

ISPAD Allan Drash Fellowship Report

Recipient: Dr. Muzna Arif, Senior Instructor, Paediatric Endocrinology and Diabetes, Department of Paediatrics and Child Health, Aga Khan University, Karachi, Pakistan

Host Center: Institute Of Endocrinology And Diabetes, The Children's Hospital At Westmead, Sydney Children's Hospital Network, Sydney New South Wales, Australia.

Mentors and Supervisors: Associate Professor Ann Maguire & Associate Professor Shubha Srinivasan

Duration: 6 weeks (3rd July- 11th August 2023)

I feel privileged to be awarded the ISPAD Allan Drash fellowship for year 202 and I was indeed fortunate to be able to spend 6 weeks at the Institute Of Endocrinology & Diabetes, The Children's Hospital at Westmead, which is a part of Sydney Children's Hospital Network in Sydney, NewSouth Wales, Australia. The Section of Pediatric Endocrinology and Diabetes at Westmead is one of the largest Centers in Australia taking care of Children with Type 1 Diabetes as well as other endocrine disorders. There are 12 Faculty members all practicing Type 1 Diabetes care along with an amazing support team of 10 Diabetes educators including diabetes practitioners, Clinical nurse consultants, and specialists all led by Kristine Heels, The Diabetes Service manager. The Diabetes team also included 3 Dieticians and 2 Social workers. Since it is also a postgraduate training institute the team included Paediatric Endocrine registrars, JMOs, and advanced trainees. It was a great learning experience to interact with Pediatric endocrine trainee fellows daily and to understand the local protocols for Pediatric diabetes and various endocrine-related conditions.

The faculty provides outstanding clinical care and is actively engaged in groundbreaking research in the areas of diabetes, gender, and bone-related disorders. Notably, Professor Maria Craig leads major research initiatives on Type 1 Diabetes, in partnership with JDRF.

My fellowship mentors were Dr. Ann McGuire and Dr Shubha Srinivasan, who are both senior endocrinologists with extensive experience in diabetes management and research. Before starting the fellowship Dr Ann and I discussed my objectives and formulated a schedule to ensure that I had exposure to Outpatients in Diabetes clinics and inpatients along with the academic sessions and Diabetes education sessions. Being a practicing Paediatric Endocrinologist in a tertiary care referral teaching hospital in Pakistan, where I and my team cater to between 450-500 children with Diabetes, I aimed to learn how to establish and run a multidisciplinary Paediatric Diabetes service and gain exposure to the management of Paediatric Diabetes in an advanced Paediatric Diabetes center. My particular interest was in obtaining in-depth knowledge and experience in the use of technology for managing children with Type 1 diabetes including newer insulin pumps and CGM devices. Below is a summary of my work schedule during the 6-week observership.

Outpatient Services:

The Manager of Diabetes Services Kristine Heels and the mentors had arranged a comprehensive schedule for me to attend the clinics of all 12 endocrine consultants, who had different areas of expertise and interest. I attended dedicated diabetes clinics 3 days a week, where I saw children with various types of diabetes and complications but mainly Type 1 Diabetes. I was able to see a lot of interesting cases and discuss their clinical approach and management. I was able to discuss similarities

and differences in treatment protocols between my center and Westmead. It was amazing to see such well-organized and multidisciplinary diabetes care clinics including Physicians, Diabetes educators, Nurse practitioners, Dieticians, Social workers, Insulin pumps, and CGM specialists all in one place working synchronously to provide the best care to these children. The majority of the children with Type 1 Diabetes visiting the clinics at Westmead were using the latest technology for T1D in the form of continuous glucose monitoring (CGM) devices especially Dexcom G6 and Medtronic G4 sensors which had just recently been launched in Australia while I was there. Insulin pumps were the newest hybrid close loop ones Tandem T-slim and Medtronic 780 G. Using different software and applications to download the pump and CGM data in the clinic was a new experience for me. Efficient use of Technology enabled most of the children to improve and maintain their glycemic targets. Although children were on MDI therapy as well using the Basal bolus regime the numbers were less. The presence of Dieticians and Diabetes educators in the clinic along with Physicians helped these children and their families to tackle and troubleshoot their everyday problems in one place and they left satisfied. In addition, I was also allowed to attend endocrine clinics 2- 3 times a week as well where I saw patients with various other endocrine disorders.

I learned how to diagnose and manage these conditions, and how to coordinate care with other specialists

Inpatient Services:

On nonclinic days I used to join the inpatient ward rounds along with the onservice faculty and registrars where I observed the acute management of DKA in ER as well as long-term management in wards and learned how to deal with emergencies and transitions of care. This helped me gain insight into their protocols for DKA and other endocrine emergencies as well as the multidisciplinary management of patients with diabetes and other comorbidities, especially complex cases like Cystic fibrosis-related Diabetes, Diabetes with eating disorders, celiac, and chronic kidney disease. I also got the chance to witness the complex and very intricate management of babies with Congenital Hyperinsulinism, Postneurosurgical Endocrine complications, water and electrolyte disorders, and some other acute endocrine emergencies. I got a good chance to compare the local protocols with those being followed at my center with differences in practice and evidence to implement those differences.

Academics:

I used to attend daily departmental morning meetings where on call faculty along with fellows and trainees and the whole Diabetes educators team was present. An overview of the admitted patients was presented by fellows and complex cases encountered in the inpatient and outpatient clinics were discussed in detail. The way the whole Diabetes team was sitting in one place to discuss inpatients and consults with delegation of work and managing all the issues in an organized manner was a brilliant learning experience. In addition, in the afternoon fellow and faculty presentations on different topics, journal club presentations, and invited faculty talks were arranged thrice a week which was a great learning opportunity for me. The fellows helped me gain a perspective on clinical care and training at the center.

Diabetes Education Center:

The best place that I found while being there was The "Diabetes Education Centre (DEC)" which was also a new experience for me—observing the Dietitians, Nurse Educators, and Social workers working with the children and their parents and sometimes the extended family members in a quiet and engaging space to make them understand the everyday management of Type 1 Diabetes, teaching them with the help of illustrations made on whiteboard, and the food resources available there to make them understand well and also helped me understand each team member's role. The educators team taught me the importance of patient education and empowerment, the importance of involving the whole family in their child's Diabetes care, and how to use various resources and strategies to help patients achieve their goals. The Diabetes Education Center was well-equipped with all the resources needed for T1 D education, such as books, flyers, videos, games, and models. Most importantly this was a place away from the inpatient area and the beeping monitors where the children and their families could focus and interact with the Diabetes team in a friendly manner.

Diabetes technology:

The most fascinating part of my observership was getting exposure to the latest innovations and technology in the management of Paediatric Diabetes being used in Australia which I was not exposed to working in a. Nearly 70-8% of the children are using the latest Hybrid closed-loop insulin pumps (Tandem t: slim with Dexcom G6 sensor CGM and Medtronic 780G with G3 sensor with most of them being converted to G4 sensor which had just arrived). Two to three times a week I used to sit down in the Pump education session along with Nurse educators and pump specialists from the respective companies who used to explain to the parents about the pump details from scratch with all the troubleshooting in a 4-5 hours long session. I learned how to set up, monitor, and troubleshoot these devices, and how to interpret the data and adjust the settings accordingly. This helped me understand the nuances of fine-tuning insulin doses using these devices as well as the practical problems faced by patients on these devices. This also helped me understand how to select the appropriate device for a particular patient.

Nonacademic experience:

One of the International fellows working there also showed me around Sydney city including the Harbour Bridge, the opera house as well as the beautiful Sydney beaches for which I am grateful.

The whole team was very friendly and welcoming and I had a great time there. They gave me valuable feedback and suggestions for improvement and also invited me to join their social events and activities.

Learning points and future implications:

The most important thing that I witnessed there was the role and importance of the Diabetes support team, supporting the physicians in ensuring a better quality of care, better compliance, and better patient satisfaction with each member of the team having specific roles defined. While at my center Physicians perform all these roles which hampers their work.

I will work on the advocacy of establishing such a team at my center to provide better care for these children.

The consultants, fellows, and supporting staff at the Department were incredibly warm and helpful at every step of the way. I was able to share my clinical experiences with the faculty and the trainees had a wonderful learning experience.

Overall, it was a very productive and life-changing experience for me to observe and learn from a highly-skilled, developed, and organized Type 1 Diabetes care team working together to improve diabetes care for children with T1D. I hope and wish to establish a similar T1D multidisciplinary services care team at my center in Aga Khan University Hospital, Karachi, Pakistan.

Thank you

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