Australian Paediatric Society Position Statement

Guidelines for the use of Continuous Glucose Monitoring (CGM) in Australian Schools

Updated April 2021

All young people living with Type 1 Diabetes (T1D) are entitled to the highest standard of individualised, person centred care. (1) CGM is a management tool that is authorised and prescribed by the treating medical team and consented by the parent to assist the student to stay safe and assist with keeping blood glucose levels in target range. Education providers are obliged to fulfil the prescribed treatment for the student with T1D in response to the individual needs. Education providers implement the specific, individual requirements of the prescribed treatment in consultation, and agreement, with the parent. (1)

This document directly references the International Society of Pediatric and Adolescent Diabetes (ISPAD) Position Statement on Diabetes in Schools (2) and the American Diabetes Association Guidelines for the use of a Continuous Glucose Monitor (CGM) and Sensor in the School Setting (3) and has contextualised the application of these documents for Australia.

The purpose of this statement is to provide general information about the use of CGM in the Australian school setting.

Generic and standardised guidance for T1D treatments and/or implementation requirements is inappropriate. (3) Specific questions unique to individual students should be directed to the parents and treating medical team. (4)

Introduction

Type 1 diabetes (T1D) is a complex medical condition that requires skilled medical and psychosocial management. Intensive insulin therapy (IIT) is the recommended therapy for young people with T1D because it leads to improved health outcomes and reduced risk of short- and long-term complications. IIT comprises frequent blood glucose and/or **glucose monitoring (CGM or sensor),** carbohydrate quantification, insulin dose calculation, insulin administration with meals, and insulin and nutrition adjustments for physical activity. (2)

The student must be allowed to check blood glucose levels, including accessing CGM or sensor data, at school and treat blood glucose levels out of target range in a respectful manner and in an appropriate place chosen in collaboration with the student and parent. (2)

CGM provides valuable information about glucose levels for the student, caregivers, school nurse, and diabetes care team. CGM update glucose data every 5 minutes, providing 288 readings per day. In addition, CGM have trend arrows, that in combination with the current glucose level, allow the

student, and the school personnel responsible for the student's complex medical care, to know what the current glucose level is, where it is going, and how fast it is changing. (3)

CGM can be used effectively for lowering HbA1c, reaching target HbA1c, reducing glucose variability (both for insulin pumps and Multiple Daily Injections), increasing "Time in Range" (TIR) and reducing mild to moderate hypoglycaemia (low blood glucose levels) and shortening the time spent in hypoglycaemia in the paediatric population with T1D (5).

A summary of CGM benefits:

1. Immediate access to real time glucose levels, along with **personalised alerts** (alarms) to prompt an immediate response when the student's glucose level is above or below the prescribed target (3)

2. Trend arrows that predict a rise or fall in student's glucose, and the speed it is rising or falling. Newer devices can predict hypoglycaemia and provide alerts (alarms) to avert it. (3)

3. Insight into cause and effect, and the ability to see how different foods, activities, stress, and other factors may affect glucose levels (3)

4. Retrospective data review, in which patterns can be identified to inform changes to the insulin regimen or behaviour (e.g., indication for before meal versus post meal insulin dosing) (3)

Research suggests that real time CGM is useful and not disruptive in the classroom/school environment (6) and that CGM plays an important role in the management of children with T1D at school.(2) The remote monitoring capabilities of CGM enhance positive and collaborative management between parent and the authorised school personnel who are responsible for the complex medical care of the T1D child in the school environment (2, 7)

Current CGM/Sensors commonly used in Australia 2021:

- Dexcom G4 Continuous Glucose Monitor -connects to Animas insulin pump and Dexcom receiver
- Dexcom G5 Continuous Glucose Monitor -connects to Tandem insulin pump and /or mobile phone
- Dexcom G6 Continuous Glucose Monitor – connects to Tandem insulin pump and/or mobile phone. If linked to the Tandem insulin pump, it may be programmed to cease insulin infusion if low sensor glucose is predicted (Basal IQ) and deliver insulin if sensor glucose is above target (Control IQ)
- Abbott Libre Flash Glucose Monitoring System – requires swipe (meter or phone) to access sensor glucose. No alerts. Minimum of 8 hours between swipes to access 24-hour data.
- Medtronic Guardian Connect 3 – connects to a smart phone /smart device
- Medtronic Guardian Link 2 and 3 – connects to Medtronic MiniMed 640G and the Medtronic MiniMed 670G insulin pump. The Medtronic Bluetooth Guardian Link 3 connects to the Medtronic MiniMed 770G insulin pump. If linked to the Medtronic 640G, 670G or 770G insulin pump, it may be programmed to cease insulin infusion if low sensor glucose is predicted. If connected to a Medtronic 670G or 770G it may increase basal insulin if sensor glucose is high (Hybrid Closed Loop)
- Medtronic Guardian Link 3 Bluetooth – connects to Medtronic 770G insulin pump and provides additional access to third parties.
- Medtronic Mini Link – connects to Medtronic Paradigm Veo insulin pump

Note: some devices have been approved by the Therapeutic Goods Association (TGA) for insulin treatment decisions, while others have not. Some devices work in conjunction with an insulin pump to automatically adjust insulin delivery while others are stand alone. Each CGM device has differing protocols, requirements and platforms to access and receive glucose data. (3)

Some young people may use a "DIY" closed loop system, typically using a Roche or Medtronic Veo insulin pump. Any CGM may be used in such systems. It is important to clarify with the parent/carer to determine what is required when managing these systems.

Given the diversity of treatment options and uses of CGM, sensor requirements, platforms and automated insulin delivery systems, **it is essential that the individual Diabetes Management Plan (DMP) is referenced and consulted for the individual treatment requirements**. (1, 2, 3)

Individual child's use of CGM at school

Each family will have access to different resources, coping skills and economic circumstances. School personnel will have varying interest and levels of expertise. Hence care of the student must be individualized. (2)

The student with T1D should not be disadvantaged in the quality of T1D care whilst at school. It is essential that the quality of diabetes management during school hours is comparable to the student's usual diabetes management at home. (2)

Each student should have a written Individual Diabetes Management Plan (DMP) prepared by the parent /student (when capable) and the student's medical team. This plan communicates the medical orders for the student and is the foundation for the cooperative relationship between parent, school and medical team. (2)

The individualised DMP outlines the treatment and requirements of CGM/sensor use for the individual child with T1D. The DMP will include specific information on CGM type, device use and requirements. The individual DMP must always be consulted before using CGM or sensor data to make treatment decisions (2,3)

Schools are obliged by law to make "reasonable adjustments" to facilitate prescribed medical care to allow for students with T1D to participate in education on the *same basis as their peers*. (3) "Reasonable adjustments" for a student with T1D includes continuous glucose monitoring interpretation and intervention (which may include use of predictive arrows and alerts), use of insulin pump settings and other requirements as outlined in the DMP. (2)

Parents are the final arbiters of whether their child can self-manage certain aspects of T1D, including glucose monitoring (CGM and sensor). The medical team should guide and support parents to ensure the student is not subject to inappropriately unrealistic expectations. (2)

Accessing CGM Data and Data Sharing options

Each of the CGM technologies available have different options and platforms to access and receive the sensor glucose data, notifications, alerts and alarms from the CGM transmitter via Bluetooth. These include, a specific data receiver, an application on a mobile (smart) phone, smart watches, web pages and direct to the insulin pump screen.

Some CGM technologies allow the data to be accessed from multiple platforms while others have a single specific platform to receive and access data. When the student's CGM data is "shared" it is done by an application using a wireless network or cellular data. Hence some CGM technologies enable the student to share the real time glucose monitoring data with others, who might include the school nurse, authorised school personnel and the parent. (3, 4). The ability for others to view the glucose data and receive the notifications, alerts and alarms from the individual with T1D is referred to as "remote monitoring".

The utility of data sharing and remote monitoring varies by the student's age. In school age students, data sharing and remote monitoring can improve coordination of care among the student, parents, school staff. In adolescents, remote monitoring by parents may be perceived as intrusive. Students using the data sharing feature of the CGM devices may request access to the school's wireless network to enable this feature and to avoid costly mobile phone data charges. (3)

The DMP will specify the devices in use for the individual child with T1D (1,2, 3)

Smart phones, mobile phones, smart watches and other communication devices used for medical purposes are exempt from education provider's bans on mobile phones during school time. Schools must not withhold or remove a mobile phone or device from a student where that device is facilitating the management of that student's T1D in the school environment. (3)

The school's obligation to make reasonable adjustments includes facilitating mobile phone and devices used to execute the care outlined in the DMP. This includes using the mobile phone or other device as a communication tool for student/school/parent. The individual and specific requirements are determined in consultation and agreement with the parents. (2, 3)

School Personnel training on CGM requirements at school

Schools are responsible for ensuring that their personnel are adequately educated about T1D and trained in the application of prescribed treatment for the individual student. (2)

The content of the training is the responsibility of the medical team and parent and may be assisted by on-line training courses. Training should be executed by people with the appropriate understanding of the student's individual needs and skill set. Training must have informed parental consent to administer the prescribed medical treatment and manage complex medical care for their child. (2)

Given the diversity of CGM treatments, applications and requirements it is necessary for the school to receive individualised training from the parent and treating medical team for the indivudal child. (2)

Hypoglycaemia (low blood glucose).

The DMP will specify CGM alert (alarm) levels for each student. Depending on the device, hypoglycaemia detected by the CGM may need to be confirmed by meter. Consult the student's DMP for instructions. For all CGM users, if the student exhibits symptoms of hypoglycaemia, and a meter is not readily available for confirmation, the priority should be to treat the low glucose level per the DMP. Note that all CGM require use of a blood glucose reading when both a number AND an arrow are not present. Thus, if the student's CGM receiver reads "LOW" instead of displaying a number, a blood glucose should be obtained using a meter. (3)

Use of Trend Arrows

The use of trend arrows and other advanced CGM features like predictive low glucose alerts should be clearly enumerated in the DMP. (3)

Other concerns

If the CGM falls off at school, the school nurse or other school personnel should help the student place all pieces into a sealable plastic bag to be sent home with the student. No portion of the CGM should be discarded while at school. (3)

A Parent Guide - International best practice Type 1 Diabetes care in Australian schools

A Parent Guide has been produced and endorsed by the Australian Paediatric Society to assist parents understand how they may access best practice Type 1 Diabetes management for their child at school. The clinical guidance is based on ISPAD standards and is consistent with the ISPAD principles of international best practice clinical governance, advocacy, education and science. (4)

References

1. **ISPAD Clinical Practice Consensus Guidelines 2018 Chapter 20: Management and support of children and adolescents with type 1 diabetes in school**. Bratina N., Forsander G., Annan F., Wysocki T., Pierce J., Calliari L., Pacaud D., Adolfsson P., Dovč K., Middlehurst A., Goss P. W. , Goss J.L., Janson S., Acerini C. https://www.ispad.org/general/custom.asp?page=ISPADGuidelines2018

2. **ISPAD Position Statement on Type 1 Diabetes in Schools.** Goss P.W., Middlehurst A. (Co-Chairs), Acerini C.L., Anderson B.J., Bratina N., Brink S., Calliari L., Forsander G., Goss J.L., Maahs D, Milosevic R., Pacaud D., Paterson M.A., Pitman L., Rowley E, Wolfsdorf J. https://www.ispad.org/news/420540/ISPAD-Position-S

3. **American Diabetes Association Guidelines for the use of Continuous Glucose Monitors (CGM) and Sensors in the School Setting** https://www.diabetes.org/sites/default/files/2019-06/CGM%20guidelines.pdf

4. **A Parent Guide- International best practice Type 1 Diabetes care in Australian schools** https://www.t1d.org.au/diabetes-at-school/a-parent-guide

5. **ISPAD Clinical Practice Consensus Guidelines 2018 Chapter 21: Diabetes Technologies** Sherr J.L., Tauschmann M., Battelino T., de Bock M., Forlenza G., Roman R., Hood K., Maahs D.M. https://www.ispad.org/general/custom.asp?page=ISPADGuidelines2018

6. **Real time Continuous Glucose Monitoring Systems in the Classroom / School Environment** Diabetes Technology & Therapeutics 15(5)· March 2013 https://www.researchgate.net/publication/236082210

7. **Schooling diabetes: Use of continuous glucose monitoring and remote monitors in the home and school settings Erie, C Van Name M A Weyman K, Weinzimer SA, Finnegan J, Sikes K,Tambourlane WV, Sherr JL** Pediatric Diabetes 19,1, 92-97 Feb 2017