

AN INNOVATIVE BIG-DATA LOW-COST APPROACH TO PRODUCE BIOMETRIC CHARTS: THE EXAMPLE OF FRENCH REFERENCE GROWTH CURVES

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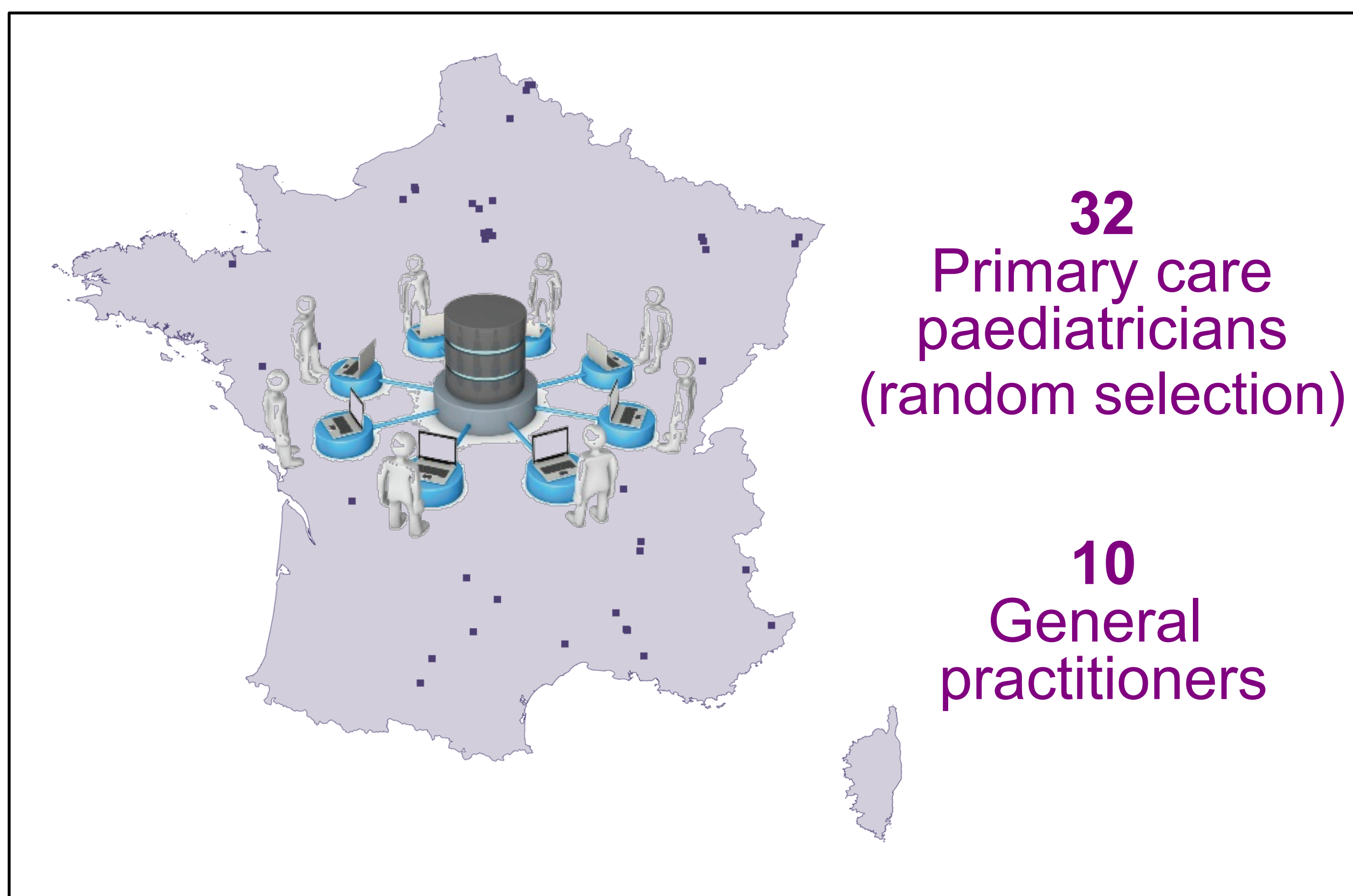
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Background and objective

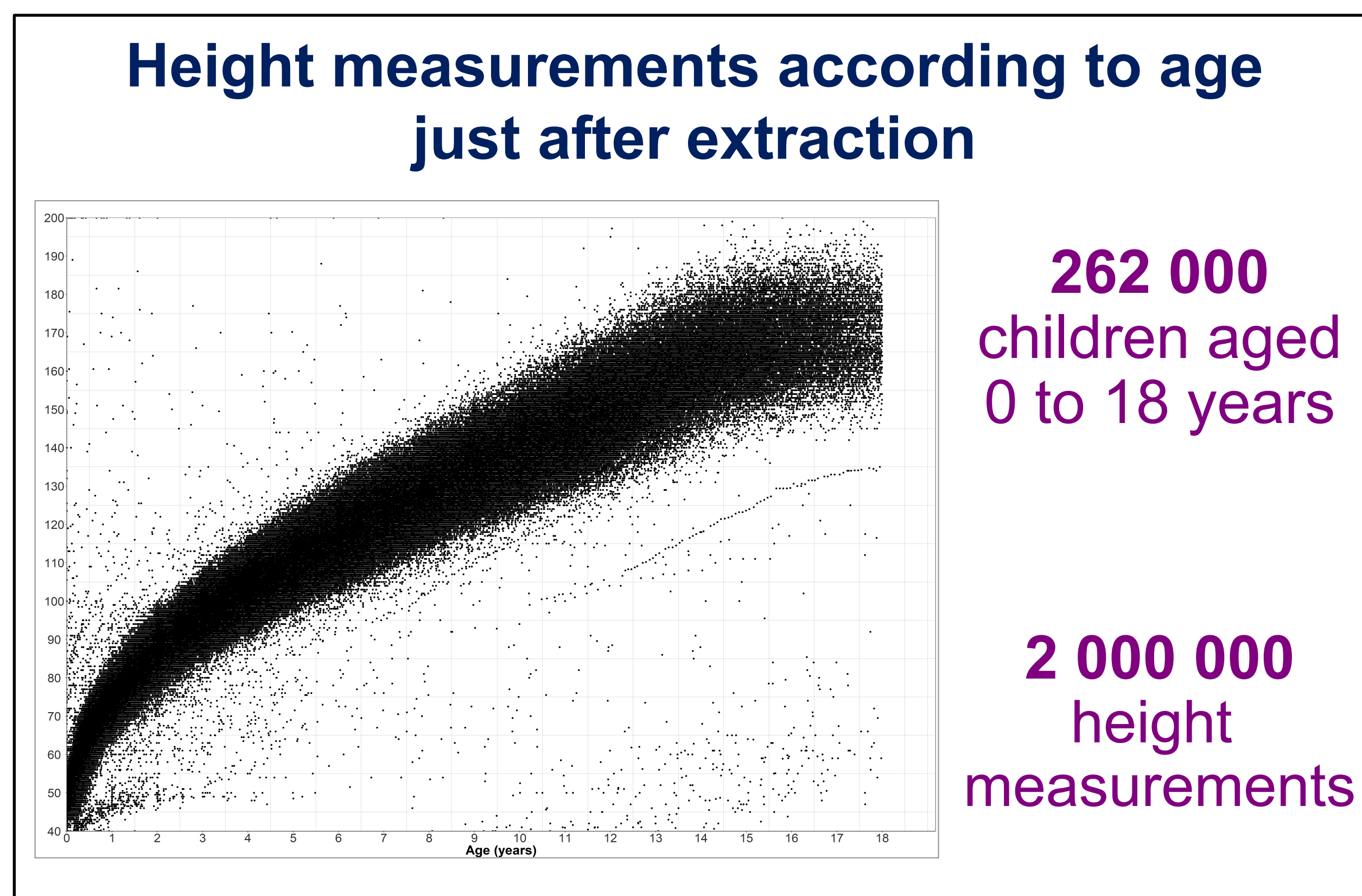
WHO's and old national growth charts were demonstrated to be poorly calibrated with the growth of contemporary children in many countries. **Our objective was to propose an innovative big data approach to generate calibrated growth charts** in a context of limited financial resources and nearly unlimited auxological data routinely collected by office-based practitioners.

Conclusion

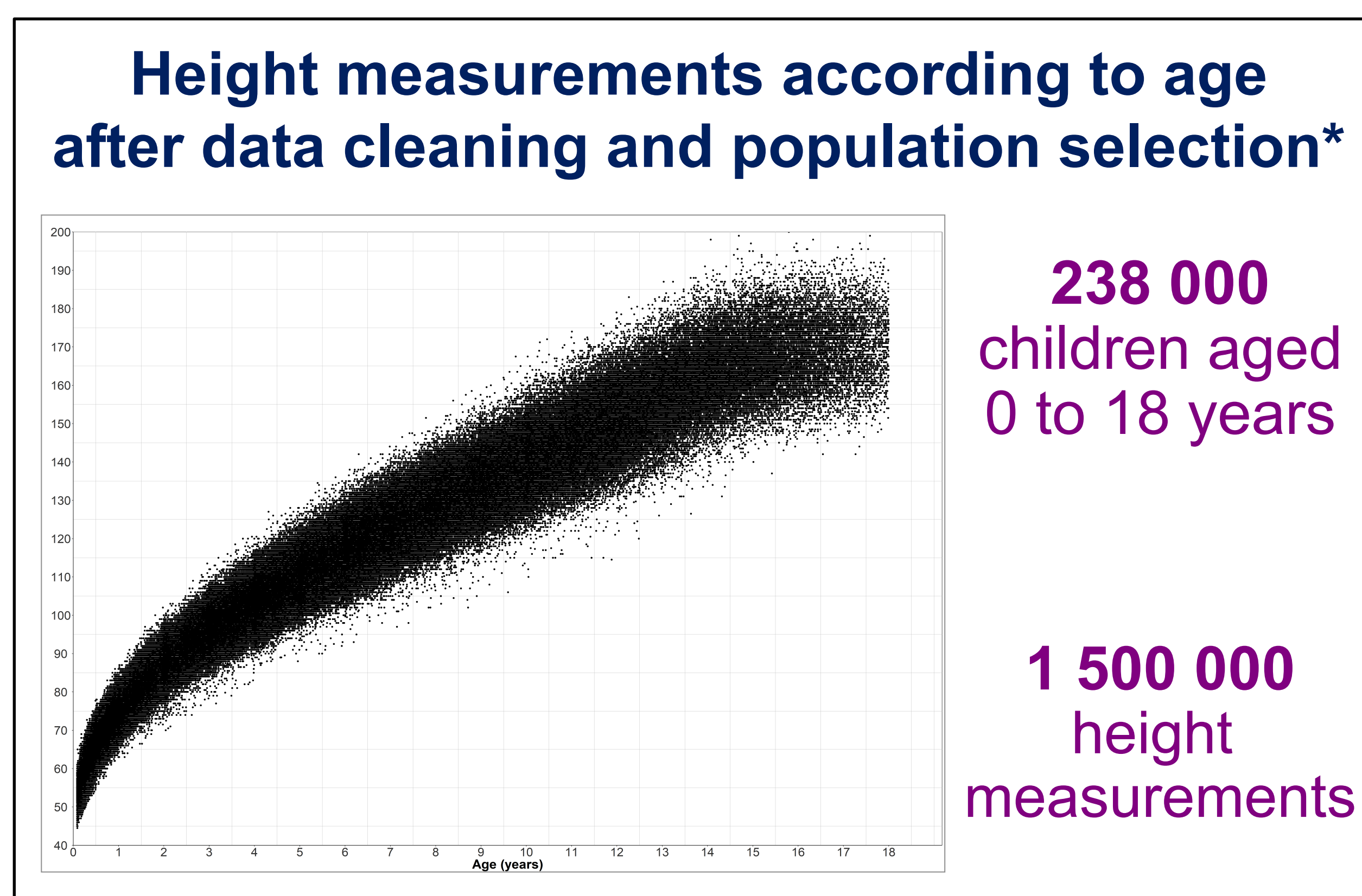
We demonstrated for the first time the **feasibility of a new method to produce any biometric charts** that could be re-used in other settings. These new calibrated growth charts will be used nationally as soon as March 2018 in the child's health booklets.



Automatic extraction of all auxological data from their files

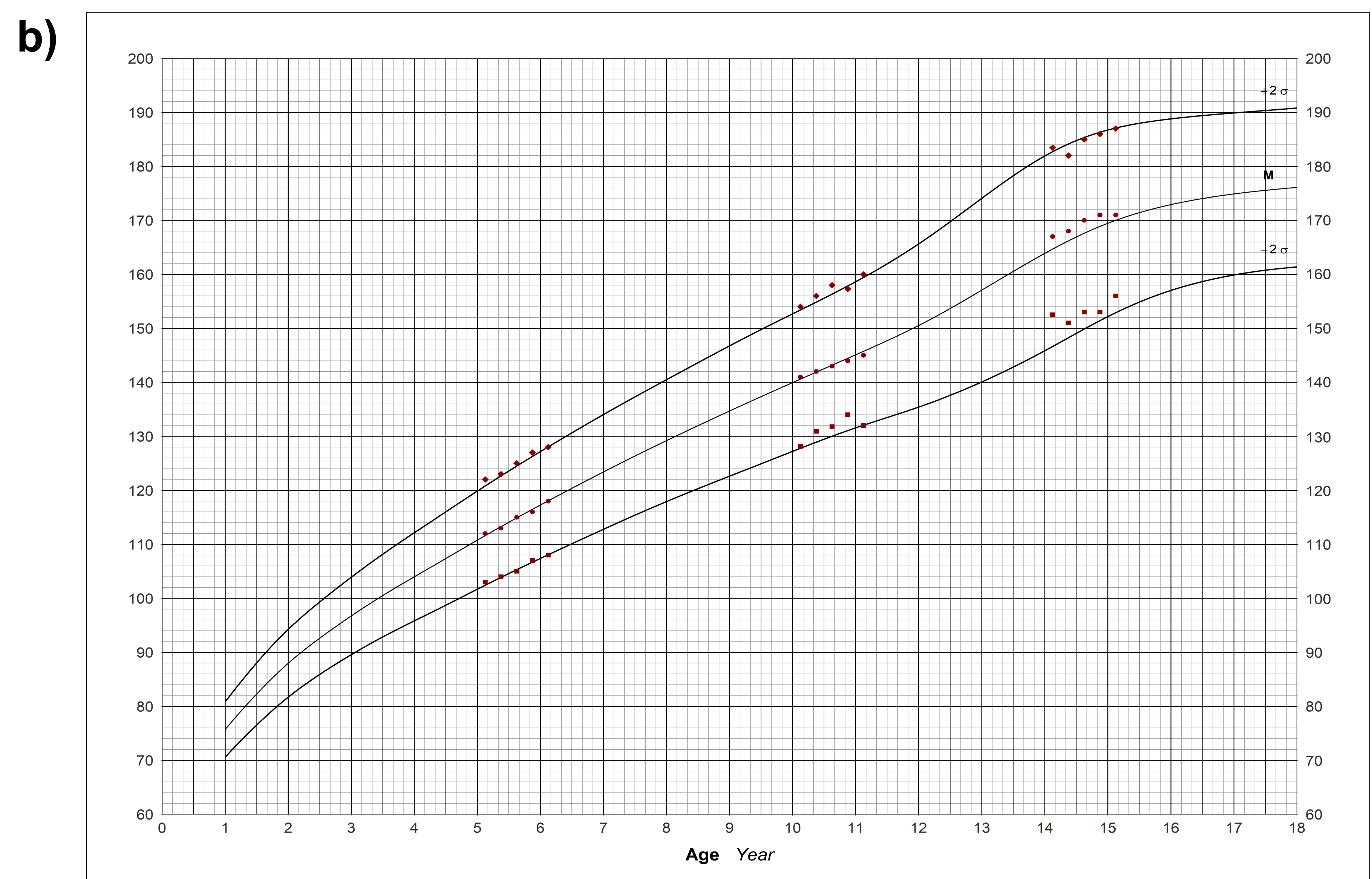
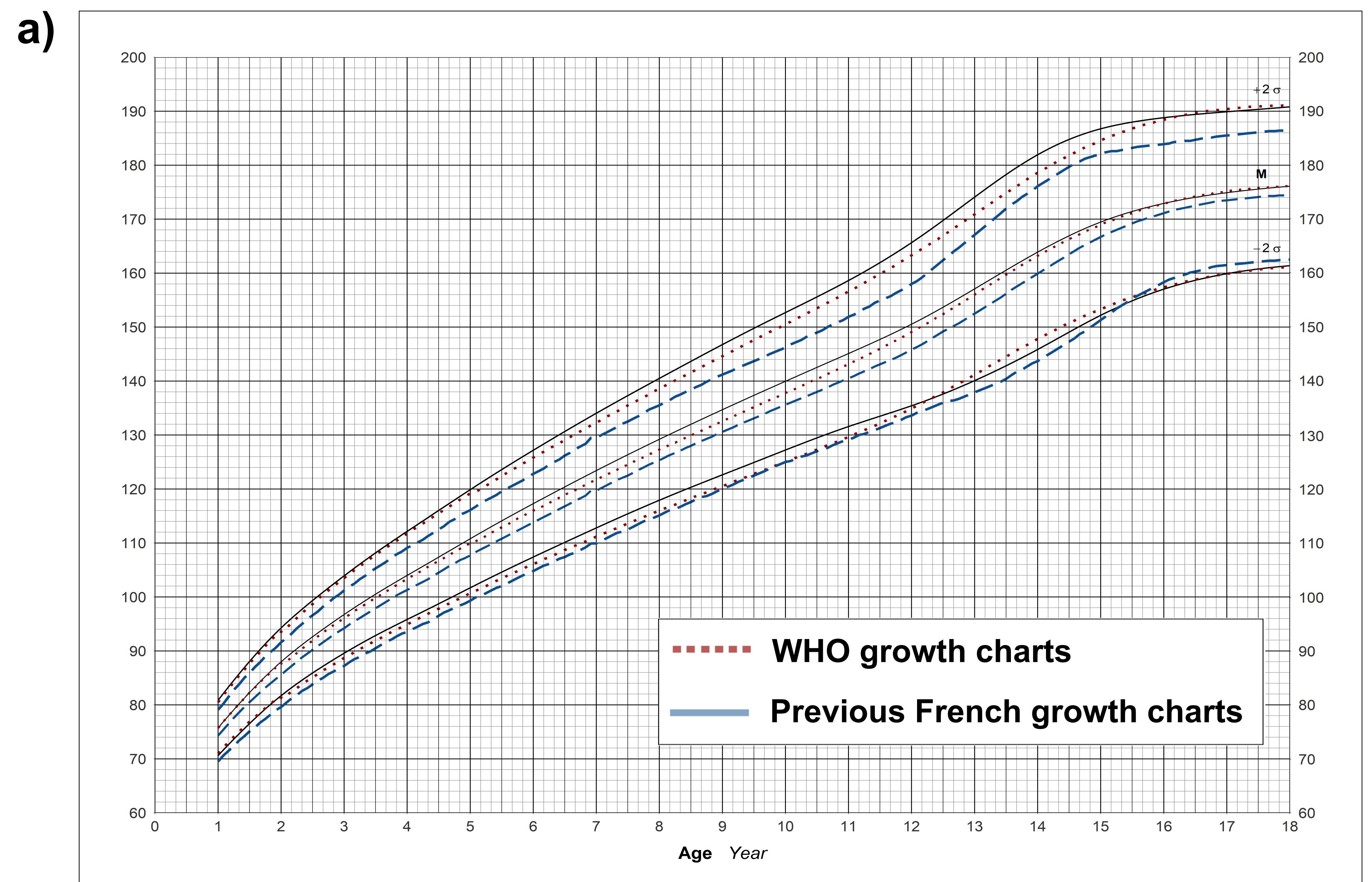


Elaboration of an automated process for eliminating transcription errors and/or pathological values



*Children born before 1990, with a birthweight <2500g or with a too large number of visits were excluded from the study population

Height French reference growth charts in boys, compared to a) existing growth charts b) auxological data from national cross-sectional surveys



- Growth charts for weight, height and head circumference derived by the **Box-Cox Power Exponentiel method using GAMLSS models**
- Elaboration of algorithms for optimising computational time (on average 5h per chart)