

How consistent are Anti-Infective Drug Dosing Recommendations across three European Paediatric Formularies?

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Aim

Drug dosing recommendations in paediatrics are mainly based on age and bodyweight. Due to the limited amount of label information, several paediatric drug formularies have been developed. This study compares anti-infective dosing recommendations across three European paediatric formularies.

Methods

Population growth curves were used to simulate a child for each month from one month up to 18 years of age. The recommendations from each formulary were used to calculate doses for each simulated child. Difference and equivalence ($\leq 10\%$ difference) in calculated daily doses were analysed.

The following three paediatric formularies were compared:

GPF – German Pediatric Formulary

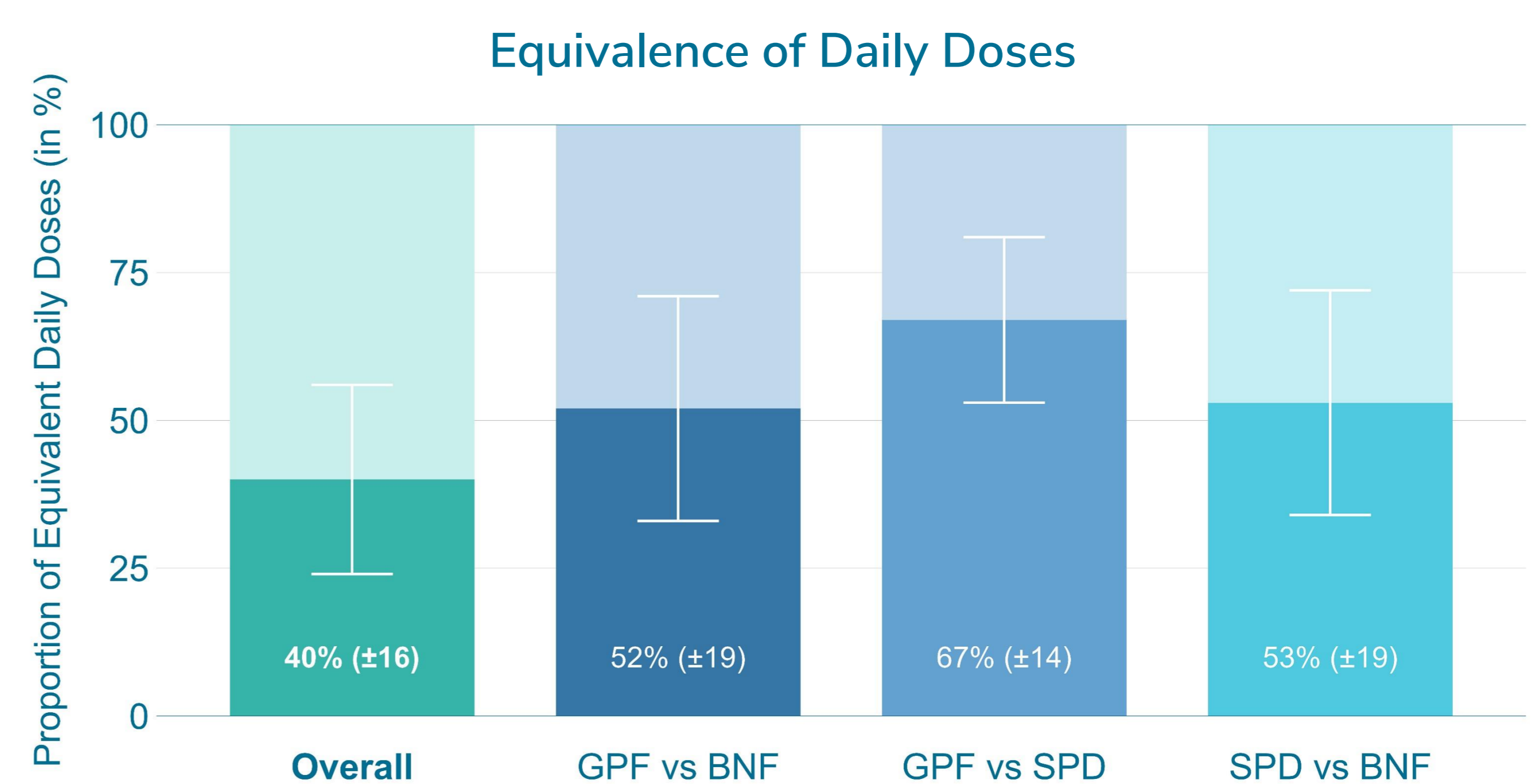
SPD – SwissPedDose

BNF – British National Formulary for Children

The overall comparison represents the intersection of all three formularies.

Results

Dosing recommendations for 34 anti-infective substances were collected with 74 corresponding indications, which resulted in 47'154 calculated doses. The difference of 75% of all calculated doses were $\leq 17\%$ for GPF vs SPD and $\leq 33\%$ for the comparisons of both SPD vs BNF and GPF vs BNF.

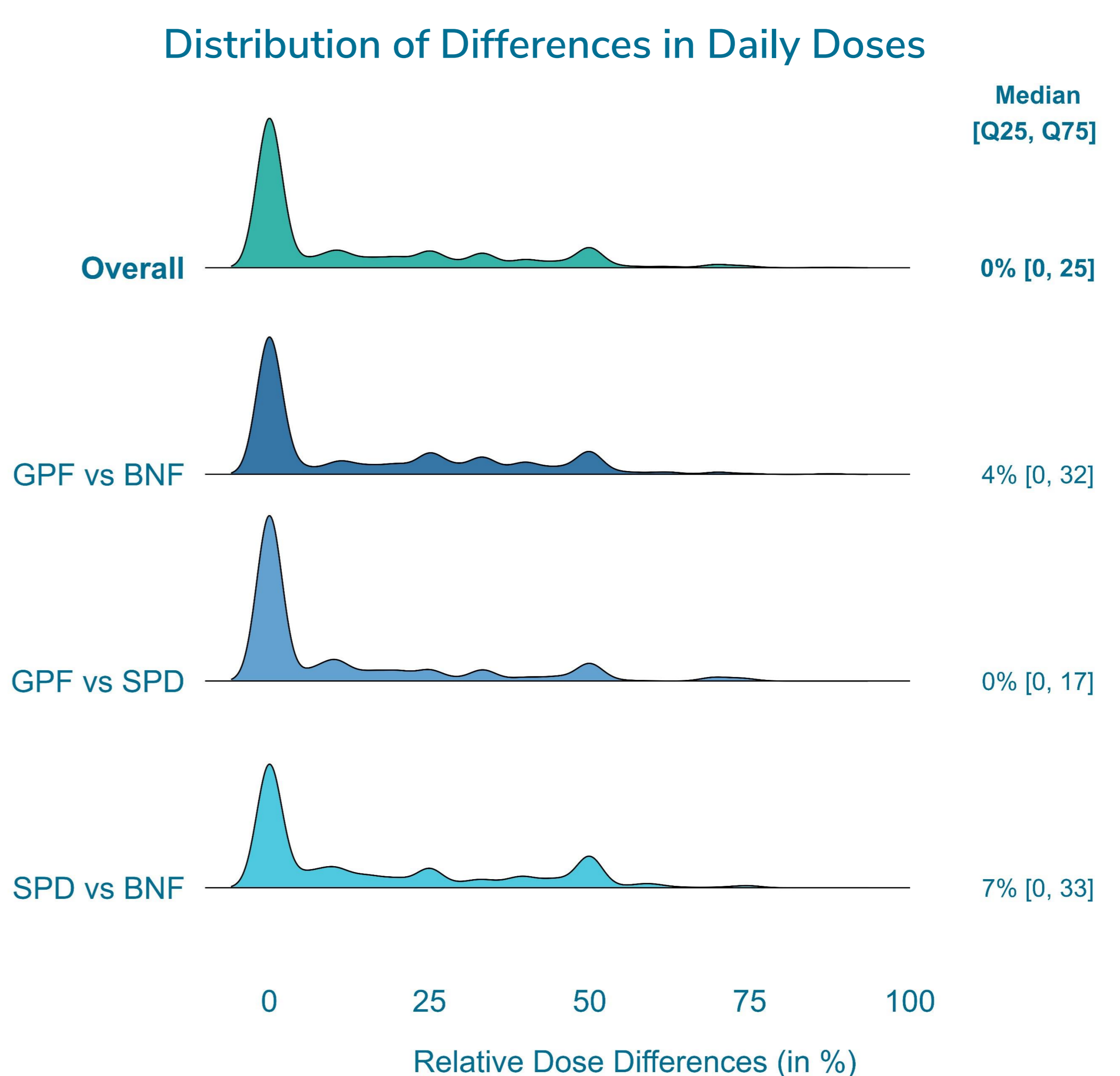


A difference in relative daily doses of $\leq 10\%$ was used to define equivalence. The proportion of equivalent doses was calculated from 1 month to 18 years

Dosing Strategies across Formularies



Dosing strategies defined in the monographs for different substances. Multiple strategies might be present for different indications or age groups.



Density plot of the distribution of relative dose differences across indications and all ages from 1 month to 18 years.

Conclusion

The majority of the recommended anti-infective drug doses compared in this analysis were consistent. The highest equivalence was seen between the GPF and the SPD, with two-thirds of dosages found to be equivalent. Maintaining formularies is resource intensive, therefore, a common standard in Europe could prove beneficial when moving towards digitalised healthcare systems.