



Endocrinology and Diabetes Services

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Dear Principal/delegate,

Re: Diabetes and Digital Technology

There is an increasing range of digital technology available in the treatment of a student living with type 1 diabetes (T1D). **This technology is to support students / parents and will be managed by parents.**

Some examples of current and developing technology includes –

- CGM (Continuous Glucose Monitoring Systems)
- Flash monitoring (Libre) – not yet approved for distribution in Australia
- Digital insulin pens (adjustable in 0.1 increments) – such pens are expensive and not readily available in Australia
- A variety of mobile device apps which assist recording / tracking BGL and insulin doses
- Blood Glucose Meters which allow results to be viewed remotely by parents in real time
- Insulin pump plus CGM

The Federal Health Department made an announcement on April 1st 2017, fully subsidising continuous glucose monitoring (CGM) technology to monitor blood glucose levels in young people. We anticipate there will be an increase in school age children and their families utilising this technology.

Continuous Glucose Monitoring System (CGM)

CGM measures glucose levels continuously to provide more information about patterns and trends in glucose levels throughout the day and night. The CGM works through a sensor inserted under the skin that measures the level of glucose in the interstitial fluid (fluid in the tissue). The sensor 'bluetooths' glucose readings to a pager sized receiver, a smartphone or direct to a pump. The sensor is disposable and changed by the student or parent/carer according to manufacturer recommendations (generally every 3 to 7 days). CGM systems can be set with warning alarms for low and high blood glucose levels.

CGM provides additional information about the blood glucose and the impact of certain foods and physical activity on glucose levels. It can also be useful to identify **hypoglycaemia** (low) or **hyperglycaemia** (high) before symptoms appear.





Whilst CGM sensor readings provide excellent information regarding blood glucose trends and patterns, not all are accurate enough to use in the calculation of insulin doses. Capillary (finger prick) blood glucose checks must still be done for this purpose. The current exception which has Therapeutic Goods Administration (TGA) approval for dose adjustment from readings and can replace finger pricks is the Dexcom 5. Blood glucose check results are also used by the student or parent/carer for sensor calibration to help maintain accuracy.

CGM in Western Australian Schools

Over the coming months, those students/families who request and are approved for CGM will receive the product and information to begin use through their healthcare provider (in most cases the PMH Diabetes Service), **at which time the child with T1D will also receive a CGM summary which must be attached to their Diabetes Management and Action Plan at their school.** It will be specific to the technology device they are using and provide the school with more detail on the use of the device.

Students who use CGM should have their monitor (which may be a phone) within range and accessible at all times when at school, including during assessments. Medical authorisation letters may be provided if needed. However, the individual needs of the child and other children in the classroom must be considered. **Teachers and school staff are not expected to do more than the routine checks explained in the current Diabetes Management and Action Plan (that is pre meal and pre snack BGL / checks) to monitor control.**

Parental Distant Monitoring of Blood Glucose

This technology which transmits the CGM results via the smartphone to other phones is increasing in popularity and can, when correctly used, be very useful in allowing parents to view the blood glucose of their child when not with them. It provides reassurance to the parent and may allow adjustments of food intake or insulin during camps, exercise etc. It should not lead to frequent phone calls to the school to make adjustments that would not ordinarily be required for any student with diabetes and schools should maintain their duty of care during the school day and respond as per a student's Diabetes Management and Action Plan.

Insulin Pumps linked to CGM

Some CGMs are able to transmit glucose level readings to an insulin pump. In addition, some newer pump and CGM systems allow the pump to automatically halt insulin delivery for a certain period when the CGM system detects that glucose levels have dropped below a certain level, and resume insulin delivery when levels recover. These devices are largely reliable and it is likely their use will increase and become more sophisticated in years to come. However, once more, it is not part of the role of the teacher to check any pump suspension or override/reset the pump linked to CGM.





Flash Monitoring (Libre)

This is a device recently introduced to Australia though it has been used overseas for several years. It consists of a round patch worn on the arm that can give information about the *pattern* of blood glucose readings when scanned by a patient or family.

Importantly, it currently does not have TGA approval for use in children in Australia. However, it can be purchased on-line and was cheaper than CGM sensors prior to the recent subsidy (see above), so is being adopted by a number of families. It cannot be recommended by health professionals before TGA approval is gained and is therefore used solely at the discretion of the patient or family.

It is not sufficiently accurate to determine a blood glucose level at any given time and so any potential high or low reading (or symptoms suggestive of high or low glucose) should prompt the self-monitoring of blood glucose as currently applies. It DOES NOT replace finger-prick blood checks in the calculation of insulin doses. It is NOT part of a teacher's role to be asked to scan the device in the school setting.

If a school has concerns about use of any of these devices they should discuss with the parents, or seek advice from the student's Diabetes Team.

Yours sincerely,

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