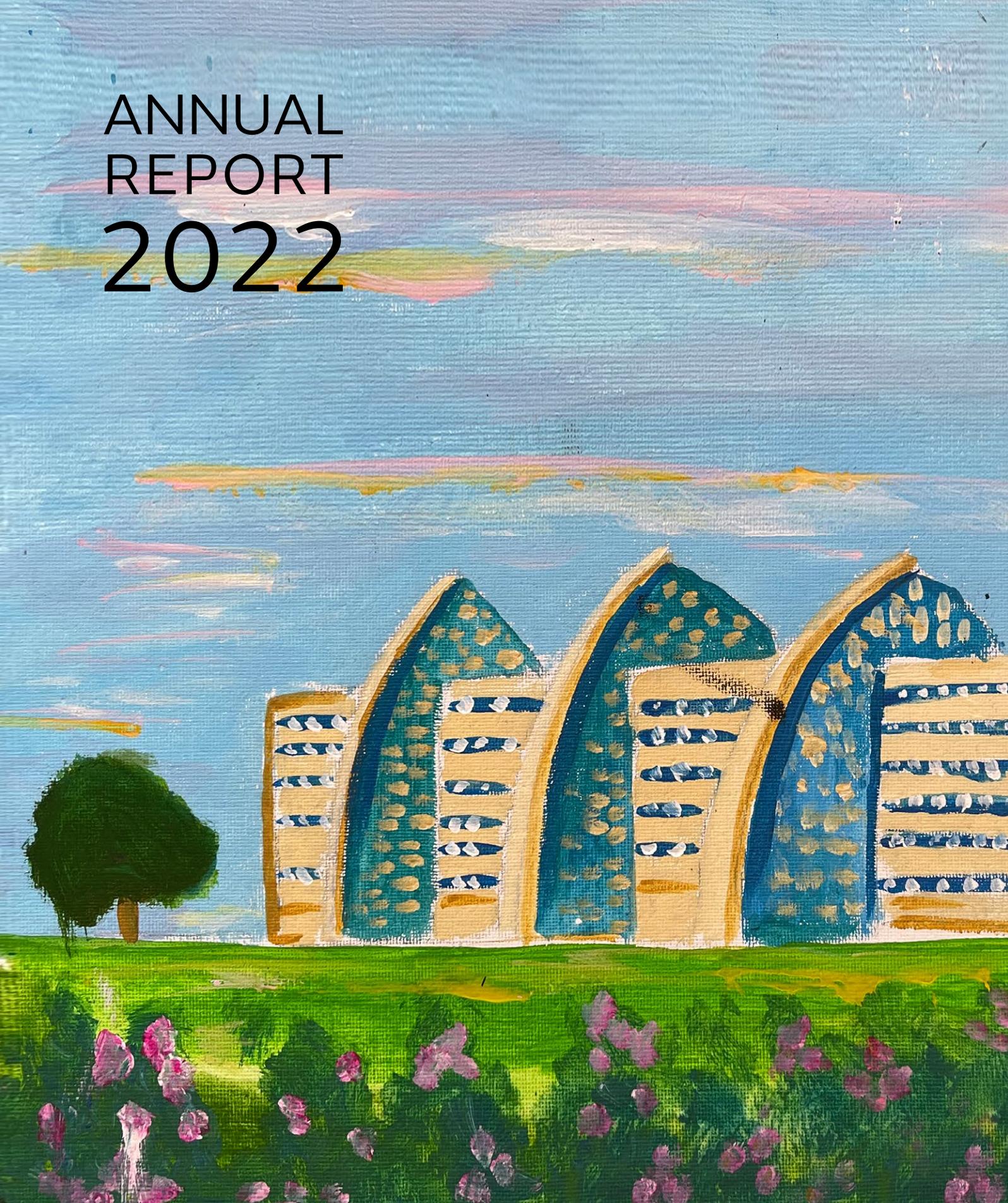


ANNUAL REPORT 2022



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Vision and Mission

Sidra Medicine is a beacon of learning, discovery, and exceptional care, ranked among the top academic medical centers in the world.

We provide children and women with outstanding tertiary healthcare services in an innovative and ultramodern facility specially designed to promote healing.

We collaborate with academic partners, leading research institutions and Qatar's health sector to train students and staff. We will deliver leading clinical and translational research of value to the population of Qatar and the world.

About Us

Based in Education City and as an entity of the Qatar Foundation for Education, Science and Community Development (QF), Sidra Medicine plays an important part of Qatar's developing dynamic research and education environment. The high-tech facility represents the vision of its Chairperson, Her Highness Sheikha Moza bint Nasser.

Since opening our Outpatient clinics in 2016 and our main hospital in 2018, we continue to deliver optimal care for women and children who require specialist expertise. We are home to world-class patient care, scientific expertise, and educational resources.

With a team of international healthcare experts, some of whom are considered pioneers and rank among the best in their fields worldwide, we have changed the specialist healthcare services landscape for patients in Qatar and beyond. In fact, several of our services and programs are benchmarked against some of the top hospitals in the world.

Through strong partnerships with leading local and international institutions, we remain committed to creating an intellectual ecosystem that will help advance scientific discovery through investment in medical research. This has become an integral approach of implementing precision medicine into the very core of our patient services model and we are one of the few hospitals in the region to embark on such an undertaking.

Working closely with academic partners like Weill-Cornell Medicine in Qatar (WCM-Q), University of Calgary, Qatar University (QU), and Hamad Bin Khalifa University (HBKU) as well as other health and research institutions like Hamad Medical Corporation (HMC), Primary Health Care Corporation (PHCC) and Qatar Biobank— Sidra Medicine has raised the standard of healthcare throughout the country and provides valuable opportunities for research and learning.



Leadership

The Board of Governors are responsible for developing and reviewing the hospital's overall mission and strategy, long-term goals and policies by making strategic plans and decisions. The day-to-day management falls under the Chief Executive Officer and the Executive Leadership Team who are responsible for ensuring that all decisions are taken in the best interests of the organization and the strategy and goals outlined by the Board of Governors are fulfilled, and that the organization continues to deliver high quality care to all its patients.

Board of Governors 2022



Her Highness Sheikha Moza bint Nasser
Chairperson



Professor the Lord Darzi of Denham
Vice Chair



Her Excellency Dr. Hanan Mohammed Al Kuwari
Minister of Public Health
Governor



Dr. Iyabo Tinubu-Karch
Governor (Ex-officio)



Mr. Mohammed Khalid Al Mana
Governor



Mr. Mohd Ismail Mandani Al Emadi
Governor



Mr. Yousuf Al Jaida
Governor



Dr. Javid I. Sheikh
Governor



Professor Deborah White
Governor



Dr. Muhammad Pate
Governor



Professor John Eu-Li Wong
Governor



Dr. Elias Zerhouni
Governor



Dr. Swati Piramal
Governor

Executive Leadership Team



Dr. Iyabo Tinubu-Karch
Chief Executive Officer



Professor Ziyad Hijazi
Chief Medical Officer



Ms. Judy Dawson-Jones
Chief Nursing Officer



Dr. Khalid Fakhro
Chief Research Officer



Mr. Mohammed Salem
Chief of Corporate Services



Mr. Hassan Al-Amri
Acting Chief Financial Officer



Dr. Basma Harara
Executive Director of
Clinical Operations



Mr. Abdulrahman Telfat
Executive Director of
Human Resources



Dina Schnurman
Director of Quality and
Patient Safety



Mr. Abdulla Al Yafei
Acting General Counsel



Maha Al Henzab
Acting Executive Director of
Information Technology

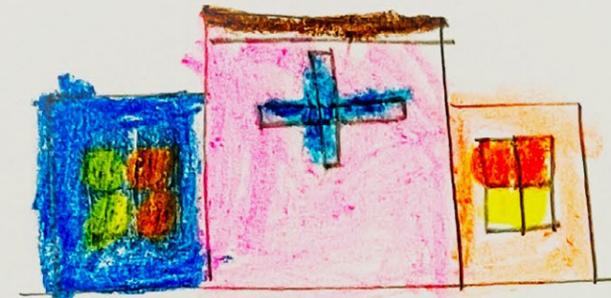


Ms. Jennifer Ahen
Director of Marketing and
Communications

Created by Avika Vijay

Age: 4 years

Born at Sidra Medicine





CEO's Overview

The year 2022 was historic. In this annual report, you will learn about the groundbreaking work of our diverse teams, as well as stories about how they have gone above and beyond the call of duty to what makes Sidra Medicine an exceptional healthcare institute.

The report also features updates and examples of our staff's tenacity to ensure our patients' access to safe and world-class healthcare services and the faith our patients have placed in us. I hope you will appreciate the artwork created by our young patients, showcasing their love and gratitude for the care they received at our hospital.

In the spirit of continuous improvement, we have remained true to our mission and vision of being a leading academic healthcare and research hospital, and we have continued to keep our patients and community safe.

Everything we have done and continue to do is centered on the patient and ensuring that we always provide safe and quality care. We have taken decisive steps towards improving and innovating our services and what we offer all our stakeholders, the results of which will be seen in the coming years.

We fully support Qatar's National Health Strategy by promoting an integrated system and model of care that is more patient-centric, as well as empowering patients to share responsibility for their health. Through our research and translational medicine breakthroughs this year, you will also see our approach to improving population health rather than individual health.

I would also like to acknowledge that our achievements reflect the investment and trust in us by the Government of Qatar as well as Qatar Foundation, of which we are a proud entity. Our reach has gone beyond our borders and positioned Sidra Medicine as global and trusted healthcare partner.

Our workforce of over 3100 employees, have contributed to our progress toward becoming the hospital envisioned by the country's great leaders. Their selflessness and dedication to our patients has been exceptional.

As we look to the year ahead, we acknowledge our wider responsibilities to the community. As the country's only tertiary pediatric hospital, we have set out a detailed road map to build a better health future for children and families. We have also expanded our service offering to offer a more holistic approach to health for our female patients.

As an academic medical center, we are confident that we will develop programs with our partners to inspire the youth of this great country to be a part of Qatar's transforming and exciting health landscape. And finally, through our research, we remain committed to making precision medicine and translational medicine a reality for everyone.

I am a newly appointed CEO, but I have been a member of this diverse, motivated, and committed team as a Board Member for the last four years. It is my privilege and honor to be a part of a team that is pioneering a personalized journey of care and cure and building pathways to a healthier Qatar.

Dr. Iyabo Tinubu-Karch
Chief Executive Officer
Board Member (Ex-Officio)

Milestones 2022

JANUARY

- Study on Fasting and Cancer treatment
- Development of new blood processing method
 - Ewing Sarcoma surgery



FEBRUARY

- Discovery of new form of IBD disease
- Cancer Susceptibility and Genomic research
- Precision diagnosis and therapy for Epilepsy research



AUGUST

- Neuroscience Conference



JULY

- Diabetes and Gene Editing Research



SEPTEMBER

- Childhood Cancer Awareness Month
 - PMFG Conference
- Pediatric Cancer Study
- Therapy for SMA patients



OCTOBER

- MoU with Microsoft
- Menopause Clinic Launch
- Women's Health Conference



MARCH

- QPEM Conference
- 2nd Car Seat Checking Station



APRIL

- New Women's Services & Clinics



JUNE

- GSAS Certification



MAY

- Evening Clinics Launched
- Maternal Mental Health conference



NOVEMBER

- Dr. Iyabo Tinubu-Karch appointed CEO
 - Male Infertility Clinic launch
- Classification of Diabetes Research study
- First Certified P-Valve implantation



DECEMBER

- QLM MoU



Chief Medical Officer's Message

As one reaches the end of a year, it is both natural and appropriate to reflect on what has been accomplished, what proved to be challenging, and to acknowledge what work still lies ahead.

For Sidra Medicine, 2022 was a year undoubtedly defined by our staff's innovative drive, compassion, and genuine commitment to patients and their families. At every level, I am so pleased and honored to see the many accomplishments that have successfully centered our focus on patient and family care.

The activation of the Patient Family Advisory Council (PFAC), for example, brings to life the collaborative vision we have for serving the patient community. The Council has already made an impact, with the Obstetrics Division receiving a high satisfaction rate for clinical care from patients and their families.

This spirit of collaboration is evident too in how we have seamlessly integrated research into clinical care pathways, enabling our researchers to take a more detailed view of individual patients, ultimately facilitating more responsive and flexible individualized care for an ever-increasing number of patients.

Such an approach – where about 57 percent of our research studies have a clinical lead – has, in turn, fostered more impactful research.

The Endocrinology division, for example, accurately classified the underlying biochemical and genetic causes of diabetes mellitus in each child with the disease in Qatar, while the Research branch published a groundbreaking study on pediatric cancer tumors, as well as a large-scale genomic study of more than 6,000 Qataris that helped unveil cancer susceptibility among Arab and Middle Eastern populations.

Sidra Medicine's mission to be a beacon of learning and exceptional care is indeed being realized in its first five years, as is our reputation as a top academic medical center. In 2022, we saw patient numbers increase substantially, with the Pediatric Emergency Department alone registering more than 106,000 patients, a 15 percent increase on 2021.

This trajectory is likely to continue upward in light of our new agreements with QLM Life & Medical Insurance Company and AlKoot Insurance & Reinsurance, partnerships that will ensure that a much broader patient-base will have access to efficient, flexible and quality medical care.

While the increasing number of patients in the past year has posed challenges, I am pleased to confirm that we have risen to meet those.

This includes the expansion of the Emergency Department Waiting Area, which both increased seating capacity and streamlined patient flow, the introduction of new procedures that reduced the number of admissions, and the initiation of new pathways that negated the need for using additional resources.

The increasing quantity of patients does not come at the cost of quality of care. If we look to The Heart Center, for instance, most of the new referrals were accommodated within a period of two weeks or less, with patients registering a high level of satisfaction in patient care.

We additionally developed the 'Sepsis Six' program, a pediatric sepsis screening tool and set of guidelines that provide a unified care pathway to increase awareness of pediatric sepsis to reduce sepsis mortality.

Post-pandemic, Sidra Medicine has indeed leveraged the lessons learned in terms of flexibility, responsiveness, and innovation, and we look forward to continuing to deliver leading clinical care and translational research of value. It is a privilege to help realize the vision of Her Highness Sheikha Moza bint Nasser, and an honor to serve the community.

Professor Ziyad M. Hijazi, MD
Professor of Pediatrics & Medicine
Chief Medical Officer
Chair – Department of Cardiovascular Diseases
Medical Director – International Affairs Office



Quality

Our Clinical Quality and Accreditation efforts during the year have continued to strengthen the structure, processes, and culture of our hospital-wide patient safety activity. Our overarching philosophy to provide the best care for our patients and their families permeates the entire organization. As the hospital matures, we continue to improve our quality processes and clinical outcomes through perseverance, commitment, and the unwavering faith in our team's ability to remain focused on delivering continuous, high-quality, innovative, safe care that responds to our data and meets the needs of our patients and family.

During the year, we have gradually emerged from the COVID-19 pandemic facing staffing shortages, supply chain issues, and many other challenges that healthcare organizations face. But what makes us different is our response. We view each challenge as an

opportunity to learn, grow and make a difference in the lives of our patients, their families, and our employees.

By collecting information on Near Misses and Adverse Events, we remain vigilant of the opportunities to reduce avoidable harm and improve patient safety as rapidly as possible. We review all our reported events daily and constantly question and analyze how and why an event has occurred, monitoring trends, and making improvements to prevent the same problems from recurring. During the year, we received 4960 reported Near Miss and Adverse events, an increase of 14%.

The proactive collection of data is displayed on our quality scorecard and discussed throughout the organization as part of the clinical effectiveness program. We also use our data to conduct internal and external

data comparisons. We have benchmarked our clinical results and compliance with processes between departments internally and externally through the National Database of Nursing Quality Indicators (NDNQI) and dedicated clinical registries. Reviewing the data and comparisons informs us of our progress but supports us in focusing on and streamlining our improvement initiatives.

This year our hospital wide Quality Priorities have included improvement in the following areas:

1. Fragile Bone
2. Patient Passport for Medically Complex Patients
3. Assigned Physician
4. Hospital-Acquired Extravasation Injuries:
5. Sepsis

We will undergo our Joint Commission Reaccreditation in March 2023. During the survey and after, we will work as one team with one focus. Quality and safety are crucial to all that we do for our patients, their families, and our staff.

In 2023, we will redefine how we approach Quality and Patient Safety as a system, defining our Quality Care domains and interlinking our operational, quality and safety, and patient and family feedback measures to ensure everything we do, and every decision we make, has the safety of our patients and families at the forefront. We will commit to providing the tools for our staff to ensure they are supported and empowered to drive improvements and create safer systems for the delivery of care.

Infection Prevention and Control

We have a comprehensive and robust Infection Prevention and Control (IPAC) program that is coordinated and monitored by the Infection Prevention and Control Subcommittee. In 2022, we focused on strengthening and monitoring our processes and structures to ensure we improve patient outcomes. We continue to work proactively across the organization to ensure patient safety remains a priority across the organization.

Hand hygiene is the simplest intervention for infection prevention and control that breaks the chain of infection. Organizationally, we have managed to sustain high levels of hand hygiene adherence. We introduced a new hand hygiene audit system – MEG. Our hand hygiene reports allow us to report on compliance with the World Health Organization (WHO) 5 moments of hand hygiene, and can be further broken down by staff type, unit/ department as well as barriers to hand hygiene (such as long sleeves, wrist watches, stoned rings and nail polish). To ensure effective and efficient auditing, we have 120 trained and validated hand hygiene auditors across the organization. We use the ‘secret shopper’ approach which aids collecting data that is reflective of actual hand hygiene practice as staff are unaware when they are being audited. This leads to an improvement in hand hygiene adherence.

In 2022, one of our key areas of focus was reducing the rates central line associated bloodstream infections (CLABSI) in our patients with indwelling central lines. A CLABSI Reduction Taskforce was set up to oversee CLABSI reduction action plan. The action plan had 8 key areas of focus:

- Governance, accountability, leadership and culture
- Policy, procedures and guidelines
- Education and training
- Post infection reviews and action plans
- CLABSI prevention care bundles compliance monitoring
- Surveillance and feedback
- Environment of care
- CLABSI prevention campaign (social marketing and awareness)

The work of the CLABSI Reduction Taskforce will continue in 2023 as we aim to target CLABSI rates and further reduce the avoidable CLABSIs.

We strengthened the post infection review process for device related healthcare associated infections (HCAI). These infections are Ventilator Associated Pneumonia (VAP), Catheter Associated Urinary Tract Infections (CAUTI), CLABSI and Surgical Site Infections (SSI). These HCAs are now reported through the events reporting system and this allows for the action plans to be monitored by the Quality Department to ensure opportunities of improvement are addressed in a timely manner.

We also focused on the patient care environment to ensure the risk posed by the environment is minimized. The IPAC team conducted environmental audits independently in all inpatient units, outpatient clinics, kitchen, laundry, Sterile Processing Department (SPD), Clinical and Research Laboratories, and Pharmacy. We were also involved in the managerial cleaning audits led by Hotel Services as well as Environment of Care rounds led by Facility Safety.

Other quality improvement initiatives included:

- Water Infection Control risk Assessment (WICRA). This is a critical component of water management programs in healthcare settings. It is a key tool that can be used by clinical and non-clinical teams to evaluate water sources, modes of transmission, patient susceptibility, patient exposure, and program preparedness. This will help the organization identify the high-risk outlets and prioritizing water management activities thus strengthening processes already in place.
- 5S Program. This is program based on the five-step lean methodology and it involves assessing and creating an organized environment that is clean, uncluttered, improves efficiency and optimizes productivity. It was successfully piloted on 3 inpatient units. In 2023, the 5S program is being rolled out across all the inpatient units.
- Surgical Hand Antisepsis eLearning. An eLearning module was developed for all staff who perform surgical hand antisepsis. This is a mandatory course aimed at those staff performing surgical and invasive procedures. This is a good example of how we use our audit data to drive change. In 2023, we will continue to monitor the course uptake and audit compliance with the correct hand antisepsis technique.
- Improve compliance to proper handling and disposal of Infectious linen -This Project was initiated by Laundry department in partnership with IPAC, to identify root cause of deviations from policy and to improve patient and staff safety by decreasing the number of deviations/cases relating to the issue from

different clinical units. Compliance with the linen management policy improved significantly.

Sidra Medicine remains a COVID-19 safe facility which means that COVID-19 positive patients will not be admitted onto the inpatient units. We saw an increase in the number of COVID-19 cases among staff during the 2022 FIFA World Cup but we did not have any cases of in-hospital transmission of COVID-19 among patients. The public health measures aimed at preventing COVID-19 transmission continue to be enforced.

The MOPH introduced the electronic system for reporting of notifiable communicable diseases and vaccinations – SAVES in November 2021. The electronic reporting form is integrated into CERNER and the laboratory system. In 2022, the Sidra Medicine physicians continued to receive training and support on the use of the system internally and from the MOPH Communicable Diseases Control team.

During the 2022 FIFA World Cup, the IPAC team contributed to the national surveillance of communicable diseases to ensure early detection of outbreaks of communicable diseases. The real time reporting was crucial and invaluable in providing the National Infection Prevention and Control team with information that was used daily for monitoring infection prevention and control events across the country and implementing the relevant public health measures.

Children and Young People's Services



Created by Dhaen Al Kuwari
Age: 9 years

Children and Young People's Services

Our services for children and young people take a multidisciplinary approach to care for patients and their families. Our teams are staffed with experts across medicine, surgery, nursing, social services, child life, psychiatry and more, who are all committed to ensuring a child's needs are met to the highest possible standards of care.

We have outstanding clinical programs and our physicians are recognized globally in their respective disciplines. We have attracted some of the world's top experts representing over 80 nationalities to care for our patients, from Qatar and beyond.

Services:

Pediatric Medicine (0-18 Years Old)	
Adolescent Medicine	Intensive Care (NICU Level IV, PICU, CICU)
Cardiology & Interventional Cardiology	Intraoperative Neuromonitoring
Child & Adolescent Mental Health	National Poison Centre
Dermatology	Neonatal & Pediatric ECMO
Developmental Pediatrics	Neonatal Hemodialysis
Epilepsy Monitoring Unit	Nephrology
Gastroenterology	Neurodiagnostics Lab
General Pediatrics: Secondary	Neurology
General Pediatrics: Tertiary	Pulmonary Function Test Lab
Genetics and Metabolic Diseases (0-14 years old)	Rehabilitation Medicine
Hematology & Oncology	Rheumatology
Hemodialysis, Peritoneal Dialysis and Apheresis	Sidra Child Advocacy Program
Infectious Diseases	Sleep Lab (Pediatrics)
Infusion Services	Transplant (Renal) & Transplant Coordination



Pediatric Medicine

Hematology and Oncology

The Division of Hematology and Oncology evaluates, interacts with, and treats children with conditions such as immunodeficiency disorders, cancer, autoimmune diseases, and infectious diseases. We also run a Palliative Care Service, which provides symptom management and psychosocial support for patients with chronic and life-limiting conditions.

We have a very active pediatric service for patients with pediatric cancer as well as blood diseases in children and adolescents aged 0-18 years at Sidra Medicine. There were 640 new patients visits and 3537 follow-up visits to our Hematology/ Oncology outpatient clinic. In addition, we had 1,213 inpatient admissions. A total of 6500 treatment sessions were provided including chemotherapy, transfusion and infusion of biotherapeutic agents in our outpatient center. In addition, about 350 procedures were performed.

We significantly enhanced our specialty pediatric hematology, oncology, and bone marrow transfusion services, and set up a specialized chemotherapy/ infusion center, a transfusion unit, and other dedicated inpatient and outpatient units. Also established were sub-specialty disease-specific clinics to better organize and deliver tailored, targeted care for patients, while expansion continued on the pediatric neuro-oncology service to streamline diagnoses and ensure high-quality care for children diagnosed with central nervous system tumors.

We continued to collaborate closely with stakeholders throughout 2022, developing the pediatric chapter of the National Strategic Qatar Cancer Plan 2023 to 2026; clearing pathways for cancer referrals and counter-referrals across Qatar; and supporting local and international research, including with the International Society of Pediatric Oncology. Sidra Medicine is a member of Qatar's Cancer Communication Working Group (CCWG)

comprised of the National Cancer Program; the Ministry of Public Health; Hamad Medical Corporation; Primary Health Care Corporation; and Qatar Cancer Society.

As part of our collaboration with the CCWG, Sidra Medicine marked September as Childhood Cancer Awareness Month in Qatar to raise awareness about pediatric cancer. To that end, we are heavily involved in organizing collaborative activities to support children with cancer and their families, through educational parent workshops, community and in-patient programs.

The division published a groundbreaking clinical study on pediatric cancer tumors, which found that pediatric solid tumors can be divided into six different types according to their immunologic compositions, and that different immune subtypes are associated with the distinct risk of death. The team developed an immune signature, called Immunologic Constant of Rejection (ICR), which accurately predicted the risk of death in patients with certain aggressive tumors.

We actively partner with our research division to look into precision medicine approaches for our young patients. Whether it was manufacturing eye drops to treat ophthalmological complications caused by a rare blood disease, or looking into therapies that will enhance the care they receive at our hospital.

As such, we are currently looking into the benefits of a fasting-mimicking diet (FMD) in helping boost the immune system in pediatric patients at our hospital, following a 2022 study conducted by our research division in partnership with Fondazione IRCCS, Istituto Nazionale Tumori (INT). The study, which was published in Cancer Discovery, indicated fasting as a possible new immunotherapy approach to cancer patient treatment.



Groundbreaking study on Pediatric Cancer Tumors

Our researchers from Human Immunology in collaboration with the Anatomic Pathology and Oncology Divisions published a groundbreaking study on pediatric cancer tumors. The study analyzed the relationship between tumor cells and immune cells and the impact of anti-tumor immune responses related to the survival of young cancer patients.

The study focused on solid tumors in children, and demonstrated that solid pediatric cancers can be classified according to their immunologic compositions. The researchers also identified some specific subtypes that might benefit from immunotherapeutic treatment approaches.

Using the advanced gene expression analysis skills available at Sidra Medicine, the team implemented methods and algorithms to quantify anti-tumor immune responses. Gene expression analysis, is a technique that allows to quantify the expression of approximately 20,000 genes in a single tumor biopsy. These genes are then analyzed to quantify the intensity of immune reactions.

The study also suggests that the quantification of the immune cells and their function in the tumor could be used as an advanced diagnostics tool to estimate the risk of relapse and death and therefore to guide treatment choice. The study highlights Sidra Medicine's continuing commitment to precision medicine and cancer research.



When Football Heroes Meet Warriors!

With so many of our brave young warriors fighting cancer and unable to meet their sporting heroes, we brought the legends to meet them. Thanks to Supreme Committee of Legacy, Qatar National Bank, Qatar Cancer Society, Qatar Tourism Authority and other partners, for bringing smiles and cheers in the Oncology ward at our hospital.

Neurology

Sidra Medicine's team of pediatric neurology experts are highly specialized in different aspects of pediatric neurology, including neuromuscular disorders, movement disorders, neurocutaneous disorders, headache disorders and neuro immunology.

Our Comprehensive Epilepsy Program is unique, offering all advanced treatment modalities for complex epilepsy at one site. We are the region's only children's hospital to provide epilepsy surgery, dietary therapy and neuro-stimulation procedures for children with intractable epilepsy.

In 2022, the team achieved the highest number of epilepsy surgeries performed in one year at Sidra Medicine since the establishment of this service in 2019.

The division also conducted an epidemiological study that found that up to 60 percent of children with epilepsy have an unknown cause for their condition, and that these children were more likely to develop drug-resistant epilepsy and exhibit other neurodevelopmental disorders.

Significant steps were subsequently taken to bridge the gap between research and clinical care to identify the underlying genetic causes and aid

the diagnosis of affected patients. An integrated program was implemented to identify a genetic diagnosis for unresolved patients, including a precision diagnosis platform tailored specifically for patients from the Middle East and North Africa (MENA) region.

In 2022, the division performed a total of 2,245 neuro-diagnostic studies, and saw 8,733 clinic visits, including 2,560 new referrals, with more than 90 percent of referrals seen within two weeks.

Our multidisciplinary collaboration with genetic medicine for the Spinal Muscular Atrophy (SMA) program has been ground-breaking as the program was selected to be the regional hub for providing novel gene therapy for the disease, and treated 11 patients from various MENA countries in 2022.

The division also organized the 2022 Pediatric Neuroscience Conference in partnership with the Society for Research into Hydrocephalus and Spina Bifida, drawing more than 500 delegates from around the world to share insights and best practice methodologies.

Genetics and Genomic Medicine

Our Genetics and Genomic Medicine Division, is Qatar's only state-of-the-art referral center for pediatric patients with genetic and inherited metabolic disorders. Our collaborative work entails the diagnosis, treatment, prevention and research in genetic and genomic medicine with respect to precision medicine.

Using a multidisciplinary approach, we provide high-quality, comprehensive diagnostic, management, genetic counseling and preventive services to patients and families with, or at risk of, genetic disorders and/or birth defects.

We are the sole provider of the innovative gene therapy using Zolgensma, to treat pediatric patients with spinal muscular atrophy (SMA), a genetic disorder that is the leading cause of death in children under two years of age.

We were also approved to provide patients with vosoritide, a once-daily injection that increases linear growth in children with achondroplasia, the most common form of skeletal dysplasia causing severe short stature and disproportionate growth.

As a result of our expertise and experience, Sidra Medicine was appointed as the lead treatment center in the Middle East and North Africa (MENA) region, to administer Zolgensma. Until now, more than 35 patients, local and international, received the life-saving gene therapy. This new treatment is changing the

natural history and therapeutic landscape of this lethal disease, as well as it gives families hope for children with spinal muscular atrophy.

Our collaboration with the Ministry of Public Health and Hamad Medical Corporation has helped position Qatar as one of the few countries in the region to offer pioneering and life-saving genetic therapies. Not only have we saved the lives of several SMA patients in Qatar, we have welcomed patients from Iraq, Iran, Lebanon and North Africa, as some of these gene therapy procedures are not available in their countries.

To establish and promote our reputation as major national center for clinical education and translational research within genetics, we participated in several high-profile clinical research projects and trials in 2022, including the Omics and NGS studies, Genomic Newborn Screening, and the Qatar Genome Project and Qatar Biobank, both in collaboration with Sidra genomic research.

While we have thus far successfully provided a clinical and biochemical genetics fellowship, a genetic counseling master program, and education and training for medical and biomedical students, we are committed to expanding our medical genetics workforce through recruitment and retention, ensuring we are able to provide high quality clinical service to meet increasing patient needs.

Saving lives of babies with SMA

One of the key gene therapy programs established at Sidra Medicine is the treatment of children with Spinal Muscular Atrophy (SMA). SMA is a neuromuscular disorder and a common fatal inherited disease resulting from a genetic mutation. If not treated in time, it can lead to severe morbidity and early death.

Children with SMA are cared for by a multidisciplinary team featuring physicians and nurses from clinical genetics and neurology and supported by rehabilitation therapies (including physiotherapy, occupational and speech therapy) and pharmacy services. In fact, Qatar is the only country in the region that was included in a clinical trial to evaluate the safety and effectiveness of a novel gene therapy to treat babies with SMA.

A patient family from Iraq, who flew to Qatar in 2022 to receive gene therapy for their young child, said: "One day, what you thought was impossible will come true. One day, your dream will become a reality. The most important thing is don't give up hope. Trust in God that He will give you more than you wished for. When our child was diagnosed with SMA, we felt that our world had turned upside down. We did a lot of research and were relieved when our child was chosen to get the life-saving gene therapy in Qatar. My dream came true at Sidra Medicine, one of the most wonderful hospitals with an amazing team of medical staff. I thank them for our wonderful experience."



Neonatology

The Division of Neonatology provides the highest level of neonatal care for premature and ill newborns from levels 1 through 4. It remains the only level 4 Neonatal Intensive Care Unit (NICU) in Qatar. Equipped to address the most serious and complex neonatal emergencies, we monitor babies born at all gestational ages against more than 150 parameters, and are proud to confirm that we have maintained an impressive survival rate of 95.4 percent.

In 2022, the division took significant steps towards aligning with Sidra Medicine's approach to patient- and family-centered care.

Chief among these is the establishment of Sidra Neonatal Unit Group Support (SNUGS), a group that provides parents with access to emotional and moral support, resources and educational material based on their needs, and core personnel from different departments, helping them to navigate an often-overwhelming time.

Another initiative aligned with patient- and family-centered care was the continued training of neonatal staff in the Family and Infant Neurodevelopmental Education Program, with nine staff members completing advanced training. This ensures that the unit continues to be highly adept at all elements of assessments, therapies, and education facilities to provide quality developmental and family integrated care.

We are also pleased to confirm excellent outcomes for CDH-Qatar, a program that provides comprehensive care for those afflicted with congenital diaphragmatic hernia (CDH). Given this complex congenital condition's high morbidity and mortality risks, our program's support ranges from antenatal to long-term outpatient follow-up.

As of 2022, comprehensive care is accessible too for those with short bowel syndrome, which, in collaboration with the neonatal surgical team, includes performing the complex bowel lengthening procedure.

Among the measures taken to mitigate risks among premature infants, is our ability to perform laser treatment in NICU. The treatment, which is time sensitive, is urgently needed by preterm infants born with retinopathy of prematurity, a potential cause of blindness. While delays could be caused by the availability of theatre, or merely the difficulty of transferring such fragile patients, the division has

successfully overcome such potential negative impacts by undertaking laser treatments bedside in NICU.

2022 saw too the launch of our neonatal sepsis screening tool and guidelines in support of our 'Sepsis Six' program. This program is aligned with the National Paediatric Sepsis Program, developed to provide a unified care pathway and to increase awareness of pediatric sepsis to reduce sepsis mortality.

In addition to publications in international journals and presentations at key global conferences, the NICU team contributed significantly to the development and delivery of our extracorporeal membrane oxygenation (ECMO) program, which, we are pleased to note, subsequently won the Extracorporeal Life Support Organization's (ELSO) silver award.

The Hemodynamic program on the neonatal unit is the first in the MENA region, to provide bedside hemodynamic assessment for managing sick and complex babies. The Q-NiCHE (Qatar Neonatologist with interest in Cardiology & Hemodynamics) training program is accredited by European Society of Pediatric research and is now well established on the NICU. It is one of the few programs offered globally to provide hands on training for functional echocardiography in neonates.

The division entered into several key partnerships and collaborations for the benefit of our patients, including national guidelines to address necrotizing enterocolitis, (NEC) in collaboration with HMC's Women's Wellness and Research Center; the International Pulmonary Hypertension Registry; and the International CDH Hemodynamic Registry.

Neonatal Parent Support Group – SNUGS



In 2022, we launched SNUGS, a neonatal parent support group to provide parents with access to the necessary support, resources and personnel. The group includes NICU physicians, nurses, allied health and lactation specialists and patient care partners.



How SNUGS helps NICU parents:

- We answer their questions and concerns and listen to their needs and requirements
- Offer emotional and moral support
- Put parents in touch with other parents from the NICU unit
- Allow parents to inform our staff on how they can support them
- Provide educational support and materials based on parental needs
- Allow parents access to core personnel from different departments

Gastroenterology

The Gastroenterology division provides state-of-the-art multidisciplinary tertiary and quaternary services for children and families with all forms of gastrointestinal (GI), hepatology and nutritional disorders, and supports other tertiary services across Qatar, the Gulf region, and Middle East.

In 2022, the division's Pediatric Endoscopy Department launched a raft of nurse-led endoscopy procedures, including anorectal, antroduodenal and colonic manometry, biofeedback, and electro-gastrography. This is the first pediatric diagnostic and interventional motility service in the region with a dedicated, specialized pediatric GI motility clinic.

Also introduced was the rapid infliximab infusion for children, which is available at the infusion center (OPIC) and has significantly reduced waiting times, improving our capacity to accommodate and attend to more patients.

An active participant in the international ImproveCareNow Network collaboration with more than 100 international pediatric GI sites, Sidra Medicine remains the only such center represented outside of North America and Europe. Notably, benchmark data from their end-2022 report places us among the top GI units in the world.

The Gastroenterology Division continued to excel at clinical research and patient recruitment, with our research program awarded grant funds for two projects in addition to those already underway. We saw an increase in the number of peer-reviewed publications in high impact journals to six, with one cited as a cover story because of its impact in translating lab research into clinical benefit for our patients.

We are also pleased to confirm that the division's ACGME-I application for the accreditation of a pediatric gastroenterology fellowship was approved in 2022.

Endocrinology

In 2022, the Endocrinology division continued to collaborate closely with Research in pursuit of a precision-based approach to patient-care. This included the division's comprehensive studies conducted in relation to the epidemiology, genetic landscape and causes of diabetes in Qatar.

One such study, related to the incidence and prevalence of diabetes mellitus, was the first of its kind in Qatar, and subsequently published in The Journal of Diabetes Investigation.

The study systematically recruited every child with diabetes mellitus in Qatar, from birth to 18 years, and accurately classified the underlying biochemical and genetic causes in each child. A high incidence and prevalence of both type 1 diabetes and type 2 diabetes were found in the study subjects, and the data collected will form the basis for establishing the national diabetes registry for children in Qatar.

Another study, conducted in collaboration with Qatar Genome Project and Qatar Biobank, aims to develop the best Polygenic Risk Score (PRS) algorithm to predict and prevent type 2 diabetes complications in diabetes patients.

This will enable targeted intervention including primary prevention, substantially impacting the management of type 2 diabetes patients. A better PRS algorithm would also potentially lower the healthcare costs associated with over-treating low-risk patients, while also preventing costly complications in more susceptible patients.

Additionally, our research into children using insulin pumps with fixed carbohydrate amounts resulted in evidence that this treatment modality could be offered to children and families with limited ability to effectively count carbohydrates. Such treatment would successfully decrease the risk of long-term diabetes complications attributed to high HbA1c.

Thank you to all the amazing
Sidra security st and staff
whow work so hard to keep
us safe and healthy!



Dr. Jessa

I love playing here! Thank you
for having toys and games
to keep entertained
while I wait.

Created by Aadhrika Deepak
Age: 8 years



Ground-breaking surgery performed on a young patient with rare form of bone cancer

A team lead by Sidra Medicine, in partnership with Hamad Medical Corporation, successfully performed ground-breaking ortho-plastic oncology surgery and saved the life and limb of a four-year-old girl with Ewing's Sarcoma, a rare type of cancer that occurs in or around the bones. The team consisted of over 10 surgeons, anesthesiologists and nurses with the surgery completed in just over 20 hours.

In a world first, the team excised the part of the bone affected by the tumor and reconstructed the excised bone by making an exact replica based on another bone taken from the patient and a custom cut bone graft. This construct was fitted together and a new blood supply was attached to the reconstructed bone under a microscope. Crucially, the growth potential of the hip was preserved using microsurgical techniques to preserve the blood supply to the growth plate of the hip. The entire construct was fixed using orthopedic fixation techniques.

The primary aim of the procedure was to remove the life-threatening cancer of the bone, but also achieve the best result in terms of function and future bone growth by preserving the patient's own hip joint.

The patient's parents said: "Words cannot describe the gratitude that we have for the entire team at Sidra Medicine. We are immensely relieved with the outcome of the surgery and the follow up care that she continues to receive. As a family, we felt we were in the safest of hands in this wonderful hospital. We hope that parents of children who have cancer, know that there is a children's hospital in Qatar with a team that you can trust who will provide the best care possible. Thank you Sidra Medicine, HMC and thank you to the government of Qatar for developing such an advanced healthcare system that provides hope, care and cure for families in Qatar."

Pediatric Surgery

The Department of Pediatric Surgery's multidisciplinary expert team specializes in the care of neonates, infants, children and young people with chest wall deformities, diaphragmatic hernia and neonatal ECMO, short bowel syndrome, malformations, colorectal disorders and gastroesophageal reflux disease and more.

The department is part of the pediatric National Surgical Quality Improvement Program (ACS-NSQIP), an international program used to measure and improve the quality of surgical care, tracking and reporting on clinical outcomes.

In 2022, the department's nine surgical specialties which includes general and thoracic surgery, performed more than 5,000 procedures, amounting to approximately 9,752 intra-op hours. This indicated an overall case volume increase of 10 percent from 2021.

Notably, we are the only hospital in Qatar to offer the treatment of minimally invasive Selective Dorsal Rhizotomy procedures. We also performed the world's first total pediatric oncologic hip reconstruction using the Capana technique, supplemented with microsurgical preservation of the proximal femoral epiphysis.

In the past year, the department also performed its first brachial plexus nerve exploration and grafting; and introduced the Scoliosis Surgical Program and Advanced Intestinal Rehabilitation Program, the latter of which prevents the need for intestinal transplants in children.

Pediatric Surgery Specialties

• Cardiac Surgery	• Orthopedic Surgery
• Fetal Surgery	• Otolaryngology (ENT)
• General Surgery & Thoracic Surgery	• Plastic & Craniofacial Surgery
• Neurosurgery	• Urology

Our nine surgical Specialties performed 4,698 cases (5,047 procedures, 9752 intra-op hours) – not including cases done in out-of-OR areas such as ED or on the Wards.

These cases constituted 46% of all surgical/procedural activity done under Anesthesia in 2022 (10,277 cases).

General Surgery accounted for 37% of all surgical/procedural activity in the hospital in 2022, for cases done under Anesthesia.

Created by Durga Gopan
Age: 5 years



HEART CLINIC



Comparison with 2021

Overall case volume increased by 10% from 2021, and overall intra-op hours increased by 14% from 2021 despite the continuation of the pandemic.

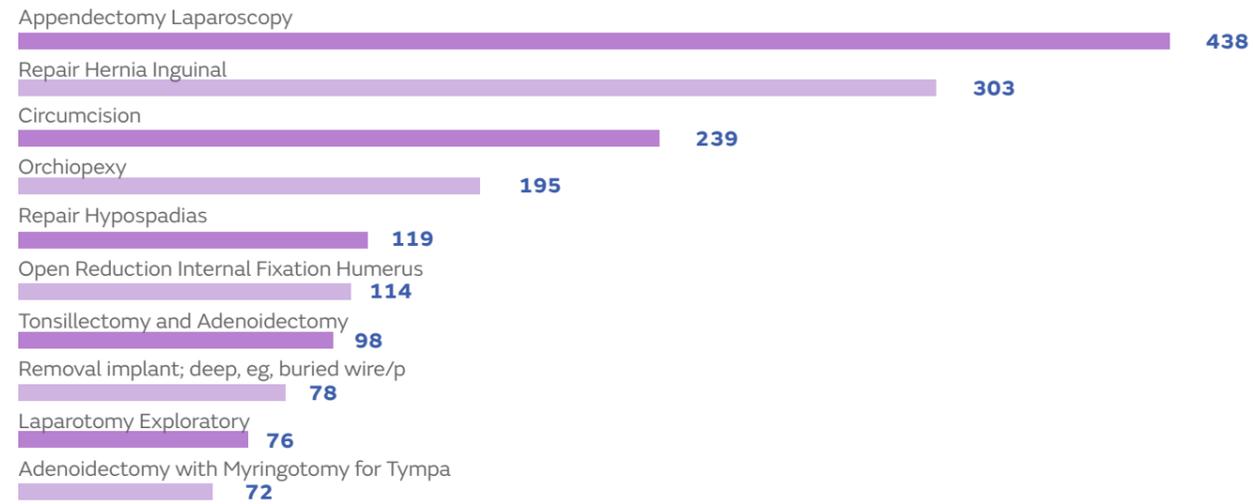
Breakdown by specialty

*Data Date Range (Jan 1, 2022 to Dec 19, 2022)

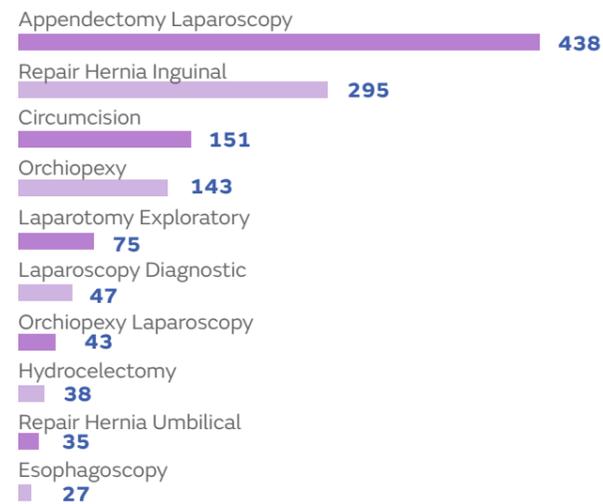
Specialty	# Cases	% of Department total
General/Thoracic	1,721	37%
Orthopedic Surgery	660	14%
Otolaryngology	645	13.7%
Urology	601	12.8%
Plastic/Craniofacial	586	12.5%
Neurosurgery	165	3.5%
Cardiac Surgery	152	3.2%
Ophthalmology	127	2.7%
Dental/Oral Surgery	41	1%
Grand Total	4,698	100%

Specialty	# Cases	% of Department total
General/Thoracic	3,120	32%
Urology	1,468	15%
Orthopedic Surgery	1,451	14.9%
Plastic/Craniofacial	1,145	11.7%
Cardiac Surgery	827	8.5%
Otolaryngology	794	8.1%
Neurosurgery	695	7.1%
Ophthalmology	156	1.6%
Dental/Oral Surgery	97	1%
Grand Total	9,752	100%

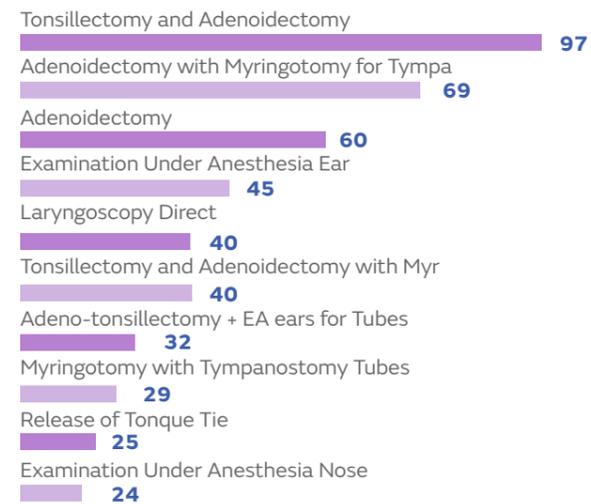
Top 10 Procedures by Number of Cases



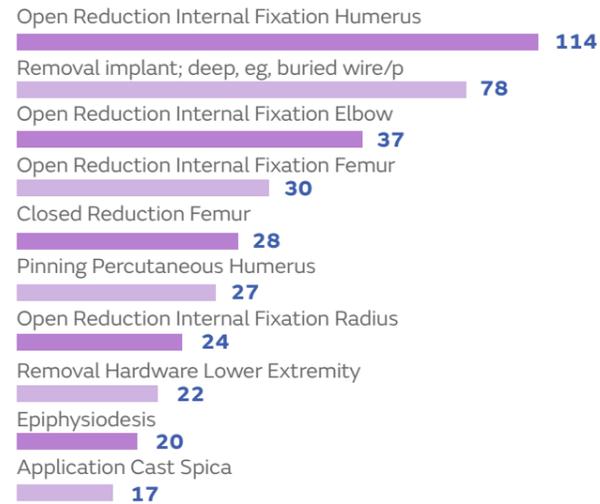
General Surgery



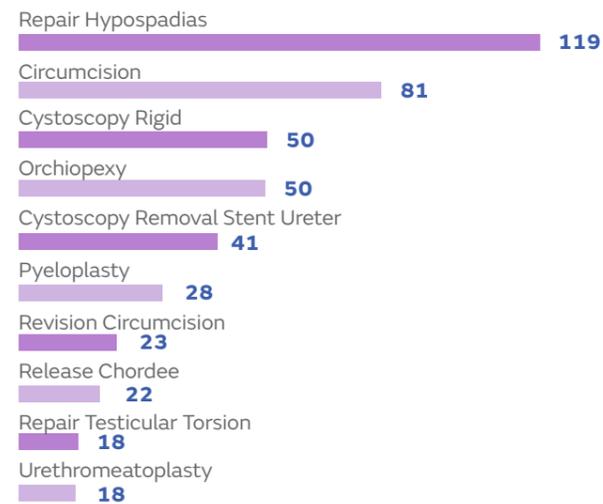
ENT



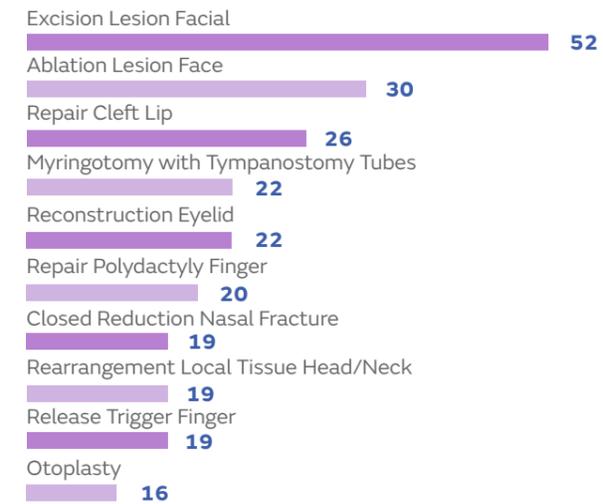
Orthopedic Surgery



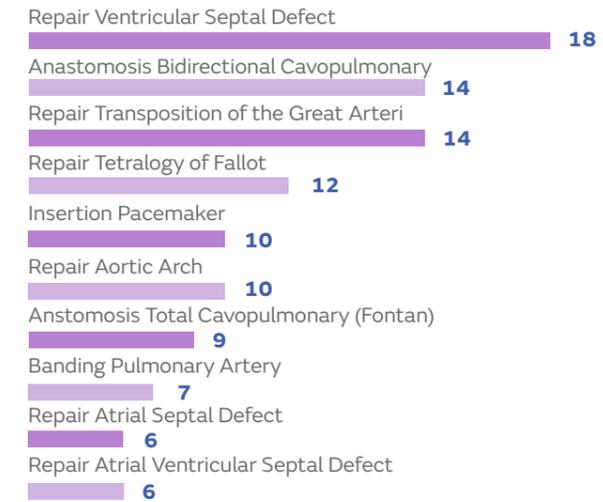
Urology



Plastic Surgery



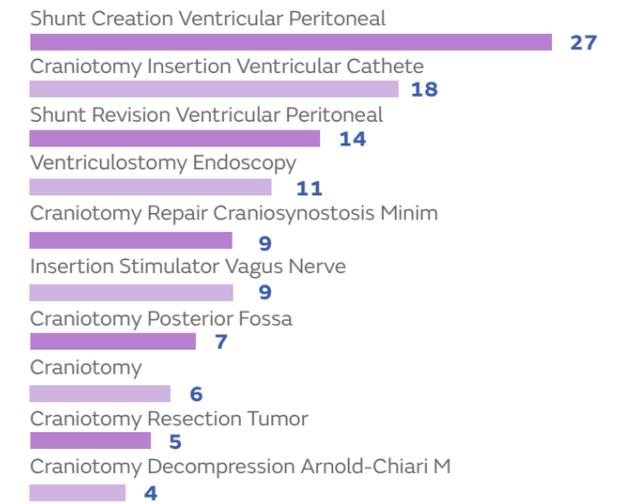
Cardiac Surgery



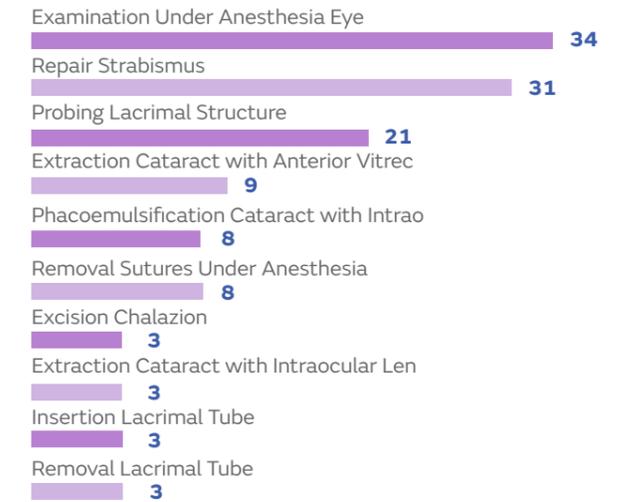
Dental Surgery



Neurosurgery



Ophthalmology



Pediatric Emergency and Urgent Care Services

Sidra Medicine's Emergency Medicine services includes the Pediatric Emergency Department (PED), Urgent Care Clinic, Qatar Poison Center, and Child Abuse Protection Services (SCAP).

In the past year, we have provided care to more than 100,000 children, with an average length of stay of 2 hours and 37 minutes. On average, 88 percent of our patients were treated and discharged within four hours.

Several programs and initiatives were put in place to achieve this, as well as ease the need for patient beds. These included implementing a new process to provide care for patients by appropriate specialty teams; initiating a new pathway to ensure the admit-to-inpatient order is completed by the admitting team; and providing procedural sedation in the Emergency Department to negate the need for using additional operating room and anesthesia resources.

Additionally, the sedation of orthopedic manipulations and other complex procedures that are managed without inpatient stay or theatre time, significantly reduced the number of admissions.

The expansion of the Emergency Department Waiting Area both increased seating capacity and contributed to better managed increased volumes and streamlining patient flow. Such measures proved to be necessary, as the PED registered more than 106,000 patients in 2022, the highest number since the inauguration of Sidra, and a 15 percent increase on 2021 figures.

The year also brought the FIFA World Cup to Qatar, and we were honored to support the tournament's major incident plan, working collaboratively with partner agencies and the national command center. In this respect, we treated pediatric tournament spectators who were brought to our Emergency Department during the event.

106,411

PED Registered Patients

4,264

Inpatient Admissions

88%

Patients treated and discharged within 4 hours

2,241

Calls to Qatar Poison Center

10%

Increase in number of referrals received for suspected child maltreatment/abuse

My Day At Sidra Medicine



At E.R. with Jimmy pain 😞

*Got a scan done
Every thing was fine
and I went home 😊 !!*

The doctor come to check me.

Created by Emmanuel Varughese Mathew
Age: 9 years



The Heart Center



The Heart Center is home to a highly skilled multi-disciplinary team that provides medical and surgical care for children and adults with congenital heart disease and also treats children and young people with disabilities, who have acquired heart conditions. Not only are we the dedicated heart center for children and young people in Qatar, we also attract patients from across the MENA region.

The team increased the number of therapeutic cardiac catheterization procedures and electrophysiology procedures in 2022, achieving a high success rate comparable to international peer centers, and implemented the latest technology in echocardiography, including 3D-based ventricular volume and function.

The Heart Center's total number of consultations for the year was 8,000, with 200 heart operations performed. Cardiac Intensive Care saw 335 admissions, while as many as 500 procedures were conducted.

The team increased the number of therapeutic cardiac catheterization procedures and electrophysiology procedures in 2022, achieving a high success rate comparable to international peer centers, and implemented the latest technology in echocardiography, including 3D-based ventricular volume and function.

Despite a substantial number of patients and challenges in terms of staff capacity and limited space, the Center was able to accommodate most of the new referrals within a period of two weeks or less, approaching patient care in a manner that ensured high patient satisfaction. Last year, Sidra Medicine was selected as the first hospital in the Middle East and North Africa region to offer the newly commercially certified Venus P-Valve for transcatheter pulmonary valve implantations. The Venus P-valve, has been an exciting and collaborative journey of success that has moved from research and development

to becoming a commercially certified product, with Sidra Medicine playing a key role in its development and implementation as a certified minimally invasive valve implantation option for cardiac patients worldwide.

Sidra Medicine's extracorporeal membrane oxygenation (ECMO) service was awarded Silver Level accreditation from the ExtraCorporeal Life Support Organization, a remarkable recognition for a new ECMO service. The ECMO works by taking over the function of the lungs and sometimes the heart, and allowing the organs to rest and recover from reversible conditions like Meconium Aspiration Syndrome (MAS).

Collaborations on research projects continued to be prioritized, with multiple publications throughout the year, including the study of Kawasaki disease among Arab countries. The Heart Center also worked closely with the

American College of Cardiology to collect quality-focused data for the IMPACT Registry on the management and outcomes of pediatric and adult congenital heart disease patients who undergo diagnostic and interventional catheterizations.

The Heart Center is currently seeing interest from other hospitals and patients in the MENA region, who are seeking minimally invasive pulmonary valve implantation options.



"Our son Edward was born with a congenital heart condition, that required him to have specialist care and follow up every few years. When he turned five, he had several heart related issues that needed expert surgical treatment and care.

We flew to Qatar specifically because his surgeon who had previously operated on him in the UK, had to moved here. We were confident that the Heart Center at Sidra Medicine offered us the best option.

Edward's complex and life transforming surgery was successfully performed over seven and a half hours, by an amazing team, that included anesthesiologists, cardiologists and specialists. Everyone was calm, professional and caring. I want to specially acknowledge the wonderful pediatric ICU nurses, who looked after all of us while we were at the hospital.

Our entire experience of care in the hospital was outstanding. The staff were wonderful and made a very difficult time for our family considerably easier, especially since we had travelled from the UK. We felt like Edward was in the very best of hands throughout his stay.

Thank you to the amazing team at Sidra Medicine."

Hearts filled with love

International Patient Services

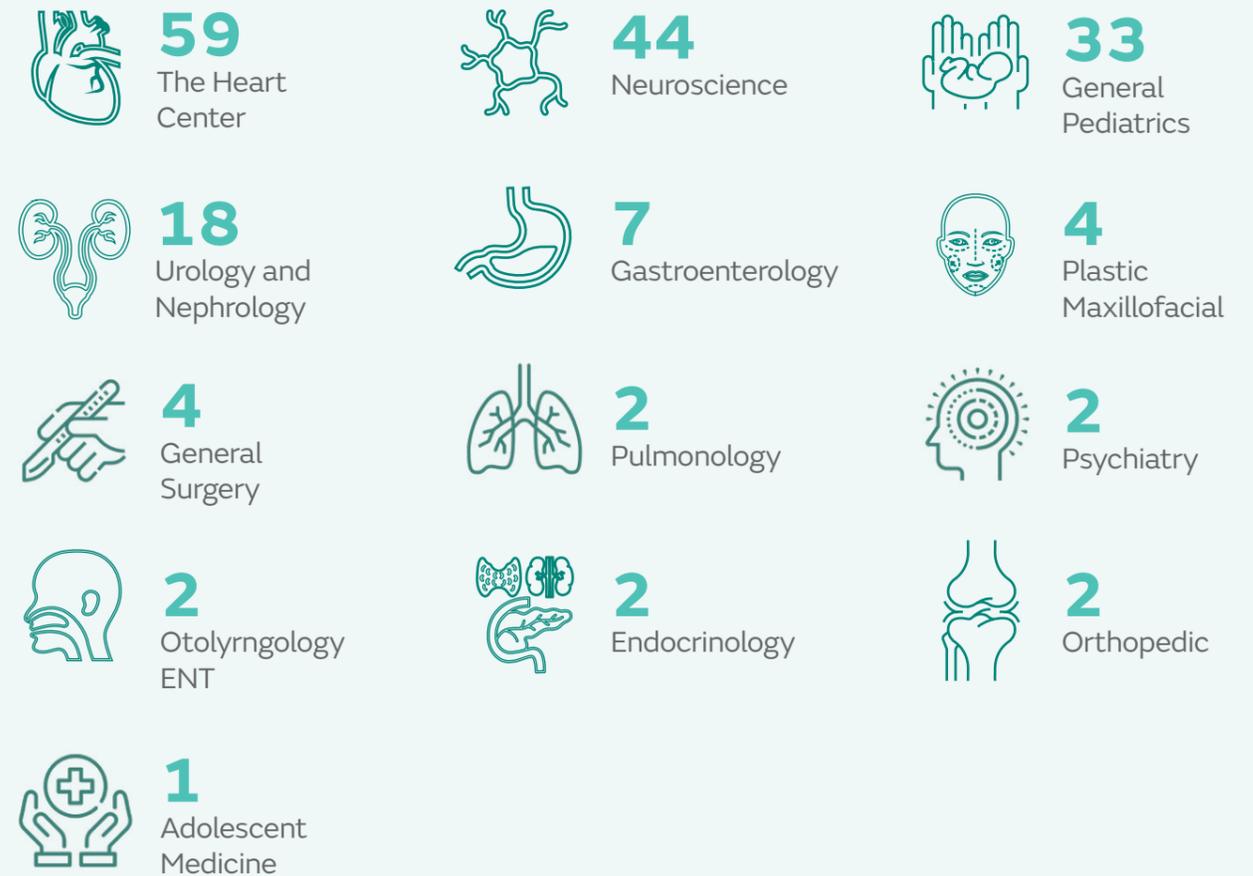
Sidra Medicine's international patient services program to date has cared for over 500 patients since the opening of the main hospital in 2018, welcoming 179 in 2022. Patients from abroad have sought treatment in specialist areas including cardiology, general pediatrics, neurology, urology, endocrinology, neurosurgery, ENT, pulmonology, plastics, craniofacial and thoracic surgery.

Our team offers seamless care as we understand that every international patient has different needs. Being one of the only providers of certain specialized pediatric services in the Middle East and North Africa region means that we have built the trust of patients as well as international hospitals who refer patients to us.

International Patients by Country



Patients Seen by Specialty



Most Common Conditions Treated

- Congenital heart defects
- Brown Vialetto VanLaere Syndrome
- Motor delay
- Hypotonia
- Multiple joint contractures and deformities
- Spastic cerebral palsy
- Severe GERD
- Quadriplegia
- Dysphagia
- Polyhydramnios in utero
- Hydronephrosis
- Multi-system genetic disease
- Neuronal ceroid lipofuscinosis (NCL)
- Di George syndrome
- layngomalacia and adrenal hypertrophy
- Microcephaly
- Spinal Muscular Atrophy

Amber's Journey of Care: From Uganda to Qatar

Amber arrived with her family from Uganda to Sidra Medicine to undergo the surgical removal of a tumour in her chest, as a result of Lymphangioma. The tumour, which was benign, was expanding into her neck, lungs and chest and making it difficult for her to breathe properly.

Our thoracic surgeons at determined that because of its location and size of the tumour, the best treatment approach was surgical removal to avoid any further risks or damage to Amber's organs.

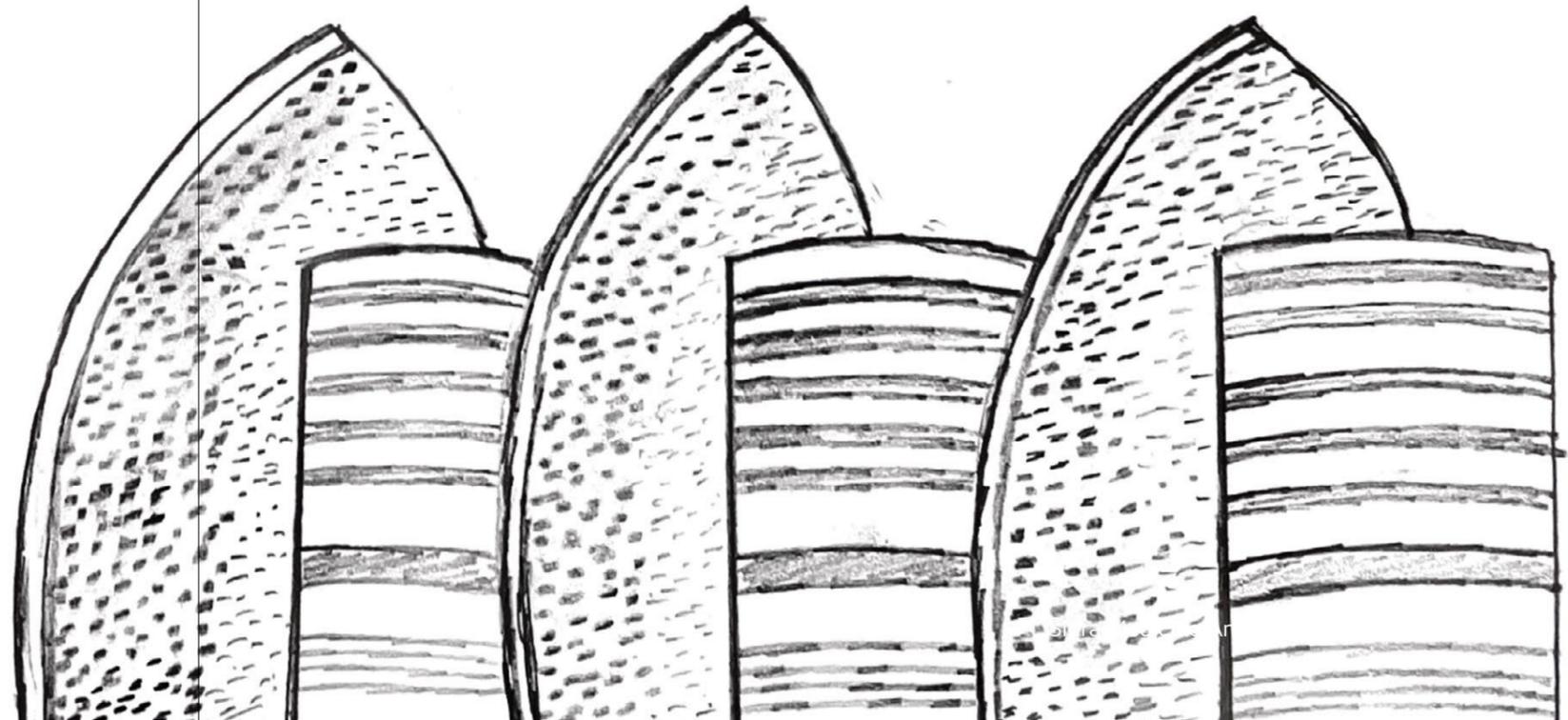
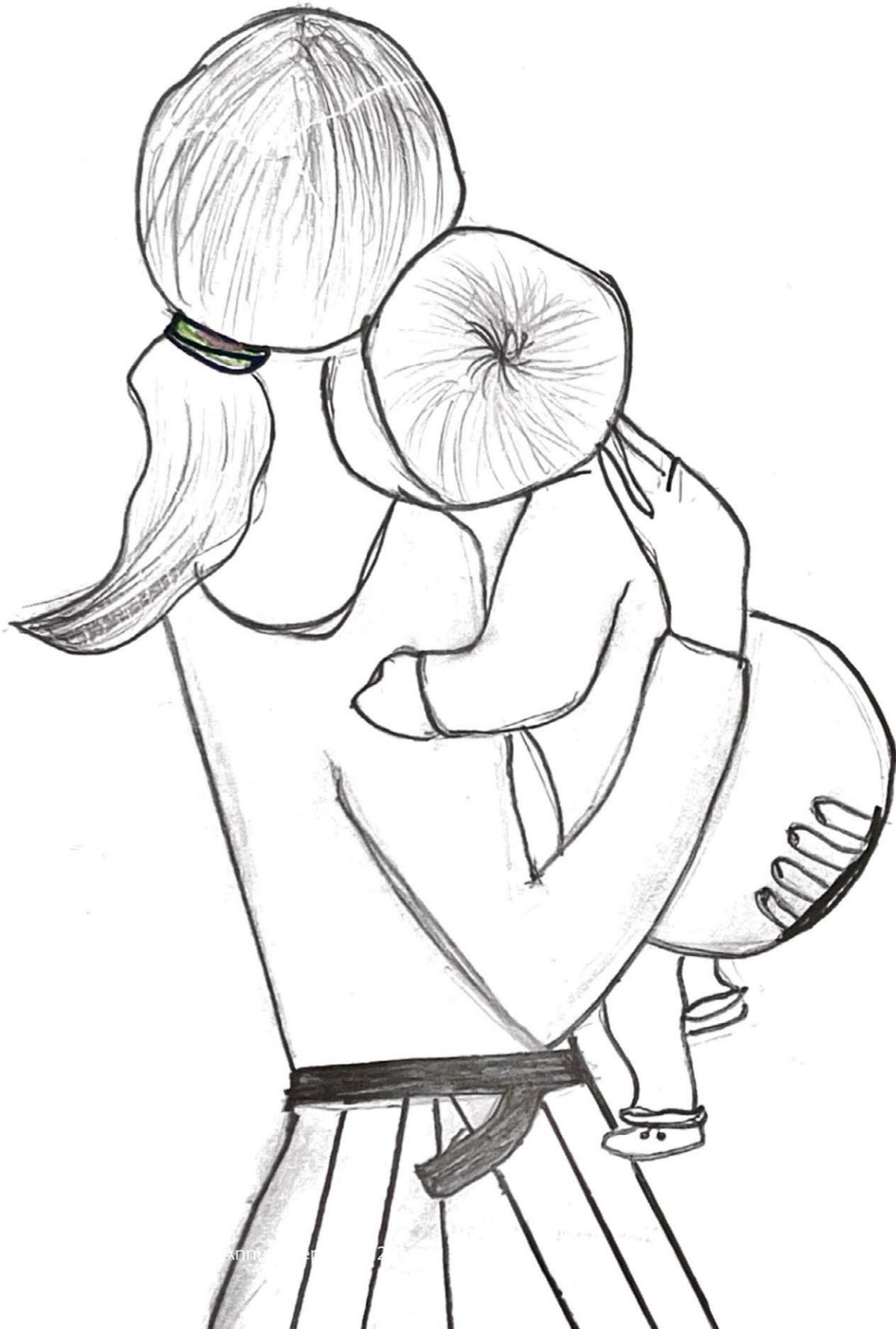
Amber underwent an eight-hour surgery for the team to successfully remove the tumour and received comprehensive post-surgery care. She and her family were in Qatar for an additional two weeks before she was safely discharged. Because it is nearly impossible to remove or destroy every cell of a lymphangioma, they tend to grow back. The clinical team will continue to follow up virtually to ensure she continues to receive the best medical counsel to fully manage the condition.

Amber's father, Mr. Joseph Kimuli said: "Following the advice of several experts, we were recommended to approach Sidra Medicine in Qatar and we are so relieved that we did. The care and expertise from the international patient services team to the surgeons, nurses and allied healthcare teams – was supportive, highly skilled and incredibly welcoming. Looking at our daughter now, it gives us so much joy to say that it was worth the travel and expense to come all the way to Qatar. We are thankful to the team at Sidra Medicine who proved us right that we made the best decision to choose this hospital for our daughter's treatment."



Created by Sakina Ahmed
Age: 10 years

Women's Services



Women's Services

Sidra Medicine's Women's Services have taken significant steps in the past year to realize the vision of Her Highness Sheikha Moza bint Nasser, to ensure access to efficient, flexible, patient-focused, quality medical care that addresses the needs of women.

To this end, the department has successfully concluded agreements with two of Qatar's main private insurers, QLM and AlKoot, securing eligibility and access to obstetrics and gynecology for a much broader patient-base, delivering on the departmental goal to become the region's pre-eminent center for women's wellness.

Included in this substantial shift, was the expansion of our clinical services, offering women a range of choices in care based on international best practices, technological and methodological advances as well as the launch of our male infertility service.

From pre-pregnancy counseling and guiding families through reproductive challenges, to managing complex pregnancies and supporting women through menopause, Women's Services provides multi-disciplinary access to care throughout a women's wellness journey.

Women's Services at Sidra Medicine include:

- Obstetrics
- Gynecology
- Reproductive Medicine (IF & Fertility Management)
- Maternal Fetal Medicine
- Aesthetic Surgery and Medicine
- Adult Pain
- Internal/Acute Care Medicine
- Lactation Support for Mothers
- Women's Health Physiotherapy
- Women's Mental Health
- Women's Ultrasound
- Women's Urgent Care and Obstetric Triage Services

Artwork created by Anna Susan Mathew
Age: 12 years



Reproductive Medicine

In 2022, we launched our fertility preservation service, which offers patients diagnosed with cancer, severe medical and gynecological conditions, and diminished ovarian reserves, the opportunity to cryopreserve their semen and eggs for future use.

The reproductive team is multi-disciplinary, consisting of consultant physicians, embryologists, nurses, and support staff with extensive experience in all aspects of fertility treatment and preservation, and research work has begun to explore the use of functional genomics in predicting and treating some aspects of infertility.

With more than half of infertile couples suffering from male-factor infertility, we expanded on our comprehensive care services with the 2022 launch of the Male Infertility Clinic. The clinic treats all aspects of male infertility and offers surgical and non-surgical treatments pertaining to urology, sexual and erectile dysfunction, low libido, and ejaculatory disorders.

Besides Hamad Medical Corporation (HMC), Sidra Medicine is Qatar's only private provider to offer invasive testicular sperm extraction for severe male infertility, including microsurgical testicular sperm extraction, and hormonal treatment for men with abnormal sperm parameters.

The division also provides referrals to mental health experts for psychological support to couples with repeated treatment outcome and pregnancy failures, while couples with inherited familial disorders are managed in collaboration with Sidra Medicine's genetic experts.

Reproductive Medicine successfully led two clinical studies, investigating the representation of embryologists and urologists in fertility clinics worldwide. The results were published as abstract presentations at the American Society for Reproductive Medicine, the European Association of Urology, and the American Urological Association.

Delivering full-service customized care: gynecology surgery, IVF and maternity

Anna and her husband Michael, were seeking a hospital that would help them in their journey to become parents.

"Before starting with Sidra Medicine, I had experienced multiple miscarriages and was told my case was complex or that I was too old and should have started trying for babies in my 20s!

We had one unsuccessful round of IVF at another clinic and visited several other fertility treatment centers. And our experience in all these places was disappointing, as they all prescribed a one-size-fits-all approach. None of them had the type of expertise we were seeking, particularly since I had endometriosis and one of the clinics initially misdiagnosed me with a bicornuate uterus.

It only took one appointment at Sidra Medicine to know we made the right decision. It was life changing – everything from the experienced physicians, to the state-of-the-art equipment and facilities put us at ease. Given the complexities of my case, it was a relief to be in a place that could address all my healthcare needs, from gynecology, reproductive medicine to maternity under one roof.

The team even correctly diagnosed my uterine septum, which was surgically addressed before I started my IVF journey. Although IVF is not the way anyone plans to have a baby, the staff at Sidra Medicine made the experience as special and unique as possible. They were excellent, compassionate and professional.

It was during the second round of IVF, that our dream came true. And today, thanks to the wonderful expertise and compassionate care we experienced at Sidra Medicine, we are proud parents to our miracle baby boy!

Whether it was my gynecology surgery, or during my IVF cycle, throughout my pregnancy and finally when I gave birth, it was a fully personalized and bespoke treatment and care, every step of the way. My husband and I were treated as equal partners in this journey and were kept fully informed throughout the process. At no point did we feel like we were receiving an off-the-shelf protocol. Thank you, Sidra Medicine."



Obstetrics

Our female patients continued to have the option to choose their care provider without the need for referrals, and were offered a personalized relationship with continuity of care throughout the period of their antenatal care and delivery.

The year saw the activation of the innovative Patient Family Advisory Council, marking a significant milestone in the unit's collaborative strategy with the patient community. The Council plays a key role in shaping and enhancing an ultra-personalized patient-centric service, and Obstetrics subsequently received a high satisfaction rate for clinical care, based on solicited and unsolicited feedback from patients and their families.

Also developed in 2022 was the pre-pregnancy counseling service, which prepares women with medical disorders, such as diabetes, for a healthy and complication-free pregnancy. The service, which is the first dedicated pre-pregnancy counseling service in Qatar, will be fully activated in 2023.

In collaboration with Sidra Medicine Research, Obstetrics is also undergoing exploratory research into the use of neonatal genomic screening to predict the risk for developing diabetes later in life, and is involved in collaborative clinical research programs including the Omouma study and the MiGDM trial.

Exceptional Care for High-risk pregnancy

Natasha shares her experience about the pregnancy and post-partum care she received at Sidra Medicine:

"I want to thank the amazing women's services team at Sidra Medicine, who took care of me throughout my pregnancy, birthing and post-partum journey.

During my pregnancy I was diagnosed with gestational diabetes. Being a high-risk case and that too my first pregnancy, I was very nervous. However, I received the best support possible. The patient education on how to manage my blood sugar levels and the thorough appointments and check-ups I received during my ante-natal visits, really put me at ease.

An important part of the care, was that I felt I was heard and with a team who listened and collaborated with me regarding my birth plan and took my preferences into account.

In May 2022, I delivered my beautiful baby

girl and was so grateful that my husband was with me in the operating room. Welcoming our first child into this world together, was an experience we will never forget.

I also appreciated the support from the wonderful midwives, who supported me during my labor and post-delivery, especially since I ended up having a c-section. I was grateful that the hospital has a lactation service, as the advice and support of the lactation consultants, really helped establishing breastfeeding as a special bonding time with my baby.

My husband and I both highly recommend Sidra Medicine. We felt that it was a family approach to care. We are so grateful to the physicians, nurses and the midwives and the wider team who supported us. The care was exceptional.



Omouma Study

Pregnancy is a complex process that is influenced by a variety of interconnected mechanisms, well synchronized to help maintain homeostasis and ensure the delivery of a healthy baby. However, if these mechanisms are disrupted, they can result in dysregulation of biological networks and various pregnancy-related problems that can have negative consequences for both the mother and fetus.

Early life exposures, particularly environmental and lifestyle factors, have a major influence on children's health and development. Due to the increasing interest in the early life developmental origins of diseases, many birth cohorts have been established.

Omouma means "Motherhood" in Arabic. This study is the first birth cohort at Sidra Medicine and is a collaboration between the research and women services departments.

In this study, we aim to investigate factors affecting pregnancy outcomes, the early life determinants, and their impact on the infant, child's, and adolescent's health in the population of Qatar. We monitor a selection of our pregnant patients, every trimester until delivery and one-year post-partum.

Using the biological samples collected from the mother-baby pairs, we aim to identify the molecular mechanisms of pregnancy complications which may pave the way for a personalized intervention. We will also investigate the maternal, genetic, social, environmental, and lifestyle on the infant's health and how early childhood determinants affect health outcomes of the infant, child, and adolescent.



Gynecology

Sidra Medicine launched Qatar's first and only dedicated Menopause Clinic in 2022, a comprehensive and holistic service providing specialist care for women during all stages of menopause, including peri-menopause, menopause and post-menopause.

A team of certified menopause-trained personnel, including expert gynecologists, endocrinologists, psychologists, dietitians, and physiotherapists, is available to assist patients in making informed choices about treatment options, as well as cater for more challenging and complex cases.

Cervicovaginal screening is also a key offering of the Gynecology unit, providing preventive and screening strategies for cervical cancer and sexually transmitted disease. This includes counseling for the HPV vaccination, and the management of abnormal Pap smears and high-risk cervical HPV, a service that Sidra Medicine continues to be the only private provider of in Qatar besides HMC.

Our comprehensive adult urological service offers state-of-the-art urodynamic and pelvic floor assessment studies, in addition to assessment and management services for urinary incontinence, recurrent urinary infections and kidney stones in women.

We are also pleased to confirm that 2022 saw the introduction of Elagolix, a novel FDA-approved drug for the management of endometriosis and uterine fibroids, which is offered exclusively in Qatar by Sidra Medicine.

Aesthetic Surgery and Medicine

The Aesthetic Surgery and Medicine Clinic continues to ensure that adult men and women have access to safe, quality services based on personal choice and preference, giving patients the opportunity to feel positively about their physical and mental wellbeing.

Led by renowned visiting Plastic surgeon, Dr. Chiara Botti, the clinic continues to provide a range of both major plastic surgery procedures and minimal aesthetic treatments. This includes breast augmentation, reduction, mastopexy and lipofilling, facial surgeries and consultations for lifting, blepharoplasty, rhinoplasty, mentoplasty and cheek augmentation, as well as body sculpting services such as liposculpture, abdominoplasty and lipofilling.

Maternal Fetal Medicine

The Maternal Fetal Medicine Unit targets the prevention, early detection and treatment of impairments with fetal health, drawing on the expertise of a specialist team to provide care and treatment for moderate to high-risk pregnancies.

Services include advanced ultrasounds, prenatal non-invasive screening tests for chromosomal defects, diagnosis and treatment to fetuses with a suspected congenital anomaly, and the diagnosis of abnormal placental invasive disorders, among others.

In 2022, the unit worked towards realizing its goal of fetal surgery, which aims to manage fetal anomalies in utero, through minimal-access surgery which will significantly improve neonatal outcomes. We are finalizing the service for launch in 2023, which will address fetal conditions such as diaphragmatic Hernia, twin-to-twin transfusion syndrome, amniotic bands and lower urinary tract obstruction.

The caring and expert approach

Alexandra and her husband share their experience and the life-changing diagnosis that allowed them to conceive and see through a safe pregnancy:

“Fertility, pregnancy, and maternity are such vulnerable experiences to go through as a woman and as a couple. And we feel incredibly lucky to have been supported throughout this journey with the amazing team at Sidra Medicine. Every service and clinical encounter at the hospital was backed by people who are experts in their field and compassionate in their care.

Our initial consultation started with the reproductive medicine clinic and it was wonderful that I was able to get pregnant following the first embryo transfer. And what a fantastic team they have. We just knew in our hearts that we made the right decision to choose Sidra Medicine, which was further validated as my pregnancy progressed.

While undergoing my antenatal ultrasound, the clinical team found that I had Vasa Previa, which is a serious and rare pregnancy related complication. Without their intervention, care and guidance, it would have been a very

different story and I almost get emotional thinking about what could have happened if this wasn't detected.

It really highlighted how thorough and experienced they were, to diagnose this condition and then back it up with customised care. What was reassuring was to see how the maternal fetal medicine team worked with the obstetricians to ensure that I was able to have a safe delivery at 35 weeks.

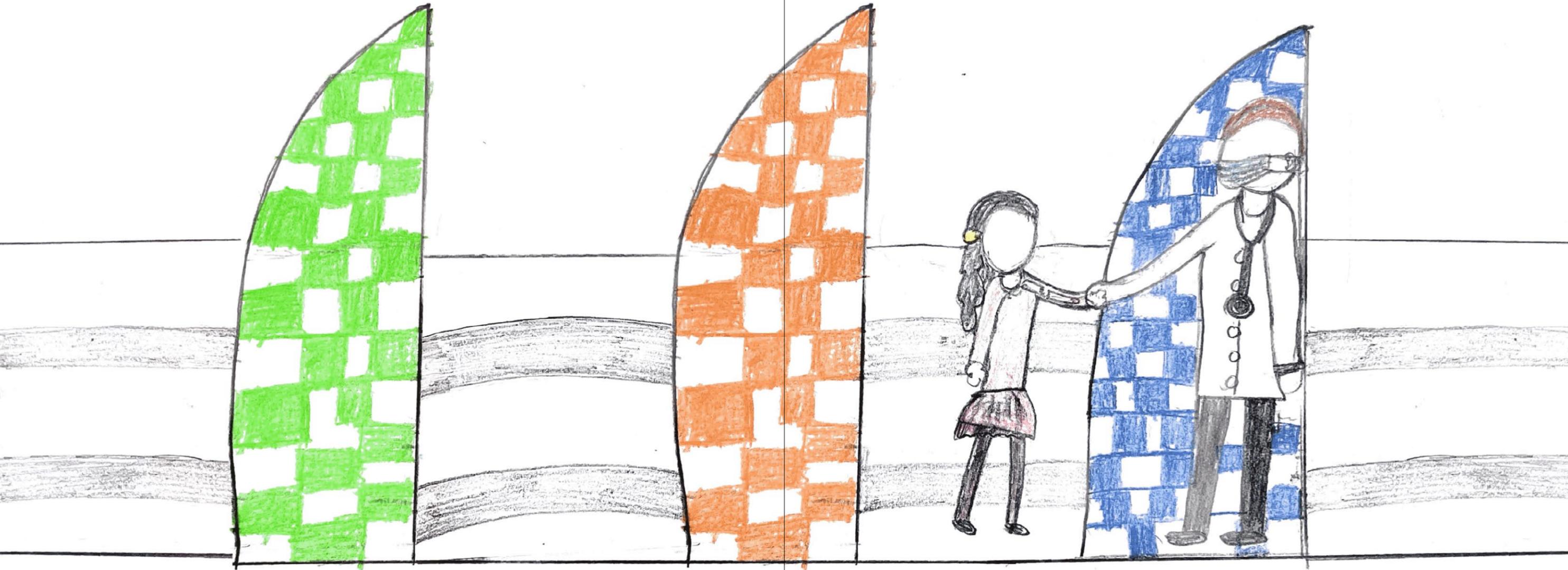
Each department, whether it was the technology they used, the words of comfort they provided, earned our trust. Sometimes it's the small details, for example, a simple thing like using heated gel for the ultrasound, just elevated the experience. Being from Europe we also appreciated the more westernized approach to matters such as the birth plan.

When you combine the top doctors in the field, latest technology, personal care and welcoming modern facilities, Sidra Medicine really provided the best experience possible throughout our care journey.”



Created by Aisha Zeeshan
Age: 7 years

Nursing, Midwifery & Allied Health



THANKS for holding me!♥



Chief Nursing Officer's Message

Throughout history, nurses have played an invaluable role in the health and wellbeing of communities, and, as the largest profession in the health workforce, they are at the center of patient care.

For this reason, I would like to extend a profound message of thanks to Sidra Medicine's Nursing, Midwifery, Allied Health staff and Health and Wellness Educators. Not only have they impacted the lives of patients through clinical care, but also demonstrated enormous compassion when it was most needed.

Post-pandemic, hospitals across the world have experienced significant nursing shortages. Many countries have low resources, high populations, and capacity issues, and I must commend our staff for their remarkable dedication and for the quality of care they delivered despite the challenges. They delivered – from safe care to supporting their colleagues – and did so with a passion and commitment that is truly unique.

This commitment to quality of care was demonstrated through the many initiatives launched in 2022.

The Professional Practice Model, for example, which guides how we deliver care, took a unique approach in its implementation. While the model usually has staff decide on their domains, we instead planned ours in collaboration with patients.

By voting on domains and even changing priorities where necessary, we developed a model that is guided by both the nursing staff and patient families. It is an ongoing project that has subsequently been very successful and well-received, and is one of our key achievements.

Given the global shortage of nurses, midwives and allied health retaining, and sustaining those who are part of the Sidra Medicine family is critical, and key to this is ensuring professional fulfillment. This is the goal of the REIMAGINE campaign, which supports the retention of our high-calibre nursing talent by giving them a platform to review their roles, professional needs, and opportunities for growth.

This year also marked the completion of our first year of membership to the National Database of Nursing Quality Indicators (NDNQI), a resource to support and measure our quality of care. This international organization benchmarks our Nursing division against 40 hospitals within the GCC, utilizing nurse-sensitive indicators.

I am also pleased to confirm that the Certified Pediatric Nurse Exam was launched this year, making Sidra Medicine one of the first in Qatar, and the only in the region. Provided by the Pediatric Nursing Certification American Board, the exam offers the most recognized and respected credential for pediatric nurses, and is a tremendous platform to validate the knowledge and expertise of pediatric nurses beyond Registered Nurse licensure.

Finally, the expertise that our nurses, midwives and allied health teams apply in their daily work makes an important difference in driving improvements in efficiency and quality of care. They play a pivotal role in improving patient outcomes and patient experience, taking on their responsibilities with passion and compassion. We thus look forward to building on this invaluable contribution in 2023.

Judy Dawson-Jones
Chief Nursing Officer

Nursing and Allied Health

Brief Overview

We are a 1600 strong, highly skilled team of healthcare providers that includes nursing, midwifery and allied health.

In 2022, we were proud to implement the professional practice model and are committed to promoting nursing professional practice through the development of our staff, in support of our hospital's People and Culture initiative.

Last year, also saw an extension of our teams' roles with the launch of the evening clinics, with nurses and midwives embedded across the pediatric and women's services clinics.

We are proud partners with our neonatal ICU team, with the initiation of the Family and Infant Neurodevelopmental Education model, part of the Newborn Individualised Developmental Care and Assessment Program. The program is recognized as the golden standard for individualised family centered developmental care and aligns perfectly with our own patient and family centered approach to care at Sidra Medicine.

Our teams played a critical role in the Emergency Department, which saw a peak of over 106,000 total patients by year end. We helped improve flow and capacity in the waiting areas and in additional patient care rooms and casting areas that were set up in response to the large volume of patients requiring emergency and urgent care.

We co-developed and ran parent training workshops for children with Autism, alongside the Developmental Pediatrics division. We also recommenced the midwifery-led antenatal classes and patient tours for women's services.

- There are 22 shared leadership councils; 14 unit based, 6 corporate councils
- There is also a hospital wide Chair and co-chair group (CCG) and Co-ordinating Council which brings together frontline staff and leadership
- There are over 200 council members including nurses, midwives, allied health and non-clinical staff
- Shared leadership councils undertook 17 quality projects in 2022
- 377 DAISY Award nominations received from patients and families

Nurse Led Clinics

Sidra Medicine has 12 nurse-led clinics, which are run by nurses who are experienced and well-trained in their specialties, working independently and safely within their scope of practice.

The clinics record over 300 patients per month and offer different types of follow-up, training and expert advice to our patients, throughout their disease course. They focus on health and wellbeing of the patient with emphasis on management of the condition, rather than the diagnosis.

Our Nurse-led Outpatient Pediatric Infusion Center (OPIC) is a seven-bed unit serving all the pediatric specialties within Sidra Medicine. The unit has 4,000 visits per year, administering IV infusions, and injections. Other areas where nurse-led clinics have been successful are the gastroenterology and endocrinology clinics.



A Key Healthcare Support: Nurse-led Clinics

We have two types of Nurse-led clinics, at Sidra Medicine - non-intervention and interventional clinics.

The non-intervention clinics provide education to promote health, monitor the patient's condition, contribute with additional value in the overall treatment and care, and provide motivational approaches with children with chronic illnesses.

The interventional clinics perform nursing interventions and training in care and maintenance of gastrostomy tubes, tracheostomy tubes, wound stoma and dressings, insulin pump therapy, and the administration of vaccines.

Allied Health

Allied Health at Sidra medicine is a diverse mix of professions and services, which are available to patients from all specialties - neonatal, pediatric and adolescents as well as obstetrical and gynecological patients.

Allied Health at Sidra Medicine is comprised of:

- Case Management and Homecare
- Casting Services
- Child Life
- Clinical Nutrition and Dietetics
- Occupational Therapy
- Orthotics
- Physical Therapy
- Respiratory Therapy
- Social Work
- Speech Language Pathology

Despite COVID-19 restrictions in 2022, Allied Health received an average of 1800 referrals per month to various services and interacted with over 30,000 patients.

From multi-disciplinary clinics to seeing 9,700 patients in independently led clinics, Allied Health has had a very productive year. Our inpatient activity has also seen a drastic increase in the third and fourth quarter due to hospital occupancy at unprecedented levels.

Nurse Led
OPC Clinics:

12
Clinics

300+
Patients per
month

Allied Health
Led Clinics:

55
Independent
Clinics Totaling

240
sessions/week

37
clinics offered
only at Sidra
Medicine



Child Life Services

Our Child Life program is a collaborative service of active artmaking, creative processing, and psychological theory. We focus on supporting the well-being of children and families while they undergo medical care.

It is a key component of our mental health and support services and is used to foster self-esteem and self-awareness, cultivate emotional resilience and reduce stress in the clinical environment.

Our Child Life Specialists are trained from a therapeutic perspective in how to talk about the child's body and explain medical procedures that they may have undergone or will undergo.



Patient Education and Health Promotion

We make every effort to provide quality health education to engage patients and families to participate as a member of the healthcare team and make informed decisions about their care. In fact, our health promoters are now licensed as Health and Wellness Educators.

The team actively participates in marking national and international health observances to raise awareness and provide education on topics ranging from asthma, obesity to breastfeeding.

In 2022, we created a patient education handout section on the corporate website, to provide patients patients and families with accurate, reliable and easy to understand health information. Currently, more than 30 pediatrics and women's services related patient education leaflets are available.

The health educators also provide bed side education also provided in post-partum ward and antenatal education classes.

104
couples were
educated in
the antenatal
education
classes

275
bedside
education visits



Car Seat Safety

We are proud partners of the Qatar child passenger safety program - Ghalai; a national program that is a result of collaborations between local governmental and non-governmental organizations.

In 2022, we launched the second child passenger safety checking station. The station offers free one-to-one education around different types of car seats, educational handout and car seat installation services by certified child passenger safety technicians.



Steps 1-2-3

We are a key part of the Step 123 project in partnership, which promotes bathing, oral hygiene and mobilization for patients in the pediatric medical units as part of their healing and wellbeing. This partnership helped significantly reduce central line-associated bloodstream infections (CLABSI) in one of our clinical care units.

Nursing Professional Practice

Training, accreditation and education remain a core priority for our department. Consistent training in family centered care also improves the care of our patients and their families. We are proud to have achieved this level of expertise on account of the investment we have made in several educational and training programs.

We completed our first year of membership with the National Database of Nursing Quality Indicators (NDNQI), which are a set of nursing-sensitive quality measures to provide actionable insights based on structure, process and outcome data.

We are also part of the interdisciplinary task force development working towards a Breastfeeding Hospital Initiative (BFHI) accreditation for 2023, to support and promote mothers and their babies in breastfeeding.

We proudly launched our Certified Pediatric Nurse Exam, which is provided by the Pediatric Nursing Certification American Board (PNCB). Sidra Medicine is one of the first organizations outside of the U.S.A to have launched the certification, validating the knowledge and expertise of pediatric nurses beyond basic registered nursing licensure.

Our first cohort of nurse residents graduated in 2022 and we have expanded the residency program to welcome 21 nursing residents for Cohort 2 and 3.

We have also updated the evidence bases of the End of Life nursing care program, to help Nurses to gain insight into the key elements in palliative care.

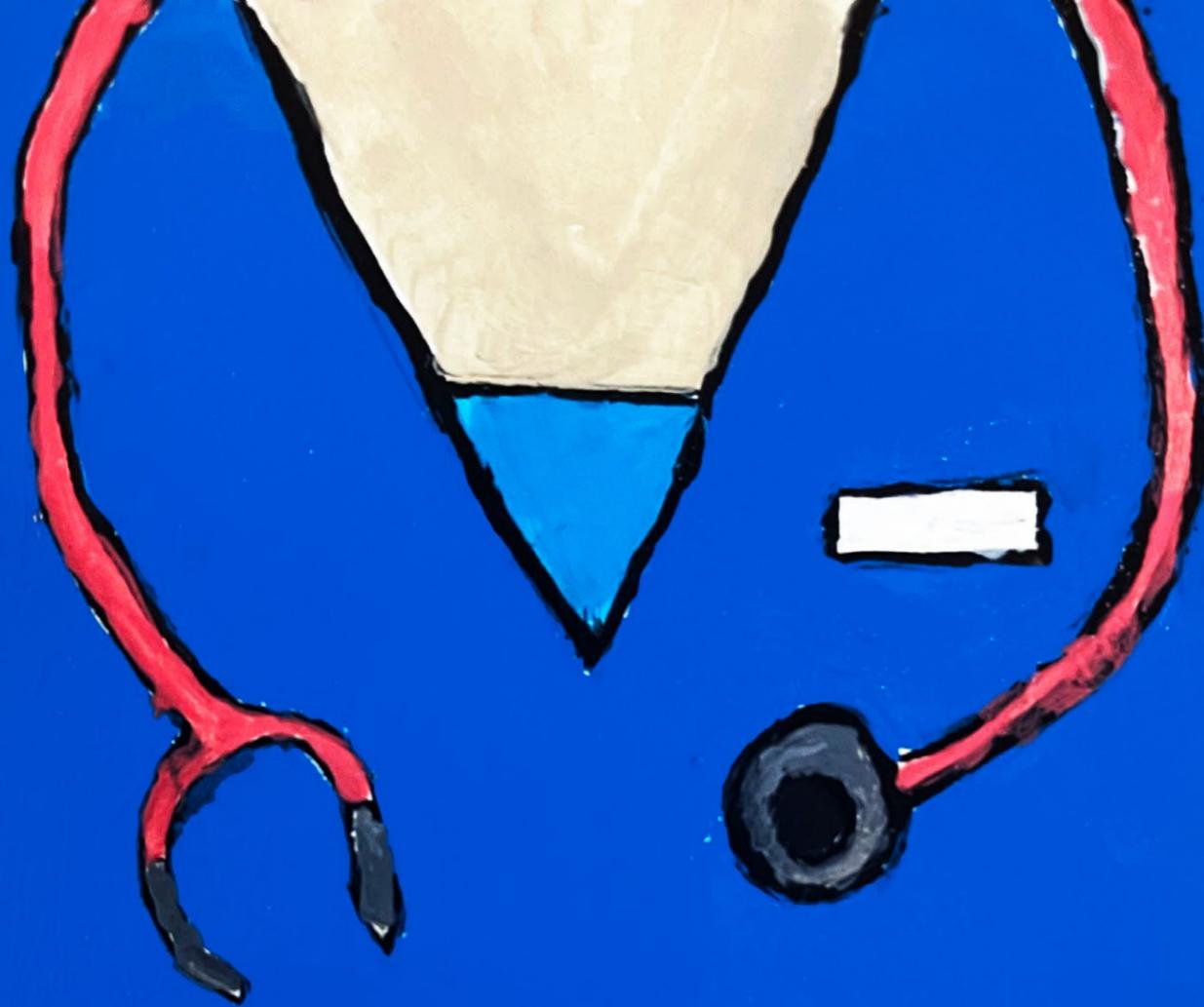
Our Allied Health team also co-lead on several of our mentorship programs with facilitators teaching and supporting initiatives such as the Preceptor Foundational Courses and the Professional Practice Model.

Our Patient Education team also regularly host staff health literacy workshops and seminars about the importance of engaging and empowering patients to be health literate and in support of the concept that health literacy is a right and responsibility.

Created by Sara Al Kaabi
Age: 8 years

I ♥ Sidra





Sidra Medicine in Numbers

Created by Khalifa Ahmad Al Mansoor
Age: 8 years

Pediatrics



Pediatrics Radiology



Women's



Women's Obstetrics Diagnoses



Pathology



Aesthetic Surgery



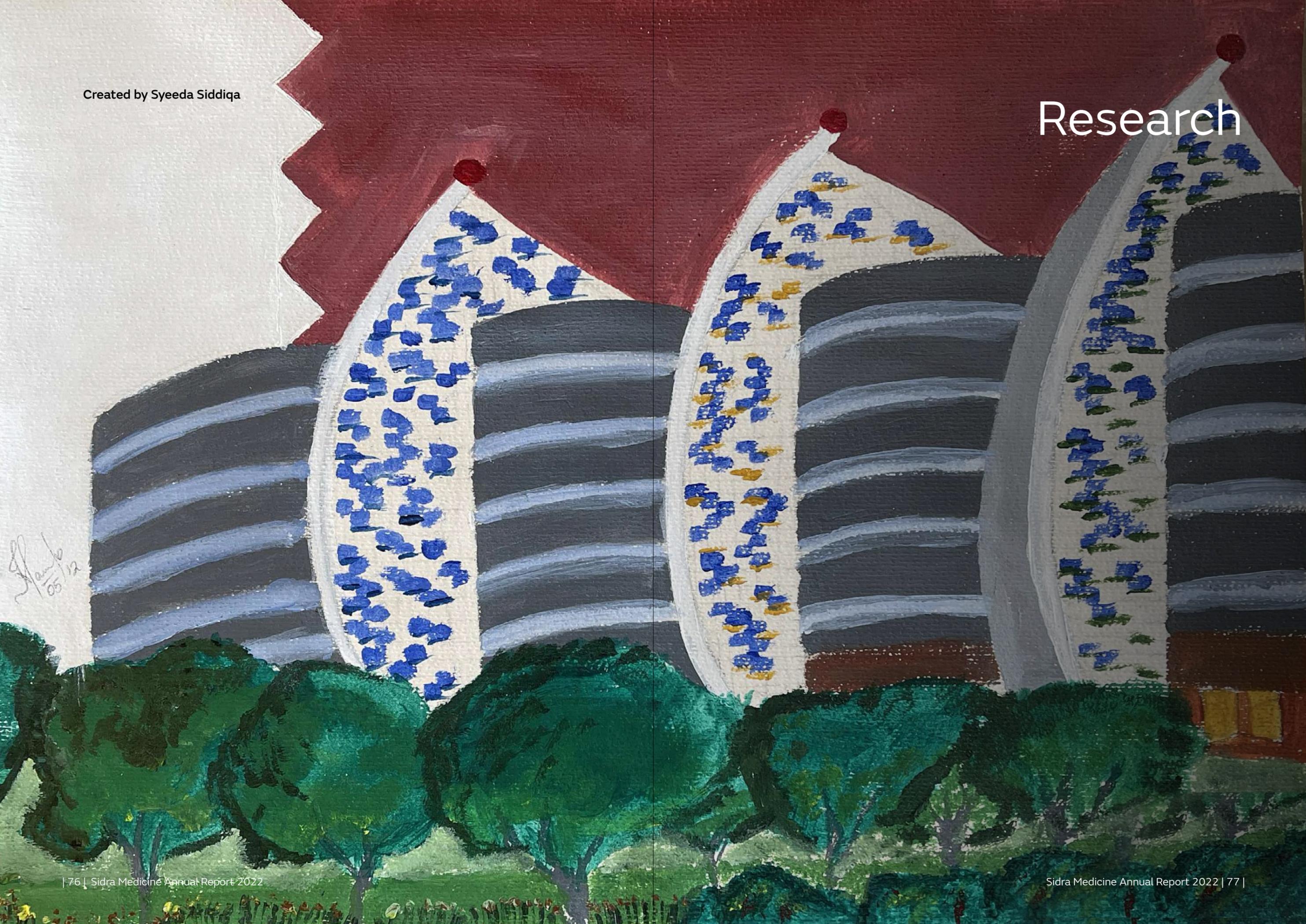
Total



*Total unique patient count by MRN across Peds, Women's, Pathology & Adult Services in Year 2022.

Created by Syeeda Siddiq

Research





Chief Research Officer's Message

2022 marked a significant step in realizing Sidra Medicine's research mission to deliver hospital-wide precision medicine, with research technologies and innovation continuing to play a prominent role in every patient's journey.

Indeed, by leveraging the lessons learned from the pandemic, we were able to accelerate the integration of research into clinical care pathways, enabling our researchers to take a more detailed view of individual patient challenges, and facilitating more flexible, responsive, and innovative translational research.

The impact of research on patient care was seen at multiple levels, from diagnosis onwards, and as much as 57 percent of our research studies had a clinical lead.

The pandemic highlighted too the need for research funding, and we are pleased to confirm that grants increased in 2022, with 15 total grants from Qatar National Research Fund and external funds, totaling almost QR11 million.

Included among these are two major international grants from the Juvenile Diabetes Research Foundation (JDRF), which funds leading scientists across the world to deliver possible cures and life-improving breakthroughs in the fight against type 1 diabetes. The JDRF grants will fund two research projects with Sidra Medicine scientists to advance predictions of type 1 diabetes among susceptible children using emerging technologies.

The last year also saw our scientists and clinicians publishing more than 250 papers, with close to 50 percent of Research Branch publications appearing in the top 15 percent of international journals.

It is with pride that we note that three Research Branch publications appeared on the covers of international journals, The Lancet Oncology, Nanoscale and Advanced Materials: a groundbreaking study on pediatric cancer tumors; an in-depth study that indicates fasting as a possible immunotherapy for treating cancer; and a large-scale genomic study co-led

by Sidra Medicine researchers that helped unveil cancer susceptibility among Arab and Middle Eastern populations.

The latter study is the first of its kind in the region and used state-of-the-art bioinformatics and statistical genetics methods to analyze the genomes of more than 6,000 Qataris, representing a remarkable national effort to understand the genetic basis of cancer.

We are also pleased to confirm a Memorandum of Understanding (MoU) signed with Microsoft to facilitate our digital transformation goals at a time when we are scaling up our genomic research capabilities. Such transformation will enable our scientists to perform complex data operations and build an ecosystem that can facilitate genomics computing.

In alignment with Sidra Medicine's commitment to capacity building, we continued to facilitate invaluable work experience, skills development and networking opportunities for young adults beginning their careers in science, medicine and public health, training more than 60 students and mentoring four PhD students to graduation.

In all, 2022 represents a year of innovation and making precision medicine a reality. We extend our appreciation to all who remained focused on helping us deliver on this mission, not just for the good of our patients and their families, but for the benefit of future generations.

Dr. Khalid A. Fakhro
Chief Research Officer



A year of innovation and making precision medicine a reality

2022 has been a year of Innovation and we have achieved several milestones in showcasing this across the spectrum of our research services. We remain committed to our vision to establish a strong, clinically oriented biomedical research program and to develop a national resource of genomic information that improves health in Qatar and the region.

Our strategic pillars of enabling patient-driven research, advanced diagnostics and personalized therapy is what sets us apart from our peers in the local, regional, and international context, positioning Sidra Medicine as a unique academic medical center serving patients from Qatar and abroad. Not only do we have the clinical and research expertise, technology, innovation and skill sets, we are now in a strong position to contribute

to the global knowledge economy. Our experience with Middle Eastern genotypes and phenotypes as well as with novel diseases, is a game changer in the precision medicine field.

Thanks to a strong culture of innovation and recognition of Sidra Medicine's intellectual property and technical know-how, we are on track with our mission to deliver a hospital-wide Precision Medicine Program. This is built upon the philosophy that research technologies and innovation should play a prominent role in every Sidra Medicine patient's journey.

Precision Medicine Functional Genomics 2022

We successfully hosted our eighth annual Precision Medicine Functional Genomics (PMFG) Symposium from 23 – 26 September 2022 where we explored the latest developments and innovations in biomedical research and how they translate into precision medicine solutions.

Around 700 registered attendees joined the four-day event, which featured 50 international and local thought leaders and experts who discussed a range of hot topics including clinical-research advances in precision medicine; cancer immunotherapy and treatment; translational genomics and novel treatment programs related to rare and complex diseases like diabetes and obesity. PMFG 2022 was a true showcase of how

precision medicine continues to move from vision to practice at Sidra and around the world, and we are proud to play a key role in drafting the roadmap for a personalized health data ecosystem for the region. v

Memorandum of Understanding with Microsoft

We signed a memorandum of understanding (MoU) with Microsoft to empower our digital transformation goals and accelerate our precision medicine and genomics research programs.

The MoU signals a series of strategic collaborations and implementations that will enable Sidra Medicine's research division to expedite its technology and cloud adoption on Microsoft's platforms toward a complete digital transformation.

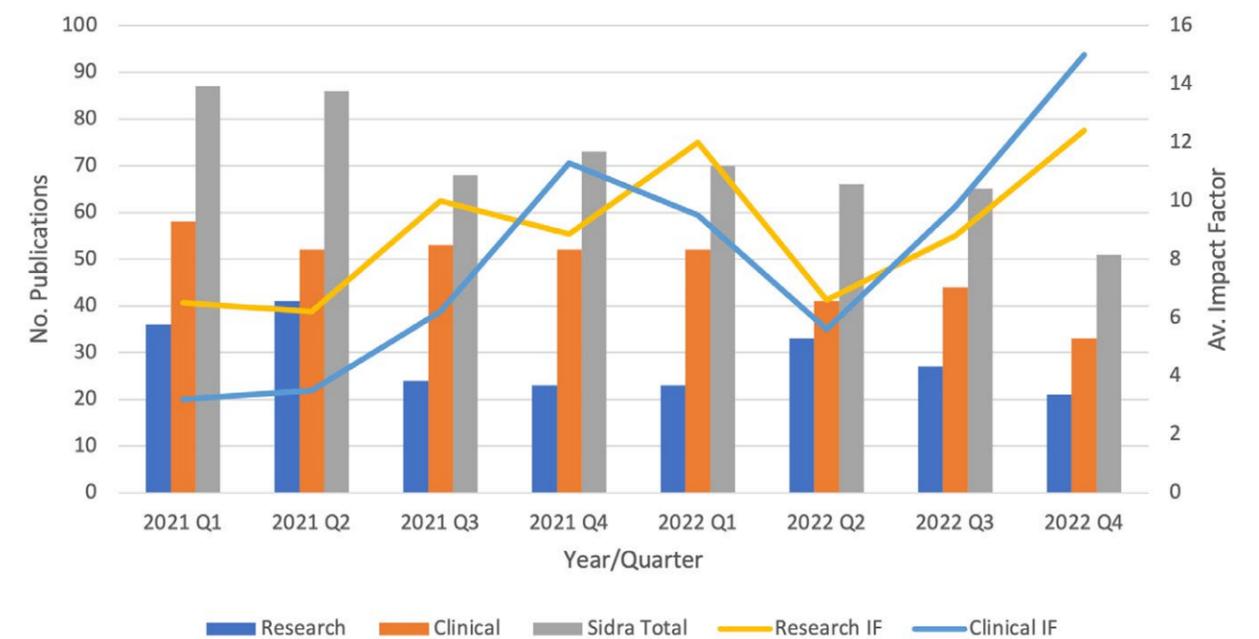
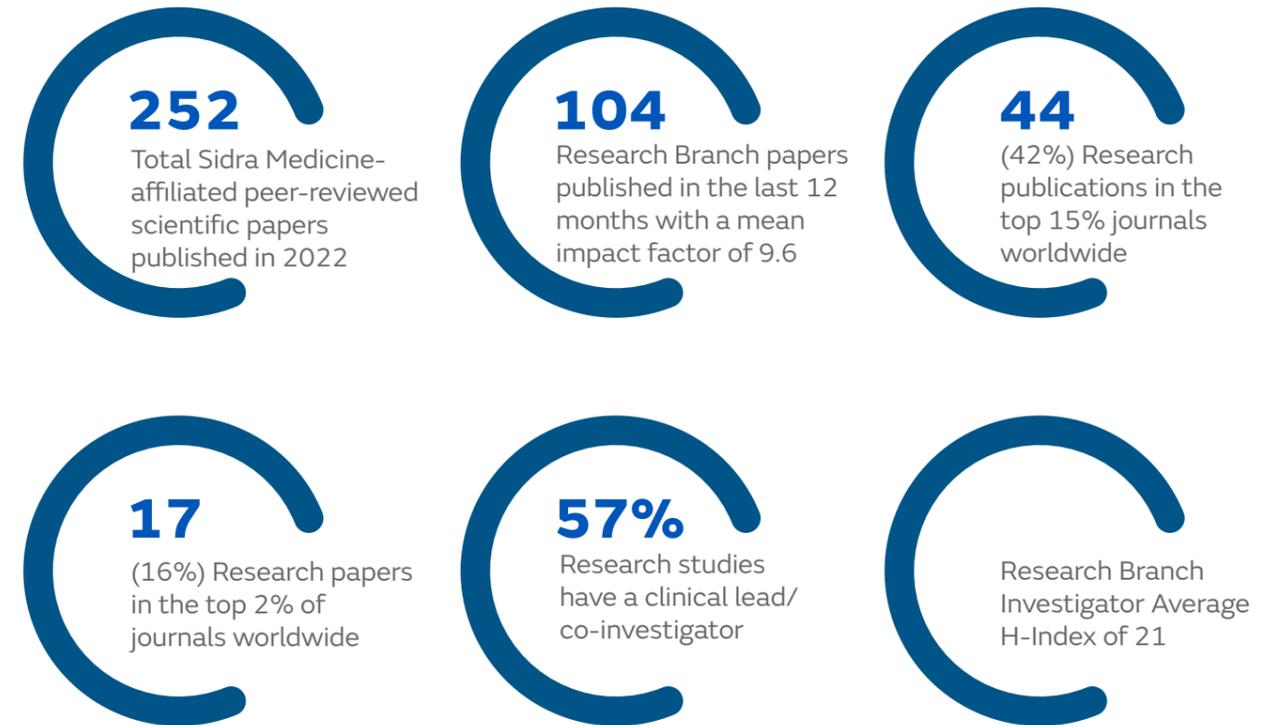
The transformation, led by Sidra Medicine's Digital Health team (Research), will use Microsoft Cloud to safely store and access data more quickly and conveniently. It will allow its scientists to perform complex data operations using Microsoft's Data and AI platforms, and enable collaborators to access Sidra's unique datasets in a safe and robust computational environment.

The partnership will also utilize High-Performance Computing (HPC) on Microsoft Azure for industry-leading services to build an ecosystem that can facilitate genomics computing as we continue to scale towards our mission of precision medicine for every patient.

Microsoft will also help enhance Sidra Medicine's research teams' digital capabilities through its National Skilling Program (in partnership with Qatar's Ministry of Communications and Information Technology) and other development initiatives, including workshops and training programs.



Publications



Grants:

15 

New grants from Qatar National Research Fund (QNRF) and other external funds were awarded in the last 18 months.



Totaling
10.99M QR

International Research Grants:

Diabetes

The Juvenile Diabetes Research Foundation (JDRF) has been leading the fight against type 1 diabetes by funding many leading scientists across the globe to help deliver possible cures and life-improving breakthroughs. In 2022, the foundation awarded \$400,000 in two grants to Sidra Medicine.

The first funding will go towards the AL-DIAR 1 “Road to prevention which aims to take an improved combined approach to predict the genetic risk of type 1 Diabetes in the Middle East and North Africa region through scalable and cost-effective technologies.

The second grant, will look at the early prediction of progression to autoimmunity in Type 1 Diabetes –as an institutional collaboration between Western Sydney University in Australia, the Steno Diabetes Center Copenhagen (Denmark), and Sidra Medicine.

Both research projects will help advance predictions of type 1 diabetes among susceptible children through emerging technologies. The programs reinforce Sidra Medicine’s commitment to research with the goal of a cure and global prevention of type 1 diabetes.

Gene Editing

We have been selected as co-principal investigator for the European Cooperation in Science and Technology – COST grant application by the Pfizer-University of Granada- Junta de Andalucía Centre for Genomics and Oncological Research (GENYO) in Spain. The EU-funded genome editing research program includes 18 international partners and worldwide renowned experts in the field.

The program will bring together pharmaceutical companies, academic institutions, science and regulatory agencies, biotechnology firms, patient advocacy associations, and information technology. The program aims to

tackle knowledge fragmentation and accelerate the translation of genome editing technologies to treat human diseases. The consortium comprises several groups of experts who will work on different aspects of the genome editing technology, from its basic assessment to safety, specificity, and clinical applications to tackle inherited rare diseases, cancer, and infectious diseases.

The role of the co-principal investigator would be to implement the ex vivo delivery of genome editing systems and deliver innovative protocols to be applied for translational studies for cancer cell therapy.

Grants Applications	Submitted	Awarded
National Priorities Research Program (NPRP14-5)	7	1
NPRP - Blue Skies Research Award (NPRP-BSRA01)	3	1
Path towards Precision Medicine Call (PPM 05)	8	2
Equine Research Call	1	1
Rapid Response Call (RRC) COVID19- cycle 2	1	0
Graduate Sponsorship Research Award (GSRA+8)	2	1
Graduate Sponsorship Research Award (GSRA9)	2	1
Postdoctoral Research Award (PDRA7)	3	2
High School Research Experience Program (HSREP4)	1	TBA
Conference and Workshop Sponsorship Program (CWSP21)	2	1
Conference and Workshop Sponsorship Program (CWSP22)	1	0
Researchers Exchange and Mobility Program (REMP3)	2	1
SOLVE-RD		
JDRF: Strategic Research Agreement	2	1
Collab with Progreso y Salud Foundation	1	1
JDRF	1	1
Gulf Strategy Fund 2022 - Precision Medicine	1	1
Genome Assembly Grants	1	1
Global Grants for Gut Health	1	0
CONquer canCER Now	1	0
2022 CDKL5 Program of Excellence	1	0
Young Scientist Research Grant	1	0
Helmsley Charitable Trust	1	0
Pablove Seed Grant Program	1	0
JDRF: Career Development Awards	1	TBA
Cystic Fibrosis Foundation Grant	1	TBA
Pfizer Global Medical Grants	1	TBA
Waterloo Foundation	1	TBA
JDRF Strategic Research Agreement (SRA) 2023	1	TBA
Biocodex Microbiota Foundation	1	TBA

Research Studies

Our research studies are positively impacting our patient care and treatment programs which are being personalized particularly for patients in the Middle East, with complex phenotypes not common in North America and Europe. This is also directing the education and training for the next generation of physicians from the Arab world; that is to evaluate and treat diseases and conditions that are unique to the region.

Some of our work has been featured in the pediatrics and women's services page of this report and here are some more examples:

Large-scale genomic study investigates cancer susceptibility amongst Arab and Middle Eastern populations

Researchers at Sidra Medicine co-led a study published in *Lancet Oncology*, describing the differential genetic risk to various cancer types amongst the distinct genetic subgroups of Arab populations, based on more than 6,000 subjects. The study builds on a previous Sidra Medicine-led study that is critical to revealing the main genetic ancestries of Arab populations.

The team analyzed the genomes of 6,142 Qataris provided by Qatar Genome Phase One using state-of-the-art bioinformatics and statistical genetics methods. This involved the application of polygenic risk scores (PRS) optimized from The Cancer Genome Atlas (TCGA) to assess risk for the most common cancers in the country (breast, prostate, and colorectal cancers). In addition, rare genetic variants in 1,218 known cancer-related genes were assessed for pathogenicity and actionability amongst the various genetic subpopulations of Qatar.

This is the first study of its kind in the region and shows that germline cancer risk is real and different in Arab ancestries. As part of previous work in the TCGA consortium, the study established a link between germline and various cancer phenotypes. For example, it is lowest for colorectal cancer in Peninsular Arabs and highest amongst Arabs of African origin.

The study was designed as a benchmark for providing genomic medicine solutions to Middle Eastern and Arab cancer patients. It is expected to support efforts in Qatar and the region to

increase the effectiveness of preclinical screening and tailored therapy in largely under-studied Arab populations. Our next step at Sidra Medicine, is to implement a cancer program for genetic testing.

The study involved Sidra Medicine, Weill Cornell Medicine-Qatar, and Qatar Computing Research Institute (QCRI) and was partly funded by Sidra Medicine, Qatar Genome Program, and Qatar National Research Fund.

Precision Medicine care for siblings with a newly discovered disease



The discovery and diagnoses of a gastroenterological disease, a new form of inflammatory bowel disease (IBD), by researchers at Sidra Medicine helped save the lives of two of our young patients.

Sidra Medicine's genetic testing and whole genome sequencing for patients with IBD is a joint collaboration with the Gastroenterology clinic and Human Genetics team and is part of its Precision Medicine program – a first and only one of its kind in the Middle East.

Both the brothers, Salem and Saoud were admitted to Sidra Medicine, a few years apart when they showcased early-onset IBD symptoms. Their blood samples were sent to Sidra Medicine's Human Genetics lab for genetic and molecular investigation.

During the molecular investigation and comparison of the brothers' genotypes, our researchers noted a striking loss of mucus in both the brothers' gastrointestinal cells and that they were highly stressed. They basically had a dysfunctional version of AGR2 which was not allowing for the proper production of mucus – AGR2 allows for the production of mucus that protects the gut.

The deficiency of AGR2 was then termed by the researchers as EAGLES: "Enteropathy caused by AGR2 deficiency, Goblet cell Loss, and Endoplasmic reticulum Stress". The symptoms of this new disease included a mucus barrier defect

and the inability to mitigate endoplasmic reticulum stress thereby causing the infantile-onset of inflammatory bowel disease.

The findings hadn't been discovered before in humans, and the diagnosis allowed the team to conclude that the mutation was because of a genetic familial trait (homozygous) and was the main cause of the disease. They had established that the brothers had genetically inherited the disease and pointed to the possibility that if their parents, who are related to each other, were to have more children in the future, there was a risk they too would be born with the same condition.

The researchers' findings provided a molecular diagnosis for both the brothers and highlighted the importance of mucus in protecting the gut and maintaining gastrointestinal health; a groundbreaking result. The resulting functional analysis then highlighted which medications may work in keeping Salem alive and also prevent the severity of the symptoms from affecting the younger brother Saoud, and any other future siblings in the same family.

The findings of this study were published in the *Cellular and Molecular Gastroenterology and Hematology Journal (CMGH Journal)* and will help change the way children with similar symptoms of early-onset IBD are diagnosed and treated.

Created by Avika Vijay
Age: 4 years
Born at Sidra Medicine

Medical Education





Chair of Medical Education's Message

Medical Education continues to be one of the three foundational pillars underpinning Sidra Medicine's mission to provide patient- and family-centered care.

Of special significance in 2022 was our continued commitment to Graduate Medical Education (GME), which included adding new fellowship programs and accrediting existing programs to further enhance and grow the training of the next generation of health professionals.

To this end, our well-established partnerships with Qatar-based universities, offered a robust medical training environment to both undergraduate and graduate students.

For example, the majority of pediatric clerkships completed by undergraduate and graduate students of Weill Cornell Medicine-Qatar took place at our hospital; and we hosted the clinical rotations of Qatar University's (QU) Psychology, Genetic Counseling and Pharmacological students. This will expand to include QU Nursing students in the near future.

The year 2022 also saw the successful conclusion of an agreement with Hamad Medical Corporation (HMC), to soon transfer pediatric residency and fellowships to our hospital.

We look forward to receiving our accreditation from the Royal College of Physicians and Surgeons of Canada which will allow graduates from our residency program to sit for the board exam and subsequently become Canadian board-certified. This project will be launched in May 2023.

Notably, 100 percent of our pediatric residents passed the Arab Board exam.

Further building on our standing as one of the region's premier teaching hospitals, we are pleased to confirm that 3,942 trainees completed our life support and simulation courses, and that our Medical Professional Education (MPE) chapter passed the JCI mock survey with zero citations.

An additional five fellowship programs were submitted for ACGME-I accreditation, and we successfully renewed our American Heart Association (AHA) license and accreditation with zero deficiencies out of 65 chapters.

Of course, 2022 marked the second year into the COVID-19 pandemic, and, understandably, there were lingering impacts on training in general, specifically with regards to the slight delay of face-to-face training. Additionally, curricular training in pediatrics was partially affected by re-deployment to HMC COVID sites to accommodate pandemic needs. Yet, many of the different virtual tools and offsite activities that the pandemic necessitated can now be streamlined into the training curriculum.

Indeed, the pandemic, despite its challenges, has highlighted the need to build and streamline greater flexibility into our curriculum and the methodology of teaching and training. A significant lesson learned that will only serve to benefit our surgical staff, physicians, trainees, and students.

Professor Ibrahim Janahi
Chair of Medical Education

Brief Overview

Sidra Medicine is home to world-class patient care, scientific expertise, and educational resources. Our Medical Education programs promote an inter-professional training model for all healthcare professionals, and our programs apply to doctors and undergraduate and graduate medical training.

Sidra Medicine introduced professional training and advancement in healthcare in Qatar and the region, providing unique opportunities for the progress and development of highly specialized physicians and surgeons. Our unique training programs include pediatric urology, pediatric plastic surgery, pediatric orthopedic surgery, child and adolescent mental health, pediatric cardiology, pediatric pulmonology, sleep medicine, etc.

In 2022, Sidra Medicine accommodated trainees in over 20 pediatric subspecialties, including general pediatrics, nephrology, infectious diseases, NICU, radiology, genetics, and others. The Ministry of Public Health's Department of Healthcare Professions (DHP) has accredited Sidra Medicine for another 5 years to offer Continuous Medical Education (CME) and Continuing Professional Development (CPD) to all licensed healthcare professionals and senior medical staff.

For Undergraduate Medical Education, Sidra Medicine is affiliated locally with Weill Cornell Medicine – Qatar, Hamad Medical Corporation, and Qatar University.

Planned and completed accreditations in 2022 for Residents and Fellows:

-  Programs applied for ACGME-I accreditation in 2022: Pediatric Emergency Medicine, Pediatric Gastroenterology, Pediatric Infectious Disease, Pediatric Urology and Pediatric Critical Care. Accreditation results are expected in February 2023.
-  Royal College of Physicians and Surgeons of Canada – planned – Institutional accreditation and Pediatric Residency program accreditation. The intended accreditation will make our graduates eligible to sit for the Canadian Board Examination and become Canadian Board Certified.
-  Joint Accreditation for Interprofessional Continuing Education
-  Ministry of Public Health's Department of Healthcare Professions (DHP) Accreditation
-  American Heart Association – Accreditation of Life Support training

Continuing Medical Education

Continuing Medical Education (CME) supported 862 planned educational sessions to 13,830 participants, with over 107,506 granted credits in 2022. The credits were earned in workshops, seminars, symposia, grand rounds, conferences, journal clubs, and blended online learning modules. These courses are vital to ensuring our clinical staff's licensing, accreditation, and proficiency.

Accredited conferences and symposia in 2022 included but were not limited to: Sidra Medicine 2nd Health Literacy Conference, Qatar Pediatric Pulmonology Conference, Women's Health Conference 2022, Sidra's Second Pediatric Neuroscience Conference, The 6th Qatar Pediatric Emergency Medicine (QPEM) International Conference 2022, Precision Medicine & Functional Genomics 2022, Sidra Medicine Pediatric Pain Symposium, Women in Science: The Journey Toward Precision Medicine and Gastroenterology Study Day.

Clinical Library

The clinical library provides clinical staff and researchers access to information that will improve clinical care. Important online resources, such as UpToDate, LexiComp,

Lippincott Procedures, Clinical Key, Science Direct, and Springer Nature, have been accessed over 750,000 times by Sidra Medicine staff in 2022.

Simulation and Life Support Center

The Simulation Center is a local and regional center of excellence and innovation for healthcare simulation, education, patient safety, and research. Equipped with the

latest technology, the new facility offers training based on international best practice standards.

Simulation training sessions conducted in 2022 certified 3942 trainees in the following programs:





