

## Diabetes and Real-World Investigation of Glucose Instability, Variability and Exposure in Haemodialysis Patients (DRIVE-HD) – Impact of population Glucose profiling with CGM on clinical decision-making and diabetes therapy decisions

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The Ambulatory Glucose Profile (AGP) provides a single image representation of the glucose experience of people with diabetes and so is a useful tool in the insulin management of diabetes.

69 individuals with insulin-treated diabetes undergoing regular centre-based haemodialysis were studied for 7-14 days with blinded CGM (FreeStyle Libre Pro). At the end of their data capture period each subject's data was subjected to clinical interpretation by an experienced diabetes clinician using a clinically derived risk score based on the AGP and also numerical data relating to time in range according to recently published international consensus reporting.

### Results

Data from 85,731 points was analysed (43 data points - representing 0.05% of total - were missed through technical sensor issues)

Using Time in range analysis where international consensus defines > 70% in range (3.9-10mmol/L) with <4% below this as optimal control, it is clear that very few of this group achieve optimal control – for descriptive purposes we therefore defined 4 categories of glycaemic control:

- 1) acceptable control as >50% in range with <10% below, and categories with
- 2) significant hypoglycaemia risk (<10% below 3.9mmol/L) and
- 3) significant hyperglycaemia risk (>50% of values above 10mmol/L) and
- 4) a final category with both of the above (>50% over 10mmol/L AND >10% below 4mmol/L)

Figure 1 provides AGP an example from each group as defined above.

Only 21 individuals (30% of the group) showed acceptable control whilst 20 (29%) showed significant hypoglycaemia risk, 23 (33%) significant hyperglycaemia risk and 5 (8%) the highest risk category of both hyper and hypoglycaemia risk

Using a 0-10 “clinical risk score” based on visual interpretation of the AGP (where 0 implies no indication for therapy change and 10 implies immediate indication for change (life-threatening risk) we were able to prioritise this group for therapy intervention, with 25 individuals falling in categories 0-3, 25 individuals falling in categories 4-6 and 19 individuals falling in categories 7-10

### Conclusion

CGM analysis of glucose control in a haemodialysis population provides evidence of widespread glucose-related risk, with only 30% experiencing control which can be defined as acceptable. Both time in range and AGP analysis can identify those with the highest risk associated with their glucose experience in order to

prioritise therapy change, highlighting the importance of combined working between diabetes and renal clinical teams.