

## Bijlage bij richtlijn voor kosteneffectiviteitsmodellen in R: packages en versies

### Bijlage A: Toegestane packages en versies

Ondersteunende packages omvatten packages die het mogelijk maken om efficiënt het script voor verschillende analyses te kunnen draaien (bv. readxl). Voorbereidende packages omvatten packages die gebruikt kunnen worden om inputparameters te schatten voor het KE-model. Dit kan uiteenlopen van standaard statistische methoden zoals lineaire regressies (lm) tot aan packages die meer geavanceerde technieken bevatten zoals generalized linear models (glm), mixed models (lmer), cox regressiemodellen (coxph) en survival analyse (survfit). Een deel van deze statistische methoden is al onderdeel van de standaard functionaliteit van R (base R). Daarnaast kunnen verschillende packages worden gebruikt om het model te bouwen en/of deterministische gevoeligheidsanalyses (DSA), probabilistische gevoeligheidsanalyses (PSA) en value of information (VOI) analyses uit te voeren of resultaten uit deze analyses te visualiseren. Afhankelijk van welk package er wordt gebruikt, kunnen verschillende modellen worden gebouwd, waaronder beslisbomen, Markov modellen, state-transition modellen, partitioned survival modellen en microsimulatie modellen.

De lijst hieronder is de lijst die op dit moment de packages bevat die geaccepteerd worden door het Zorginstituut om KE-modellen mee te bouwen. De lijst met packages alsook de versies van de packages kunnen regelmatig worden bijgewerkt. Daarom wordt geadviseerd om contact op te nemen met het Zorginstituut voordat er een dossier wordt ingediend met een KE-model in R.

Nr	Name	CRAN link	Version
2	Amelia	<a href="https://cran.r-project.org/web/packages/Amelia/index.html">https://cran.r-project.org/web/packages/Amelia/index.html</a>	TBA
3	BBmisc	<a href="https://cran.rstudio.com/web/packages/BBmisc/index.html">https://cran.rstudio.com/web/packages/BBmisc/index.html</a>	TBA
4	BCEA	<a href="https://cran.r-project.org/web/packages/BCEA/index.html">https://cran.r-project.org/web/packages/BCEA/index.html</a>	2.4.1
5	caTools	<a href="https://cran.r-project.org/web/packages/caTools/index.html">https://cran.r-project.org/web/packages/caTools/index.html</a>	TBA
6	cbsodataR	<a href="https://cran.r-project.org/web/packages/cbsodataR/index.html">https://cran.r-project.org/web/packages/cbsodataR/index.html</a>	TBA
7	checkpoint	<a href="https://cran.r-project.org/web/packages/muhaz/index.html">https://cran.r-project.org/web/packages/muhaz/index.html</a>	TBA
8	cmprsk	<a href="https://cran.r-project.org/web/packages/cmprsk/index.html">https://cran.r-project.org/web/packages/cmprsk/index.html</a>	TBA
9	dampack	<a href="https://cran.rstudio.com/web/packages/dampack/index.html">https://cran.rstudio.com/web/packages/dampack/index.html</a>	1.0.1
10	data.table	<a href="https://cran.r-project.org/web/packages/data.table/index.html">https://cran.r-project.org/web/packages/data.table/index.html</a>	1.14.2
11	des	<a href="https://cran.r-project.org/web/packages/DES/index.html">https://cran.r-project.org/web/packages/DES/index.html</a>	TBA
12	diagram	<a href="https://cran.r-project.org/web/packages/diagram/index.html">https://cran.r-project.org/web/packages/diagram/index.html</a>	TBA
13	DiagrammeR	<a href="https://cran.r-project.org/web/packages/DiagrammeR/index.html">https://cran.r-project.org/web/packages/DiagrammeR/index.html</a>	TBA
14	doPparallel	<a href="https://cran.r-project.org/web/packages/doParallel/index.html">https://cran.r-project.org/web/packages/doParallel/index.html</a>	TBA
15	doSNOW	<a href="https://cran.r-project.org/web/packages/doSNOW/index.html">https://cran.r-project.org/web/packages/doSNOW/index.html</a>	TBA
16	dplyr	<a href="https://cran.r-project.org/web/packages/dplyr/index.html">https://cran.r-project.org/web/packages/dplyr/index.html</a>	1.0.8
17	eha	<a href="https://cran.r-project.org/web/packages/eha/index.html">https://cran.r-project.org/web/packages/eha/index.html</a>	TBA
18	flexsurv	<a href="https://cran.r-project.org/web/packages/flexsurv/index.html">https://cran.r-project.org/web/packages/flexsurv/index.html</a>	2.1
19	flexsurvcure	<a href="https://cran.r-project.org/web/packages/flexsurvcure/index.html">https://cran.r-project.org/web/packages/flexsurvcure/index.html</a>	TBA
20	foreach	<a href="https://cran.r-project.org/web/packages/foreach/index.html">https://cran.r-project.org/web/packages/foreach/index.html</a>	1.5.2
21	foreign	<a href="https://cran.r-project.org/web/packages/foreign/index.html">https://cran.r-project.org/web/packages/foreign/index.html</a>	0.8-81
22	gee	<a href="https://cran.r-project.org/web/packages/gee/index.html">https://cran.r-project.org/web/packages/gee/index.html</a>	4.13-22
23	ggplot2	<a href="https://cran.r-project.org/web/packages/ggplot2/index.html">https://cran.r-project.org/web/packages/ggplot2/index.html</a>	3.3.5
1	gt	<a href="https://cran.r-project.org/web/packages/tidyverse/index.html">https://cran.r-project.org/web/packages/tidyverse/index.html</a>	TBA

24	heemod	<a href="https://cran.r-project.org/web/packages/heemod/index.html">https://cran.r-project.org/web/packages/heemod/index.html</a>	0.14.4
25	here	<a href="https://cran.r-project.org/web/packages/here/index.html">https://cran.r-project.org/web/packages/here/index.html</a>	1.0.1
26	hesim	<a href="https://cran.r-project.org/web/packages/hesim/index.html">https://cran.r-project.org/web/packages/hesim/index.html</a>	0.5.2
27	igraph	<a href="https://cran.r-project.org/web/packages/igraph/index.html">https://cran.r-project.org/web/packages/igraph/index.html</a>	1.3.0
28	kableExtra	<a href="https://cran.r-project.org/web/packages/kableExtra/index.html">https://cran.r-project.org/web/packages/kableExtra/index.html</a>	TBA
29	knitr	<a href="https://cran.r-project.org/web/packages/knitr/index.html">https://cran.r-project.org/web/packages/knitr/index.html</a>	1.38
30	lme4	<a href="https://cran.r-project.org/web/packages/lme4/index.html">https://cran.r-project.org/web/packages/lme4/index.html</a>	1.1-29
31	MASS	<a href="https://cran.r-project.org/web/packages/MASS/index.html">https://cran.r-project.org/web/packages/MASS/index.html</a>	7.3-54
32	mc2d	<a href="https://cran.r-project.org/web/packages/mc2d/index.html">https://cran.r-project.org/web/packages/mc2d/index.html</a>	TBA
33	mi	<a href="https://cran.r-project.org/web/packages/mi/index.html">https://cran.r-project.org/web/packages/mi/index.html</a>	TBA
34	mice	<a href="https://cran.r-project.org/web/packages/mice/index.html">https://cran.r-project.org/web/packages/mice/index.html</a>	TBA
35	miceadds	<a href="https://cran.r-project.org/web/packages/miceadds/index.html">https://cran.r-project.org/web/packages/miceadds/index.html</a>	TBA
36	micemd	<a href="https://cran.r-project.org/web/packages/micemd/index.html">https://cran.r-project.org/web/packages/micemd/index.html</a>	TBA
37	missingHE	<a href="https://cran.r-project.org/web/packages/missingHE/index.html">https://cran.r-project.org/web/packages/missingHE/index.html</a>	TBA
38	msm	<a href="https://cran.r-project.org/web/packages/msm/index.html">https://cran.r-project.org/web/packages/msm/index.html</a>	1.6.9
39	mstate	<a href="https://cran.r-project.org/web/packages/mstate/index.html">https://cran.r-project.org/web/packages/mstate/index.html</a>	TBA
40	muhez	<a href="https://cran.r-project.org/web/packages/muhez/index.html">https://cran.r-project.org/web/packages/muhez/index.html</a>	1.2.6.4
41	mvtnorm	<a href="https://cran.r-project.org/web/packages/mvtnorm/index.html">https://cran.r-project.org/web/packages/mvtnorm/index.html</a>	1.1-3
42	nlme	<a href="https://cran.r-project.org/web/packages/nlme/index.html">https://cran.r-project.org/web/packages/nlme/index.html</a>	3.1-157
43	openxlsx	<a href="https://cran.r-project.org/web/packages/openxlsx/index.html">https://cran.r-project.org/web/packages/openxlsx/index.html</a>	TBA
44	parallel	<a href="https://cran.r-project.org/web/packages/parallelly/index.html">https://cran.r-project.org/web/packages/parallelly/index.html</a>	4.1.2
45	plotly	<a href="https://cran.r-project.org/web/packages/plotly/index.html">https://cran.r-project.org/web/packages/plotly/index.html</a>	4.10.0
46	readxl	<a href="https://cran.r-project.org/web/packages/readxl/index.html">https://cran.r-project.org/web/packages/readxl/index.html</a>	1.4.0
47	renv	<a href="https://cran.r-project.org/web/packages/renv/index.html">https://cran.r-project.org/web/packages/renv/index.html</a>	TBA
48	reshape	<a href="https://cran.r-project.org/web/packages/reshape/index.html">https://cran.r-project.org/web/packages/reshape/index.html</a>	TBA
49	reshape2	<a href="https://cran.r-project.org/web/packages/reshape2/index.html">https://cran.r-project.org/web/packages/reshape2/index.html</a>	1.4.4
50	rmarkdown	<a href="https://cran.r-project.org/web/packages/rmarkdown/index.html">https://cran.r-project.org/web/packages/rmarkdown/index.html</a>	2.13
51	scales	<a href="https://cran.r-project.org/web/packages/scales/index.html">https://cran.r-project.org/web/packages/scales/index.html</a>	1.1.1
52	shiny	<a href="https://cran.r-project.org/web/packages/shiny/index.html">https://cran.r-project.org/web/packages/shiny/index.html</a>	TBA
53	simmer	<a href="https://cran.r-project.org/web/packages/simmer/index.html">https://cran.r-project.org/web/packages/simmer/index.html</a>	TBA
54	survHE	<a href="https://cran.r-project.org/web/packages/survHE/index.html">https://cran.r-project.org/web/packages/survHE/index.html</a>	TBA
55	survival	<a href="https://cran.r-project.org/web/packages/survival/index.html">https://cran.r-project.org/web/packages/survival/index.html</a>	3.3-1
56	tidyr	<a href="https://cran.r-project.org/web/packages/tidyr/index.html">https://cran.r-project.org/web/packages/tidyr/index.html</a>	1.2.0
57	tidyverse	<a href="https://cran.r-project.org/web/packages/tidyverse/index.html">https://cran.r-project.org/web/packages/tidyverse/index.html</a>	1.3.1
58	VIM	<a href="https://cran.r-project.org/web/packages/VIM/index.html">https://cran.r-project.org/web/packages/VIM/index.html</a>	TBA