**Program Schedule**

**Precision Medicine and Functional Genomics 2022 (PMFG 2022)**

In our quest to make Qatar a leading hub for research and innovation and building on the success of our previous seven cycles, Sidra Medicine is excited to announce that its annual flagship conference, Precision Medicine, and Functional Genomics (PM&FG 2022), is scheduled to take place on September 22-26, 2022, in Doha, Qatar.

As part of its National Vision 2030, Qatar is committed to establishing a knowledge-based economy in the biomedical and health sciences. Sidra Medicine supports this goal by actively engaging clinical and scientific expertise to become a leading model for Precision Medicine in the region.

PMFG 2022 is a four-day in-person conference and will revolve around two major themes:

1. How cellular, organoid, and animal models are being used to facilitate the discovery of basic disease mechanisms and potential cures
2. The development of advanced therapies to treat diseases

This conference will assemble a unique and highly interdisciplinary international community to provide novel insights on the molecular mechanisms underlying genetic diseases and the strategies used to develop advanced therapies.

**Target Audience**

* Researchers
* Physicians
* Bioinformaticians
* Clinician-researchers and scientists
* Genetic counselors
* Students
* Nurse practitioner and physician assistants
* Lab professionals
* Pharmacists
* Allied Health
* Public Health
* Public Policy
* Biotech Industry

**At the end of the Conference, the participants will be able to:**

* Learn about coordinated efforts on developing Precision Medicine around the world and specifically in the Middle Eastern region
* Learn about best practices for conducting successful Precision Medicine Clinical Trials
* Learn how advanced diagnostics and personalized treatments improve the quality of care for children with rare and chronic diseases (I.e., immune deficiency, hemoglobinopathy, cancer, etc.)
* Understand the value of using cells, organoids and animals as disease models in biomedical research and learn about modeling of human tissues and diseases
* Understand how large-scale data resources and genome sequencing and novel technologies are driving precision medicine

**Satellite Symposium**

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| **Thursday 22nd September 2022** |
| **“Biotech Forum-Translational Precision Medicine: An Industry perspective”** |
| 11:30 | 12:30 | Lunch |
| 12:30 | 12:45 | Opening Remarks |
| Session 1: New Horizons for Transformative Cancer TreatmentSession Chairs: Dr. Davide Bedognetti and Dr. Johnny Awwad |
| 12:45 | 13:10 | Lance Kawaguchi | Making an Impact: Advancing early-stage biotech through venture philanthropy and international collaboration |
| 13:10 | 13:35 | Dr. Yibin KangLudwig Institute for Cancer Research-Princeton University, USA | Development of small molecular inhibitors to improve immunotherapy response |
| 13:35 | 14:00 | Dr. Sarah Allen WarrenResearch Technology and Business Development Planning, Kite | Kite: Delivering Transformative Cancer Treatment |
| 14:00 | 14:25 | Dr. Slaney ClarePeter MacCallum Cancer Centre, Victoria, Australia | Enhancing CAR T cell therapy by enabling their interaction with antigen-presenting cells |
| 14:25 | 14:50 | Dr. Allen FengHebeCell Corp, USA | Generation of Cytotoxic iPS-NK Cells in Scalable Bioreactor Platform for Nex-Gen Allogeneic Immune Cell Therapy |
| 14:50 | 15:20 | Break  |
| Session 2: The New Era of Advanced DiagnosticsSession Chairs: Dr. Stephan Lorenz and Dr. Souhaila Al Khodor  |
| Objectives: |
| 15:20 | 15:45 | Prof. Steven Pipe, Pediatric Medical Director, Hemophilia and Coagulation Disorders ProgramUniversity of Michigan, USA | Hemophilia A: Evolving treatment landscape |
| 15:45 | 16:10 | Rami MehioHead of Global Software and Informatics (Illumina) | Maximizing Genomic Insights with Whole Genome Sequencing |
| 16:10 | 16:35 | Dr. Adam Kennedy, Associate Director, Clinical Metabolomics at Metabolon | Characterizing Inborn Errors of Metabolism and Phenotyping Individuals with Metabolomics |
| 16:35 | 17:00 | Dr. Xiling ShenProfessor and Chief Scientific Officer, Terasaki Institute, USA | The new era of functional precision medicine for clinical diagnostics and drug development |
| 17:00 | 17:25 | Dr. Vincenzo IaconianniICMED SRL, Ispra, Italy | Cell therapy: tissue or drug?Regulatory perspective |
| 17:25 | 17:30 | Closing Remarks  |
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**Precision Medicine and Functional Genomics Conference 2022**

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| **Day 1: Friday 23rd September 2022** |
| **Topic: Worldwide National Programs and Clinical Trials of Precision Medicine** |
| Session 1: How can personalized approaches pave the way to Next-Generation Medicine?Session Chairs: Dr. Khalid Fakhro and Dr. David Brown |
| Objectives:* Learn about coordinated efforts on developing Precision Medicine around the world
* Understand how these efforts bring the promise of changing medicine
* Learn how advanced diagnostics and personalized treatments improve the quality of patient care
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| 13:00  | 13:35 | **Opening Keynote lecture**: Dr. Dan RodenVanderbilt University, USA | Electronic Health Records as key tools in discovery and implementation in Precision Medicine |
| 13:35 | 14:00 | Dr. Astrid VicenteNational Institute of Health Doutor Ricardo Jorge (INSA), ICPerMed, Portugal | The ICPerMed vision for Personalized Medicine in 2030 – making progress towards implementation |
| 14:00 | 14:25 | Dr. Dave BrownQPMI, Qatar  | Shift to targeted treatment and how it will change the life sciences industry response to clinical demand |
| 14:25 | 14:50 | Dr. Patrick Tan Precision Health Research (PRECISE) Singapore  | Transforming Health in Singapore through Precision Medicine |
| 14:50 | 15:15 | Dr. Maryam Mohd Fatma MatarUAE Genetic Diseases Association (UAEGDA) | Upgrading our disease care system to Health care system. Precision Health (precision medicine) |
| 15:15 | 15:45 | Break  |
| 15:45 | 16:20 | **Keynote Speaker:** Dr. Yibin Kang Princeton University, USA | Targeting cancer fitness genes in metastatic cancers |
| Session 2: **Precision Medicine Trials: barriers and best practices** Session Chairs: Dr. Antonella Cioce and Dr. Ata Maaz |
| Objectives:* Learn about best practices for conducting successful Precision Medicine Trials.
* Understand how cancer treatment is benefiting from Precision Medicine approaches.
* Discover the need of networking for improving Precision Medicine in rare disorders (i.e., pediatric cancer).
* Learn about current barriers for clinical trials and explore ways to overcome them.
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| 16:20 | 16:45 | Dr. Alice ChenNational Cancer Institute, USA | The Precision Medicine Initiatives of the NCI |
| 16:45 | 17:10 | Dr. Mirjam Blatter-Johnson[Hopp Children's Cancer Center](https://www.kitz-heidelberg.de/en/), Germany | More trials or more precision? Clinical outcome and benefit of the European wide pediatric precision oncology study INFORM |
| 17:10 | 17:35 | Dr. Shaikha Saif Al MazroueiUAE | Hepatocyte Microbeads Transplantation |
| 17:35 | 18:00 | Dr. Michaela Semeraro (Online)Necker Children's Hospital, France | Building pediatric rare disease clinical trials with innovative treatments |
| 18:00 | 18:10 | Closing |

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| **Day 2: Saturday 24th September 2022** |
| **Topic- Technologies and clinical approaches advancing Precision Medicine and pediatric cancer immunotherapy.** |
| 8:00 | 8:30 | Opening Note |  |
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| Session 1: Precision Medicine Technology platformsSession Chairs: Dr. Julie Decock and Dr. Rayaz Malik |
| Objectives:* Understand the value of Precision Drug Screening.
* Learn about modeling of human tissues and diseases.
* Learn about technology platformsfor advanced genomics, proteomics, imaging, and flow cytometry available in Qatar.
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| 8:30 | 8:55 | Dr. Yu Shrike ZhangHarvard Stem Cell Institute, USA | High-content modeling of human tissues and diseases *in vitro* for Precision Drug Screening |
| 8:55 | 9:30 | **Morning Keynote Speaker:** Dr. Gorka OriveUniversity of the Basque Country,Spain | Progress in the field of cell-laden hydrogels |
| 9:30 | 9:45 | Dr. Shana Jacob & Dr. Abbirami Sathappan & Dr. Giusy GentilcoreSidra Medicine, Qatar | Precise cellular and molecular phenotyping: routine and bespoke services in Sidra |
| 9:45 | 10:00 | Dr. Stephan LorenzSidra Medicine, Qatar | Integrated Genomics Services – a platform for Precision Medicine and genomic discoveries |
| 10:00 | 10:15 | Dr. Houari B. AbdesselemJilbin Sam Plammoottil GeorgeQatar Biomedical Research Institute, Qatar | Defining Key Platforms in QBRI Core Lab Facilities: Sengenics Autoantibody Profiling, Olink Proteomics, and Cytometry Technologies |
| 10:15 | 10:30 | Dr. Frank SchmidtWeil Cornell Medical College, Qatar | Advanced multiplex proteomics techniques in clinical proteomics: an ideal tool for biomarker discovery |
| 10:30 | 11:00 | Break  |  |
| Session 2: Hematopoietic Stem Cell Transplantation *vs* Gene Therapy: how choosing the right treatment for hemoglobinopathies and immune deficienciesSession Chairs: Dr. Ayman Saleh and Dr. Mehdi Adeli |
| Objectives:* Learn about the results of standard treatments for hemoglobinopathies and immune deficiencies.
* Discover the role of gene therapy for hemoglobinopathies and immune deficiencies.
* Understand how to select patients that can benefit from gene therapy.
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| 11:00 | 11:35 | **Keynote Speaker:** Dr. Matthew PorteusStanford University, USA | Advancing Genome Editing of Hematopoietic Stem Cells to Engineer Red Blood Cells |
| 11:35 | 12:00 | Dr. Rawad RihaniKing Hussein Cancer Center, Jordan | Risk adopted approach for allogeneic hematopoietic stem cell transplantation for children with thalassemia major: KHCC experience |
| 12:00 | 12:25 | Dr. Alessia CavazzaUniversity College London, UK | Hematopoietic stem cell gene editing for the treatment of Primary Immunodeficiency Diseases. |
| 12:25 | 12:50 | Dr. Davila Saldana BlachyChildren’s National Hospital, USA | Bone Marrow Transplant for Primary Immunodeficiencies |
| Rapid talks - selected from abstracts |
| 12:50 | 13:00 | Sarah A. AlbashaMohammed Al-Mana College, Saudi Arabia | Investigating the DNA methylation profile of childhood solid tumors to identify a novel diagnostic panel |
| 13:00 | 13:10 | Dr. Julie V. DecockQatar Biomedical Research Institute, Qatar  | Computational identification of an immune-related 3-lncRNA signature with prognostic connotation in a multi-cancer setting. |
| 13:10 | 13:20 | Dr. Geethanjali Devadoss GandhiSidra Medicine, Qatar | The genetic burden of familial hypercholesterolemia in the Qatari population |
| 13:20 | 14:20 | Lunch  |  |
| Session 3 - Pediatric Cancer Immunotherapy: an evolving field of Precision Medicine (in partnership with SOCIETY FOR IMMUNOTHERAPY OF CANCER - SITC)Session Chairs: Dr. Cristina Maccalli and Dr. Davide Bedognetti |
| Objectives:* Learn about the most novel applications of immunotherapy in pediatric cancer.
* Be acquainted with the recent developments of immunotherapy in pediatric solid cancer.
* Understand how targeted treatments can enhance weaponry against pediatric cancer.
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| 14:20 | 14:55 | **Keynote Speaker:** Dr. Marco RuellaHospital of the University of Pennsylvania, USA | Resistance mechanisms to CART immunotherapy in lymphoid malignancies |
| 14:55 | 15:20 | Dr. Yvonne ChenUniversity of California Los Angeles, USA | Engineering Next-Generation CAR-t Cell Therapy for Cancer |
| 15:20 | 15:45 | Dr. Rimas OrentasSeattle Children’s Hospital, USA | Moving from Hematologic Malignancy to Solid Tumors: Pathways to Effective Immunotherapy for Pediatric Solid Tumors. |
| 15:45 | 16:10 | Dr. Slaney ClareUniversity of Melbourne, Australia | Epigenetic modification of chimeric receptor antigen T cells for treating pancreatic cancers |
| 16:10 | 16:40 | Break  |  |
| 16:40 | 17:05 | Dr. Hadi Mohamad Abu Rasheed,Qatar Cancer Society, Qatar | The role of cancer civil organizations in general and the Qatar cancer society in particular in supporting the precision medicine efforts in Pediatric Cancer Immunotherapy |
| 17:05 | 17:30 | Dr. Franco MarincolaKite Pharma, USA | Determinants of CAR-T response and next-generation approaches in LBCL |
| 17:30 | 17:55 | Dr. Eric BouffetSickkids Hospital, Canada | Targeted therapies in pediatric brain tumors |
| 17:55 | 18:20 | Dr. Christian CapitiniUniversity of Wisconsin-Madison, USA | Development of NK cell and CAR T cell-based strategies for targeting GD2+ pediatric solid tumors. |
| 18:20 | 18:30 | Closing Remarks |  |
| 18:30 |  Day Closing |

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| **Day 3: Sunday 25th September 2022**  |
| Topic: TECHNOLOGIES AND EXPERIMENTAL APPROACHES ADVANCING TRANSLATIONAL GENOMICS |
| Rapid talks - selected from abstractsModerated by: Dr. Diogo Manoel and Dr. Rafah Mackeh |
| 8:00 | 8:10 | Dr. Zeina N. Al-MahayriCollege of Medicine and Health Sciences, UAE | Paving the way for Pharmacogenomics Implementation: lessons learned from a pilot study in the United Arab Emirates |
| 8:10 | 8:20 | Dr. Shana JacobSidra Medicine, Qatar | Lipid metabolism is altered in zebrafish model of MYBPC3 hypertrophic cardiomyopathy  |
| 8:20 | 8:30 | Dr. Yongsoo ParkQBRI, Qatar | Mutation of TRPC6, autism candidate gene, induces hyperexcitability of neurons by reducing store-operated calcium entry (SOCE) |
| 8:30 | 8:50  | Rami MehioHead of Global Software and Informatics (Illumina) | Maximizing Genomic Insights with Whole Genome Sequencing |
| Session 1: Cell, organoid and animal models in translational genomicsSession Chairs: Dr. Matteo Avella and Dr. Nady Al Hajj |
| Objectives:* Understand the value of using cells, organoids and animals as disease models in biomedical research
* Learn about *in-vitro* and *in-vivo* experimental approaches used to better understand human genetic disorders
* Learn about how patient-derived cells and organoids are advancing precision medicine efforts
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| 8:50  | 9:15  | **Morning Keynote Speaker:** Dr. Bruno Reversade A\*STAR, Singapore  | Leveraging the power of Mendelian genetics to foster innovation for common unmet medical needs   |
| 9:15   | 9:40  | Dr. Essam Abdelalim QBRI, Qatar  | Induced pluripotent stem cells as a platform for precision medicine in diabetes  |
| 9:40 | 10:05 | Dr. Eduardo Zimmer  UFRGS, Brazil  | Imaging Brain Glucose Metabolism  |
| 10:05 | 10:30 | Dr. Nathalie Jurisch-YaksiNTNU, Trondheim, Norway | Mechanisms underlying seizure generation, lessons learnt from the zebrafish |
| 10:30 | 10:50 | Break |  |
| 10:50 | 11:25 | **Keynote Speaker:** Dr. Ana DomingosOxford University, UK | Neuroimmunometabolism. |
| 11:25 | 11:50 | Dr. Xiling ShenTerasaki Institute, USA | Patient-Derived Micro-Organospheres Enable Precision Oncology |
| 11:50 | 12:15 | Dr. Michael WellsUCLA, USA | Exploration of human genetic and phenotypic diversity through cell villages  |
| 12:15 | 12:40 | Dr. Franca Ronchese Malaghan Institute of Medical Research, New Zealand  | Transcriptomic analysis of skin dendritic cell populations provides new insight into their role in allergy development  |
| 12:40 | 13:05 | Dr. Marcelo DietrichYale University, USA | Transitions from early life to adulthood that promote health |
| 13:05 | 14:30 | Break |  |
| Pre-recorded workshop on the Chan Zuckerberg Initiative (CZI) funding opportunities. Norbert Tavares, CZI, USA  |
| Session 2: Big data and new technologies in precision medicineSession Chairs: Dr. Nicholas van Panhuys and Dr. Layla Kamareddine |
| Objectives:* Understand how large-scale data resources and novel technologies are driving precision medicine
* Learn about strategies used to improve disease risk prediction, diagnostics, pathophysiology, and improved treatment strategies
* Learn about the latest outcomes in the field and future directions and challenges
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| 14:30 | 14:55 | **Afternoon Keynote Speaker**: Dr. Eleftheria ZegginiHelmholtz Munich, Germany | Translational genomics of complex traits |
| 14:55 | 15:20 | Dr. Pedro BeltraoETH, Switzerland  | A network expansion analysis of the genetic basis for 4000 human traits and diseases |
| 15:20 | 15:45 | Dr. Saquib A Lakhani Yale University, USA  | Tackling rare diseases: The Yale Pediatric Genomics Discovery Program  |
| 15:45 | 16:10 | Dr. Daniela Robles-EspinozaUNAM, Mexico | Genomic profiling of acral melanoma in Latin American patients |
| 16:10 | 16:30 | Break |  |
| 16:30 | 16:55 | Dr. Dorret BoomsmaVrije Universiteit Amsterdam, The Netherlands | Next generation Twin Studies |
| 16:55 | 17:20 | Dr. Albino Oliveira MaiaChampalimaud Foundation, Portugal | The time for interventional psychiatry |
| 17 :20 | 17 :55 | **Closing Keynote Speaker**: Giles Yeo, Cambridge University, UK | The brain control of food intake: Can an old dog teach us new tricks |
| **Day close** |
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| **Day 4: Monday 26th September 2022**  |
| Topic: LARGE SCALE GENOMES AND PRECISION MEDICINE INITIATIVES IN QATAR AND THE MENA REGION |
| **Session 1: Precision Medicine in Qatar**Session Chairs: Dr. Khalid Fakhro and Dr. Hamdi Mbarek |
| Objectives:* Illustrates the use of the Qatar Genome Project (QGP) in driving precision medicine research
* Appreciate the importance of population diversity genomics to reach outcomes in the local and global context
* Learn about the latest success stories from landmark studies using QGP data
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| 8:00 | 8:15 |
| 8:15 | 8:30 | Dr. Khalid FakhroSidra Medicine, Qatar | TBD |
| 8:30 | 8:55 | Dr. Hamdi MbarekQGP, Qatar | Qatar Genome, from basic research to clinical implementation |
| 8:55 | 9:20 | Dr. Younes MokrabSidra Medicine, Qatar | Genomics reloaded: The missed pieces from Arab and Middle Eastern genomes |
| 9:20 | 9:45 | Dr. Omar AlbaghaHamad Bin Khalifa University, Qatar | Identification of genetic loci associated with serum levels of thyroid hormones in the Qatari population |
| 9:45 | 10:10 | Dr. Puthen Veettil JitheshHBKU, Qatar | Actionable pharmacogenomic landscape of the Qatari population |
| 10:10 | 10:30 | Dr. Davide BedognettiSidra Medicine, Qatar | Functional genomics pipelines to dissect mechanisms of cancer immune responsiveness |
| 10:30 | 10:50 | Dr. Khalid HussainSidra Medicine, Qatar | Precision Medicine for Monogenic Obesity at Sidra Medicine |
| **Session 2: Precision Medicine in the Middle East**Session Chairs: Dr. Bernice Lo and Dr. Essam M. Abdelalim |  | **Break** |  |
| Objectives:* Understand how large-scale genome sequencing efforts are changing medicine
* Learn how molecular diagnostics and disease subtyping improves the quality of patient care
* Learn about Precision Medicine efforts being conducted in the Middle Eastern region
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| 10:50 | 11:25 |
| 11:25 | 11:50 | **Morning Keynote Speaker**:  Dr. Youssef Idaghdour NYU Abu Dhabi  |  Integrative functional genomic analysis of host immune response to infection |
| 11:50 | 12:15 | Dr. Can Alkan Bilkent University, Turkey  | Algorithms to characterize genomic structural variation using high throughput sequencing technologies  |
| 12:15 | 12:40 | Dr. Fatma Al JasmiUAE University, UAE | Precision Medicine in Rare Diseases |
| 12:40 | 13:05 | Dr. Nathalie K. Zgheib American University of Beirut, Lebanon   | Precision medicine in Low- and middle-income countries: data from Lebanon |
| 13:05 | 14:30 | Dr. Batu ErmanBoğaziçi Üniversitesi, Turkey | Modeling Rare Diseases: Novel Targets of the LRBA Protein  |
| Pre-recorded workshop on the Chan Zuckerberg Initiative (CZI) funding opportunities. Norbert Tavares, CZI, USA |  | Break |  |
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| 14:30 | 14:55 |
|  |  | **Keynote Speaker**: Dr. Darren Logan, Mars Petcare Science Institutie, UK | Precision healthcare in companion animals |
| Session 3: Sidra Precision Medicine InitiativeSession Chairs: Dr. Luis Saraiva and Dr. Annalisa Terranegra |
| Objectives:* Learn about the utility of genetics and functional genomics approaches in the field of rare pediatric disorders
* Learn how to expand and advance patient outcomes by conducting the execution of precision medicine in clinical practice
* Learn about the latest success stories from the Precision Medicine Initiative at Sidra Medicine
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| * 14:55
 | 15:20 |
| 15:20 | 15:45 | Dr. Diogo Manoel & Dr. Abubakr ImamSidra Medicine, Qatar | Deconstructing the genetics of kidney disease with functional genomics |
| 15:45 | 16:10 | Dr. Bernice Lo & Dr. Amel HassanSidra Medicine, Qatar | The complexity of genetic diagnosis in highly consanguineous families: A case study from primary immune deficiency |
| 16:10 | 16:30 | Dr. Nicholas van PanhuysSidra Medicine, Qatar | Influences of the Gut Microbiome on the Development of Food Allergies |
| 16:30 | 16:55 | Break |  |
| 16:55 | 17:20 | Dr. Wouter Hendricx & Dr. William MifsudSidra Medicine, Qatar | The precision oncology platform for pediatric solid tumors at Sidra Medicine |
| 17:20 | 17:55 | Dr. Souhaila Al Khodor & Dr. Ibrahim IbrahimSidra Medicine, Qatar | Gestational Diabetes and the Journey towards Precision Medicine |
| 17:55 |  | **Closing Keynote Speaker**: Dr. Ali GharaviColumbia University, USA | Using Genetics to Understand Kidney Disease Pathogenesis and Deliver Personalized Care |
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 “*This activity is an Accredited Group Learning Activity* ***Category 1*** *as defined by the Ministry of Public Health’s Department of Healthcare Professions - Accreditation Section DHP-AS and is approved for a maximum of* ***25.50 hours****.”*

*In support of improving patient care, Sidra Medicine is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.*

*The Scientific Planning Committee has reviewed all disclosed financial relationships of speakers, moderators, facilitators, and/or authors in advance of this CPD activity and has implemented procedures to manage any potential or real conflicts of interest.*

 