

# Effect of multiple dose insulin on glycaemic control and adiposity in children and adolescents with type 1 diabetes; a Sri Lankan experience

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## Objective

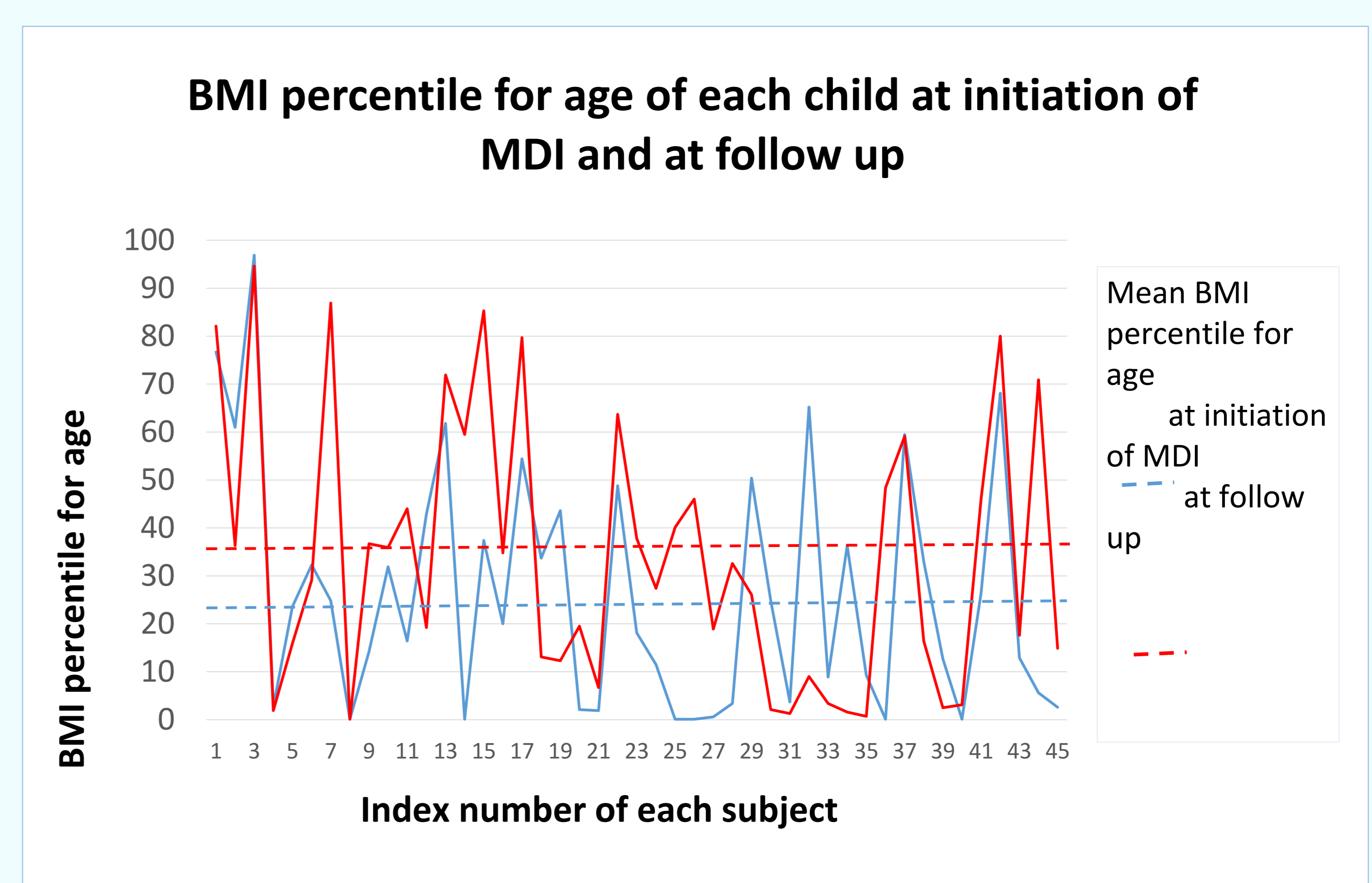
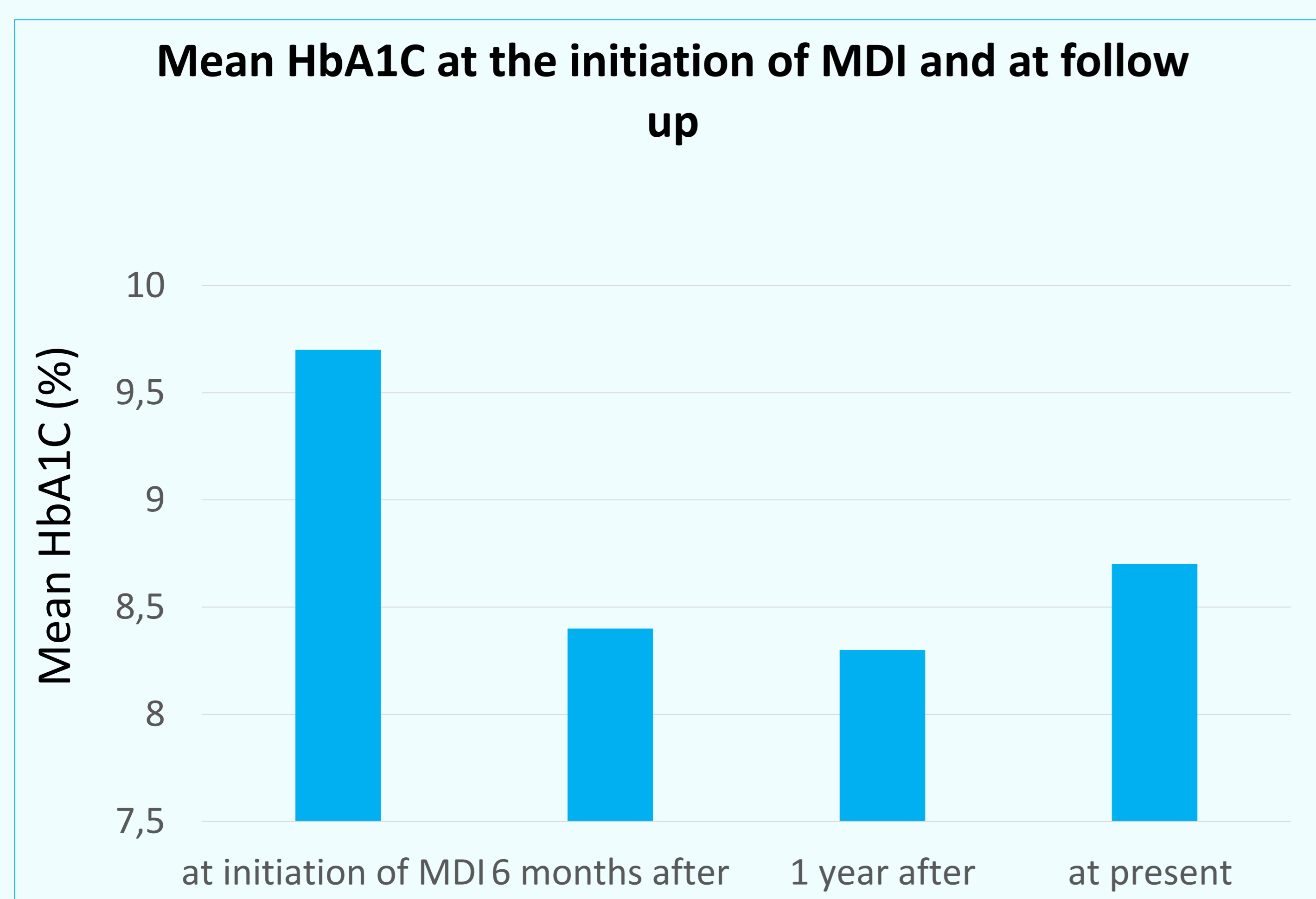
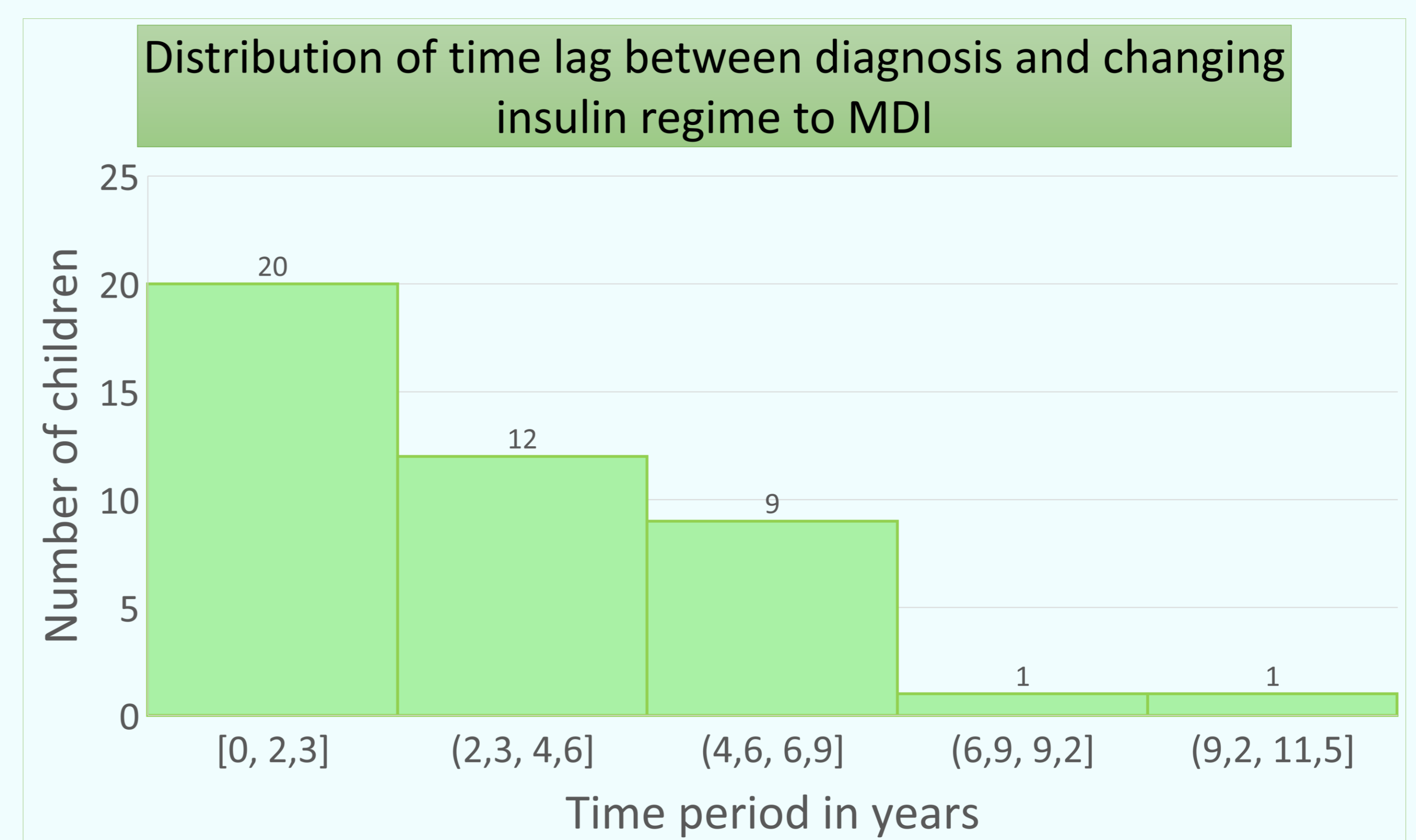
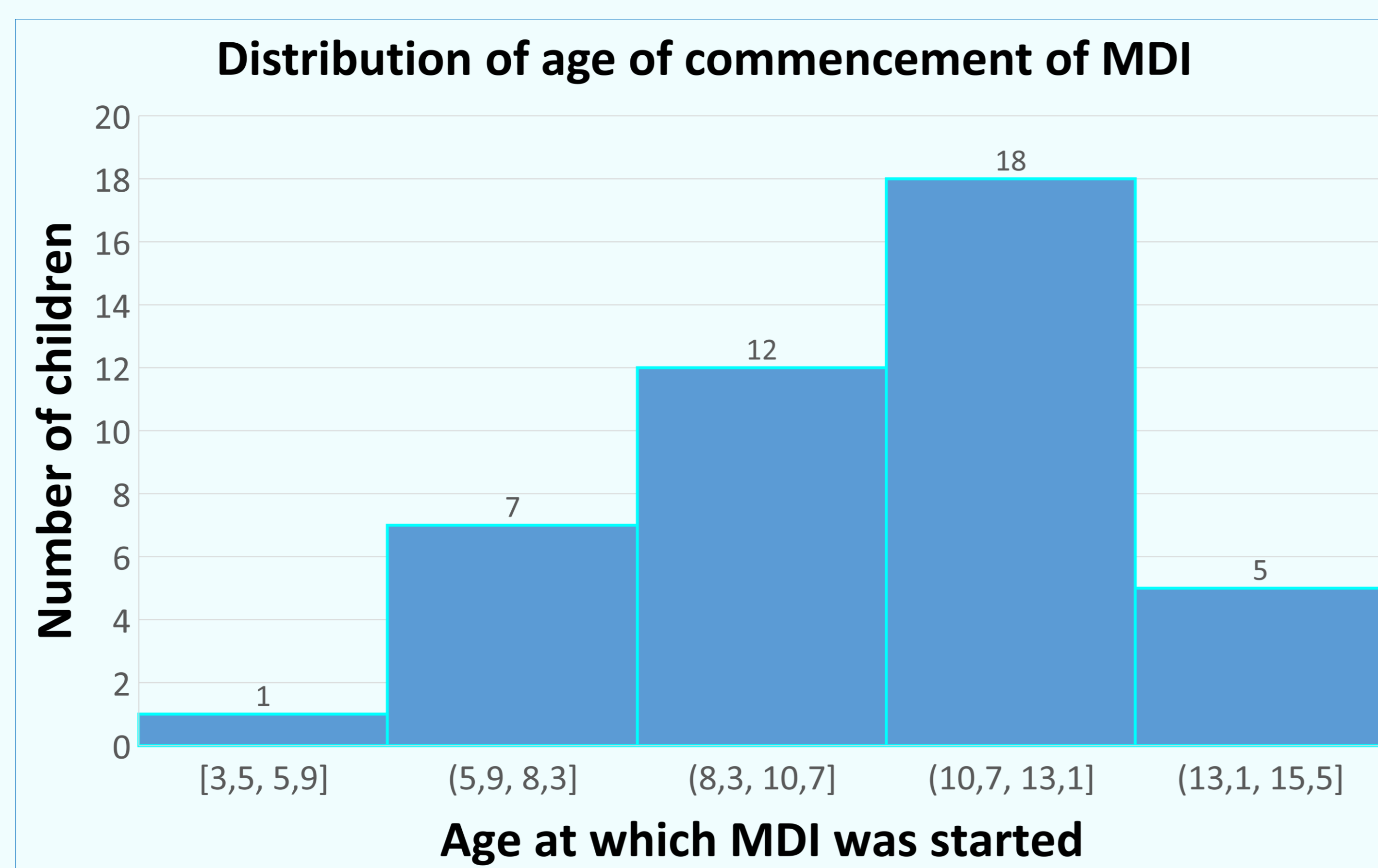
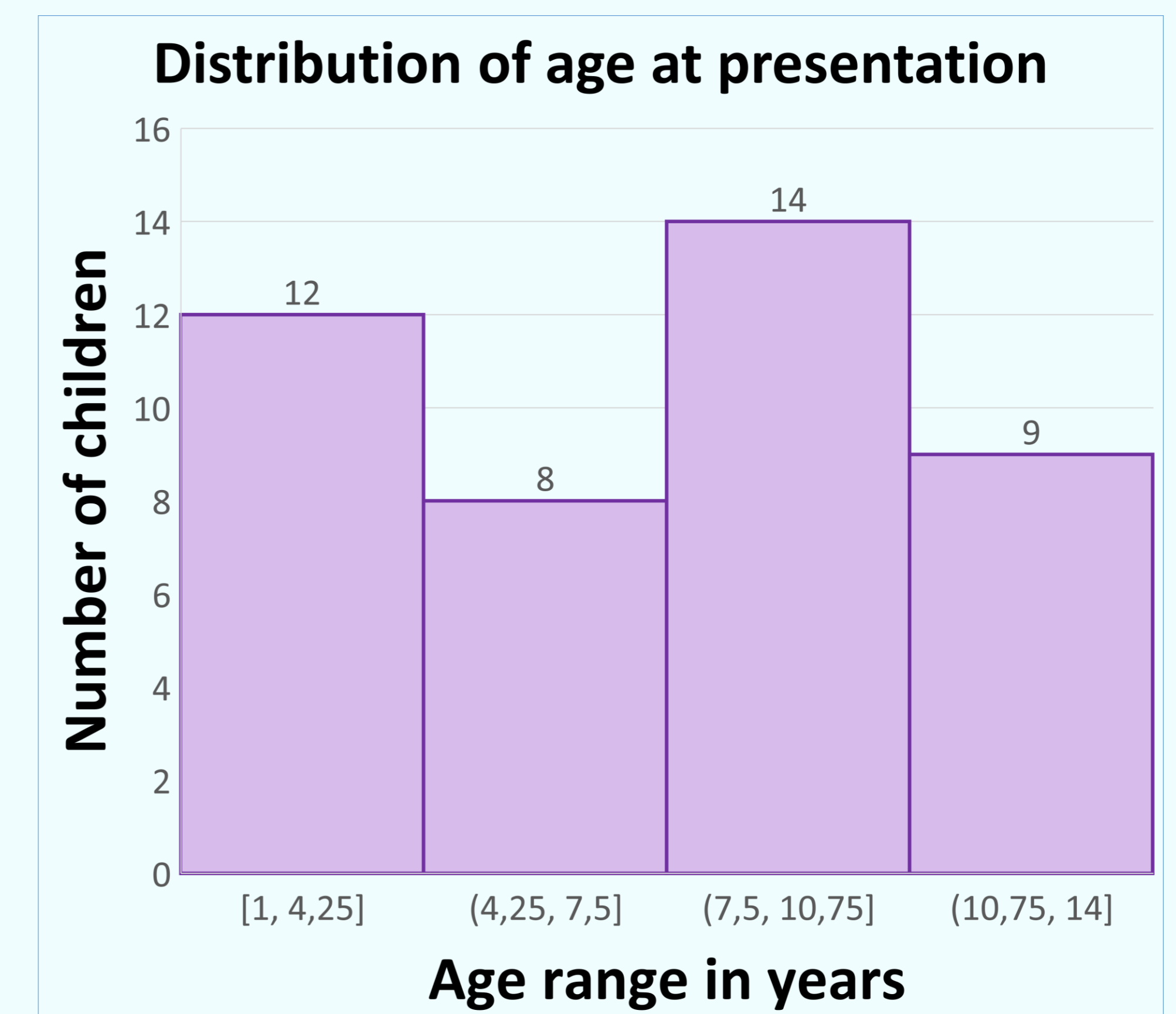
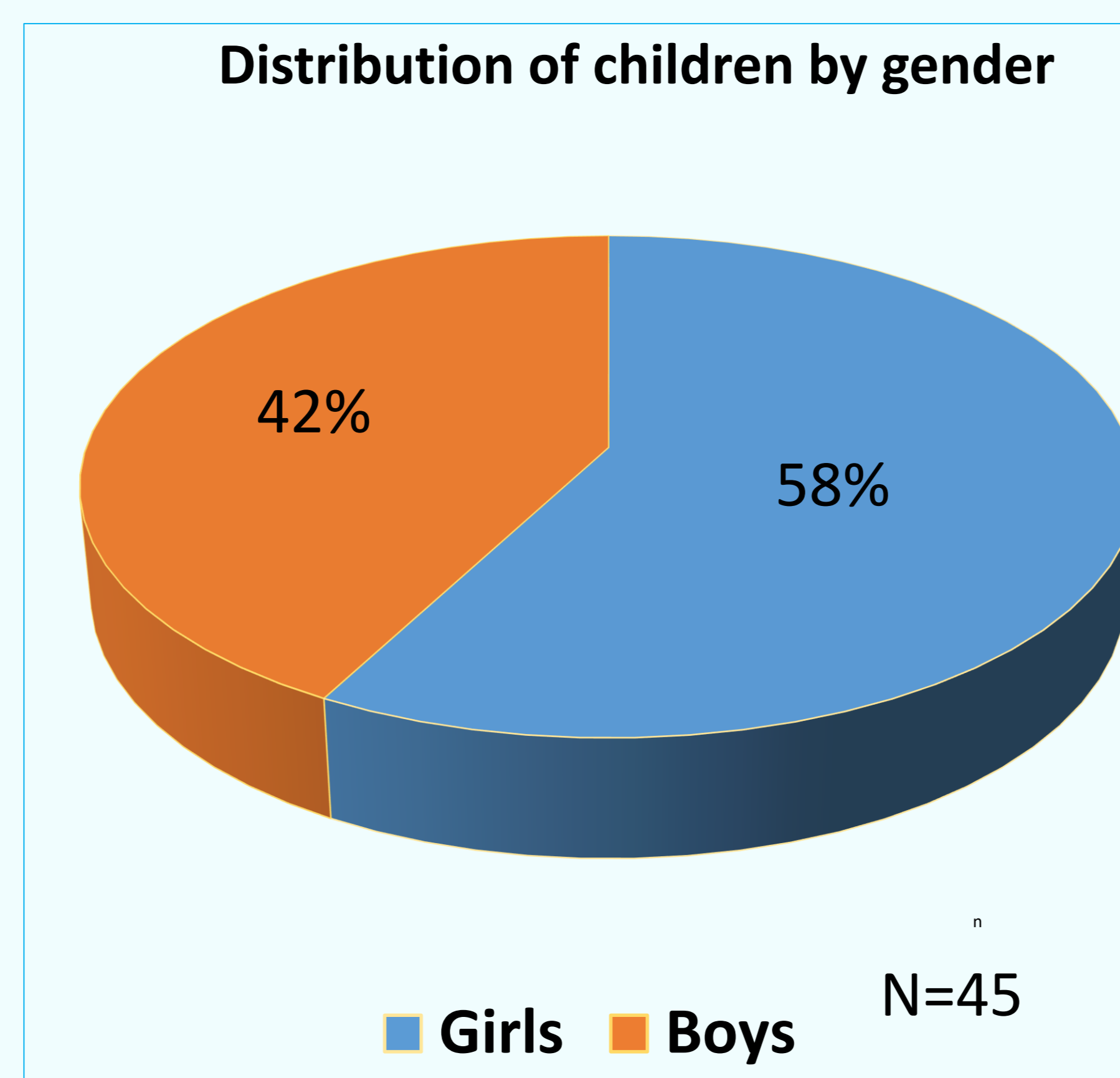
To describe the glycaemic control and change in body mass index (BMI) in children and adolescents with type 1 diabetes (T1DM) after changing to multiple dose insulin regime (MDI) from fixed dose insulin regime (FD).

## Methods:

- A retrospective observational study
- Subjects: children and adolescents with T1DM who were changed to MDI from FD at the Lady Ridgeway Hospital (LRH) from January 2013 to June 2018
- Ethical approval from LRH was obtained
- Informed written consent was taken from parents to obtain data from clinic records and growth parameters of the children
- Mean haemoglobin A<sub>1c</sub>(HbA<sub>1c</sub>) at the initiation of MDI, 6 months and 1 year after and in January 2019 were recorded
- BMI, BMI percentile for age and BMI standard deviation scores (BMI SDS) were calculated at the initiation of change in insulin regime and in January 2019
- Change in adiposity was measured by BMI SDS

## Results:

- Mean age at initiation of MDI was 10.5 years (range 3.5 to 14.3)
- The follow up period following change in insulin regime ranged from 6 months to 56 months (4.75 years)
- The average time lag between the diagnosis of T1DM and initiation of MDI was 2.75 years
- Mean HbA<sub>1c</sub> at initiation (9.6%) had decreased to 8.4% (p<0.01) 6 months after, to 8.3% (p<0.001) 1 year and to 8.7% in January 2019
- The difference in BMI SDSs at initiation and in January 2019 was not statistically significant (p=0.076).



**Conclusions:** A significant improvement in glycaemic control was seen 6 months after converting to multiple daily insulin regime, and the improvement was sustained even after a mean duration of 3.5 years. Significant change in adiposity following initiation of MDI was not observed in our population of children and adolescents.