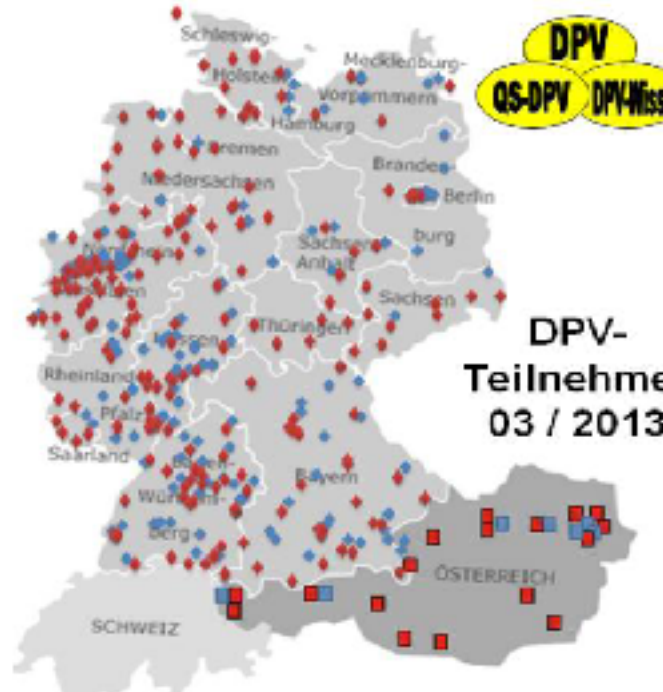


Non-HDL cholesterol in diabetic children: Treatment recommendations based on glycemic control, BMI, age, sex, and generally accepted cut points

Reference levels derived from the German-Austrian Diabetes
Documentation and Quality Management System (DPV)

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Introduction

Most of the guidelines recommend in a first step lifestyle changes to improve diabetes control and in a second step lipid lowering medication (1). To improve the low frequency of lipid lowering treatment (2), a diagnostic algorithm of LDL-, non-HDL- and HDL-C has been established for diabetic adolescents and healthy peers (3). Here, we would like to give treatment recommendations for the pediatric diabetologist by using accepted cut points of non-HDL-C levels (4).

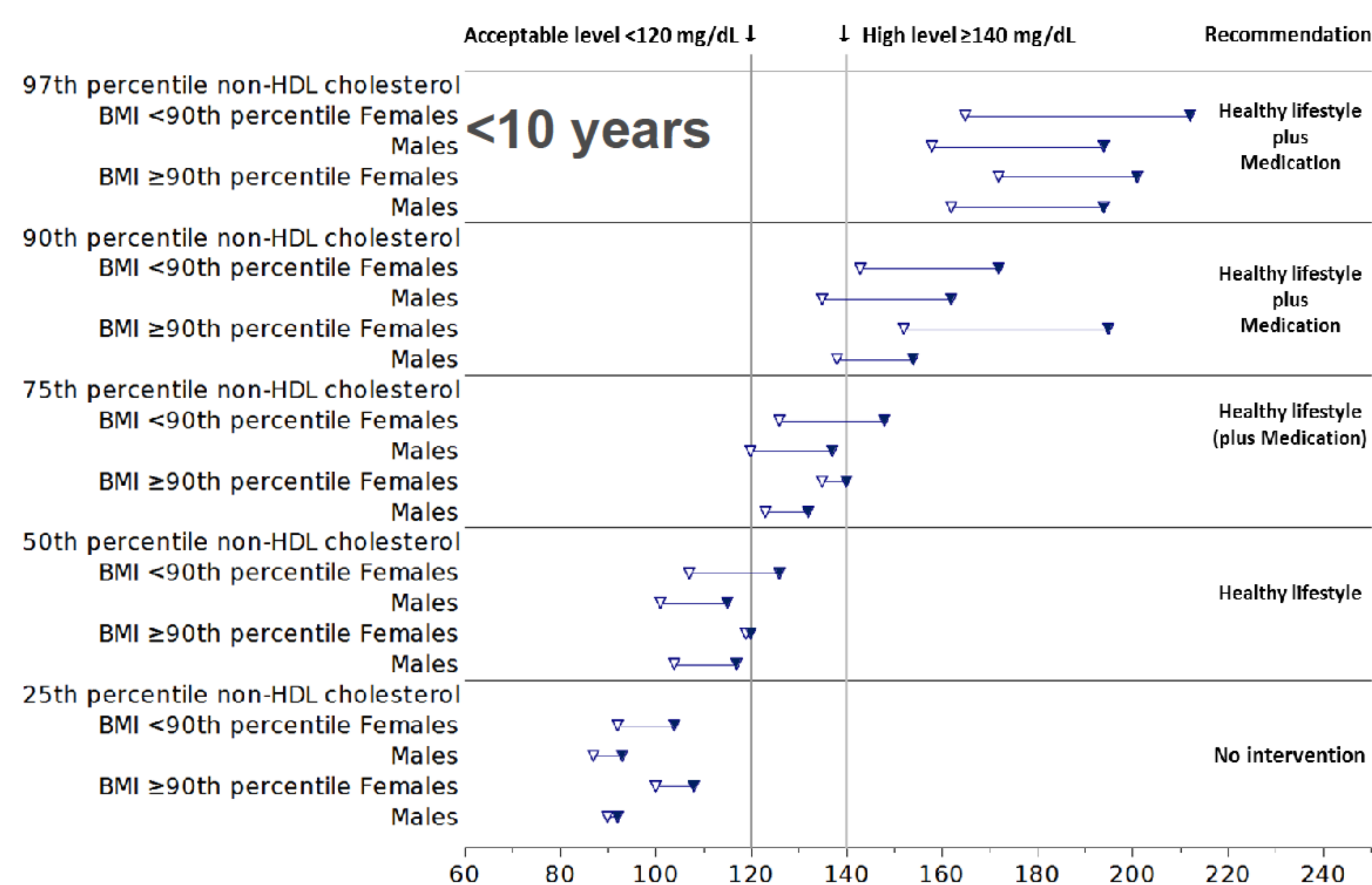
Methods

Percentile-based distribution of non-HDL-C levels of diabetic adolescents (DPV, n= 26,147) were calculated related to HbA1c elevations from 6% to >9% in normal weight and overweight female, and male children with type 1 diabetes.

Table 1 Characterisation of children and adolescents with type 1 diabetes

| | |
|----------------------------|------------|
| Number of patients | 26,147 |
| Age, years | 13.7 ± 3.9 |
| Age range, years | 1 -17.9 |
| Male sex, % | 53 |
| BMI, kg/m ² | 21.3 |
| BMI SDS | 0.3 ± 0.86 |
| HbA1c, % | 8.3 ± 1.7 |
| Non-HDL-cholesterol, mg/dl | 117 ± 36 |
| HDL-cholesterol, mg/dl | 60 ± 16 |

Table 2 Distribution of non-HDL cholesterol related to worsening glycemic control related to HbA1c elevations from 6% (▽) to >9% (▼) in normal weight (BMI <90th percentile), overweight (BMI ≥90th percentile), female, and male children with type 1 diabetes aged ≤10 years



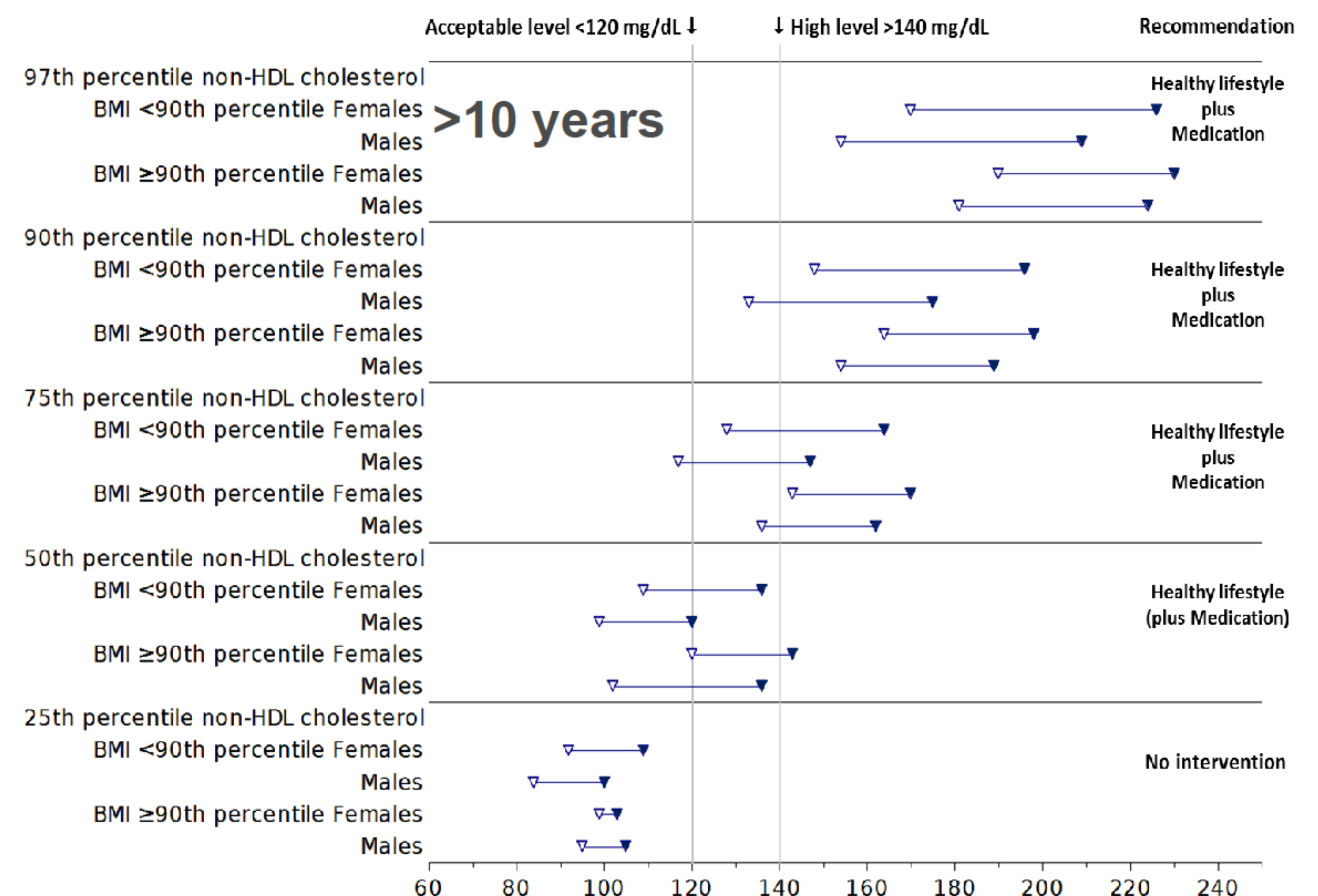
Conclusions:

- Patient groups like obese over 10 year old females with type 1 diabetes frequently will not reach acceptable non-HDL-levels despite marked improvement of their diabetes control.
- Therefore, both lipid lowering medication and simultaneously changes of lifestyle are recommended in these patient groups in order to reach acceptable non-HDL-C levels.

Results:

- Information about the scope of increased non-HDL-C levels due to worsening HbA1c, increasing age, sex differences, and overweight are shown in Table 2 and 3.
- To achieve the non-HDL-C goal of <120 mg/dL, both lipid-lowering medication and healthy lifestyle are strongly recommended for non-HDL-C levels ≥140 mg/dL concerning 10% of all patients and 25% of overweight adolescent girls with T1D.

Table 3 Distribution of non-HDL cholesterol related to worsening glycemic control related to HbA1c elevations from 6% (▽) to >9% (▼) in normal weight (BMI <90th percentile), overweight (BMI ≥90th percentile), female, and male children with type 1 diabetes aged ≤10 years



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