

Contents

Executive summary	xvii
1. Introduction	1
2. Methodology	3
2.1 Design of the WHO Multicentre Growth Reference Study	3
2.2 Anthropometry methods	3
2.3 Sample description	4
2.4 Data cleaning procedures and exclusions	5
2.5 Statistical methods for constructing the growth curves	7
3. Construction of the length/height-for-age standards	13
3.1 Indicator-specific methodology	13
3.2 Length/height-for-age for boys	13
3.2.1 Sample size	13
3.2.2 Model selection and results	14
3.2.3 WHO standards and their comparison with NCHS and CDC 2000 references	32
Charts	33
Tables	37
Comparison with NCHS	45
Comparison with CDC 2000	46
3.3 Length/height-for-age for girls	47
3.3.1 Sample size	47
3.3.2 Model selection and results	47
3.3.3 WHO standards and their comparison with NCHS and CDC 2000 references	59
Charts	60
Tables	64
Comparison with NCHS	72
Comparison with CDC 2000	73
3.4 Comparisons between boys and girls	74
3.4.1 WHO	75
3.4.2 NCHS	76
3.4.3 CDC 2000	77
4. Construction of the weight-for-age standards	79
4.1 Indicator-specific methodology	79
4.2 Weight-for-age for boys	79
4.2.1 Sample size	79
4.2.2 Model selection and results	79
4.2.3 WHO standards and their comparison with NCHS and CDC 2000 references	94
Charts	95
Tables	97
Comparison with NCHS	105
Comparison with CDC 2000	106
4.3 Weight-for-age for girls	107
4.3.1 Sample size	107
4.3.2 Model selection and results	107
4.3.3 WHO standards and their comparison with NCHS and CDC 2000 references	122
Charts	123
Tables	125
Comparison with NCHS	133
Comparison with CDC 2000	134
4.4 Comparisons between boys and girls	135
4.4.1 WHO	136
4.4.2 NCHS	137

4.4.3	CDC 2000	138
5.	Construction of the weight-for-length and weight-for-height standards	139
5.1	Indicator-specific methodology	139
5.2	Weight-for-length/height for boys	139
5.2.1	Sample size	139
5.2.2	Model selection and results	140
5.2.3	WHO standards and their comparison with NCHS and CDC 2000 references	153
Charts		154
Tables		158
Comparison with NCHS		176
Comparison with CDC 2000		178
5.3	Weight-for-length/height for girls	180
5.3.1	Sample size	180
5.3.2	Model selection and results	180
5.3.3	WHO standards and their comparison with NCHS and CDC 2000 references	194
Charts		195
Tables		199
Comparison with NCHS		217
Comparison with CDC 2000		219
5.4	Comparisons between boys and girls	221
5.4.1	WHO	222
5.4.2	NCHS	224
5.4.3	CDC 2000	226
6.	Construction of the body mass index-for-age standards	229
6.1	Indicator-specific methodology	229
6.2	BMI-for-age for boys	230
6.2.1	Sample size	230
6.2.2	Model selection and results	230
Length-based BMI-for-age for boys		230
Height-based BMI-for-age for boys		241
6.2.3	WHO standards and their comparison with CDC 2000 reference	249
Charts		250
Tables		254
Comparison with CDC 2000		262
6.3	BMI-for-age for girls	263
6.3.1	Sample size	263
6.3.2	Model selection and results	263
Length-based BMI-for-age for girls		263
Height-based BMI-for-age for girls		275
6.3.3	WHO standards and their comparison with CDC 2000 reference	284
Charts		285
Tables		289
Comparison with CDC 2000		297
6.4	Comparisons between boys and girls	298
6.4.1	WHO	299
6.4.2	CDC 2000	300
7.	Computation of centiles and z-scores for length/height-for-age, weight-for-age, weight-for-length, weight-for-height and BMI-for-age	301
8.	Conclusion	305
9.	Bibliography	309
	Appendix A. Model specifications of the WHO child growth standards	312