandemic quickly led to an abundance of publications and recommendations, despite a paucity of information on how COVID-19 affects children with cancer. This created a dire need for a trusted resource with curated information and a space for the pediatric oncology community to share experiences. The Global COVID-19 Observatory and Resource Center for Childhood Cancer was developed, launched and maintained by the International Society of Pediatric Oncology and St. Jude Children's Research Hospital. The three components (Resource Library, Global Registry, and Collaboration Space) complement each other, establishing a mechanism to generate and transfer knowledge rapidly throughout the community.

## INTRODUCTION

After rapidly spreading across the globe, COVID-19 officially became a pandemic on March 11<sup>th</sup>, 2020.<sup>1</sup> Initial reports suggested that patients with comorbidities were at higher risk, causing concern that children with cancer were at risk of developing severe infection.<sup>2</sup> Furthermore, measures to mitigate the spread of the virus, such as delaying medical procedures and travel restrictions, were anticipated to disturb the continuity of pediatric cancer care.<sup>3</sup> It was also anticipated that the effects of the pandemic on health systems would amplify existing obstacles to caring for children with cancer.<sup>3</sup>

Since the beginning of the pandemic, a deluge of information regarding disease characteristics and possible management strategies was disseminated. This infodemic, an overabundance of information during an epidemic<sup>4</sup>, has posed challenges never encountered before and was an early concern<sup>5</sup>. The rapid spread of information and misinformation, potentiated by social media platforms, presented a public health challenge, confusing and overwhelming healthcare professionals and lay public alike.

In response to the need for a trusted resource with curated, reliable information and a platform to share experiences for the pediatric oncology community, the International Society of Pediatric Oncology (SIOP) and St. Jude Children's Research Hospital (SJCRH) created the Global COVID-19 Observatory and Resource Center for Childhood Cancer (GCORCCC). The GCORCCC was launched as an open-access website ([covid19childhoodcancer.org](https://covid19childhoodcancer.org)) on April 15<sup>th</sup>, 2020.

## GENERAL OVERVIEW OF THE RESOURCE CENTER

The GCORCCC comprises three main elements: Resource Library, Global Registry, and Collaboration Space, outlined below. As of October 20<sup>th</sup>, 2020, the GCORCCC has 64,980 page views by 32,295 unique users from 164 countries (*Figure 1*). Additionally, to address questions related to pediatric cancer care during the pandemic in a live and interactive way, a series of webinars entitled *COVID Conversations* have been hosted. To date, 11 sessions directed at various aspects of cancer care and disciplines, including pediatric oncologists, nurses, surgeons, radiation oncologists, non-governmental organizations, parents, and survivors, have been held. Regionally focused sessions were also held for Northern Italy and Spain, India and Pakistan, Latin America, and Africa. On average the webinars have been attended by 337 people from 70 countries.

### *RESOURCE LIBRARY*

The Resource Library contains updated curated peer-reviewed manuscripts, guidance documents, and links relevant to the multidisciplinary care of children with cancer during COVID-19. Publications are reviewed and assessed for relevance weekly for inclusion.<sup>7</sup> We prioritize the dissemination of accurate data and quickly identify and address misinformation or conflicting reports. Only peer-reviewed articles are included, as unvetted scientific information, such as preprints, were identified as a risk for misinformation for providers.

The sections of the Resource Library are: COVID-19 and Pediatric Oncology, General COVID-19 Information, Treatment, Prevention, For Healthcare Providers, and For Patients and Families. Each section provides a collection of publications, guidance documents, recorded webinars, and relevant links.



To address the needs of healthcare professionals during this unprecedented time, resources focusing on leadership, self-care, and resiliency are also included in the Resource Library. Additionally, a sub-section specifically aimed at nurses, with literature and guidance documents was developed. The *Pediatric Oncology Nursing during COVID-19 Fact Sheet* summarizes the most relevant guidance for caring for children with cancer and is available in six languages as a quick bedside reference. Finally, a section with resources for patients and families aids bedside providers in educating and navigating patients and families towards trusted, accurate sources of information.

## **REGISTRY**

At the beginning of the pandemic, the natural history of COVID-19 in children and adolescents with cancer was unknown. To gain an accurate picture of the burden of COVID-19 among this patient population, we developed the Global COVID-19 Registry. Healthcare providers worldwide were invited to voluntarily report any patient (under 19 years of age) with a malignancy or history of hematopoietic stem cell transplant at the time of a laboratory-confirmed SARS-CoV-2 infection. The Registry was approved by the SJCRH Institutional Review Board.

As of December 21<sup>st</sup>, 2020, 1228 cases from 46 countries have been reported. Using aggregate data, we created an interactive data visualization dashboard to provide updates in a dynamic format (Figure 2). The data visualization allows providers to filter cases by variables such as underlying diagnosis, cancer treatment, and COVID-19 outcomes.

## COLLABORATION SPACE

Creating an opportunity to bring the global community of healthcare professionals together is an essential component of the GCORCCC. The Collaboration Space provides a forum for healthcare professionals to interact and share their experiences and questions about caring for children with cancer during the COVID-19 pandemic. The Collaboration Space has language translation capabilities, making it accessible to a large number of providers globally. Here, users are also able to access content, such as videos, blog posts, and live events.

Through sharing experiences, providers can support and learn from each other. *From the Frontlines* is a blog series published to highlight unique accounts of childhood cancer providers navigating COVID-19 around the world. To date, the blog features stories from 24 providers in 19 countries. These providers discuss the challenges their teams have faced and innovative solutions they have employed to continue to treat children with cancer during the pandemic. Currently, there are 1,300 total active users registered in the Collaboration Space who have connected and interacted over 36,000 times with content elements.

## DISCUSSION

A rapidly evolving pandemic poses many challenges in caring for children with cancer. The GCORCCC established a mechanism to generate and transfer knowledge for the pediatric oncology community during a global pandemic and infodemic. Through its various elements, users can access relevant information to help them adapt and respond to the rapidly shifting situation.

Academic institutions and professional societies should play central roles in the accurate and timely dissemination of information. For professionals caring for children with cancer, the sharing of experiences from regions that were affected early in the pandemic was essential for formulating the initial responses to the evolving pandemic.<sup>11-13</sup> In addition, guidance for the management of COVID-19 for different patient populations was generated by government agencies and professional societies with remarkable speed.<sup>14-16</sup> Importantly, information sufficiency has been linked to less stress and worry amongst health care professionals<sup>17</sup>. For this reason, a resource like the GCORCCC can support individuals to decrease burn out and improve resilience. This effort brought colleagues together and facilitated a sense of community in these trying times, in an innovative approach to addressing global challenges in pediatric cancer care. Many organizations attempted to compile listing of resources that are relevant to their specific populations, but few of them also sought to create knowledge about COVID-19 in their populations to add to the evidence-based literature.

## **CONCLUSION**

At a time of exceptionally high stakes for children with cancer, the multi-stakeholder collaboration that led to the GCORCCC represents a framework for global cooperative efforts in the future. SIOP and SJCRH formed a partnership aimed at disseminating the GCORCCC widely and rapidly throughout the global network, leveraging the strengths of both organizations. This platform shows that novel, dynamic information resources can help provide guidance to frontline providers across the globe, facilitating the rapid sharing and adoption of new information in highly dynamic situations. The collaborations built through this rapid multidisciplinary implementation and global dissemination process

provide a foundation upon which the global community can collectively build to ultimately improve outcomes for all children with cancer, everywhere.

AcknowledgmentIn memoriam:

This manuscript is dedicated to Dr. Arturo Moreno, past president of SLAOP/SIOP

~~Continental President~~ Latin America, a tireless advocate for children with cancer in Mexico, Latin America and the world.

For Peer Review

## References:

1. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. 2020. (Accessed October 20, 2020, at <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>.)
2. Liang W, Guan W, Chen R, et al. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *Lancet Oncol* 2020;21:335-7.
3. Bouffet E, Challinor J, Sullivan M, Biondi A, Rodriguez-Galindo C, Pritchard-Jones K. Early advice on managing children with cancer during the COVID-19 pandemic and a call for sharing experiences. *Pediatr Blood Cancer* 2020;67:e28327.
4. Coronavirus disease 2019 (COVID-19) situation report- 86. 2020.
5. Munich Security Conference. 2020 Feb 15.
6. Organization WH. Developing Global Norms for Sharing Data and Results during Public Health Emergencies. 2015.
7. Tangcharoensathien V, Calleja N, Nguyen T, et al. Framework for Managing the COVID-19 Infodemic: Methods and Results of an Online, Crowdsourced WHO Technical Consultation. *J Med Internet Res* 2020;22:e19659.
8. Mehra MR, Desai SS, Ruschitzka F, Patel AN. RETRACTED: Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis. *Lancet* 2020.
9. Mehra MR, Ruschitzka F, Patel AN. Retraction-Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis. *Lancet* 2020;395:1820.
10. Davido. Hydroxychloroquine plus azithromycin: a potential interest in reducing in-hospital morbidity due to COVID-19 pneumonia (HI-ZY-COVID)? 2020.
11. Yang C, Li C, Wang S, National Clinical Research Center for Child H, Disorders, Children's Oncology Committee of Chinese Research Hospital A. Clinical strategies for treating pediatric cancer during the outbreak of 2019 novel coronavirus infection. *Pediatr Blood Cancer* 2020;67:e28248.
12. Boulad F, Kamboj M, Bouvier N, Mauguen A, Kung AL. COVID-19 in Children With Cancer in New York City. *JAMA Oncol* 2020.
13. Vasquez L, Sampor C, Villanueva G, et al. Early impact of the COVID-19 pandemic on paediatric cancer care in Latin America. *Lancet Oncol* 2020;21:753-5.
14. Sullivan M, Bouffet E, Rodriguez-Galindo C, et al. The COVID-19 pandemic: A rapid global response for children with cancer from SIOP, COG, SIOP-E, SIOP-PODC, IPSO, PROS, CCI, and St Jude Global. *Pediatr Blood Cancer* 2020;67:e28409.
15. Janssens GO, Mandeville HC, Timmermann B, et al. A rapid review of evidence and recommendations from the SIOPE radiation oncology working group to help mitigate for reduced paediatric radiotherapy capacity during the COVID-19 pandemic or other crises. *Radiother Oncol* 2020;148:216-22.
16. Verbruggen LC, Wang Y, Armenian SH, et al. Guidance regarding COVID-19 for survivors of childhood, adolescent, and young adult cancer: A statement from the International Late Effects of Childhood Cancer Guideline Harmonization Group. *Pediatr Blood Cancer* 2020:e28702.

17. Goulia P, Mantas C, Dimitroula D, Mantis D, Hyphantis T. General hospital staff worries, perceived sufficiency of information and associated psychological distress during the A/H1N1 influenza pandemic. *BMC Infect Dis* 2010;10:322.

For Peer Review

## FIGURE LEGENDS

### **Figure 1: Global COVID-19 Observatory and Resource Center for Childhood Cancer usage.**

Individuals from more than 160 countries from across the world accessed the GORCCC.

### **Figure 2: Screenshot of the visualization dashboard of the Global COVID-19 Registry.**

An interactive visualization was created to illustrate cases included in the Registry. Patients from 46 countries have been submitted (size of circle is proportional to patient number).

For Peer Review

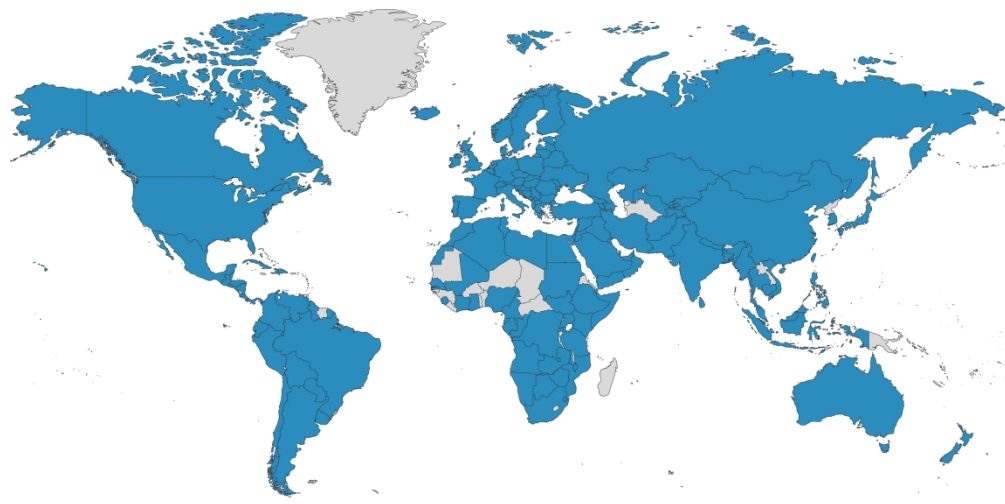


Figure 1: Global COVID-19 Observatory and Resource Center for Childhood Cancer usage. Individuals from more than 160 countries from across the world accessed the GORCCC.



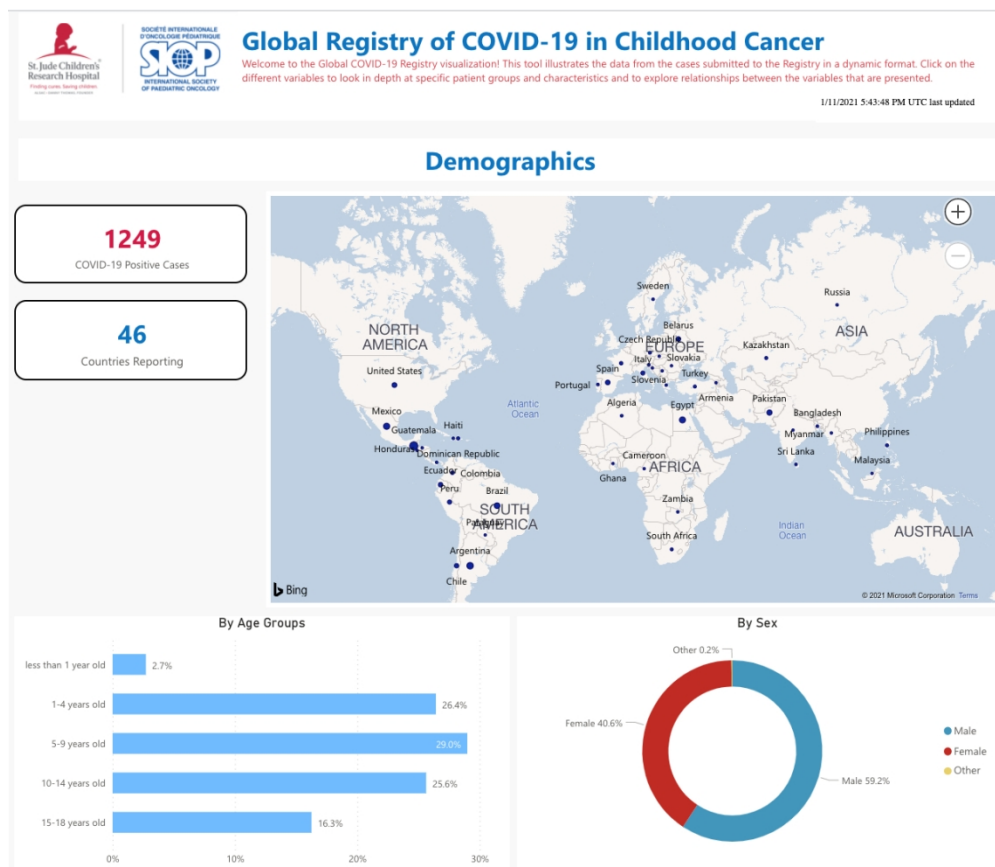


Figure 2: Screenshot of the visualization dashboard of the Global COVID-19 Registry. An interactive visualization was created to illustrate cases included in the Registry. Patients from 46 countries have been submitted (size of circle is proportional to patient number).

107x92mm (300 x 300 DPI)