

# ESPN/ERA Registry national report

Turkey

## National Data for Publication in the Annual report

Below we present the number of children starting KRT in your country (incidence), and the current number of patients receiving KRT on the 31st December 2019 (prevalence). Incidence and prevalence are presented as the number of patients per million age related population (pmarp). We have stratified the results by age group and the treatment modality (at KRT start).

Incident patients	Turkey			
	2019		2018	
	N	pmarp	N	pmarp
Ages 0 - 14	61	3,2	70	3,7
Ages 0 - 4	17	2,7	29	4,5
Ages 5 - 9	19	3,0	14	2,2
Ages 10 - 14	25	3,9	27	4,3
Ages 15 - 19	19	3,0	19	2,9
Pre-emptive Tx	22	1,1	25	1,3
HD	13	0,7	13	0,7
PD	26	1,4	32	1,7
Population 0 - 14	19.198.338		19.108.909	

Prevalent patients	Turkey			
	2019		2018	
	N	pmarp	N	pmarp
Ages 0 - 14	378	19,7	391	20,5
Ages 0 - 4	60	9,4	73	11,3
Ages 5 - 9	124	19,3	123	19,4
Ages 10 - 14	194	30,4	195	31,1
Ages 15 - 19	306	48,0	329	50,8
Tx	170	8,9	150	7,8
HD	60	3,1	62	3,2
PD	148	7,7	178	9,3
Number of deaths	5	-	8	-
Population 0 - 14	19.198.338		19.108.909	

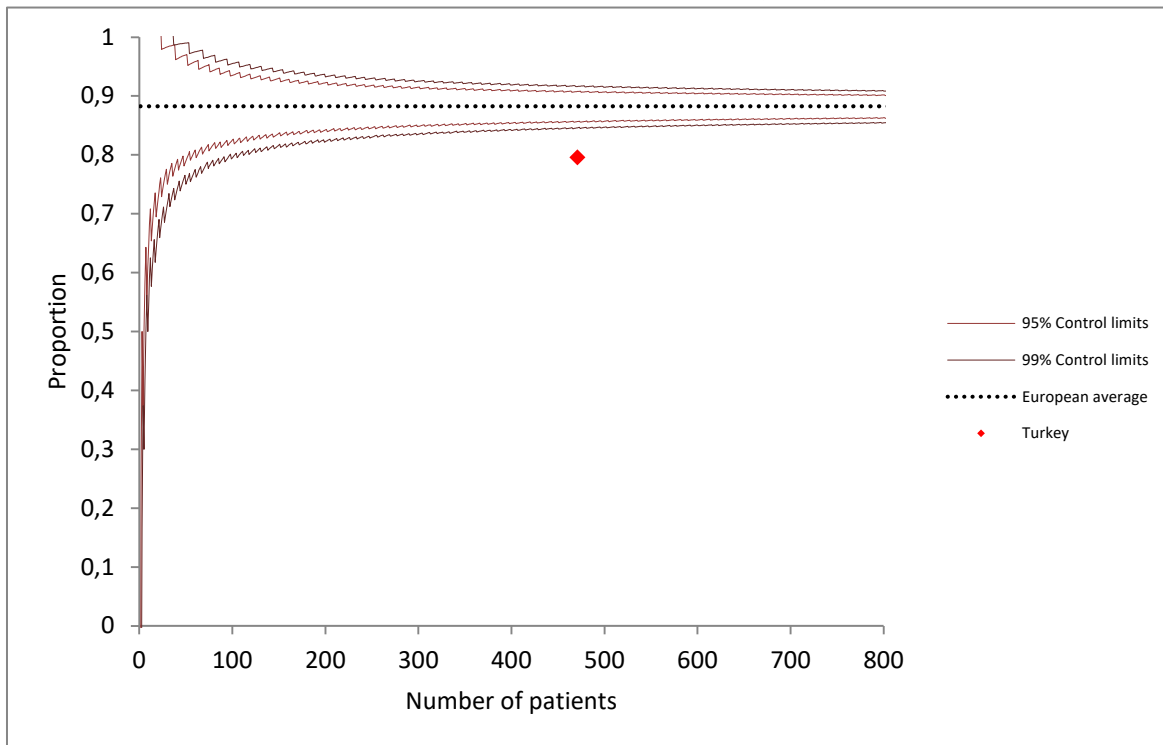
The patients for the ages 15-19 will not be reported in the annual report

The ESPN/ERA Registry is funded by the European Society of Pediatric Nephrology (ESPN) and the European Renal Association (ERA).

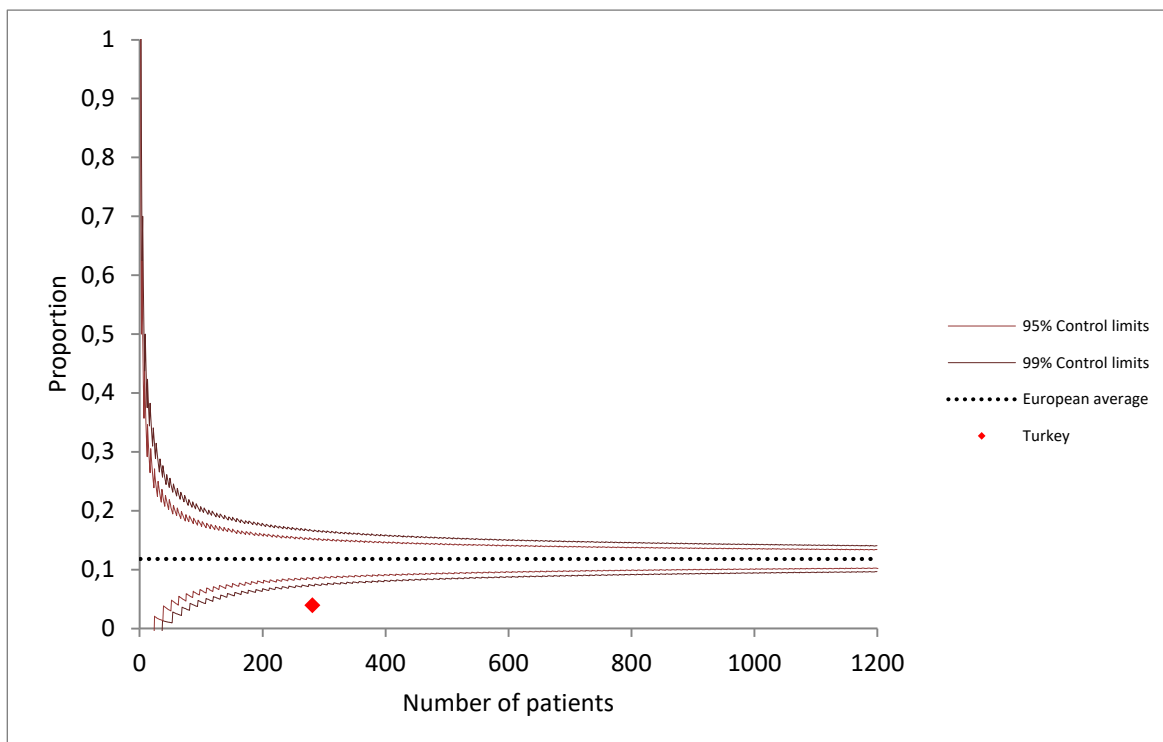
# Final Benchmarking Report

Funnel-plots allow us to objectively compare the performance of individual countries. For each clinical indicator, country estimates (y-axis) are plotted against the number of patients (x-axis). The control limits form a 'funnel' around the European average and reflect the precision of the estimate based on the number of patients in each country. Countries that fall outside these limits are doing either better or worse compared to the European average. Nevertheless, in countries with a small number of patients (<10), these limits may be imprecise. The plots are based on patient measurements collected since 2007 for patients aged 0-14 years. All country estimates are adjusted for the effect of age. Details on the methods used can be found in the appendix.

## Age-adjusted ESA treatment in dialysis patients

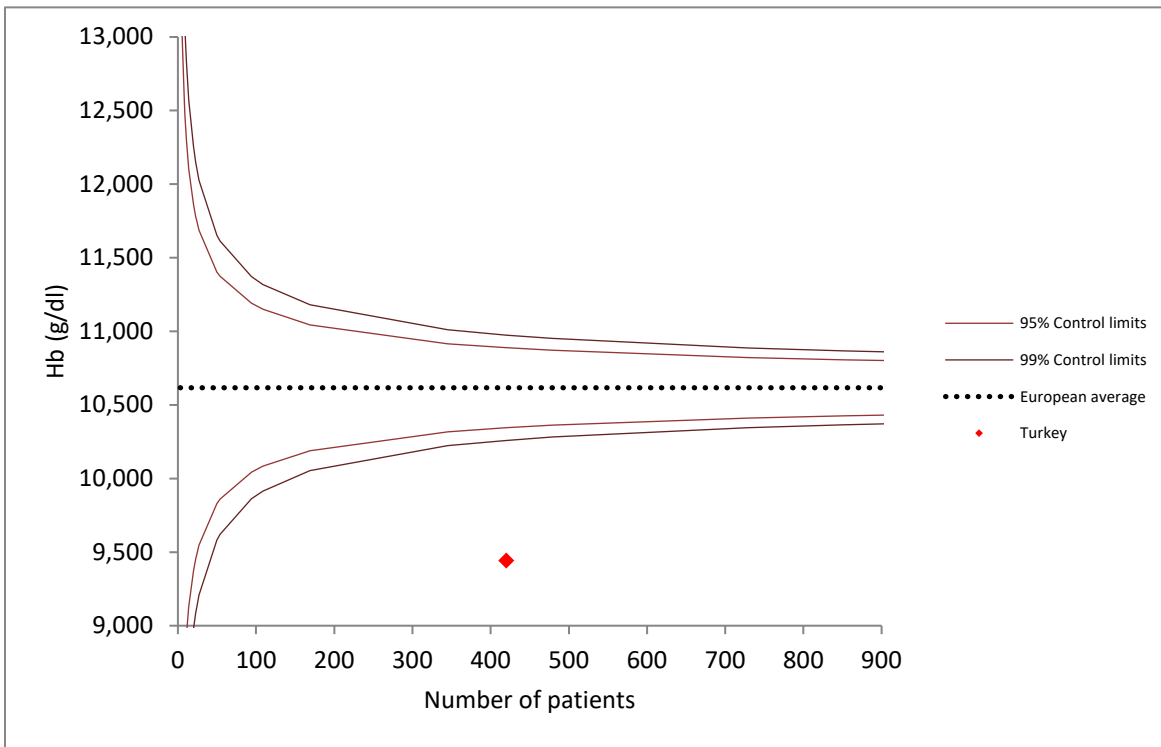


## Age-adjusted ESA treatment in transplant patients

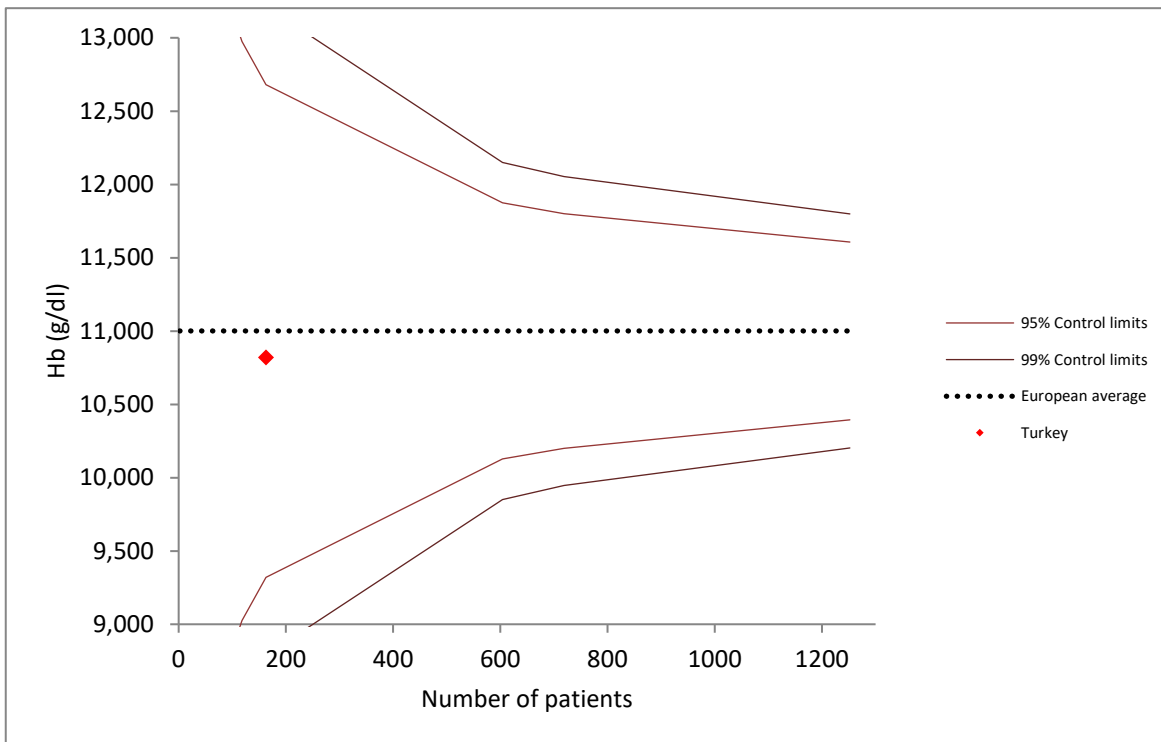


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## Age-adjusted average Hb in dialysis patients

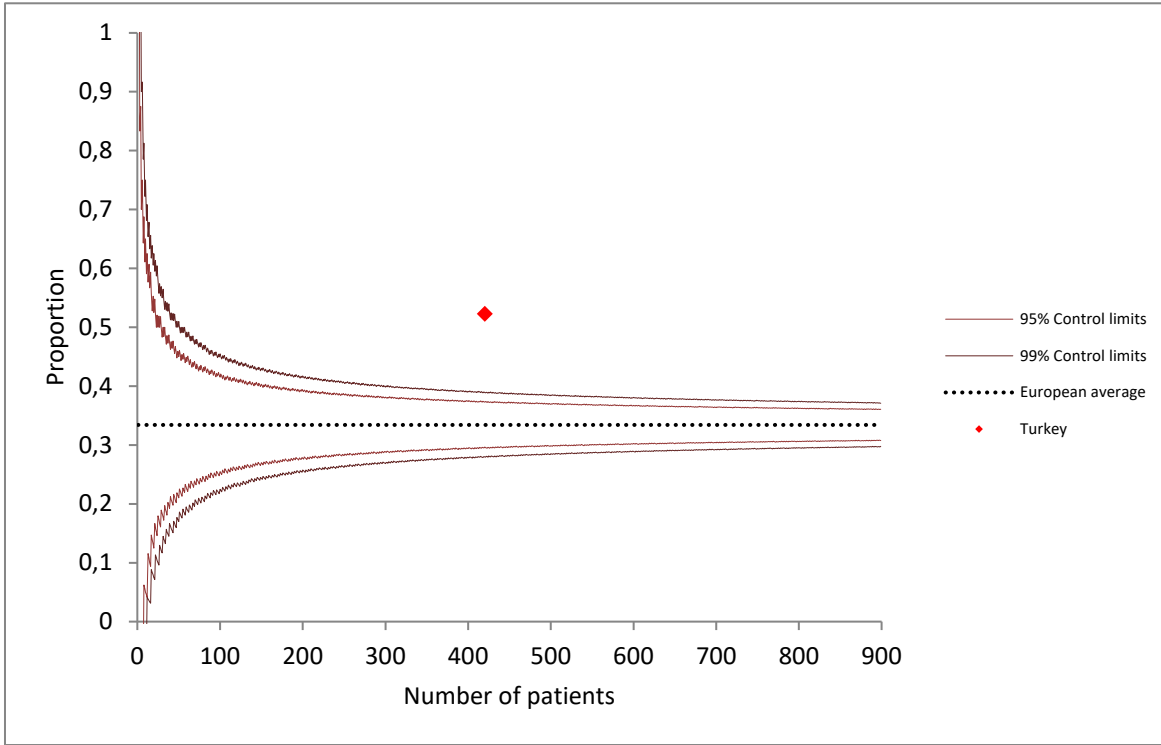


## Age-adjusted average Hb in transplant patients

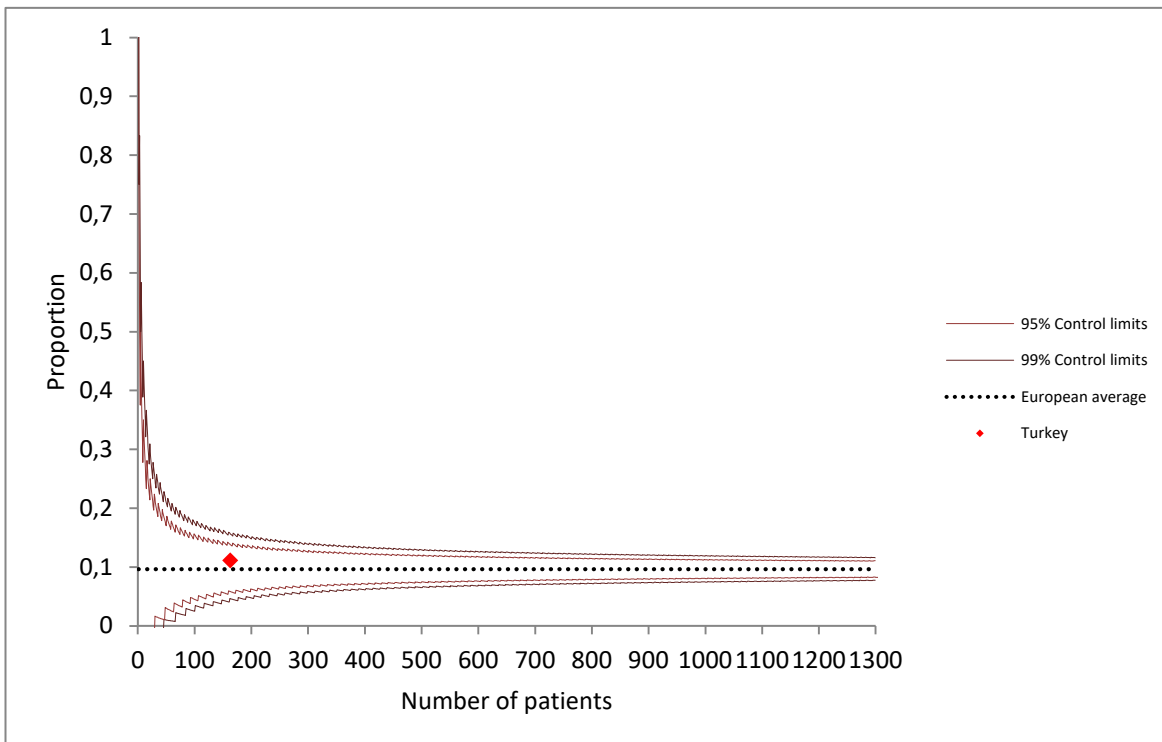


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## Age-adjusted proportion of anemia (Hb < 10 g/l) in dialysis patients

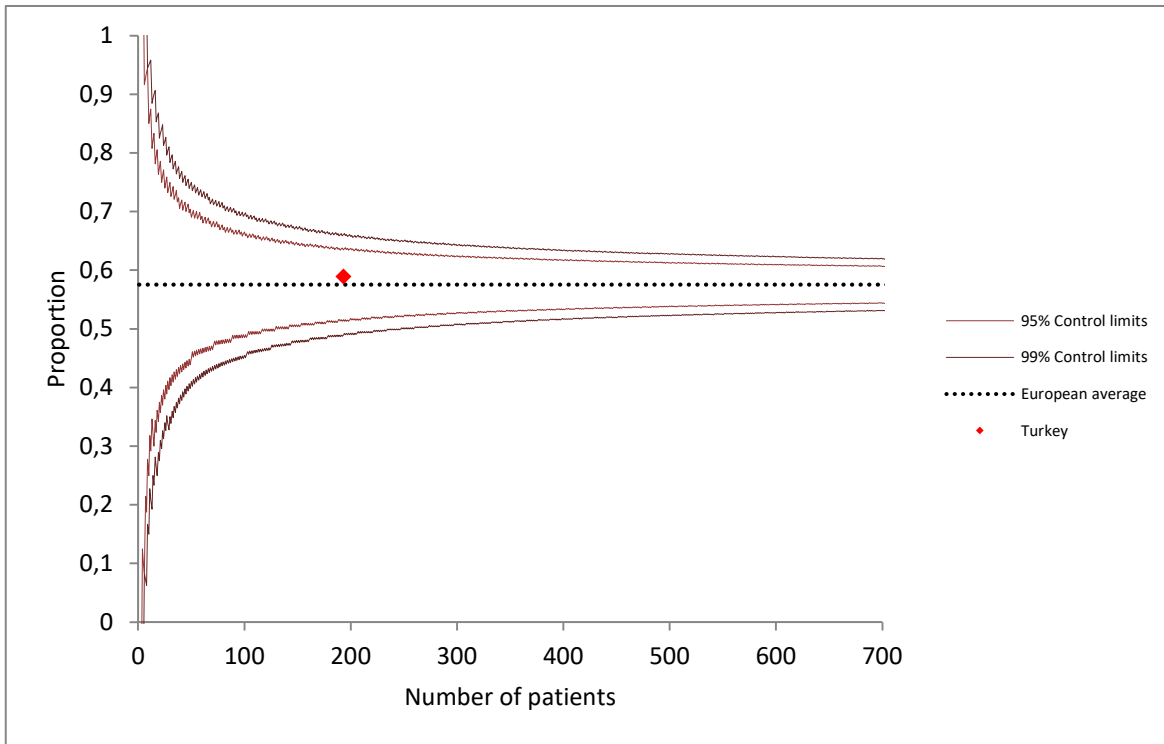


## Age-adjusted proportion of anemia (Hb < 10 g/l) in transplant patients

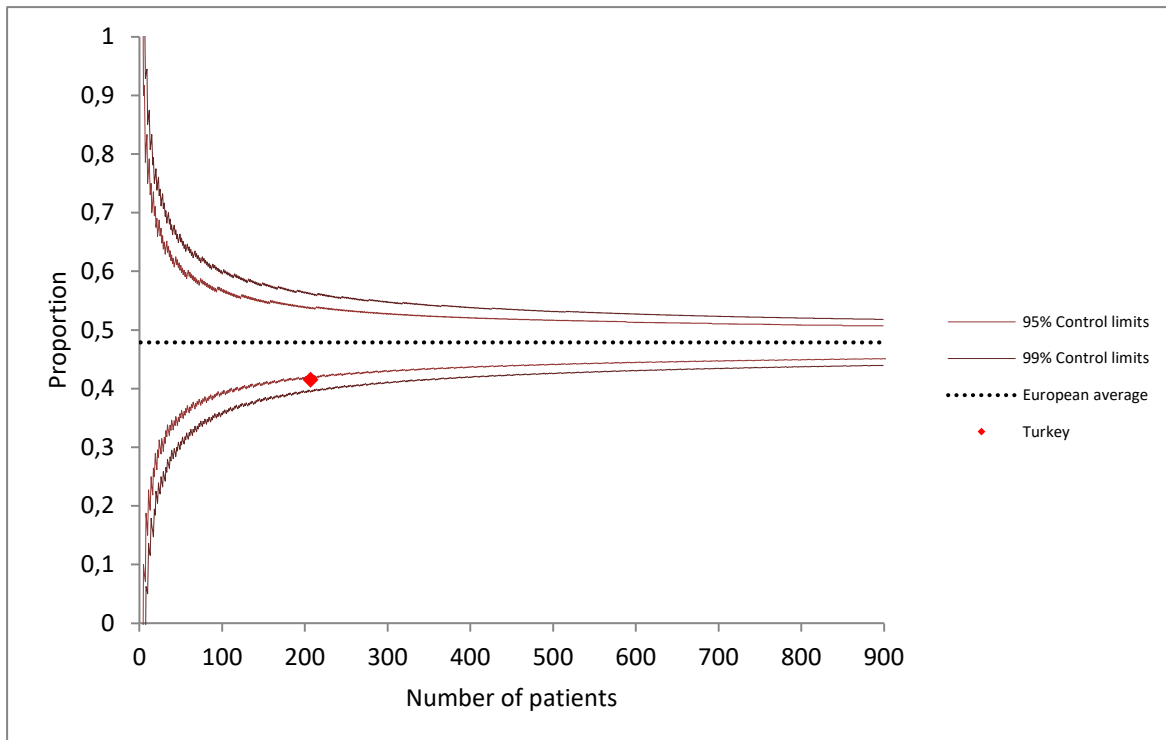


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## Age-adjusted proportion of dialysis patients treated with antihypertensives

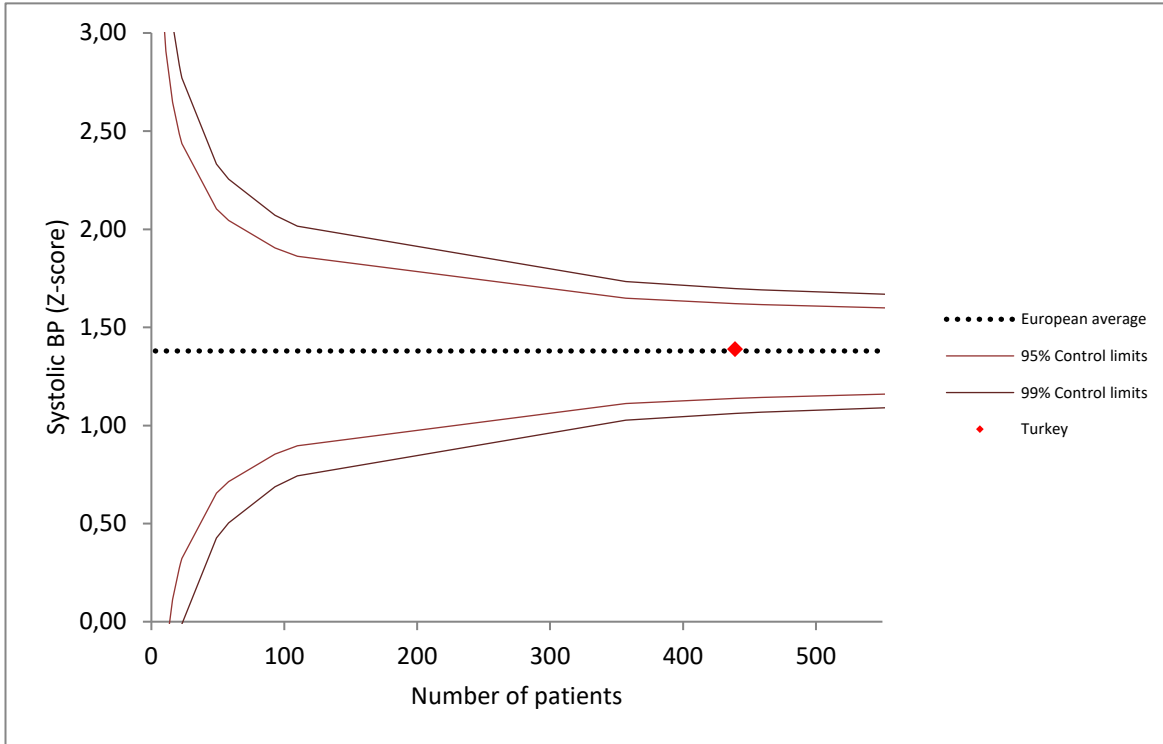


## Age-adjusted proportion of transplant patients treated with antihypertensives

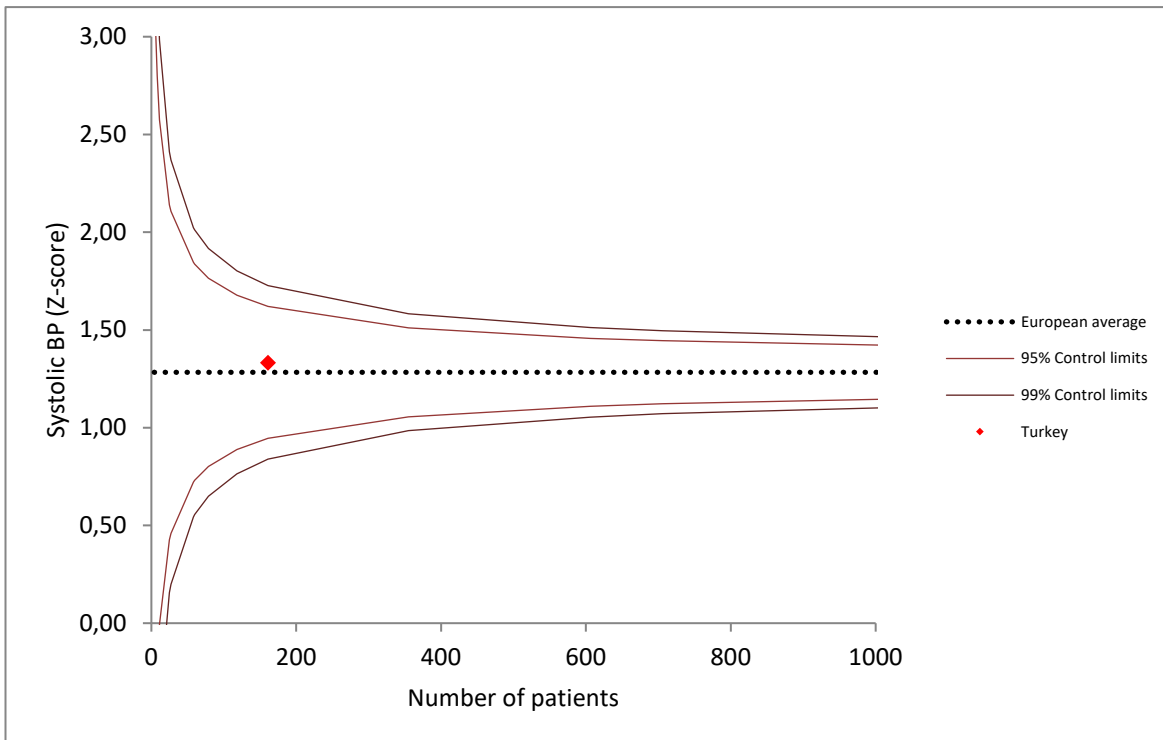


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## Age-adjusted average systolic blood pressure Z-score for dialysis patients



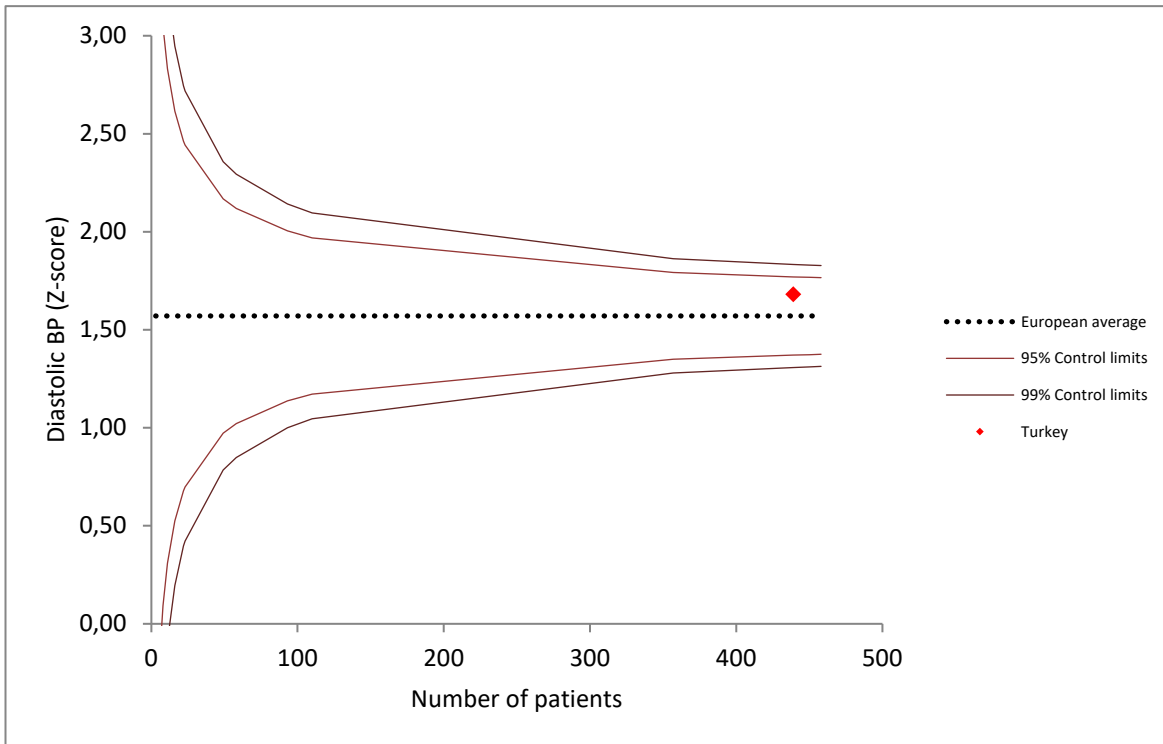
## Age-adjusted average systolic blood pressure Z-score for transplant patients



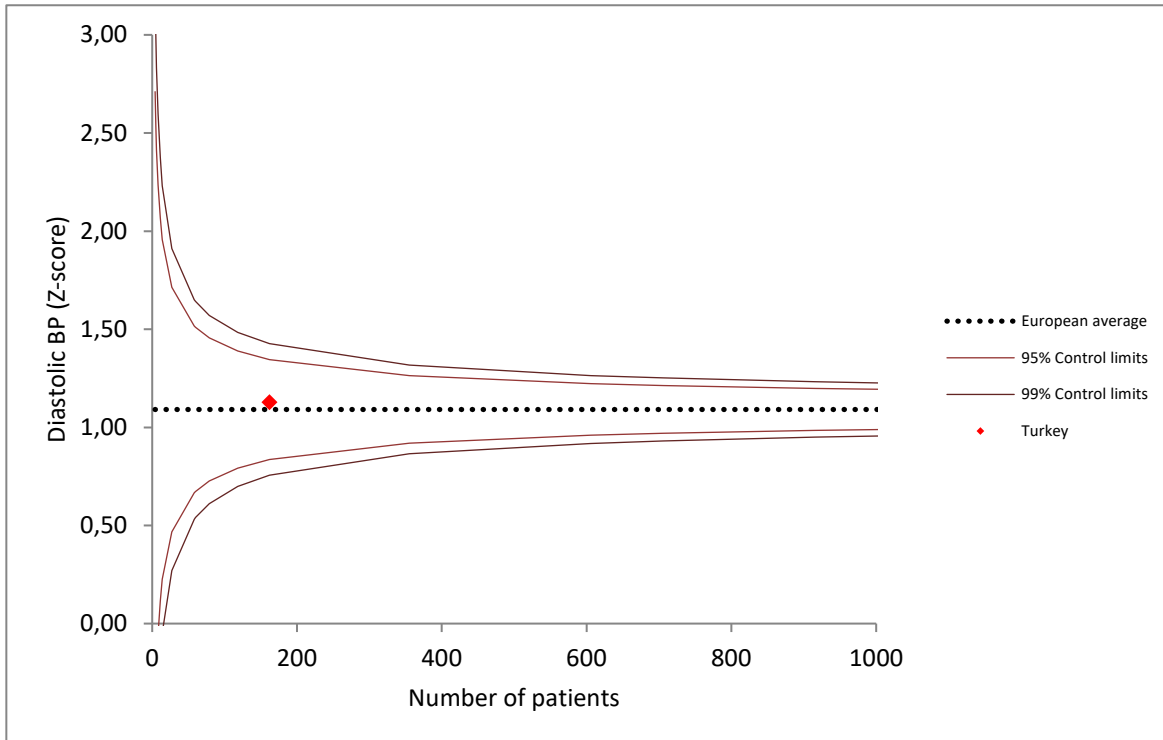
Blood pressure SDS was calculated following the fourth report of the National High Blood Pressure Education Program (NHBPEP) (The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. Pediatrics 2004; 114: 555–576)

# Final Benchmarking Report

## Age-adjusted average diastolic blood pressure Z-score for dialysis patients



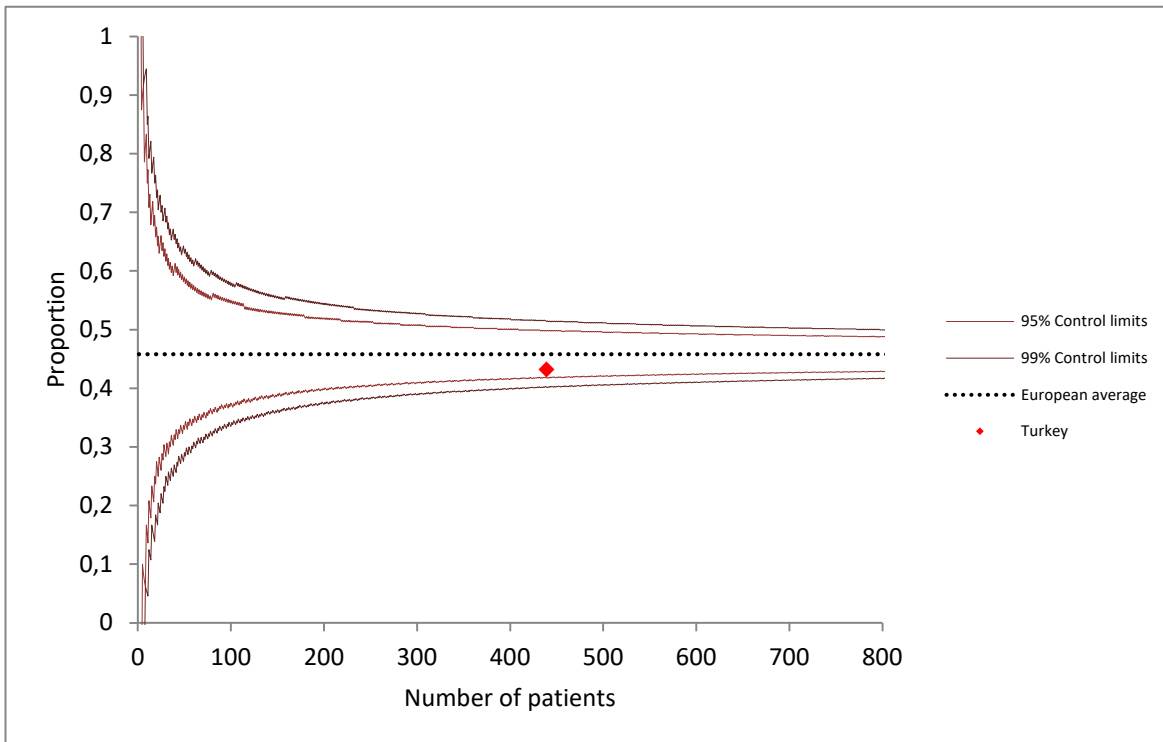
## Age-adjusted average diastolic blood pressure Z-score for transplant patients



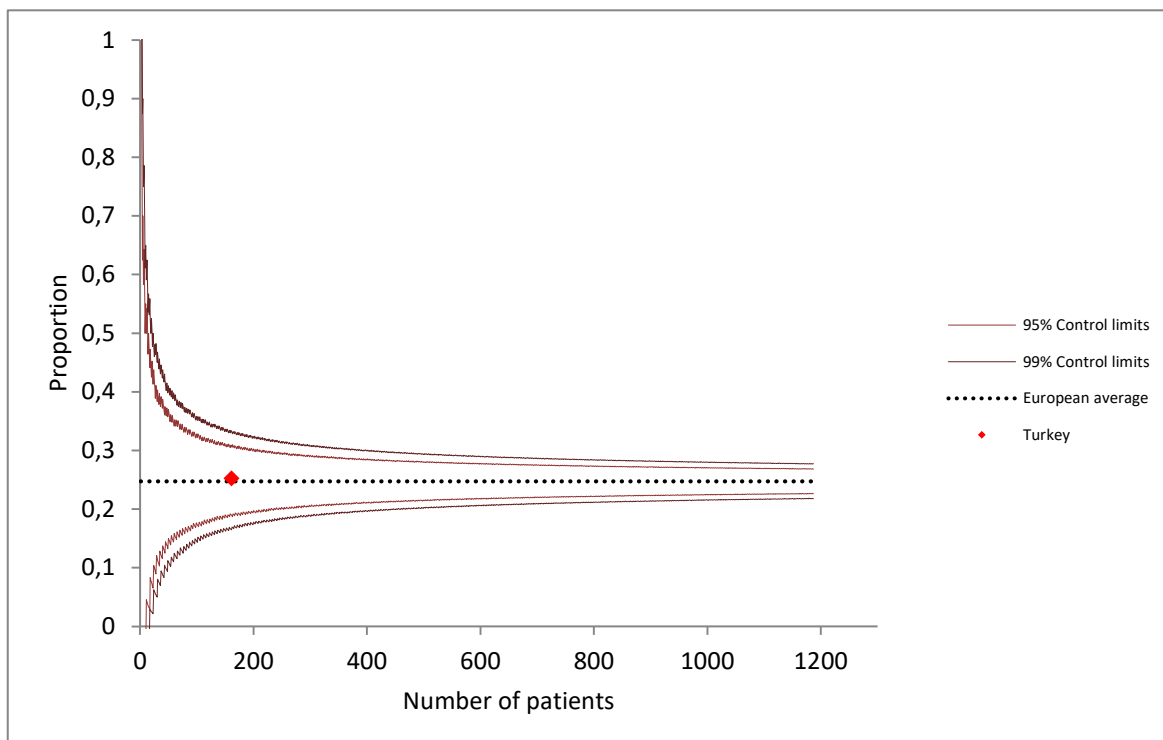
Blood pressure SDS was calculated following the fourth report of the National High Blood Pressure Education Program (NHBPEP) (The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. Pediatrics 2004; 114: 555–576)

# Final Benchmarking Report

## Age-adjusted proportion of dialysis patients with hypertension (systolic or diastolic pressure Z-score > 1.64)



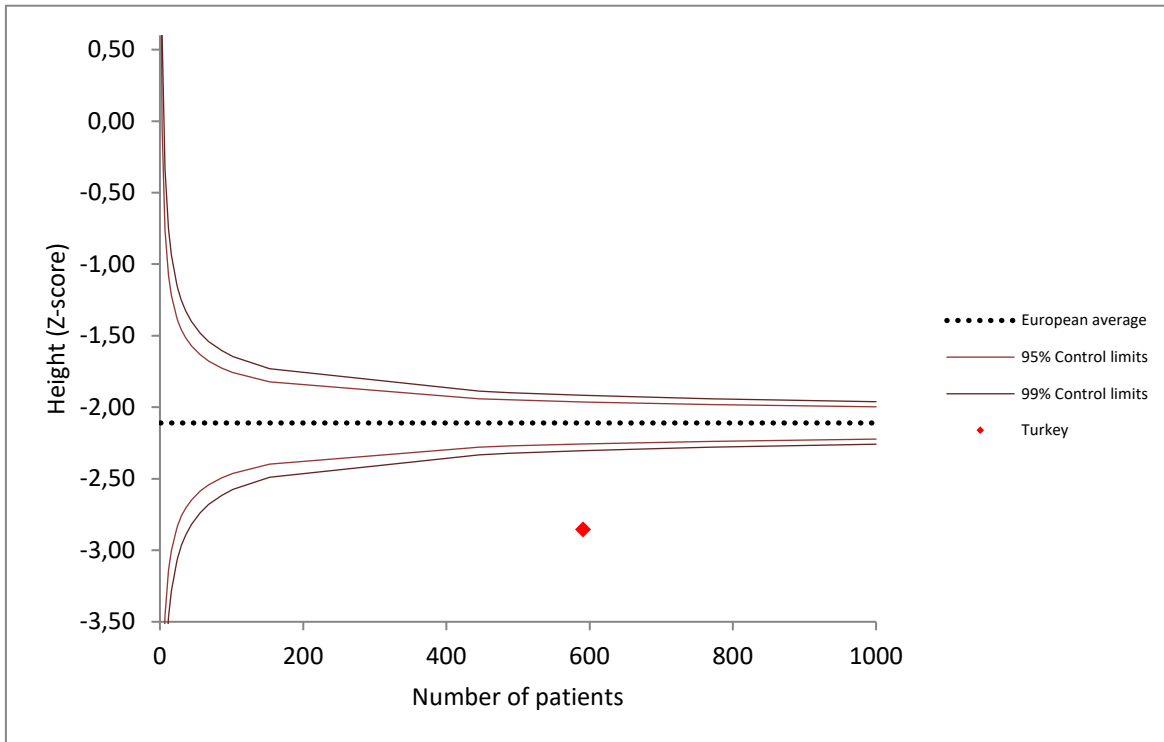
## Age-adjusted proportion of transplant patients with hypertension (systolic or diastolic pressure Z-score > 1.64)



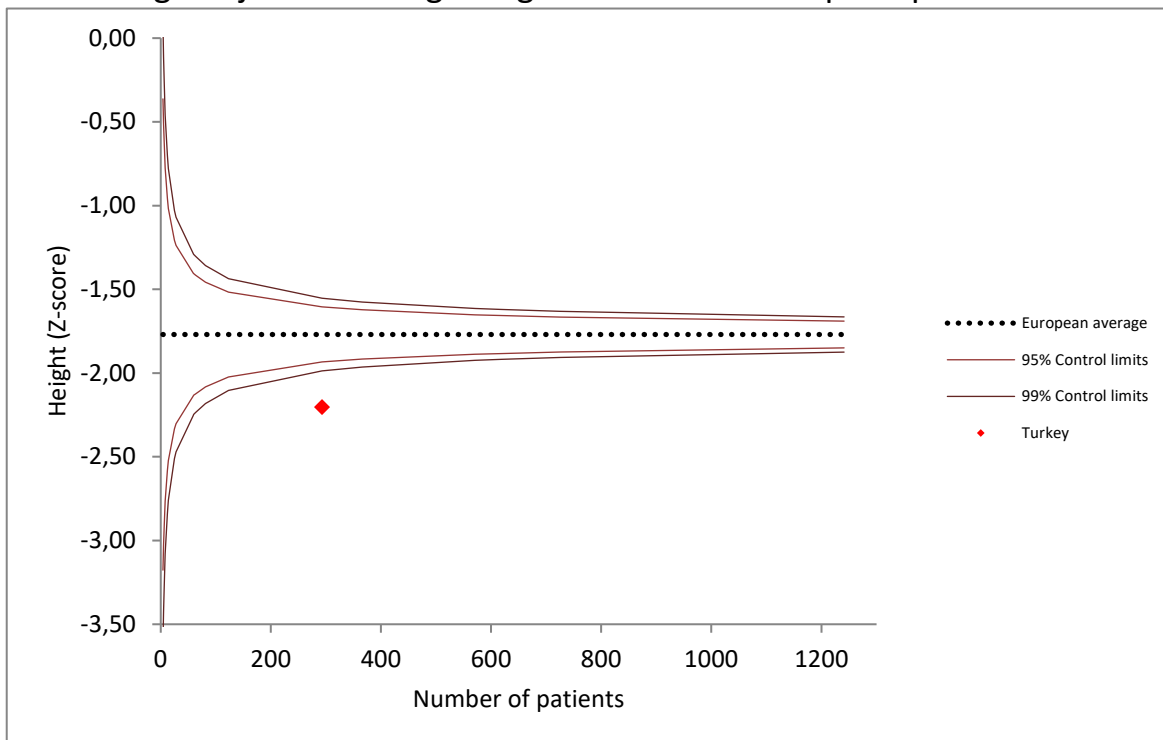


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## Age-adjusted average height Z-score for dialysis patients



## Age-adjusted average height Z-score for transplant patients



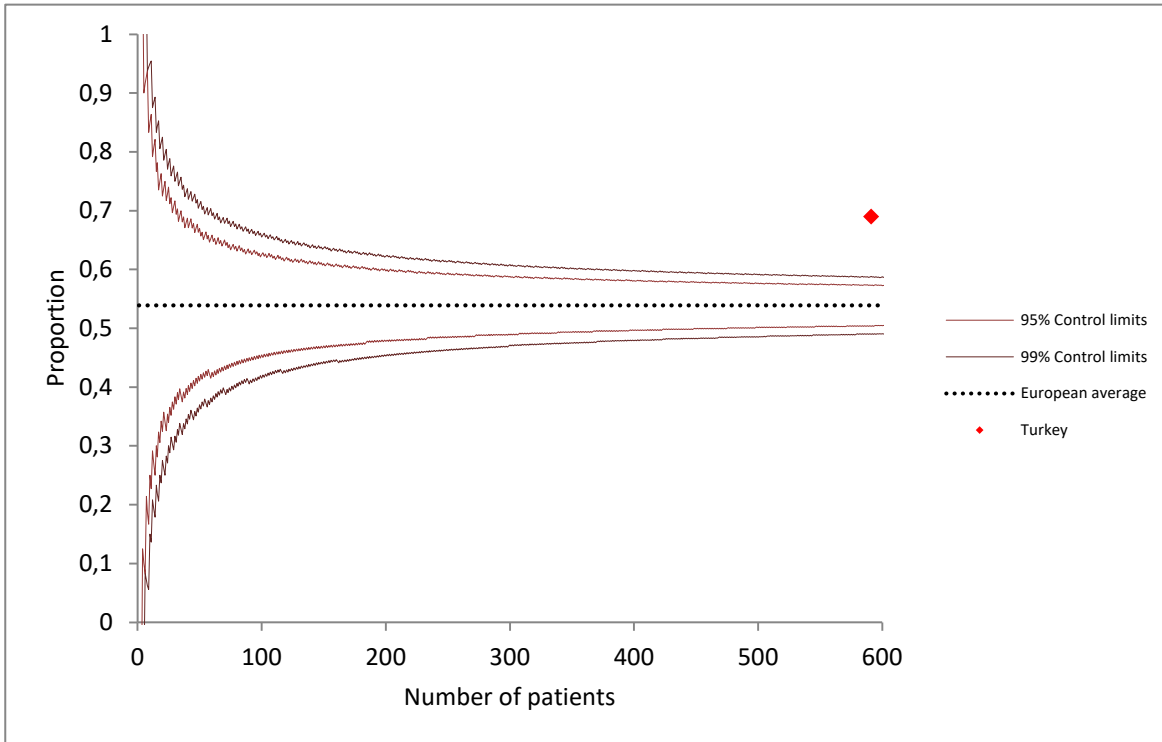
Height SDS was calculated according recent national or European growth charts (Bonhuis et al.

Use of National and International growth charts for studying height in European children: development of up-to-date European height-for-age charts.

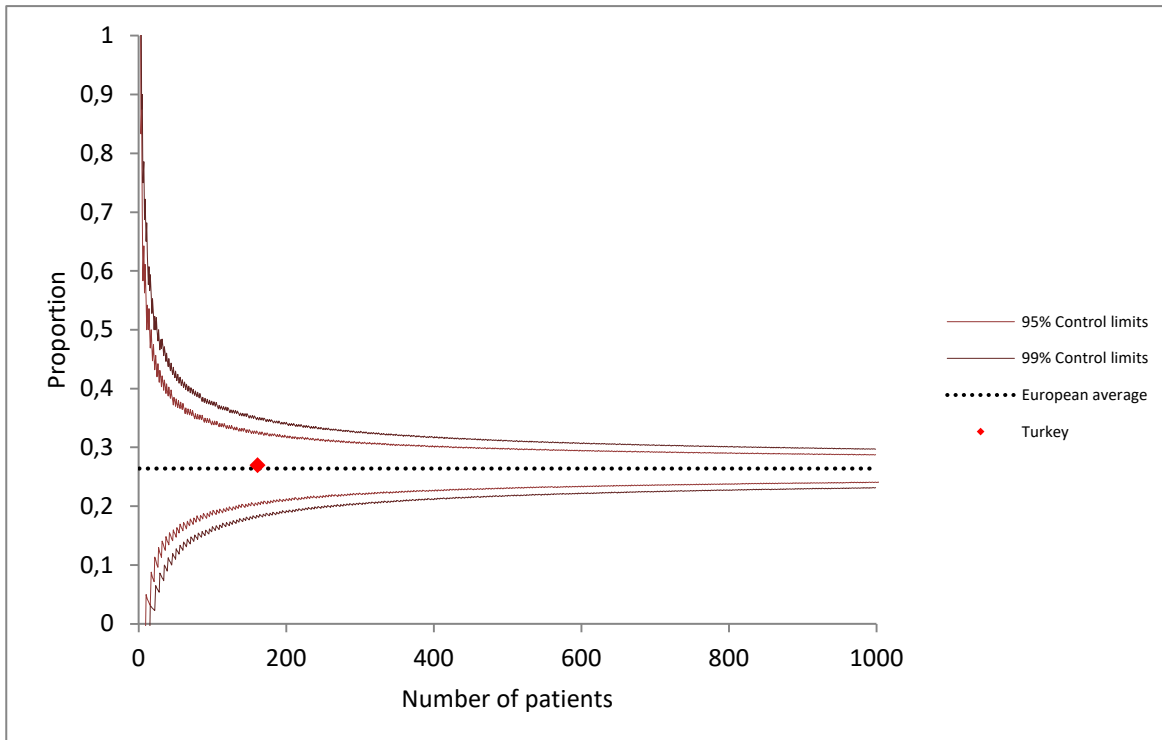
PLoS ONE 2012; 7(8): e42506)

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## Age-adjusted proportion of dialysis patients with a height Z-score below -2

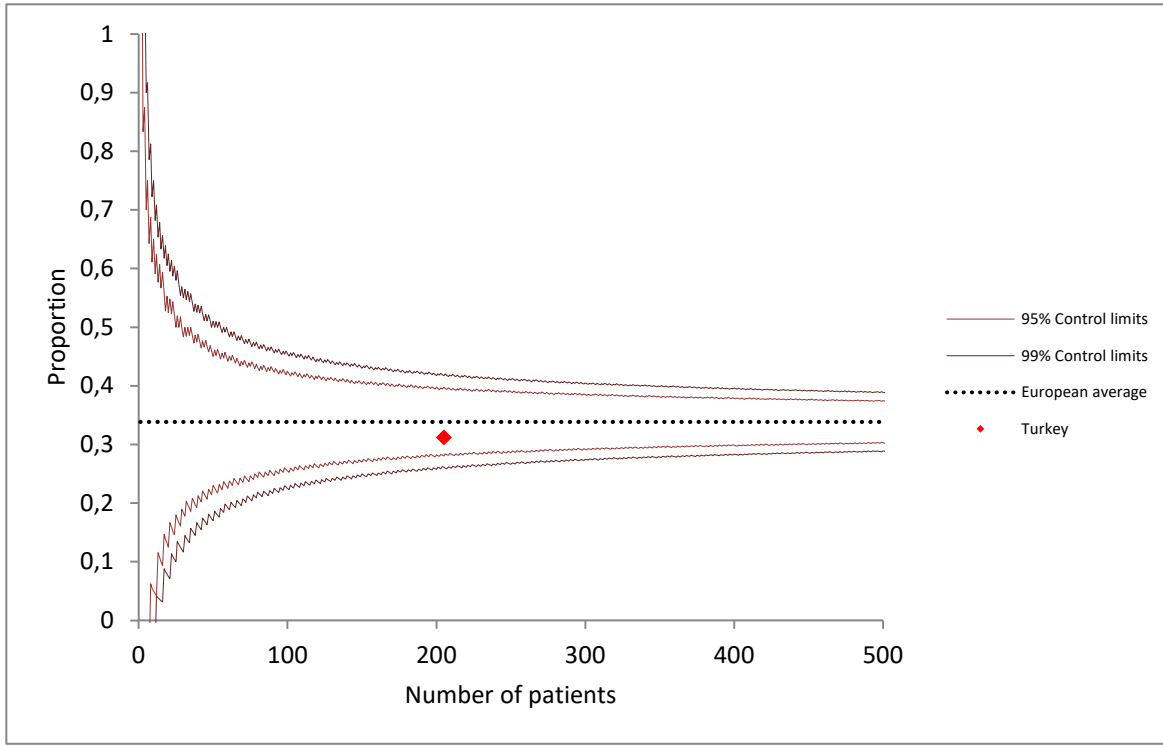


## Age-adjusted proportion of transplant patients with a height Z-score below -2

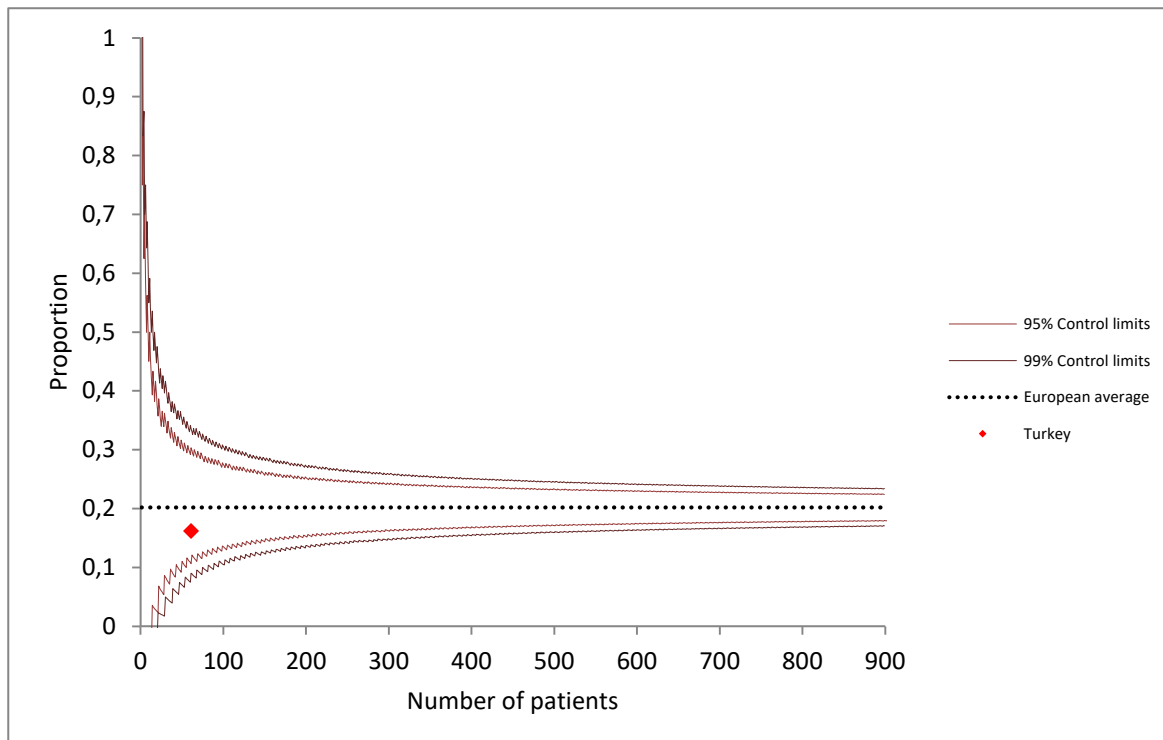


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## Age-adjusted proportion of dialysis patients with hypercholesterolemia (>200 mg/dl)

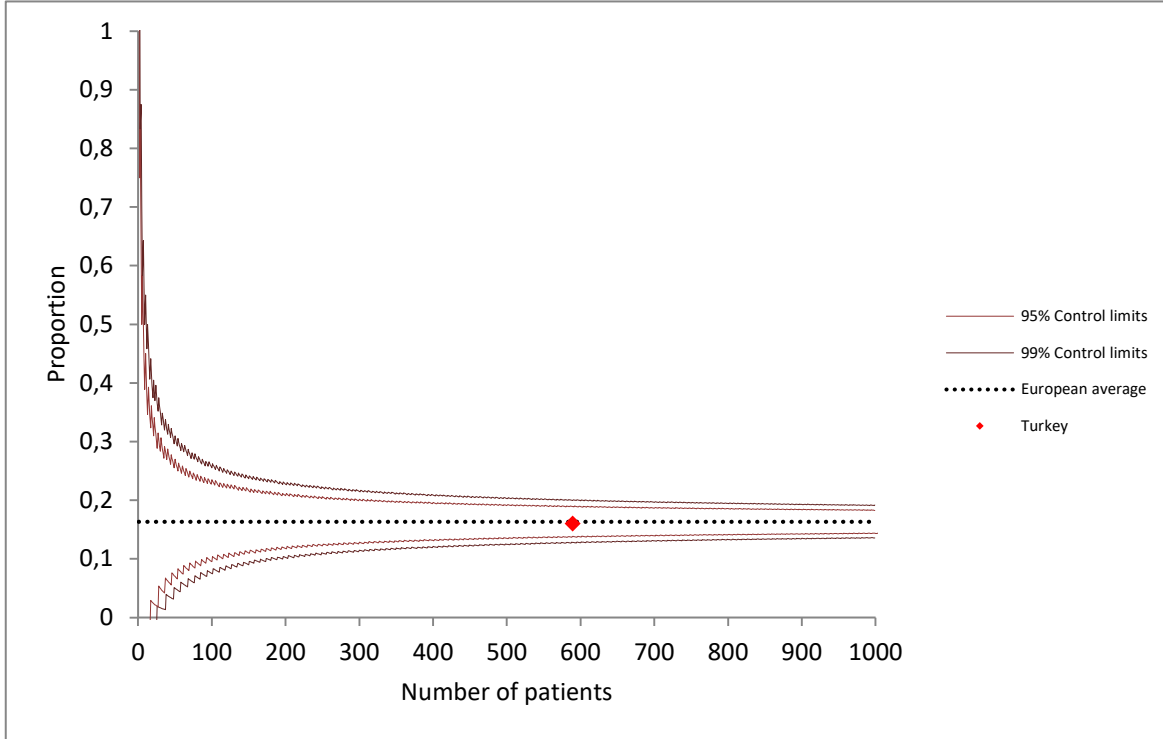


## Age-adjusted proportion of transplant patients with hypercholesterolemia (>200 mg/dl)

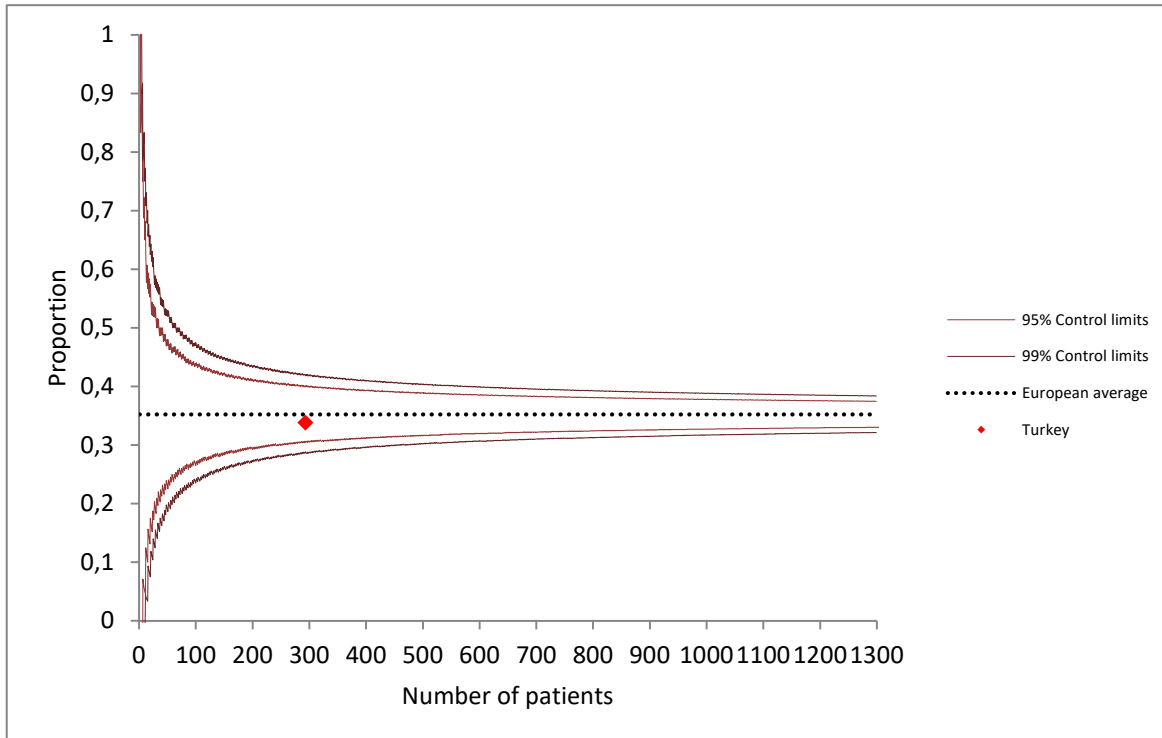


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## Age-adjusted proportion of dialysis patients with overweight (BMI\*)



## Age-adjusted proportion of transplant patients with overweight (BMI\*)



\* For children <2 years, overweight was defined as Z-score > 2 based on WHO growth standards.

For older patients, BMI was expressed according to height-age and categorized according to cut-offs defined by the International Obesity Taskforce

## Appendix

### *Incidence and prevalence*

Incidence is a measure for the number of new paediatric patients starting KRT during the given year. KRT incidence is calculated for each country by dividing the number of new patients by the total paediatric population in a country, and is presented per million age-related population. Prevalence is a measure for the number of patients currently on KRT at a given point in time, and is calculated by dividing the current number of patients on KRT on December the 31st of the given year, by the total paediatric population, and is also presented per million age-related population.

### *Country estimates*

Country estimates for each clinical indicator are based on patient measurements collected since 2007 for patients aged 0-14 years, and are adjusted for the effect of age. As each patient may have several measurements over time, we adjusted for possible correlations between measurements within the same patient in each model. To achieve this, we used multi-level methods; country averages were calculated for continuous variables using linear mixed models, and patient proportions were calculated for binary variables using generalized estimating equations (GEE).

### *Funnel-plots*

Funnel plots are graphs that allow us to objectively compare the performance of individual countries. For each clinical indicator, country estimates (y-axis) are plotted against the number of patients (x-axis). The 95% and 99% control limits (which correspond to 2 and 3 standard deviations, respectively) form a 'funnel' around the European average. Countries that fall outside these limits are doing either better or worse compared to the European average.

In countries with a small number of patients, estimates may be imprecise as increased variability is expected from smaller sample sizes. To avoid having countries fall outside of the control limits due to random variation alone, we calculated the exact binomial control limits for proportions. This causes the jagged control limits seen in the funnel plots, as not all proportions are possible with smaller volumes of patients. To avoid having countries fall precisely on the control limit, and to adopt a more conservative approach, we widened the control limits by either subtracting (for the lower control limits) or adding (for the upper control limits) 0.5 to the number of patients.