

Annual Report 2023

Basel Research Centre for Child Health

Executive Summary

This past year was an exciting time of change as the BRCCH took further steps towards becoming a paediatric digital health hub in Basel, including changing its name to the Basel Research Centre for Child Health. With the generosity of Fondation Botnar, the University of Basel and ETH Zurich began the recruitment process for four new BRCCH professorships in 2023 and prepared to recruit for a further two professorships and two research platforms. These experts will work collaboratively to develop innovative digital solutions that address the unmet medical needs of children and adolescents.

During this transition, existing BRCCH research consortia continued making scientific progress. The Multi-Investigator Programme surpassed expectations during its midterm review and the Principal Investigator Initiative gained momentum and began delivering results. Similarly, the Fast Track Call: COVID-19 Research and Postdoctoral Excellence Programme, which are ending in 2024, accomplished their main scientific objectives. All these efforts translated into 89 original research manuscripts and 141 conference and symposium presentations in 2023.

The following report provides an overview of the BRCCH's achievements and activities over the last year. This work would not have been possible without the generosity of our funder, Fondation Botnar, and the support of our researchers and partner institutions, the University of Basel, ETH Zurich, the University Children's Hospital Basel and the Swiss Tropical and Public Health Institute..

Transition towards Becoming a Paediatric Digital Health Hub

The BRCCH is transitioning to a paediatric digital health hub embedded within the University of Basel and ETH Zurich. In its new form, the BRCCH will bring together six professors – three at the University of Basel and three at ETH Zurich. These experts will work collaboratively within a new research facility on the University of Basel's Life Sciences Campus to develop new digital solutions and approaches that solve the most pressing medical needs of paediatric patients.

The professorships will focus on digital health data analytics, systems developmental medicine, paediatric infectious disease modelling, biomolecular diagnostics, computational medical genomics and digital health ethics and policy. Additional expertise in bone and soft tissue pathology and paediatric clinical trials will help support the research efforts of the paediatric digital health hub as a whole.

The recruitment processes for the six professors are at varying stages of completion. Progress has also been made in establishing the BRCCH research platform in Digital Paediatric Bone and Soft Tissue Pathology. Prof Dr Daniel Baumhoer began his work with the BRCCH in January 2024 to lead this initiative. He is currently Deputy Chief Physician for Pathology at the University Hospital Basel and is an expert in childhood bone and soft tissue and digital pathology.

In January 2024, the BRCCH officially changed its name to the Basel Research Centre for Child Health (BRCCH). This new name acknowledges the Centre's transition to a paediatric digital health hub in Basel. It also recognises the city's importance to the BRCCH's past and present achievements and to our funding agency, Fondation Botnar. We have received positive feedback on this change on social media and from members of the Basel community.



Research Programmes

Multi-Investigator Programme

The Multi-Investigator Programme is the cornerstone of the BRCCH's research portfolio, with a focus on multidisciplinary approaches and partnerships among researchers from the BRCCH's four partner institutions. These consortia are leading groundbreaking research across bio-diagnostics, therapeutic bioengineering and digital health-based interventions.

This year marked the halfway point for the Multi-Investigator Programme. In January 2023, the initial project evaluation committee members were invited to participate in a formal review of the progression of the projects. The consortia were assessed based on their scientific achievements, impact and relevance, as well as their budget use and future research plans. All of the Multi-Investigator Programme projects were positively evaluated and the reviewers were impressed with the researchers' achievements.



A family in the highlands of Cajamarca, Peru accompanying a child during his final child development assessment as part of the Digital Support Systems to Improve Child Health and Development in Low-Income Settings project. Credit: Milagros Alvarado

Prof Andreas Mueller from the Burden-Reduced Cleft Lip and Palate Care and Healing consortium at the GSR Institute of Craniomaxillofacial and Facial Plastic Surgery, Hyderabad, India sharing clinical knowledge of palatal plate delivery to a patient. Credit: Prof Andreas Mueller



Fast-Track Call: COVID-19 Research

The Fast-Track Call: COVID-19 Research was launched in 2020 to rapidly support research that helped immediately mitigate medical and public health challenges presented by the COVID-19 pandemic. Over the last year, 7 of the 11 funded projects have concluded and the remaining 4 will finish in June 2024. With the support of the BRCCH, the Fast-Track Call: COVID-19 Research consortia developed new technology to detect SARS-CoV-2, investigated new COVID-19 therapies, identified risk factors for severe COVID-19 and designed modelling methods to predict disease spread and virus evolution.

Postdoctoral Excellence Programme

The BRCCH Postdoctoral Excellence Programme was launched in 2021 as a three-year initiative to foster the next generation of scientific leaders who are pursuing interdisciplinary research that addresses critical unmet needs in global paediatric health. In 2023, the five Postdoctoral Excellence Programme researchers won prestigious awards, presented at international conferences and published their impactful scientific progress. To celebrate the conclusion of this funding programme, the Postdoctoral Excellence Programme researchers presented their progress during the BRCCH's "Future of Paediatric Health Research Spotlight Day" in April 2024.

Principal Investigator Initiative

Launched in 2022, the Principal Investigator Initiative (PII) is a four-year funding programme that is driving interdisciplinary research that addresses critical challenges in global paediatric health. Fifteen lead researchers from the BRCCH's four partner institutions are collaborating with 38 international partners across 15 countries to innovate paediatric health diagnosis, disease treatment and prevention. Over the last year, the researchers generated evidence-based reports to guide international decision-makers in public policy, made tools accessible to the broader research community and conducted clinical trials with health interventions in low- and middle-income countries.



The Principal Investigator Initiative FACE-IT: Feasibility and Economic Evaluation of Improved Child Deworming consortium examining samples from schoolchildren in Uganda for soil-transmitted helminth eggs.

Credit: Marta Palmeirim



Postdoctoral Excellence Programme Researcher Dr Kanika Dheman presenting her work on a device for non-invasive vital monitoring at the BRCCH's "Future of Paediatric Health Research Spotlight Day" in Basel, Switzerland. Credit: BRCCH

Research Outputs and Communications

Sharing research results publicly provides open access to knowledge that can drive other research, inform best practices in the field and shape public policy decisions. Over the last year, BRCCH-funded researchers made it a priority to publish, share and apply their research findings through:



89

Publications and Data
(Scientific articles, books and book sections, codes and datasets in recognised journals, platforms or repositories)



141

Research Presentations
(Oral talks, poster presentations)



19

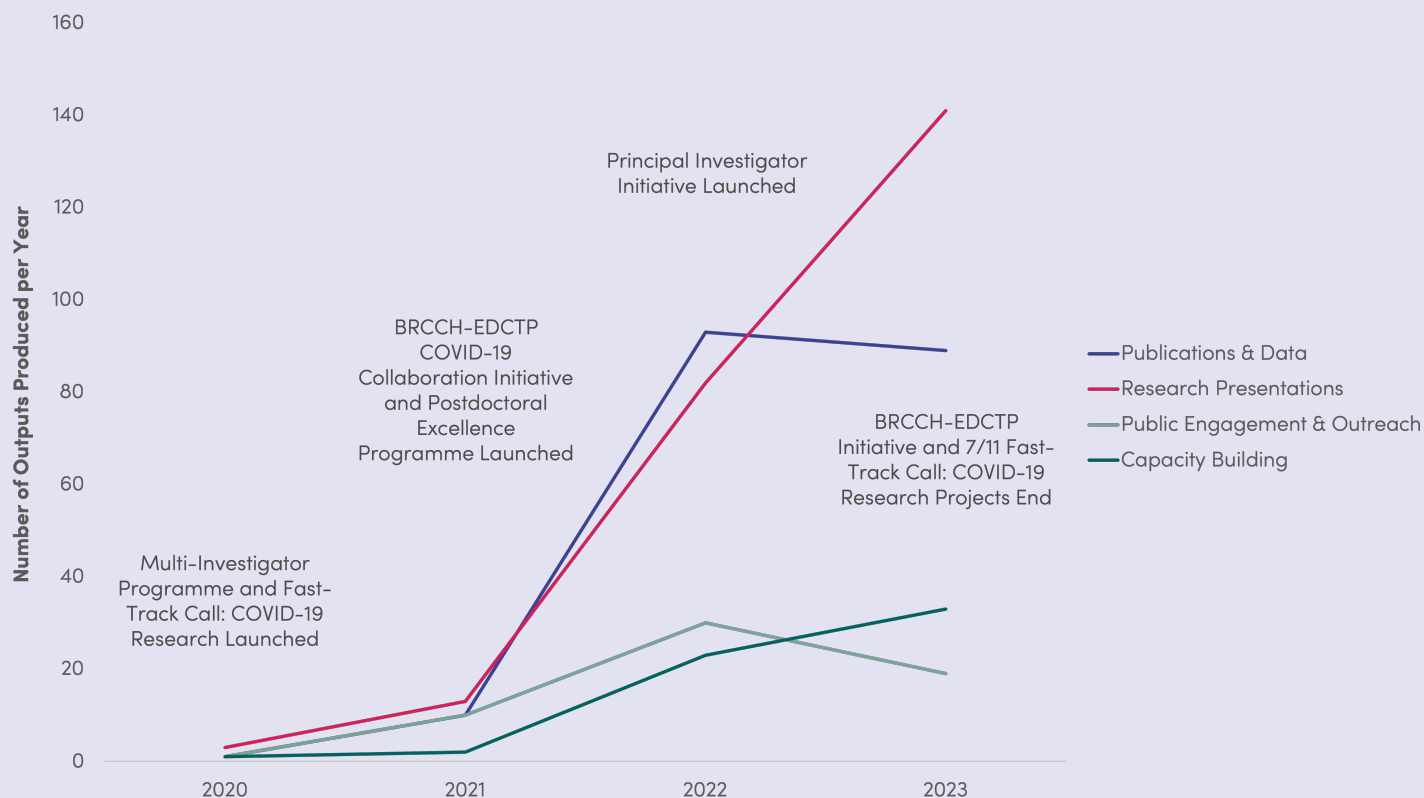
Public Engagement and Outreach Activities
(Communications with the public, such as media articles, interviews, videos, podcasts, public lectures)



33

Capacity Building Activities
(Teaching, education, training activities)

Number of Research Outputs Produced by All BRCCH-Funded Researchers Since 2020



Additional Activities

Support for Early Career Researchers

The Early Career Programme remains a core part of the BRCCH's mandate, providing training opportunities to the next generation of paediatric health researchers. Outside of the Postdoctoral Excellence Programme, we provide career support for more than 70 early career researchers working on BRCCH projects. In 2023, we hosted three capacity-building workshops for these scientists, focused on the importance of mentorship and sponsorship, communicating science with impact and using video and photography for science communication. Workshops over the coming year will include topics such as personal branding, science translation and leadership.

Research Seminar Series

The BRCCH engages with the international research community by hosting seminars throughout the year that highlight BRCCH research from different funding programmes. These events are accessible online to ensure the largest possible reach. Within this forum, BRCCH-funded researchers share their progress with the broader scientific community. Inviting renowned international external speakers also bolsters the recognition of the BRCCH, encourages global collaborations and attracts a broader audience.

In 2023, BRCCH seminars focused on the Multi-Investigator Programme projects and attracted 240 attendees from 35 countries. The topics for these presentations included:

- “Digital Support Tools for Paediatric Health” featuring BRCCH researcher Prof Günther Fink (Swiss TPH) and guest speaker Prof Valérie D'Acremont (University of Lausanne)
- “The Gut Microbiome as a Tool for Individualised Medicine” featuring BRCCH researchers Prof Randall Platt (ETH Zurich) and Prof Andrew Macpherson (University of Bern) and guest speaker Prof Michael Zimmermann (EMBL-Heidelberg)
- “Evolving Perspectives in Improving Cleft Lip and Palate Care” featuring BRCCH researchers Prof Andreas Mueller (University Children's Hospital Basel) and Dr Baran Gözcü (ETH Zurich) and guest speaker Assoc Prof David Chong (Royal Children's Hospital Melbourne)



BRCCH Multi-Investigator Programme Lead Researcher Prof Günther Fink presenting at a BRCCH seminar.



BRCCH Early Career Researchers attending a workshop about mentorship and sponsorship.

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