

ANNUAL REPORT 2021



Contents

About Us	06
Vision and Mission	07
Leadership	08
Managing Director's Message	13
Milestones 2021	15
Chief Medical Officer's Message	19
Children and Young People's Services	25
International Patient Services	40
Women's Services	43
Nursing, Midwifery & Allied Health	49
Chief Nursing Officer's Message	51
Sidra Medicine in Numbers	59
Research	64
Chief Research Officer's Message	66
Medical Education	76
Chair of Medical Education's Message	78
Fight Against Covid	83





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 Managing Director 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 2021



Her Highness Sheikha
Moza bint Nasser
Chairperson



Professor the
Lord Darzi of
Denham
Vice Chair



Mr. Mohammed
Khalid Al Mana
Managing
Director



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



Mr. Mohd Ismail Mandani
Al Emadi
Governor



Mr. Yousuf Al Jaida
Governor



Dr. Javid I. Sheikh
Governor



Dr. Iyabo Tinubu-Karch
Governor



Ms. Jill Watts
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



Mr. Mohammed Khalid Al Mana
Managing Director



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



Dr. S Bhasker
Executive Director
Information Technology



Mr. Abdulrahman Telfat
Executive Director of
Human Resources



Mr. Abdulla Al Yafei
Acting General Counsel



Ms. Jennifer Ahen
Director of Marketing and
Communications





Managing Director's Message

The year 2021 has shown us so much. It has shown us that when we work together, we can overcome tremendous challenges, adapt quickly to support our community.

Admittedly, the coronavirus continued to loom over us and the rest of the world. But with vaccines being made available and thanks to the quick action by the Government of Qatar, there was a silver lining in our response in tackling the pandemic. The vaccines arrived as medical triumphs, achieved in record speed through global cooperation and scientific innovation.

Even though coronavirus was still widespread, we are incredibly humbled by the resilience that our staff and physicians have shown for the last two years. Together, we have adapted to changes in how we live, how we connect, how we work, and how we provide care to our patients.

As we reflect on the past year, we are immensely proud of our teams' clinical achievements – whether it is saving the most vulnerable babies admitted to our neonatal ICU with a survival rate of 95.4 percent or ground-breaking surgeries to save the lives or limbs of our young patients. The advancement of our reproductive medicine programs have given hope to couples seeking to grow their families, while we spent a major part of 2021 developing our luxury maternity suites.

Our researchers and microbiologists have continued to make progress and scientific breakthroughs over the past year. Their programs will have a profound impact not only for the people of Qatar and also globally thanks to the knowledge sharing through publications and collaborations.

With the lessons learned in 2021, we started thinking about what the future of healthcare for children and women in Qatar looks like. How can we increase our commitment to tackling the most pressing and challenging needs while being sustainable and without any compromise to the standard of care? How can we, every day, in everything we do, turn our organization's vision into reality? Towards this we have outlined a strategy spanning the next three years that focuses on patient care and clinical excellence, market leadership, people and culture, research, innovation, and education and finally sustainability and social responsibility.

We are also embarking on our Joint Commission International reaccreditation, establishing recognized accredited centers of excellence, introducing new holistic services, creating new pathways of excellence, clinical trials, and improving patient care by operationalizing the Magnet journey. So 2022 is going to be milestone year for both Qatar and Sidra Medicine.

Healthcare is about people — those who selflessly and heroically deliver it in the face of adversity. I assure you, no matter whatever surprise there may be around the corner, we remain committed to fulfilling with excellence, the healthcare needs of women and children now and in the future.

Mohammed Khalid Al-Mana
Managing Director and Member of the Board of Governors



Milestones 2021

Milestones 2021

14 January 2018 marks the official date of the grand opening of our main hospital. Since then we have changed the lives of thousands of women and children from Qatar and beyond. 2021 has been a year filled with milestones. Thank you to our staff, patients and their families as well as our partners for your important role in putting Sidra Medicine on the world stage.

JANUARY

- 5th Qatar Pediatric Emergency Medicine Conference
- Qatar's first Movement Disorders Clinic



FEBRUARY

- ACGME-I accreditation for pediatric specialties
- Pediatric cancer precision medicine study
- Cancer immune responsiveness study
- Aesthetic Surgery and Medicine clinic



JULY

- Outpatient clinic achieves Stage 7 HIMSS certification
- First in Qatar: produced eye drops to treat ultra-rare disease



OCTOBER

- OB Anesthesiology Center of Excellence Designation by SOAP
- Genomic study on Arab Genomes
- Women's Conference 2021
- Health Literacy Campaign

AUGUST

- Fastest private PCR tests in Qatar



SEPTEMBER

- 8th National Sepsis Symposium
- Intestinal Failure Program saves lives



MARCH

- Antibodies against COVID-19 infection study
- Groundbreaking surgery on kids with Apert Syndrome
- Orthopedic Oncology Surgery Launch
- Novel point mutation in COVID-19 study



JUNE

- Afif Charity MoU
- Animal Behavior Pipeline for precision medicine



NOVEMBER

- New Chief Nursing Officer: Ms. Judy Jones
- New Chief of Corporate Services: Mr. Mohamed Salem
- Evidence Based Practice Course for Health Professionals



APRIL

- Qatar Red Crescent Society MoU
- New Chair of Women's Services: Dr. Johnny Awwad
- Mutation-free spots in COVID-19 study
- COVID Testing center launched



MAY

- World Psychiatric Association Designation
- New Chief Medical Officer: Prof. Ziyad M. Hijazi
- New Chief Research Officer: Dr. Khalid Fakhro



DECEMBER

- Groundbreaking Ewing's Sarcoma surgery
- Precision Medicine and Functional Genomics Conference 2021



Chief Medical Officer's Message

What an extraordinary year for Sidra Medicine, as we demonstrated our excellence across clinical, medical, educational and research milestones.

We remain committed to offering patient and family centered care. By partnering with our patients and their families, we have become better equipped to understanding their unique needs. We can provide more appropriate care and support them to be active participants in their care journey and make well-informed decisions, all resulting in improved clinical outcomes and a more positive patient-centered experience, examples of which you will find in this report.

The year 2021 also marked one year since the pandemic impacted healthcare systems worldwide. During this time, we rose to challenge yet again as we remained a Covid-19 free facility keeping staff, patients and their families safe.

Sidra Medicine also played an active role in supporting the national efforts to tackle the virus by setting up a testing center that offered the fastest PCR test results in the country. Our pathology sciences and research teams published groundbreaking studies and papers, which not only have had a significant local impact but also internationally acknowledged for being innovative, educational and part of best practice methodologies.

Last year, we partnered with Qatar Airways, ranked as one of the top five safest airlines in the world, to deliver a specific training course exploring the application of Crew Resource Management in healthcare. Both healthcare and aviation provide services that involve

incredibly complex systems. They employ highly educated professionals trying to do the right thing, often under highly stressful circumstances, responding to their patients and customers unique needs, preferences, and values. And this is the approach we believe would help us continue on our path to patient safety, as Qatar Airways safety knowledge and experience, specifically related to human factor concepts can be applied to our patient care model.

In the same year, we continued to support the organization in preparing for JCIA reaccreditation in February 2023.

We are also one of the few hospitals in the world, where our clinical care services are closely integrated with our research and education priorities into a program of excellence that is built on a foundation of personalized medicine. In 2021, our clinical and translational research teams showcased successful precision medicine programs for several children born with complex health conditions or rare diseases.

As we move into 2022, we will continue to collaborate internally with our clinical and non-clinical staff as well as with our partners to strengthen our foundation as a premier healthcare provider in Qatar with a primary focus on improving our safety culture.

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



Quality

As a Joint Commission International Accredited (JCIA) hospital, we ensure that our patients and their families are at the heart of everything we do. We fully appreciate that a robust quality program requires structures, leadership and culture, teams, technology and the processes, the methods and tools of improvement to achieve the desired outcomes of high-quality, safe care. Over the last twelve months, we have improved our clinical quality processes. We have continued to improve the definitions of our core data measures and worked with stakeholders across the organization to review our data to ensure that the information provided is accurate and reliable. By improving and utilizing our hospital data and comparing ourselves to international evidence, we have continued to identify opportunities for improvement.

We use data to bring credibility to our decision making, instead of making decisions based on opinion.

In 2021 we chose 49 core measures to collect data these measures included those required by MOPH and JCI). The nursing team also opted to collect data for a number of nurse sensitive indicators from the National Database for Nursing Quality Indicators (NDQI) which we have added to the core measure dashboard. The measures include both outcome and process measures.

In the same year, the Clinical Quality and Accreditation, Patient Experience and Risk Management teams worked together to analyze patient feedback, event reports and risks to use it to identify opportunities

for improvement. We have improved the coordination and management of complaints supporting each other to address patient concerns thoroughly and timely.

As we have progressed, we have improved the communication of adverse and near-miss events, patient feedback and risk management, taking every opportunity to ensure that staff are made aware of event reporting trends. The program has included formal meetings, Grand Rounds, educational sessions, newsletters, and email. We have worked collaboratively with hospital-wide quality leads, education teams and the Nursing Quality Council to communicate the lessons we have learned from our information. Furthermore, we have used the knowledge of high-performing areas within the hospital to serve as a model for departments that need additional support and improvement.

Through the delivery of clinical quality and accreditation education, we have worked together with clinicians across the organization and, more recently, with external partners to compliment the enterprise educational offerings. We have delivered specific educational programs related to event reporting, the management of events, data collection measurement and management and process improvement.

Infection Prevention and Control

The Sidra Medicine Infection Prevention and Control (IPAC) team continues to work proactively to ensure patient safety is prioritized across the organization. The IPAC leadership continues to contribute to the development of the national infection prevention and control program and were involved in the development of its policies and guidelines.

Hand hygiene remains the cornerstone of infection prevention and control. The hand hygiene program at Sidra Medicine is evidence based and well resourced.

In 2021, hand hygiene compliance was sustained above the organization's target of 90% throughout the year. Those individual

clinical areas whose scores did not meet or surpass the target, implemented improvement plans which were monitored. The IPAC awards, which recognize and celebrate the amazing work done by teams and individuals to embed infection prevention and control, were launched to be an annual award.

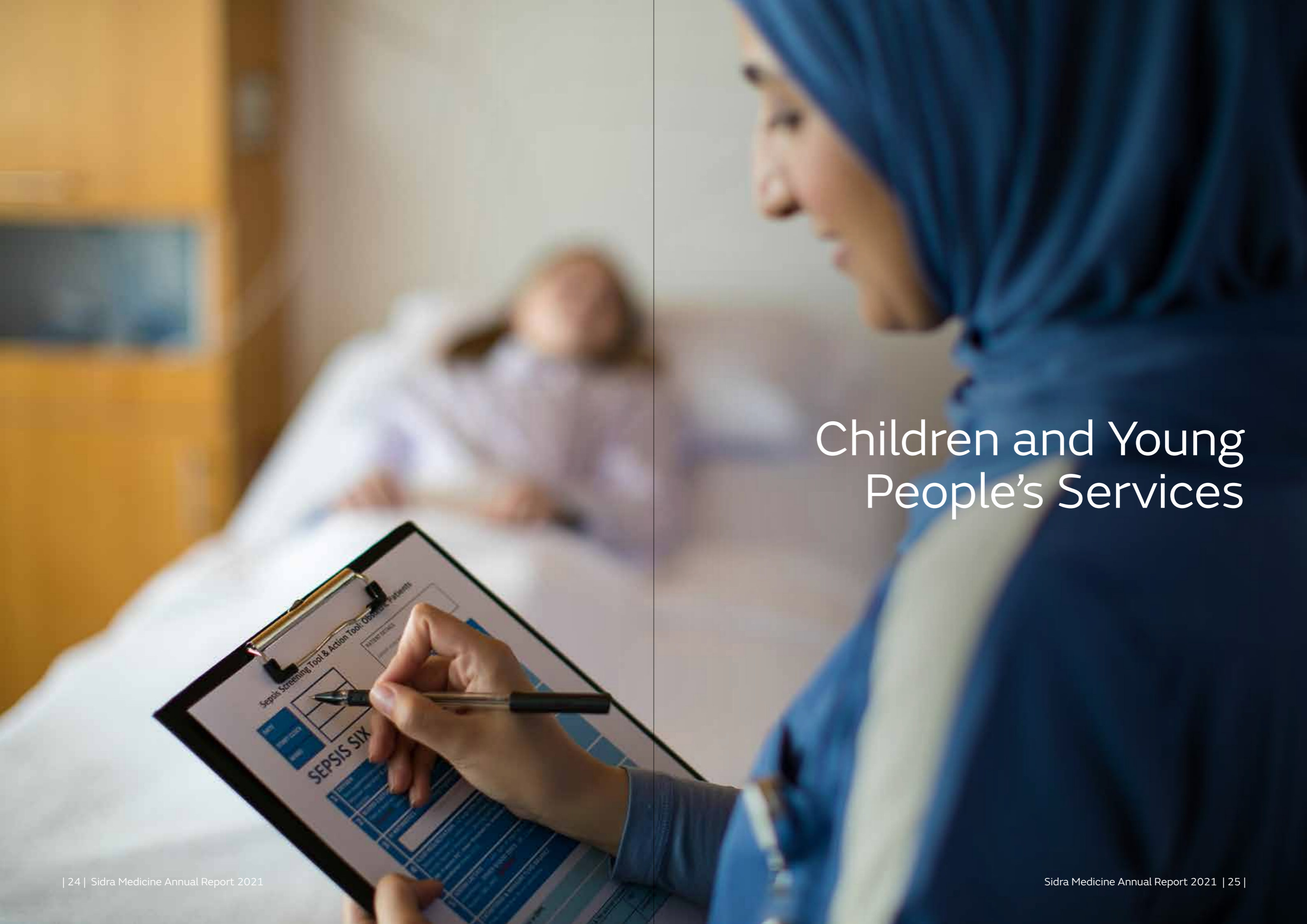
The organization celebrated the World Health Organization's Hand Hygiene Day on 5 May and Qatar Infection Prevention and Control Week, by running both fun and educational activities to raise the profile of infection prevention and control. This was also an opportunity to remind our staff, patients, and visitors the importance of hand hygiene.

A robust staff education program is in place and the team worked collaboratively with the Nursing and Midwifery Education and Medical Education teams to ensure all new staff and students received clinical orientation.

A clean and safe patient care environment is crucial for the prevention of healthcare associated infections. The IPAC team continue to be an active core member of the multidisciplinary teams conducting the managerial cleaning audits led by Hotel Services, as well as Environment of Care rounds led by Facility Safety.

COVID-19 remains a topical issue for the organization with the main goal being to maintain Sidra Medicine COVID-19 safe. A multipronged approach was applied to reduce the risk of COVID-19 to both patients and staff. This included implementing strategies such as restricting patient visitors, appropriate use of personal protective equipment, social distancing, the infectious diseases screening of patients, staff and visitors, and roll out of Covid-19 vaccinations of staff and patients using the Pfizer-BioNTech Covid-19 vaccine. There were no reported cases of in-hospital transmission of Covid-19.





Children and Young People's Services

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.

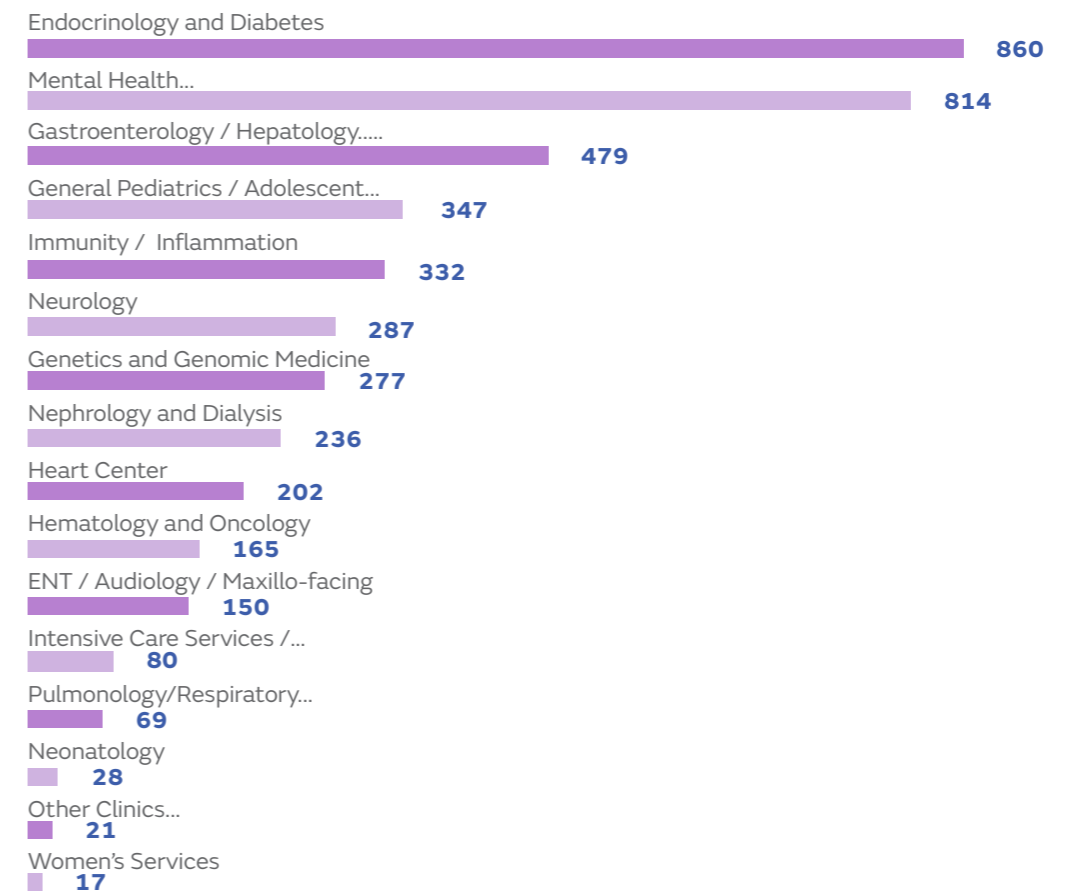
We have outstanding clinical programs and our physicians are recognized globally in their respective disciplines. We have attracted some of the world's top experts representing over 80 nationalities to care for our patients, from Qatar and beyond.



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

Prospective Subject Enrollment Per Clinical Service Area (Patients + Controls) Sidra Recruitment Only



Pediatric Medicine:

Neonatology

Achievements

Our hospital has the only Level 4 Neonatal Intensive Care Unit (NICU) in Qatar with more than 150 parameters monitored for each baby admitted. We admit the sickest babies or those with complex health conditions, of which a very high proportion (25 percent) undergo major surgery at Sidra Medicine.

Despite the complexities, we are proud of the survival rate of our NICU patients, which was as high as 95.4 percent in 2021. We are part of the global Vermont Oxford Network database, which benchmarks more than 1300 NICU's in the world.

Since January 2021, to avoid stressful situations for the babies, ophthalmological interventions such as laser or eye injections are performed bedside on the NICU. We also have a Congenital Diaphragmatic Hernia Program which offers a full range of services from antenatal period to follow up after discharge. The program submits data for benchmarking and the outcomes match other well-established international centers. In 2021, six out of seven cases (86%) that received active care survived to discharge.

We have a number of Quality Improvement Projects within the NICU Division. In 2021, we revised more than 100 NICU guidelines, to ensure consistency and quality of care. A care bundle approach for 'zero central line associated bloodstream infections' was implemented. In 2021, the rate of infections decreased from 3.8 to 2.8 per 1000-line days

A post discharge clinic was implemented in January 2021 to make sure that any baby discharged from the NICU is assessed by the NICU team a couple of days later. This is reassuring for the parents and improves safe discharge processes.

NICU staff are now trained in the Family and Infant Neurodevelopmental Education Program, which enables supportive developmental care to all the babies and their families. A key performance indicator of that approach is the breastfeeding rate at discharge. Breastfeeding is very challenging when babies are born preterm or are very sick. Feeding babies with breastmilk at discharge is a marker of high engagement of the mothers. The breastfeeding rate was 65 percent at discharge from NICU in 2021 (Optimum group), compared to 40 - 50 percent in similar NICU's in the USA.

The NICU at Sidra Medicine was also the only site in the Middle East to participate in a large multicenter clinical trial of premature infants with respiratory distress syndrome. The study was conducted in thirty-three neonatal intensive care units in eleven countries. The results were published in the prestigious Journal of the American Medical Association (JAMA) in December 2021. This was one of the first randomized clinical trials to be conducted at our hospital. The study has implications for pioneering treatment in premature baby studies.

Gastroenterology

The Gastroenterology (GI) Division at Sidra Medicine provides state-of-the-art multidisciplinary tertiary services for children with all forms of gastrointestinal, hepatology and nutritional disorders. It also supports other tertiary services across Qatar and the wider Middle East. The division, benchmarked against international standards, runs a patient and family-centered service, which includes family support groups and family support days.

In 2021, the division introduced rapid infliximab infusion for children at the infusion center (OPIC), which significantly reduced the waiting

time and created more space to accommodate more patients. It also started the first IBD and liver transplant and nurse-led clinics as well as a pediatric virology clinic as part of its general liver service, which are the first of their kind in the Middle East.

The division an active partner in the international ImproveCareNow Network collaboration with over 110 pediatric GI sites, with Sidra Medicine being the only center outside of North America and Europe.

Improving the Lives of Children with Gastrointestinal Illnesses

There are many children and young people with intestinal failure because of congenital malabsorption issues (short bowel syndrome, inflammatory bowel disease or cancer) or surgical causes. They either cannot or should not receive feedings or fluids by the mouth. They need to be supplemented with nutrients through Total Parenteral Nutrition methods.

Sidra Medicine is the first pediatric hospital to have an Intestinal Failure program, which offers Total Parenteral Nutrition to children and young people with gastrointestinal illnesses. The program is available in-clinic at the hospital and includes at-home TPN care training.

Nasser Al Abhaq, 18 years old, is a GI patient at Sidra Medicine. His mother said: "As a family, we found the home service training offered by Sidra Medicine very useful. It is actually a relief to be able to do Nasser's total parenteral nutrition in the comfort of our home. The team from the clinic have been guiding us every step of the way and are accessible to us whenever we have any questions. We are grateful for the opportunity, especially during the pandemic as it really did take the stress away of having to keep our son in the hospital all the time to access TPN care."



Rehabilitative Medicine

In early 2021, the Rehabilitative Medicine Division established a multidisciplinary movement disorders clinic which helps address problems such as spasticity (uncontrollable muscle stiffness) and dystonia (involuntary, abnormal jerking or twisting movements) in children and young people who have not responded to medications and therapy and who may benefit from state-of-the-art surgical

interventions available at Sidra Medicine. The clinic is staffed by a team of specialists from rehabilitation medicine, physical and occupational therapy, neurology, and neurosurgery.

In 2021, the Movement Disorders Team implanted a Intrathecal Baclofen Pump (ITB) in a young patient – a first for Qatar.

Qatar's First SDR surgery on a patient with Cerebral Palsy

Eight year old Aiden was referred to Sidra Medicine's Movement Disorders Clinic, to undergo Selective Dorsal Rhizotomy (SDR). SDR is a spinal surgery usually performed on children with spastic Cerebral Palsy, especially those who have not responded to therapy and medications. SDR can improve mobility, reduce pain and relieve lower limb spasticity. Following his surgery at Sidra Medicine in 2021, Aiden is now able to support his own weight aided by a walker.

Aiden's parents said: "Seeing the progress Aiden continues to make is empowering. The day he stood aided by a walker was a day that changed all of our lives. It gave us hope that we made the right decision and each day is a day of hope and inspiration as we work together with the team at Sidra Medicine to help Aiden build his strength. Thank you!"

SDR is a highly specialized neurosurgical procedure that is offered by only a handful of pediatric hospitals worldwide. Aiden's SDR surgery is considered the first of its type in the region for the improvement of mobility in a pediatric patient with CP.



Endocrinology

In 2021, the Endocrinology division implemented a protocol of automated insulin delivery systems for children with diabetes, a first of its kind in Qatar. Qatar is one of the first five countries in the world that initiated this therapy. The publication and the results show that our hospital stands on the highest level when benchmarked with other international centers.

Psychiatry

The Department of Psychiatry has played a key role in supporting the development of Qatar's national clinical guidelines for depression, anxiety, obstetric mental health and co-morbid disorders. We receive referrals from around the country including but not limited to HMC, PHCC, private hospitals and clinics and schools.

Our approach to mental health, also extends to preparing children get the right support and tools. Our Student Wellness Ambassador Program, which was established a few years

ago in collaboration with QF in 2019, has now expanded to five additional QF schools. This program is designed to help with mental health awareness and reduce stigma among the students.

In March 2021, Department of Psychiatry at Sidra Medicine was designated as a World Psychiatric Association (WPA) Collaborating Center. There are only eight such centers globally and Sidra Medicine is the only one for Children and Women.

Fares's Journey of Care

Fares is a seven-year-old boy with autism spectrum disorder. After struggling for years to understand and manage their boy's behavior, his parents brought him to the Adolescent Medicine clinic at Sidra Medicine, where he had undergone a very positive transformation over a short period of five months.

practical knowledge needed to control their son's triggers and regulate his behavior while catering to his needs and wellbeing.

"This has been an incredible journey of growth, understanding and acceptance for all of us."
Najla Fathy, Fares's Mother.

Through a collaborative process, his parents were finally able to get the advice and





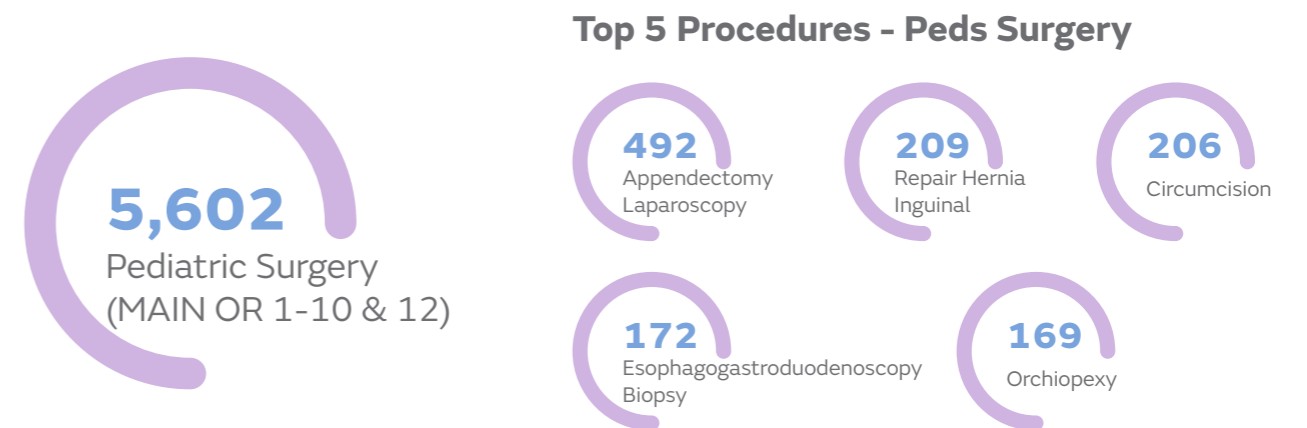
Pediatric Surgery

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

Achievements: Department of Surgery

- Our Neurosurgical Residency program obtained ACGME-I accreditation due to quality of training of the residents.
- Quality improvement initiative for the care of children with appendicitis which includes a multi-disciplinary task force with general surgery, 5B nurses, infectious disease team, interventional radiology, and clinical pharmacy.
- Multidisciplinary clinic with epilepsy, neurosurgery and neurology - gained Center of Excellence status
- Launch of orthopedic oncology service between Sidra Medicine and HMC
- Dedicated Pediatric Airways Surgery Program and establishment of Perinatal Critical Airway Program
- Dedicated Pediatric Tracheotomy Service – First in the GCC
- Dedicated Bone Implant conducting Hearing Implant Program and Pediatric Audiological Brain Evoked Testing program
- Members of dedicated Multidisciplinary Craniofacial Program, Complex Care Team, Aerodigestive Multidisciplinary Team, Cystic Fibrosis Team
- New born Hearing Screening program
- Initiating Thyroid and Parathyroid Surgeries at Sidra Medicine
- On-boarded and trained first Pediatric Plastic Surgery fellow, and first HMC Plastic Surgery residents beginning in January 2021
- Quality Achievements in Surgery: A Periop Covid Testing Center was initially established to safeguard surgical patients and staff during the Covid-19 pandemic. We now screen all hospital admissions with a total of 15,517 patients seen in 2021 alone.

Perioperative Performance



Case volumes

Our eight Surgical Specialties performed 4,286 cases (4,621 procedures, 8,536 intra-op hours) – not including cases done in out-of-OR areas such as ED or on the Wards.

These cases constituted 49 percent of all surgical/procedural activity done under Anesthesia in 2021(9,524 cases).

General Surgery accounted for 37.1 percent of all surgical/procedural activity in the hospital in 2021, for cases done under Anesthesia.

Case mix

59.4 percent elective, 40.6 percent urgent/emergent

Comparison with 2020

59.4 percent elective, 40.6 percent urgent/emergent

Overall case volume increased by 21.6 percent from 2020, despite the continuation of the current pandemic.

Breakdown by specialty

Specialty	# Cases	% of Department total
General/Thoracic	1,590	37.1%
Urology	605	14.1%
Orthopedic Surgery	602	14.0%
Plastic/Craniofacial	561	13.1%
Otolaryngology (ENT)	521	12.2%
Neurosurgery	183	4.3%
Ophthalmology	169	3.9%
Dental/Oral Surgery	55	1.3%
Grand Total	4,286	100%

Specialty	Intra-op hours	% of Department total
General/Thoracic	2,888	33.8%
Orthopedic Surgery	1,410	16.5%
Urology	1,274	14.9%
Plastic/Craniofacial	1,207	14.1%
Neurosurgery	749	8.8%
Otolaryngology (ENT)	667	7.8%
Ophthalmology	205	2.4%
Dental/Oral Surgery	136	1.6%
Grand Total	8,536	100%

First Surgeries in Qatar: 2021

The surgical and cardiac surgery team collaborated on a complex Wilm's Tumor case. The surgery involved radical nephrectomy, IVC thrombectomy with cardiac bypass.

Selective dorsal rhizotomy procedure for spasticity in legs

Hemispherotomy for intractable epilepsy

Endoscopic coronal synostectomy for misshapen skull

Endoscopic sagittal synostectomy for misshapen skull

Choroid plexus cauterization for hydrocephalus in neonates

Congenital cataracts

Strabismus including obliques

Balloon dacryoplasties

Retinal and intravitreal injections for retinopathy of prematurity

First proximal femur reconstruction for Ewing's sarcoma with free vascularized bone graft and native femoral head done in the world done at Sidra Medicine

Management of CSF leak in chronic otitis media and recurrent meningitis

Establishing Tracheostomy care program with 74 percent of our patients managing tracheostomy at home

Endoscopic management of intratracheal granulations

Initiation of sleep nasoendoscopy in children with snoring

Endoscopic repair of bilateral choral atresia without stenting

World first: proximal femoral reconstruction with autologous free flap and microvascular preservation of the femoral capital epiphysis.

Radical cranial vault reduction procedure for massive hydrocephalus/macrocephaly

Minimal intervention approach (including palpebral access) to coronal craniosynostosis

Robotic Mitrofanoff-Monti

Deceased-donor Kidney transplantation



Orthopedic Oncology Care

M.A is a 12-year-old boy who was referred to Sidra Medicine with an abnormal gait, causing him to limp. Initial scans indicated there was a difference in length of his legs and a restricted range of motion in his right hip, because of a bony lesion in the same hip. Following computerized tomography and magnetic resonance imaging scans and pathology tests, it was confirmed that the lesion was in fact an Osteochondroma.

The bony lesion in M.A's hip was removed in a five-hour surgery which was one of the first to be performed under the new joint pediatric orthopedic oncology surgery service offered by Sidra Medicine and HMC.

M.A has since recovered fully and is able to fully bear weight on his right lower limb. He is now able to go about unrestricted in his daily activities without any discomfort or pain.

"We are thankful to Allah for our son's recovery under the care of the wonderful team at Sidra Medicine. We also want to thank everyone who helped him throughout his journey, what a blessing to have access to such great care in Qatar for our children. We are truly grateful."
M.A's parents

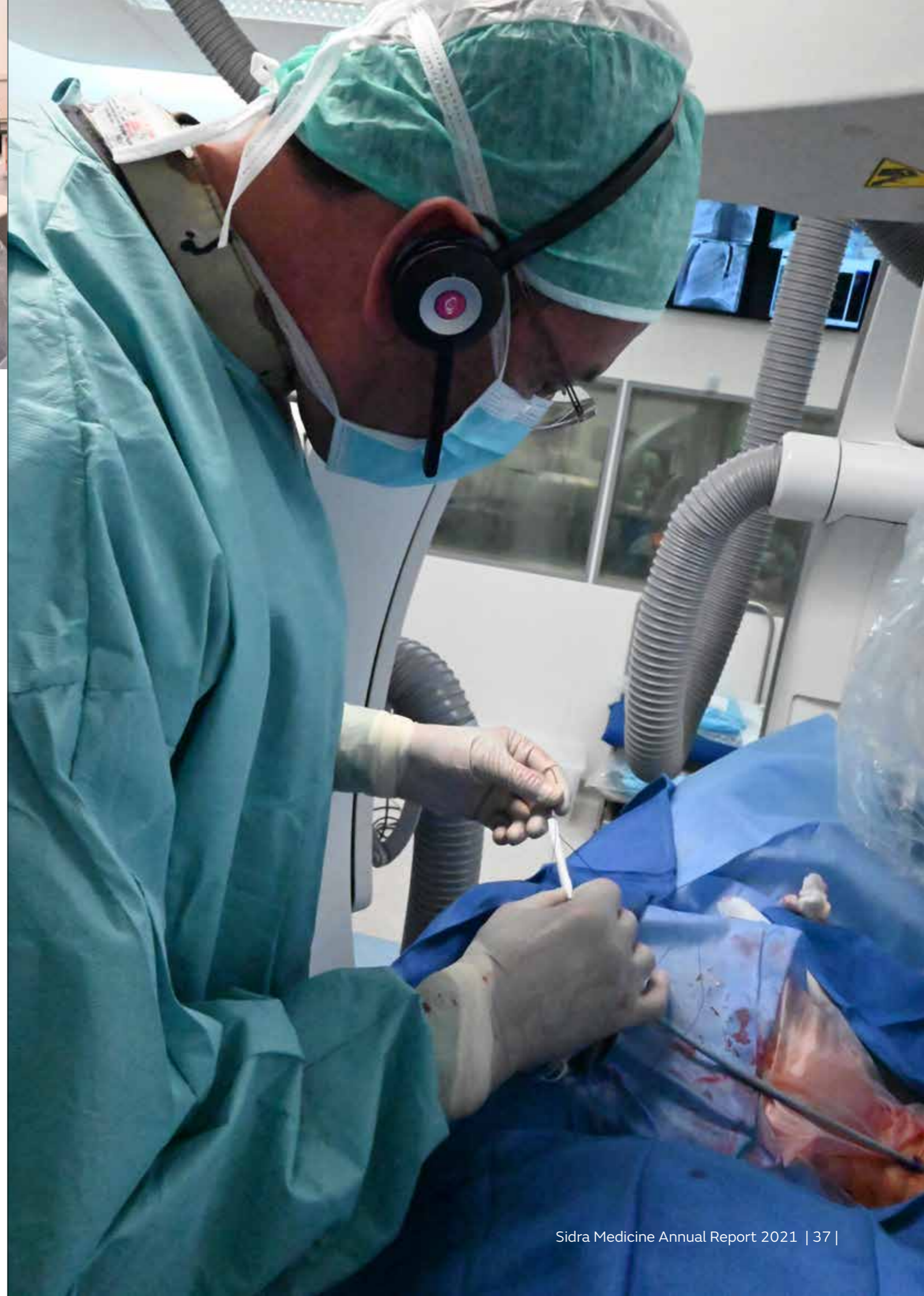
20-hour surgery on a patient with rare form of bone cancer

A team lead by Sidra Medicine, in partnership with Hamad Medical Corporation, successfully performed a ground-breaking ortho-plastic oncology surgery and saved the life and limb of a four-year-old girl with Ewing's Sarcoma.

This first of its kind surgery was complex and unique, combining multiple functions in one setting. The primary aim of the procedure was to remove the life-threatening cancer of the bone, as well as to get the best results in terms of function and future growth and preserving the patient's hip joint.

"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." Parents of the patient.





The Heart Center

Our Heart Center features a comprehensive program of services, with all the required elements needed to deliver best outcomes and safe quality care to children and adults with congenital heart defects. Since its establishment, the Heart Center provides the perfect environment for complex patients from prenatal diagnosis to long term follow up in one place.

We offer surgical and medical care for essentially all pediatric (including neonates) congenital cardiac and acquired heart

diseases along with the adult congenital heart disease. Our outcomes are comparable to any other western and North American mid or large size programs.

Sidra Medicine is also one of the few children's hospitals in the world with an airway stent service that is delivered through its Cardiac Intensive Care Unit (CICU).

In 2021, we performed over 150 heart operations with a success rate of over 95%.

Number of admissions to the Cardiac ICU is 454.

1. No. of Procedures in Interventional Cardiac Labs (ICL) - 380
 - a. ICL EP Lab
 - b. ICL CT
 - c. ICL CCL
 - d. ICL IR

In line with our multidisciplinary approach to care, we apply the latest techniques and work in collaboration with other specialties and experts to offer hybrid procedures. We have set up working groups for patients with complex diseases such as single ventricle or hypoplastic left heart syndrome. We work closely with our translational research team in conducting genetic research for our congenital patients.

The Heart Center is currently in the process of setting up an artificial heart program to support critically ill children, in collaboration with international centers in North America and Europe.

Pediatric Emergency and Urgent Care Services

The pediatric emergency at Sidra Medicine continues to operate as Qatar's Level 1 pediatric trauma center, offering evidence-based best practice care to children aged 0-18 years old.


In 2021, we had close to 92,000 children and young people come to our pediatric emergency with nearly 540 Tier 1 and Tier 2 trauma cases. We admitted over 4,600 children as inpatients to the main hospital.

Our urgent care services, which addresses the needs of children with non-threatening illnesses or injuries, saw 14,568 children.

As pioneers of the Sidra Child Advocacy Program which in 2021 handled over 220 cases, we continued to support children who have been victims of abuse or neglect. Our flagship Qatar Poison Center, a free helpline offering poison management advice, fielded over 2100 calls.

 **58**
Treatment Areas

2 Hours and 24 Minutes
Average length of stay

87% 
Patients treated and discharged within 4 hours

 **46** Doctors

 **143** Nurses,



International Patient Services

Providing Exceptional Care to Global Patients

Each year, our International Patients Services team works with families who travel outside of their home country to receive specialized care at our hospital. Our team offers seamless care and understand that every international patient has different needs. They recognize that travel for care overseas can be overwhelming and are committed to ensuring that patients and family members unique needs are met before, during and after their visit.

Despite the coronavirus travel restrictions continuing in 2021, 94 patients travelled to Sidra Medicine for our expertise and care. Patients have sought treatment in our specialist areas including Cardiology, Neurology, Endocrinology, Orthopedics, Neurosurgery, ENT, Pulmonology and Plastics and Craniofacial Surgery.

International Patient Story



Hearts Beating with Joy

Baby Abdulla was born premature with a congenital heart defect. In 2021, his parents flew him to Qatar after being referred by a cardiologist in Kuwait for a life-altering cardiac procedure.

"We were blown away by the care we received from Sidra Medicine. The whole process right from the international patient services taking care of our entry to Qatar, despite the Covid-19 protocols, was seamless. And once we arrived and entered – it truly felt like a hospital centered on caring for both the child and their parents. And we loved how the team interacted with our child and kept us informed every step of the way. They were fantastic. The fact that our son was able to come back to the hotel with us just one day after the procedure, was amazing. We felt so relieved to see how quickly he was recovering. It is wonderful that Qatar has a hospital like Sidra Medicine with such high international standards of care."

International Patients by country



Specialty





Women's Services

Women's Services

- Obstetrics
- Maternal Fetal Medicine & high-risk pregnancy
- Gynecology
- Reproductive Medicine (IVF)
- Aesthetic Surgery and Medicine
- Internal/Acute Care Medicine
- Perinatal Mental Health Services
- Women's Ultrasound
- Women's Urgent Care and Obstetric Triage Services
- Lactation Support for Mothers
- Women's Health Physiotherapy & Pain management

The year 2021 was marked by several expansions for Women's Services at Sidra Medicine as we continued to take a more integrated and holistic approach to care for our female patients, by offering them more choices when it comes to their health and wellness.

Staffed by a skilled and highly qualified team that includes physicians, surgeons, midwives, nurses, anesthesiologists, technologists and perinatal mental health experts – we remain committed to supporting our female

patients across their life journey, from birth to menopause.

We appointed Dr. Johnny T. Awwad as our new Chair of Women's Services. Dr. Awwad, who has over 25 years' experience in reproductive endocrinology and infertility, oversees the wide spectrum of our women's services remit, which includes gynecology, obstetrics, reproductive medicine, maternal fetal medicine, internal medicine, adult pain and aesthetic surgery and medicine.

Reproductive Medicine

Our newly appointed Chair, Dr. Awwad who has a wide experience in reproductive endocrinology and infertility across the clinical, research and medical education streams, was a key driving force in further developing our reproductive medicine and IVF services at Sidra Medicine.

The model of care is designed to offer each couple, a personalized treatment plan based on their medical history, individual characteristics, and tailored needs. It is built as a one-stop service which offers a wide range of services including fertility counseling, intrauterine insemination and in vitro fertilization. The pre-implantation genetic

program, also offers couples with familial inherited disorders the opportunity to have healthy children.

The division will soon launch its fertility preservation program which addresses severe medical conditions that may compromise the future fertility potential for women. The Male Infertility and Sexual Health programs will also be activated with the onboarding of a Male Reproductive Urologist.

We also welcomed our first fellow to our fellowship program in Reproductive Endocrinology and Infertility.

Aesthetic Surgery and Medicine

In 2021, we launched an Aesthetic Surgery and Medicine clinic, led by a renowned plastic and aesthetic surgeon, Dr. Chiara Botti. The clinic offers breast reconstruction, face surgeries, body sculpting and aesthetic medicine treatments. The procedures are performed to

ensure the best aesthetic outcomes for our patients, with a swift recovery time.

The clinic will soon expand to include an array of topical cosmetic procedures with the addition of an adult cosmetic dermatologist.

Obstetrics

Continuity of care is at the center our health care philosophy in Obstetrics, and is performed by a team of highly qualified board-certified physicians and midwives. Our obstetrical care follows a private patient-centric model, with pregnant women being followed by the same care provider all through their ante-natal journey, right up until to delivery.

We are also supported by advanced fetal diagnosis and high-risk maternal medicine services, further offering our female patients with complex fetal and medical conditions to safely deliver at Sidra medicine, while their newborns are cared for in our advanced tertiary neonatal unit.

We spent a large portion of 2021 on building a new luxury maternity ward (for a 2022 launch). The ward features six luxury suites

fully customized with amenities and services to enhance the comfort and care of mothers.

We were proud that our Obstetric Anesthesiology service was awarded Center of Excellence designation by the Society for Obstetric Anesthesiology and Perinatology (SOAP), for demonstrating excellence in obstetric anesthesia care. SOAP is an internationally recognized body that designates this status based on expert consensus and evidence-based recommendations. The designation meant that the quality and safety of Sidra Medicine's adult anesthesiology service is on par with some of the best hospitals in the world, alongside centers such as Johns Hopkins, Stanford University and the Mayo Clinic. The certification also marked Sidra Medicine as one of the only private providers of obstetric services in the GCC region to achieve the accreditation.

Gynecology

We continued to take a strong call-to-action health message regarding reproductive and gynecological health particularly cervical cancer screening. We work closely with HMC as part of a nation-wide "screen-and-treat" program where following the screening at Sidra Medicine, patients are immediately referred for treatment. We also started to offer human papillomavirus (HPV) vaccines for girls from the ages of 12 years onwards.

This year we set the foundations of an integrated holistic menopause program with new services expected to be launched later

in 2022. We are also further developing our minimally invasive and robot assisted surgery to include a dedicated program for the management of uterine fibroids and endometriosis. An Executive Woman's Health Check program is also under development, that will offer a comprehensive yearly health assessment for women.

Collaborations with developers are underway to establish a training center at Sidra Medicine, to attract physicians seeking to improve their surgical skills in Qatar and the region.

Patient Stories

Lactation Support: Helping new mothers on their journey

Being a first-time mother can be fraught with a lot of worries and concerns especially when it comes to breastfeeding. Tamara who had her baby at Sidra Medicine, shared her experience and how the lactation support she received helped her through her journey of motherhood.

“The whole experience including pregnancy, going into labor, birth and then the breastfeeding process – are all significant milestones. However, at the same time it can be an overwhelming experience for first time parents. This was especially the case for my husband and me. Also, being expatriates and giving birth during the pandemic meant it was a bit more challenging as we couldn’t have our family with us during this time.”

It is a comforting experience knowing that you are getting the expertise from certified consultants, who are also very passionate about supporting mothers through this journey. My husband and I were provided with valuable information that would help both of us. I wasn’t in this journey alone and he also had an important role to play in terms of being supportive and understanding. I wish more people learn about the benefits of a mother’s milk for the child. The service was exceptional, and I felt I was in the best of hands thanks to the much-needed advice from knowledgeable experts with years of experience.”



The Importance of Cervical Screening

In 2021, while on a regular gynecology check-up at Sidra Medicine, Fathea Adheir upon the advise of her physician, underwent cervical screening and took a Pap smear. When the test results showed that she had Cervical intra-epithelial neoplasia (CIN) indicating abnormal changes of the cells that lined her cervix, time was of the essence for her to address the condition, as Fathea was identified at risk of developing cervical cancer.

“I am forever grateful for the amazing care I received at Sidra Medicine – and that my physician was adamant that I take a Pap smear or I would not have known that I was at risk of getting cervical cancer. The whole process from diagnosis to treatment was done in two weeks.”

Once the diagnosis was made, the wonderful team at Sidra Medicine worked with me both psychologically and physiologically. They not only treated the abnormal cells but also helped me deal with anxiety through counseling sessions.

I strongly encourage all women to consider getting cervical screenings done. Talk to your healthcare team and don’t delay. The process isn’t as daunting as some people think and can save your life! It truly is better to be safe than sorry.”



A story of hope: Reproductive Medicine

When patient “D” was in his 20s, he was diagnosed with advanced Hodgkin’s Lymphoma. He decided to store his sperm in Canada. 10 years later, he moved to Qatar with his wife and they wanted to start a family. After being unable to conceive naturally, the couple opted for IVF at Sidra Medicine.

Despite the complexities of the pandemic, everyone, including Sidra Medicine and the hospital in Canada, pulled all stops to ensure the frozen samples arrived in Doha on time and safely, to allow the IVF process to start. This case was the first international frozen sample for the reproductive medicine team at Sidra Medicine.

“We felt that we were in the safest and most experienced hands while at Sidra Medicine. We were elated when we were successful on our first cycle – everything was falling into place. Words cannot express how grateful we are, and how impressed we were with the excellent and professional the care that we received. Right from

the consultation process, during the treatment and all the way up until we had our precious baby– the team made us feel at ease and comforted us every step of the way.

We are proud parents to a beautiful baby boy and we will never forget everyone’s role in how they went the extra mile for us throughout our journey.”





Nursing, Midwifery & Allied Health



Chief Nursing Officer's Message

The Department of Nursing, Midwifery and Allied Health is comprised of over 1,700 highly skilled and dedicated health care providers and I could not be prouder of this selfless team who serve our patients 24 hours a day, often working extra shifts when needed.

This year has been particularly challenging as we worked relentlessly to combat COVID by vaccinating our staff, patients and their families. We realize that this global health threat still looms on the horizon, and we remain vigilant.

Our Nurses, Midwives and Allied Health staff

- Proudly answer the call...
- Work tirelessly to provide exceptional care to every patient...
- Are a devoted team...knowing that we are stronger together...

We are very proud of the major advances we have made this year to elevate the professional practice of nursing. Nursing has embraced the Professional Practice Model (PPM) that is a theoretically based framework to redefine the practice of nursing and interdisciplinary patient care, ensuring the delivery of exemplary clinical outcomes. Through mentorship programs, training and shared leadership, nurses are being provided an opportunity to grow as professionals and become effective leaders.

Looking toward the future, Sidra Medicine's growth is contingent upon planning for the future and embracing progress. We have reinitiated our Nurse Residency Program with a set of eight nurses that will ultimately grow in number, creating a pipeline of well-trained nurses at Sidra. We have joined the National Data Nurse Quality Indicator program that will enable us to compare Sidra Medicine's nursing performance with other institutions. We are preparing to launch our Clinical Ladder Program for nurses that supports nursing education, career development, and professional growth. The Clinical Ladder supports mentorship by creating a collaborative work environment.

As the Chief Nursing Officer for the Department of Nursing, Midwifery and Allied Health, I am proud to lead a staff where every member takes pride in their essential roles. Embedded in our culture is the commitment to meet every challenge and exceed every expectation in our pursuit of excellence. Together, we support the vision and mission of Sidra Medicine to be a beacon of hope.

Respectfully,

Judy Dawson-Jones
Chief Nursing Officer

Nursing and Midwifery

Brief Overview

Sidra Medicine has over 1,400 Nursing and Midwifery staff who play a crucial role in fulfilling our ambition for excellence in care for patients and their families. The Nurses, Midwives and Allied Health Staff represent over 80 nationalities, provide skillful and compassionate care in a variety of settings: outpatient, emergency room, perioperative services, and acute and critical care.

In the last decade, both the function and responsibility of nurses, and how they are trained, has grown from university degrees and higher diplomas to a diverse range of advanced nursing professions including Nurse Practitioners.

The Department of Nursing and Midwifery Education and Practice Development at Sidra Medicine embodies this shift by partnering with University of Calgary Qatar, to develop and provide robust training opportunities in a state-of-the-art facility, providing the most up-to-date patient care.

As the healthcare industry deals with increasingly complex challenges, our vision is to build a strong nursing workforce to support the State of Qatar, as well as our international patients. Nurses today play an independent and autonomous role with much greater responsibilities than just administering medication; and they build and manage an increasingly collaborative relationship between the physicians, the medical teams, and the patients.

We work closely with our academic partners to offer scholarships for student nurses. The Bedayati Program is a one-year program supporting a New Graduate Nurse to

transition from a student to a professional nurse; while providing opportunities for continuous professional development, post-graduate studies, in-house training, and workshops; ensuring career progression.

- Association of Pediatric Hematology/ Oncology Nurses (APHON) Chemotherapy and Biotherapy Provider Program
- Management of Actual or Potential Aggression (MAPA) Training Program
- Neonatal Resuscitation Program (NRP)
- S.T.A.B.L.E. neonatal stabilization training program
- Team S.T.E.P.P.S: an evidence-based set of teamwork tools, aimed at optimizing patient outcomes by improving communication and teamwork skills among health care professionals
- Establishment of the first Hemophilia Home Infusion Program in Qatar: Training parents and improving patient care and quality of life by decreasing the number of visits to hospital.
- End of Life Nursing Education Consortium (ELNEC) training for palliative and bereavement care.

In addition, we provide ongoing clinical skills, training and professional development courses in specialties such as pediatric dialysis, pediatric diabetes management, and fetal heart rate monitoring.

We are committed to establishing a culture that allows the professional voice of Nursing and Midwifery to flourish, ensuring the delivery of world-class care.

Allied Health

Brief Overview

Our Allied Health services complement Sidra Medicine's medical services with high-quality imaging, therapy and a wide range of health and wellness services including:

- Audiology
- Child Life
- Child Safety and Advocacy
- Casting Services
- Clinical Pharmacology
- Dietetics
- Orthotic and Prosthetics
- Occupational Therapy
- Pulmonary Function Testing
- Pathology
- Psychology
- Social Work
- Speech and Language Pathology
- Sleep Lab

Despite the healthcare industry making rapid development in recent years, the challenges have also been multifold, as witnessed during the Covid-19 pandemic. With a constantly evolving healthcare system, delivering integrated health services depends more and more on team effort, thus necessitating the paradigm shift from a doctor-centric approach to a multidisciplinary team approach.

Thus, Allied Health professionals play a critical role in providing timely and specialty services to the community. Allied Health teams include professionals, trained and specialized in diagnostic, preventive, therapeutic, rehabilitative, and curative disciplines.



Shared Leadership

Shared Leadership is a professional practice model that promotes nursing and midwifery staff empowerment, promoting shared decision-making by clinical staff accountable for decisions that impact policies, procedures, and processes at the point of care.

Nursing and Midwifery and Allied Health at Sidra Medicine utilizes a Shared Decision Making/ Shared Leadership Model to drive

meaningful improvements at unit level and to build a direct line of communication from the bedside caregivers to the Chief Nurse.

Councils, both at the unit and at the organization level recommend, plan, implement and evaluate initiatives that improve patient and family care and employee wellbeing in the workplace.

Practice Council

28 Nursing and Midwifery practice changes completed. This includes development or modification of policies, procedures and guidelines based on evidence-based recommendations

Informatics Council: 14 EMR System Changes proposed by front line staff to streamline and improve quality of nursing, midwifery, and allied health documentation.

Education and Professional Development Council: Design and approval of the Nursing and Midwifery Professional Development Ladder.

Wellness Council

The DAISY (Diseases Attacking the Immune System) Award is an international recognition of excellence in care. It was established to celebrate the extraordinary compassion nurses provide their patients and families every day. This merit-based award honors not only great clinical skill and leadership, but especially strong patient care and compassion.

For the individual awards staff are nominated from patients and parents

In 2021, Nursing Achieved:

- 7 Individual Daisy Awards**
- 2 Daisy Leader Award**
- 2 Daisy Team Award**



Nurse Led Services

The Outpatient Pediatric Infusion Center (OPIC) is a 7 bedded nurse led unit serving all pediatric specialties within the hospital. The unit has 4000 visits per year, administering IV infusions, injections, and this year successfully introduced dynamic testing for the endocrine population.

The nursing team triage and schedule all patients, liaising with inpatient units, specialty physicians, and support services to ensure safety and provide a positive experience for all.

The OPC hosts a variety of nurse led clinics which give the family an extra opportunity to visit a clinical role to ensure the care is moving in the right direction.

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

Mentorship

The Professional Practice Team, in collaboration with the Senior Leadership Team for Nursing, Midwifery and Allied Health, have developed the Mentorship for Leaders program. The program has been developed to enable talented individuals to reach their full potential. Other benefits include:

- Supporting staff stepping into new roles and during times of transition.
- Improved staff wellbeing and engagement.
- Enhancing staff retention.
- Better productivity.
- Achieving developmental goals.
- Growing talent, developing future leaders, and supporting succession planning.

2021 Highlights

- Over 240 front-line staff are involved in shared decision making either at the unit or at the organization level.
- There are 21 Interprofessional councils.

- Other highlights include:

- 76 Unit-Based Projects impacting issues ranging from daily patient and family care to operational efficiency, staff well-being.
- 12 evidence-based practice changes- including new policies, procedures, and guidelines.
- 10 Approved Cerner Change Proposals.

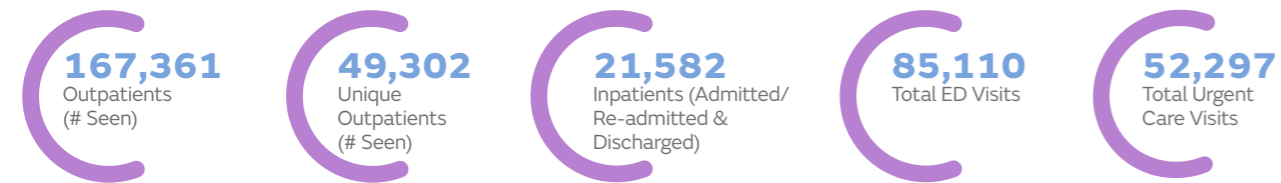




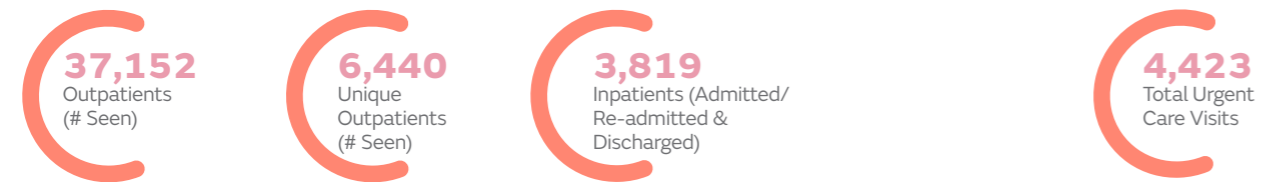
Sidra Medicine in Numbers

Sidra Medicine in Numbers

Pediatrics



Women's



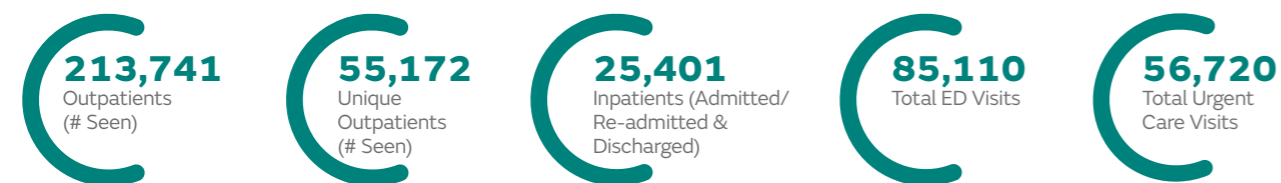
Pathology



Adult Services



Total



Surgical & Non-Surgical Procedures

	Surgical & Non-Surgical Procedures	10,747
	Pediatric Surgery (MAIN OR 1-10 & 12)	5,602
Top 5 Procedures - Peds Surgery	Appendectomy Laparoscopy	492
	Repair Hernia Inguinal	209
	Circumcision	206
	Esophagogastroduodenoscopy Biopsy	172
	Orchiopexy	169

	Women's Service (Obstetrics, Gyne, RMU)	1,215
Top 5 Procedures - Women's	Cesarean Section	651
	Retrieval Oocyte	124
	Frozen Embryo Transfer	52
	Double Setup Vaginal Delivery	45
	Transfer Embryo Transvaginal & Hysteroscopy	43

	Interventional Labs (CCL, CT, EP, IR, IMRIS)	1,813
Top 5 Procedures - Interventional Labs	IR PICC Line Insertion Anesthesia	286
	CV Cardiac Cath Medium & IR Gastrojejunostomy Check +/- Change Ane	171
	IR Venous Access Removal Anesthesia	145
	IR Venous Access Perm Anesthesia	127
	CV Cardiac Cath Long	106

	Special Procedures	452
Top 5 Procedures - Special Procedures	Lumbar Puncture with Intra-Thecal Chemot	319
	Aspiration Bone Marrow	114
	Skeletal Muscle Botox Injection	11
	Injection Therapeutic Agent Lower Extremity	4
	Auditory Evoked Potential	3

	Anesthesia Out of OR	1,665
Top 5 Procedures - AAOR	Anesthesia Out of Department	1,269
	MR Head Anesthesia	120
	NM Nuclear Medicine Anesthesia	54
	MR Head Anesthesia w/wo Contrast	31
	MR Whole Spine Anesthesia	17

Top 5 Diagnosis - Inpatient Encounters

Pediatrics (Newborn included)	# of Encounters (unique FIN)
Other specified health status	1,166
Acute lymphoblastic leukemia not having achieved remission	1,135
End stage renal disease	1,114
Hereditary factor VIII deficiency	803
Unspecified abdominal pain	680

Women's	# of Encounters (unique FIN)
Other specified surgical aftercare	968
Routine portpartum follow-up	731
Full-term uncomplicated delivery	671
Cesarean delivery without indication	562
Maternal distress during labor and delivery	483



Research

Research



Chief Research Officer's Message

The continuous challenges of a global pandemic, the burden on healthcare facilities, and the anxieties we all had to endure made adapting to a new way of life quite stressful. Yet ironically, despite the increases in physical distance, never in our lives did humanity come so closely together to face a common enemy. Little did we know that a global pandemic, challenging as it may be, would be a blessing in disguise for science. With the world's attention fixated on biology and public health, terms once considered esoteric jargon – R0, Ct value, mRNA, PCR, antigens, etc. – entered the common vernacular, and scientific inquiry captured the public's imagination.

Playing to Sidra Medicine's strength as a national academic medical center, the Research Branch made significant achievements during the pandemic. On one end, our Core Genome Laboratory developed methods to detect viral infections that cleverly bypassed global shortages for testing reagents. On another, our scientists joined a global consortium investigating the penetrance and variability of Covid-19 in adults and children, leading to discoveries that impacted clinical care worldwide. As vaccines began to roll out, our Deep Phenotyping Core developed an innovative serology assay, which detected antigens to a whole range of human Coronaviruses. Even outside of Covid-19 projects, the Research Branch had a remarkably successful year. Over 6,000 patients and families enrolled in research studies in 2021. Sidra Medicine clinicians and scientists published nearly 300 papers, with almost 85% of all Research publications in the top 15% of international journals. Notably, Sidra Medicine was awarded 12 national grants totaling 7.3M

QR, demonstrating the growing recognition of the importance of academic medical centers for translational discovery.

In terms of contributing to Qatar's knowledge economy, Sidra Medicine continued to develop medicine and biomedical research trainees. Almost 60% of Research Investigators had academic appointments at local and international institutions, and a total of 52 trainees and students were part of the Research family in 2021. Research also hosted almost 20 MSc & Ph.D. students in the PI labs, supporting the growth and development of the brightest talent to lead this growing field in the future. Finally, Sidra Medicine Research hosted its annual flagship 'Precision Medicine and Functional Genomics' symposium virtually, demonstrating our commitment to education, sustainability, and building a research enterprise in Qatar with strong links to the global scientific community.

In summary, 2021 ultimately became one of the most productive and innovative years in the Research Branch. We owe most sincere gratitude to our hard-working research staff, who braved the pandemic and worked around the clock to ensure that discovery and innovation remained strong. Our appreciation extends to our diverse clinical collaborators who were fundamental in devising studies and translating outcomes for patients. Last but not least, we thank all the families and patients entrusting Sidra Medicine to deliver the highest-quality, research-driven care.

Dr. Khalid A. Fakhro
Chief Research Officer

One Sidra Medicine: A Culture of Unity

CORE SERVICES

- Digital Health
- Integrated Genomics Services
- Deep Phenotyping Core
- Advanced Cell Therapy Core
- Research Operations and Services

Overview

In line with its vision to be a world-renowned academic medical center, Sidra Medicine is built upon three mission-critical pillars: education, research, and clinical care. The Research Branch is tasked with two strategic goals: establishing a strong, clinically oriented biomedical research program and developing a national resource of genomic information that improves health in Qatar and the region. Achieving these goals requires significant collaboration internally – among research, corporate and clinical stakeholders – and externally via strategic partnerships with other Qatar-based and international institutions that combine to establish world-class, research-driven care for our patients.

In line with these goals, Research is tasked to deliver a hospital-wide Precision Medicine program for Sidra Medicine, built upon the philosophy that research technologies and innovation should play a prominent role in every patient's journey. Strategically, this program is designed to integrate research into clinical workflows across its three pillars:

1. Research for every patient – developing protocols that allow every patient access to cutting-edge research studies via informed consent
2. Advanced Diagnostics – leveraging next-generation research technologies (e.g., genome sequencing) to dissect diseases

and identify their causes at an ultra-high-resolution, beyond the limits currently available as standard-of-care

3. Personalized Therapy – Establishing infrastructure and systems to deliver advanced therapies (e.g., stem cells and gene therapy) and support a culture of clinical trials at Sidra

These strategic pillars require close collaboration, trust and interactions between patients, trainees, physicians, and researchers, to advance care at Sidra Medicine. Such a multidisciplinary approach reinforces a culture of collaboration, where education, research, and clinical care merge seamlessly and become part of every patient's journey, ensuring that discoveries made from patients go towards improving their very own care, delivering personalized medicine to all.

In summary, we recognize that implementing these pillars into patient care is not easy. However, we view this as a common goal that will become a key differentiator, setting Sidra Medicine apart from its peers locally and internationally, positioning Sidra Medicine as a unique academic medical center serving patients from Qatar and abroad.

Collaborations

International Collaboration

Sidra Medicine Research collaborates with institutions both locally and internationally. Its commitment to collaborating internationally with prestigious organizations is equal to the

effort to enrich local institutions in Qatar. About half of all research projects benefit from such collaborations.

National Collaboration

Sidra Medicine Research's local collaborations support the Qatar National Vision 2030 by building a knowledge-based economy in biomedical and health sciences. This ensures knowledge transfer from institutions considered thought leaders in these areas and builds sustainability in biomedical

research. Sidra Medicine is invested in building productive partnerships with all local biomedical institutions. Several local collaborations across its portfolio of projects strive to create sustainability for biomedical research in Qatar.

Publications



Grants



Breakdown of Grant Applications in the last 18 Months

Grants Applications	2021	
	Submitted	Awarded
Rapid Response Call (RRC) Covid19- cycle 2	1	0
Graduate Sponsorship Research Award (GSRA8)	4	1
Graduate Sponsorship Research Award (GSRA+8)	2	1
Postdoctoral Research Award (PDRA7)	3	2
Early Career Researcher Award (ECRA3)	1	0
High School Research Experience Program (HSREP3)	1	1
Conference and Workshop Sponsorship Program (CWSP20)	1	1
Researchers Exchange and Mobility Program (REMP3)	2	1
Global Grants for Gut Health	1	0
CONquer canCER Now Grants	1	0
Gilead Research Scholars in Liver Disease	1	0
Phizer Quality Improvement grants	1	0
Reimagine Biomedical Research for a Healthier Future	1	0
SOLVE-RD - Solving the Unsolved Rare Diseases	1	1
Amryt IS Award	1	1



Research Highlights

Our Path to Personalized Medicine

Sidra Medicine produces eye drops to treat 10-month-old girl with ultra-rare disease

A Multidisciplinary team effort at Sidra Medicine produced the country's first plasma eye drops to treat a Qatari baby suffering from a rare plasminogen deficiency disease. The prevalence of plasminogen deficiency is estimated at 1.6 per one million people. A personalized approach, using eye drops, is the only option currently available for managing this rare disease.

"There was a time my daughter couldn't open her eyes; I was terrified she was going to lose her eyesight." The child's mother

The condition was causing the child's eyes to fill with woody growths, which could be surgically removed, but then to stop them from growing back, the patient needed special eye drops made from human plasma or serum containing plasminogen. The patient's family used to import the eye-drops from the United Kingdom or travel there every three months.

To speed up the process, instead of locating a donor and then screening them to ensure

they are healthy, the Sidra Medicine team decided to use existing fresh frozen plasma from screened donors. Turning the donated blood plasma into eyedrops not only required a great deal of planning but also careful and extensive review of available literature to guarantee that team followed the highest global quality assurance protocols.

In May 2021, the family received the locally produced eye drops for their child.

"It seemed like maybe the effort was too much to put in into one patient. Yet they still did it, and with so much zeal. Despite the pandemic my daughter's case was never put on the back burner and remained a top priority," The mother.

The fact that Sidra Medicine was able to produce the eye drops in-house without relying on centers abroad, is a great example of how Qatar as a country has truly embarked on its journey to delivering personalized medicine and becoming self-sufficient in medicine.



Genetic Influence on Cancer Immune Responsiveness

Immunotherapy, a therapeutic approach based on boosting the immune system, has changed the way cancer is treated, yet only a minority of patients respond to the treatment.

In 2021, Sidra Medicine and Qatar Computing Research Institute at Hamad Bin Khalifa University led a research study with the University of California San Francisco that represents a significant step toward personalized cancer immunotherapeutic approaches.

The international team of cancer immunologists, computational scientists, oncologists, biologists, and geneticists found that pre-existing anti-cancer immunity depends heavily on a patient's genetic background. As such, certain genetic variants that make each of us unique can also influence the way the immune system fights tumors.

This groundbreaking research study answers a critical question that has been facing scientists over the past ten years. That is, why some patients develop a spontaneous, yet partial, anti-cancer immunity that makes them more likely to respond to immunotherapy and whether this response is caused by genetic variation in the DNA of the patients.

The immunogenomic analytic approach used in the study to dissect tumor-host interplay was also implemented as part one of Qatar National Research Fund's National Priorities Research Program project.

The new joint research holds significant potential for further achievements. Future studies will determine whether a combined "immunogenetic score" can detect patients more likely to benefit from specific immunotherapies, for a truly personalized approach. Having identified several variants in genes of which the immunological functions are not known, the team is hopeful that studying these genes in detail might lead to the identification of novel therapeutic targets.



It was already known that the risk of developing certain diseases such as diabetes and high blood pressure is influenced by our own DNA, and this research indicates that this is also the case for anti-cancer immune response. Translating these findings into clinical practice to develop personalized immunotherapeutic approaches accounting for patients' genetic fingerprints represents the next challenge.



Unlocking Secrets of The Past to Help Shape the Future of Healthcare

Researchers from Sidra Medicine and Qatar Biobank unveiled a high-resolution map of the genetic structure of Arab and Middle Eastern populations, providing new insights into human history in the region and ancestral patterns that may help explain local human traits and disease risks.

The study, published in the leading scientific journal *Nature Communications*, reveals that ancient populations in the Arabian Peninsula played a far more central role in the story of early human migration out of Africa than was previously understood.

This in-depth genetic analyses of 6,218 Qatari genomes leverages the biggest dataset of this kind from the Middle East to date.

Understanding the genetics of these under-characterized populations breaks down a barrier to precision medicine tailored to address disease risks unique to people with Middle Eastern ancestry.

The study revealed key novel historical and social insights into Arab populations:

- A population split from early Africans occurred around 90,000 years ago, followed by a further split between 30-42,000 years ago that gave rise to the ancestors of modern-day Arab, European, and South Asian populations. This is supported by the observation that Neanderthal DNA is far

rarer in Arab populations than in populations that later mixed with ancient hominins.

- Arab ancestral populations have undergone multiple splitting events 12-20,000 years ago, giving rise to various settling and Bedouin communities concurrent with the aridification of Arabia.
- By comparing modern genomes to various ancient human DNA dating back to Paleolithic and Neolithic periods. Peninsular Arabs were found to be the closest relatives to so-called 'Basal Eurasian' Neolithic farmers and hunter-gatherers who occupied the ancient Middle East.
- The study found very high rates of homozygosity, which is likely to be a result of the tribal nature of Arab cultures, suggesting the suitability of this population in discovering novel disease risk genes and natural human knockouts.

The study is an exciting landmark effort that provides unprecedented power to study human ancestries of the Middle East. The data will help shape our understanding of disease risk and etiology in populations that have long been under-represented in world studies.

The work was funded in part by Sidra Medicine, Qatar Genome and Qatar National Research Fund.





Medical Education

Chair of Medical Education's Message

Medical Education is one of three foundational pillars that underpin Sidra Medicine's mission to provide patient and family care by offering a continuing education platform for its clinical staff.

In 2021, we made great strides in our ongoing educational mission to train our surgical staff, physicians, and the next generation of healthcare professionals. We launched new fellowship programs covering a multitude of our pediatric specialties.

Despite the challenges imposed by the pandemic, we offered over 120,726 Continuing Medical Education (CME) based credits via workshops, seminars, simulation training, grand rounds, and blended online learning modules.

Our partnerships with leading universities in Qatar and collaboration with international training and educational institutions have positioned Sidra Medicine to develop a robust and well-established learning environment for medical trainees in Qatar. Our programs will continue to build on our academic credibility and strengthen our standing as a premier teaching hospital in the region.

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 2021, Sidra Medicine accommodated trainees in over 12 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 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, Qatar University, University of Calgary – Qatar, and Doha Institute.

Planned and completed accreditations in 2021 for Residents and Fellows:

- 
 • Programs awarded continued ACGME-I accreditation in 2021: Pediatric Pulmonology, Pediatric Cardiology, Pediatric Neurology, and Child and Adolescent Psychiatry.
- 
 • Royal College of Physicians and Surgeons of Canada – planned – Accreditation of Residency and simulation programs. 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) provided 842 educational sessions to 12,085 participants, with over 120,726 granted credits in 2021. 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 2021 included but were not limited to: Women's Health Conference 2021, Gastroenterology Study Day, Qatar 8th National Sepsis Symposium, Health Literacy Symposium, and Precision Medicine and Functional Genomics (PMFG) 2021.

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,

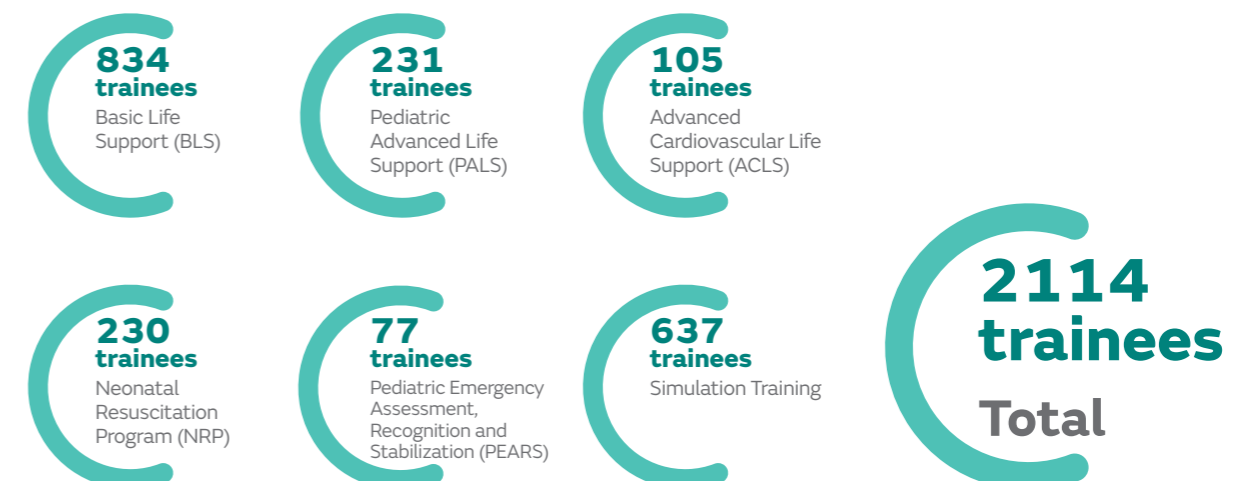
Lippincot Procedures, Clinical Key, Science Direct, and Springer Nature, have been accessed over 800,000 times by Sidra Medicine staff in 2021.

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 2021 certified 2114 trainees in the following programs:)





The Fight Against COVID

The Fight Against Covid

In 2021, the nature and course of the COVID pandemic changed in two significant ways: the rise of new SARS-CoV-2 variants that were more transmissible and capable of evading pre-existing immunity; and the associated scaling up of mass vaccination campaigns against COVID-19.

To assist national public health efforts to manage the pandemic, Sidra Medicine's Pathology and Research teams collaborated to establish a high-throughput method to identify SARS-CoV-2 variants in real time. These efforts have played a critical role in tracking the importation and community spread of the different variants in Qatar, as well as determine the effectiveness of the vaccines against each new variant.

Understanding the epidemiology of the SARS-CoV-2 variants allowed Qatar to reduce the importation and transmission of COVID-19, and implement targeted public health measures during the global Delta variant outbreak. In December 2021, Sidra Medicine also detected the first four cases of the Omicron variant in Qatar.

Using the laboratory innovations that were developed in 2020, we were able to leverage our advantages in speed, cost, and quality to establish a highly successful private COVID testing service. We also had to develop a customer-friendly website and highly efficient workflows to ensure that that customer experience was consistent with our delivery and quality model.

With the resumption of global travel in 2021, Sidra Medicine was able to assist many travelers in meeting their PCR and antibody testing requirements, especially for those who needed urgent test results. The Chinese Embassy endorsed Sidra Medicine as the official COVID-19 testing service for travelers to China – the country with the most restrictive COVID-19 testing policies in the world.

We also expanded the capacity of the laboratory and the testing service to provide COVID-19 testing services for many international events in Doha as well as assist Qatar Airways in rapid testing for their flight crews. We soon became the only private laboratory to offer same day PCR results.

Once vaccines became available in spring, the Occupational Health team launched a successful vaccination and booster campaign for staff. The team also kept the organization compliant with the constantly evolving public health requirements for healthcare workers during the many waves of COVID-19 infection. This included the establishment of both SARS-CoV-2 antigen and PCR testing services for staff, and ensuring the safety of staff during COVID-19 isolation as well as assisting them in safely returning to work.

Sidra Medicine performed an impressive 396,542 COVID tests in 2021.

2021

Q1

Jan – Apr 21

Expansion of testing services in Pediatric ED

Feb/Mar

PCR testing provided for Qatar Table Tennis (QTT) & Qatar Tennis Squash Badminton (QTSB) events

Q2

2021

Apr 22

Activation of new COVID Testing center in parking garage

Jun 6

Launch of COVID testing online portal
Volumes - Average of 240 tests/day

2021

Q3

Jul

Activation of new COVID testing Center – Mall Level, Hospital building
Volumes – Avg of 1400 tests/day

Q4

2021

Oct 2021

MoPH Approval of 3 tiered pricing for Sidra PCR Testing – Standard/Expedited/STAT

Oct/Nov 2021

PCR testing for QTT and QTSB events

Nov 2021

PCR testing for Inaugural Losail Sports - F1 event in Qatar
PCR testing for Qatar Museum – Qatar Creates

Dec 2021

PCR testing for QF WISE event
PCR testing for private teams/VIPs for Arab cup
More than 80,000 COVID tests. Volumes – Avg of 2300 tests/day – peak of 3400/day during Arab Cup



