JAMES manual

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Chapter 1

Prerequisites

This is very, very first minimal documentation of JAMES internals.

Chapter 2

Introduction

Here's an introduction about JAMES

Chapter 3

Growth charts in JAMES

3.1 Chart naming conventions

The link https://groeidiagrammen.nl/ocpu/lib/james/www/ contains an interactive overview of the available growth charts. There are 342 different charts: for boys and girls, for preterms, for different age ranges, for specific ethnic groups, for height, weight, BMI, and so on. Each chart design has a `chartcode`, a character code identifying the design. This section explains the construction of the chart codes.

The GitHub repository https://github.com/stefvanbuuren/chartbox contains the chart libraries that are available to JAMES. The `list_charts()` function produces a tabular overview.

```
charts <- chartbox::list_charts()
dim(charts)
```

```
## [1] 342   8
```

```
charts[c(1, 22, 23, 300, 301, 340), ]
```

```
##     chartgrp chartcode population    sex design  side language week
## 1     nl2010      HJAA         HS   male      A front    dutch
## 22    nl2010      HMBH         HS female      B   hgt    dutch
## 23    nl2010      HMBR         HS female      B   wfh    dutch
## 300  preterm   PMEAN32         PT female      E front    dutch   32
## 301  preterm   PMEAN33         PT female      E front    dutch   33
## 340      who      WMBA    WHOpink female      B front    dutch
```

The `chartbox` package currently contains three chart groups: `nl2010`, `preterm` and `who`. Each groups collects charts of a similar type.

Chart Group	Charts	Chart code	Description	Source
`nl2010`	136	CCCC	Dutch children 0-21 years, including minorities	Talma et al. (2010)
`preterm`	192	CCCCCNN	Dutch preterms, ga <= 36 weeks, 0-4 years	Bocca-Tjeertes et al. (2012
`who`	14	CCCC	WHO Child Growth Standards 0-4 years	WHO

The chart code is an alpha-numeric code of four (for `nl2010` and `who`) or seven (for `preterm`) that uniquely identifies each of the charts. The table below specifies the full coding schema used to construct the chartcodes.

Position	Field	Value	Description
1	Population	N	Dutch
		T	Turkish
		M	Moroccan
		H	Hindostan
		P	Preterm
		W	WHO
2	Sex	J	Male
		M	Female
3	Design	A	0-15 months
		B	0-4 years, WFH
		C	1-21 years
		D	0-21 years
		E	0-4 years, WFA
4	Side	A	A4, front
		B	A4, back
		C	A4, back, no `hdc`
		H	square, `hgt`
		O	square, `hdc`
		Q	square, `bmi`
		R	square, `wfh`
		W	square, `wgt`
		X	A4, double sided
5	Language	N	Dutch
		E	English
6-7	Week	25-36	Gestational age

For example, code `NJAA` reference to Dutch (`N`), boys (`J`), 0-15 month (`A`), front side (`A`). Likewise, `PMEAN33` codes for the chart of preterm (`M`), girls (`M`), 0-4 years (`E`), front side (`A`), Dutch language (`N`) born at 33 weeks of gestation (`33`).

Some forms hold multiple growth charts. For example, the `NJAA` chart is designed for a A4 paper size (297mm × 210mm) and holds three growth charts: head circumference by age, length by age, and weight by age. Some others no

chart, like `NJAB` with explanations. All square formats holds one growth chart. All of square format have equal sizes (160mm × 160mm).

The measures per design-form combination are listed in the following table.

Design	Side	Measure	Description
A	A	hdc	Head circumference by age, 0-15 mo
		hgt	Length by age, 0-15 mo
		wgt	Weight by age, 0-15 mo
	B		
	H	hgt	Length by age, 0-15 mo
	O	hdc	Head circumference by age, 0-15 mo
	W	wgt	Weight by age, 0-15 mo
B	A	wfh	Weight for height, 0-4 yr
		hgt	Length by age, 0-4 yr
	B	hdc	Head circumference by age, 0-4 yr
	C		
	H	hgt	Height by age, 0-4 yr
	O	hdc	Head circumference by age, 0-4 yr
	R	wfh	Weight for height, 0-4 yr
	W	wgt	Weight by age, 0-4 yr
C	A	wfh	Weight for height, 1-21 yr
		hgt	Height by age, 1-21 yr
	B	bmi	BMI by age, 1-21 yr
		hdc	Head circumference by age, 1-21 yr
	C	bmi	BMI by age, 1-21 yr
	H	hgt	Height by age, 1-21 yr
	O	hdc	Head circumference by age, 1-21 yr
	Q	bmi	Body mass index by age, 1-21 yr
	R	wfh	Weight for height, 1-21 yr
E	A	wgt	Weight by age, 0-4 yr
		hgt	Height by age, 0-4 yr
	B	hdc	Head circumference by age, 0-4 yr
	H	hgt	Height by age, 0-4 yr
	O	hdc	Head circumference by age, 0-4 yr
	W	wgt	Weight by age, 0-4 yr

Chapter 4

Methods

We describe our methods in this chapter.

Bibliography

Bocca-Tjeertes, I., van Buuren, S., Bos, A., Kerstens, J., ten Vergert, E., and Reijneveld.S.A. (2012). Growth of preterm and fullterm children aged 0-4 years: Integrating median growth and variability in growth charts. *Journal of Pediatrics*, 161(3):460–465.

Talma, H., Schonbeck, Y., Bakker, B., Hirasing, R., and van Buuren, S. (2010). *Groeidiagrammen 2010: Handleiding bij het meten en wegen van kinderen en het invullen van groeidiagrammen*. TNO Kwaliteit van Leven, Leiden.