**Changes in the nutritional status of children with cancer depending on clinical, demographic, and social factors**

**ASSESSMENT OF NUTRITIONAL STATUS**

**Anthropometric parameters**

**Weight**

Weight of the patients were measured using a calibrated digital scale while the children were wearing only underwear. The following categories were separated: underweight (<3th percentile), at risk for underweight (3th to <10th percentile), normal (10th to <90th percentile), at risk for overweight (90th to <97th percentile) and overweight (≥97th percentile).

**Height**

Height was measured using a calibrated stadiometer with upright position. The following categories were separated: deficiency (<3th percentile), low (3th to <10th percentile), normal (10th do <90th percentile), above the norm (90th to <97th percentile) and high (≥97th percentile).

**MUAC**

MUAC was measured with the arm relaxed, hanging loosely at side, halfway between the tip of acromion and olecranon processes was marked, and using a measuring tape that was passed around the arm at the mark. The average of the three readings of circumference was recorded to the nearest 0.1 cm. WHO reference values were used for MUAC for age 0 to 5 years (range 3th to 97th percentile) and polish references values for age 6 to 18 years (range 5th to 95th percentile). MUAC was categorized as very low (<3th/<5th percentile), low (<3th to <15th/5th to <10th percentile), average (15th to <85th/10th to <90th percentile), above average (85th to <97th /90th to <97th percentile), excess (≥97/ ≥95 percentile).

**TSFT, SCFT**

TSFT and SCFT were measured using a skinfold caliper. TSFT was measured at the previously marked region for upper arm. SCFT was measured below the inferior angle of the scapula at the same side used for TSFT. The examiner lifted a pinch of skinfolds and applied the blades to either side of fold of the skin with the other hand, and read after the full pressure of the jaws had been exerted. The average of the three readings measurements of TSFT and SCFT were recorded in mm.

**BMI**

BMI was calculated by dividing the weight of the patient in kilograms by their height in meters squared [kg/m2]. WHO reference values were used for BMI for age 0 to 5 years and polish reference values for 6 to 18 years. BMI was categorized as underweight (<5th percentile), healthy weight (5th to <85th percentile), overweight (85th < 95th percentile) or obese (≥95 percentile).

**Body composition**

**UMA, AFI, SFsum**

Further arm anthropometric indices of upper arm muscle area (UMA), arm fat index (AFI) and sum of subscapular and triceps skinfold thickness (SF sum) were calculated using equations developed by Frisancho:

UMA (cm2) = ;

AFI (%) =

*TUA (total upper arm area) = ; UFA (upper arm fat area) =*

SFsum (mm) = TSFT + SCFT 5*.*

UMA was categorized as low muscle (<5th percentile), below average (5th to <15th percentile), average (15th to <85th percentile), above average (85th to <95th percentile), high muscle (≥95 percentile). AFI was categorized as lean (<5th percentile), below average (5th to <15th percentile), average (15th to <75th percentile), above average (75th to <85th percentile), excess fat (≥85 percentile). SFsum was categorized as lean (<5th percentile), below average (5th to <15th percentile), average (15th to <75th percentile), above average (75th to <85th percentile), excess fat (≥85 percentile).