Assessing for, mitigating and addressing psychological issues in people with diabetes accessing hybrid closed loop systems

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Hybrid Closed Loop (HCL) systems offer significant benefits in diabetes management, diabetes outcomes and quality of life. However transitioning to HCL, particularly for those new to pump therapy, can sometimes be a stressful experience for both the person with diabetes and the diabetes healthcare team. The following guidance document has been developed in order to support teams to work collaboratively with people living with diabetes to ensure the best possible outcomes, before, during and after moving on to HCL therapy.

Is HCL the right choice for us?

There are a number of psychological domains that any member of the diabetes MDT can discuss with the person as part of routine practice in order to support a successful transition to HCL and prudent use of resources. The presence of an area of concern should prompt further assessment (ideally from a diabetes specialist psychologist), MDT discussion and collaborative planning with the person around risk mitigation and management. In the vast majority of cases concerns should not be used as a reason to deny HCL therapy to a person with diabetes who is requesting it, rather they should be viewed as modifiable issues that can be improved, eliminated or supported with access to the right tools and support.

Expectations

- What is the person's goal for this technology? What are their expectations for life with HCL, and are these achievable? How might HCL help/hinder important activities for the person?
- If moving from MDI to pump, what risks & additional tasks does the person think will be required (e.g. calibration, set changes, ordering supplies)?
- How does the person feel about the HCL making some of their diabetes decisions on their behalf?
- How confident does the person feel about managing with the HCL system?
- Does the person understand that they will still need to input carbohydrate content and bolus for meals?
- Does the person understand that they will still need to monitor blood glucose and give corrections where appropriate?

Cognitive Flexibility

- How has the person reacted to previous changes in their regimen or change in other aspects of their life?

- Does the person have neurocognitive diagnoses (e.g. Autism, ADHD, brain injury, dementia)? If so, can standard education be modified? How do they prefer to receive information?
- Does the person show any behaviours which can affect the effectiveness of their response to out of range readings? (e.g. perfectionism, fear of hypos, hyperglycaemia aversion, insulin stacking)
- How does the person currently react to CGM alarms? How might they optimise their use/minimise the negatives?
- Is the person confident with technology in general? (both using and trusting) ? If not, why not (ask people about any concerns)?
- How will the person respond if the HCL system stops functioning? Do they feel able to transfer to an alternative regimen such as MDI?

Psychological Issues

A previous history of psychological distress or diabetes mismanagement that has since resolved and has been stable for some time should not be considered a risk issue, particularly if the person has engaged with psychological therapy.

- How does the person feel about their pump/monitor being visible and constantly attached?
- Does the person understand that they may gain weight on HCL?
  Does the person have a **recent** history of deliberate insulin omission, insulin and/or glucose monitoring manipulation, distress intolerance, frequent emergency diabetes admissions, impulsivity and/or risky behaviours? *N.B. ensure there is already MDT discussion and support in place for this person.*
- If the person isn't currently carbohydrate counting – what are the blocks to this? How can the team support?
- Does the person have other current psychological issues (e.g. anxiety, obsessive compulsive disorder, depression) that may be impacted by, or impact on, use of HCL?

Systemic

- Would the person need to switch teams if they started HCL? Would that be ok?
- Do friends & family have realistic expectations for the role of technology?
- Who are the key people in the person's support system that will also need to understand how HCL works?
- Are partners aware that technology will be attached at all times and may intrude into intimate relationships?
- How does the person feel about sharing their data with the diabetes MDT?

Are we ready for HCL?

- ✓ Informed consent – ensure the person understands functionality and limits of HCL therapy, risks of technology failure, potential weight gain etc. Arrange for translated materials/interpreters where English is not first language, and adapted resources (e.g. Easyread, dyslexia friendly) where there are neurocognitive issues.
- ✓ Encourage people with diabetes to tell friends, family & colleagues about starting HCL therapy in advance, to manage any anxieties about appearance, disturbance from alarms and understanding of risk of DKA

- ✓ Ensure person (and family/carers) is trained and confident in how to manage pump failure, travelling and sport/exercise
- ✓ In cases of highly anxious people with diabetes (and family/carers), preparatory psychological work may be required. Ensure diabetes psychology staff are included in staff training on HCL and are familiar with the demands and risks of HCL.
- ✓ Facilitate peer learning where possible where prospective HCL users (and family/carers) can speak to others already using the systems about their lived experience

Is HCL working for us?

Anxiety at start of HCL is often high, particularly if the person has switched from MDI rather than being an existing pump user. Ensure capacity for enhanced regular follow up from the diabetes team for at least one month after commencement, with contact details for pump/HCL specialist staff and company representatives for ad hoc advice. If person has switched from their local diabetes team in order to commence HCL ensure they are clear on who to contact when they have concerns.

Generally this initial anxiety will subside, but in some events the person and the diabetes team may decide that HCL is not providing the anticipated benefits and agree that cessation is the best option. Services should provide options and support for pump holidays, and support the person to recommence HCL if and when they are ready to. It should be made clear at all times that cessation of HCL does not mean that a person has 'had their chance' and that the option for HCL can be revisited at a more appropriate point in the future.

In situations where the HCL is being misused by the person with diabetes and is causing significant risk (e.g. use of pump for suicide attempt/self-harm, or ongoing issues with person ignoring pump alarms, overriding the HCL algorithm, or not attending appointments), the diabetes MDT will need to work with the person to weigh up the costs and benefits to remaining on HCL. Further psychological assessment may be required to assess risk and contributory factors. In situations such as these, risk behaviours are unlikely to completely remit by removing the HCL system and are likely to manifest in other formats; MDT support and access to specialist psychological input will be essential.

Disclaimer

This guidance has been prepared by the Diabetes Technology Network UK and Diabetes Psychology Network in order to help people with diabetes and their teams gain the most benefit from hybrid closed loop (HCL) therapy. HCL is a recent advance in diabetes management and as such, the psychological evidence base in this area is still emerging. The current guidance is based on the clinical literature and the professional experiences of those working in the area – we anticipate that this guidance may need to be updated as the evidence base becomes more robust.