

DMreg på DST 707655

Bendix Carstensen Steno Diabetes Center
Gentofte, Denmark
<http://BendixCarstensen.com>

SDCC,
26 august 2020

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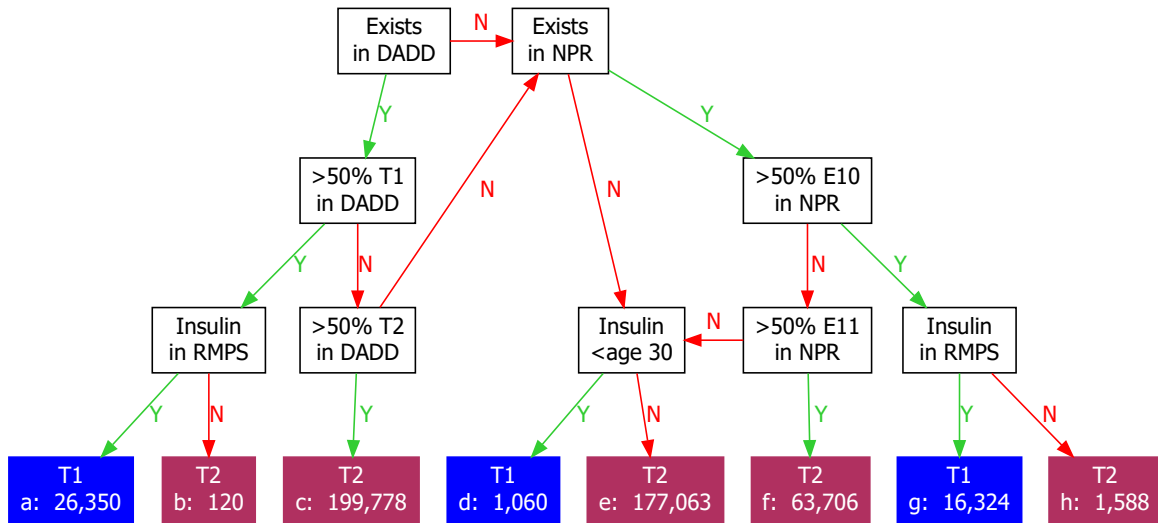
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- ▶ Dette er den aktuelle algoritme i brug i DMreg — og en fodterapi, en øjen-screen eller en DVDD indberetning

Definition of DM type i DMreg



How is DMreg created

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e: \workdata\707655\DMreg\data\DMreg.sas7bdat

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- ▶ Explains inclusion criteria etc. and a listing of all programs.

SAS-version I

The CONTENTS Procedure

Data Set Name	DMDAT.DMREG	Observations	486243
Member Type	DATA	Variables	21
Engine	V9	Indexes	0
Created	18/04/2020 14:39:42	Observation Length	136
Last Modified	18/04/2020 14:39:42	Deleted Observations	0
Protection		Compressed	NO
Data Set Type		Sorted	NO
Label	Reconstructed DM register for Denmark		
Data Representation	WINDOWS_64		
Encoding	wlatin1 Western (Windows)		

Engine/Host Dependent Information

Data Set Page Size	65536
Number of Data Set Pages	1011
First Data Page	*
Max Obs per Page	481
Obs in First Data Page	455
Number of Data Set Repairs	0
ExtendObsCounter	YES

SAS-version II

Filename	E:\workdata\707655\DMreg\data\dmreg.sas7bdat
Release Created	9.0401M5
Host Created	X64_SR12R2
Owner Name	DSTFSE\FDIY7655
File Size	63MB
File Size (bytes)	66322432

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat	Label
21	DMtp	Char	*			Type of DM
*	PNR	Char	12	\$12.	\$10.	Personnummer
17	do2nd	Num	8	DDMMYY10.		Date of 2nd of Ins/OAD/NPR
12	doBth	Num	8	DDMMYY10.		Date of birth
15	doDM	Num	8	DDMMYY10.		Date of inclusion
16	doDVD	Num	8	DDMMYY10.		Date of DVDD
11	doDiaB	Num	8	DDMMYY10.	IS8601DA10.	Date of diaBase
14	doDth	Num	8	DDMMYY10.		Date of death
8	doIns	Num	4	DDMMYY10.		Date of 1st Ins
9	doIns2	Num	4	DDMMYY10.		Date of 2nd Ins
*	doNPR	Num	8	DDMMYY10.	DATE9.	Date of 1st NPR
4	doNPR2	Num	8	DDMMYY10.	DATE9.	Date of 2nd NPR
6	doOAD	Num	4	DDMMYY10.		Date of 1st OAD
7	doOAD2	Num	4	DDMMYY10.		Date of 2nd OAD

SAS-version III

10	doPod	Num	8	DDMMYY10.	Date of Podiatry
5	dvdtyp	Char	*		Type from DVDD
20	hasdvd	Num	8		has DVDD record
18	inCr	Char	*		Incl. criterion
*	nprtyp	Char	*		Type from NPR
19	only1	Num	8		Only one criterion
13	sex	Num	8		sex

The R-version

- ▶ An R-version where

`library(quantmod)`

`getSymbols("AAPL", from="2007-01-01", to="2012-12-31")`

`toZoo(AAPL, start.year=2007, end.year=2012)`

`toOHLC(AAPL)`

`getSymbols("AAPL", from="2007-01-01", to="2012-12-31", data.src="yahoo")`

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is available in

`e:\workdata\707655\DMreg\data\DMreg.Rda`

- ▶ this **R**-file also contains a (named) vector of variable labels.

SAS-version and R-version

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Otherwise identical contents, for practical use see:

`v:\sdc\469drive\DMreg\tex\DMreg2018-R.pdf`

Complications files

e:\workdata\707655\DMreg\data\XXX.sas7bdat and
e:\workdata\707655\DMreg\data\XXX.rda

- ▶ complications are derived from NPR for **total** DK population, only **first** occurrence included — except for **HypG** (hospitalized hypoglycaemia) and **Keto** (ketoacidosis)
- ▶ complications, 21 different types + 5 super categories
 - ▶ **fcomp** one record per (**pnr,comp1**), **compGr** and date, **doC**
 - ▶ **wcomp** one record per (**pnr**),
26 date variables — one per complication
 - ▶ **rcomp** one record per (**pnr,comp1,doC**)
dates and types of recurrent complications

LABKA files

e:\workdata\707655\DMreg\data\labka\XXX.sas7bdat and
e:\workdata\707655\DMreg\data\labka\XXX.rda

- ▶ LABKA data file contain 131 mil. records
- ▶ Takes forever to read both with SAS and **R**
- ▶ Read the total LABKA file with SAS, and split in 26 files
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Details in

v:\sdc\469drive\DMreg\tex\DMreg2018-R.pdf

LABKA files — what is XXX

e:\workdata\707655\DMreg\data\labka\XXX.sas7bdat and
e:\workdata\707655\DMreg\data\labka\XXX.rda

hba1	"Hba1c"	sodi	"Natrium"
gluc	"Glukose"	tsh	"TSH"
glu0	"Glukose 0"	cpep	"C-peptid/Proinsulin"
gl30	"Glukose 30"	crp	"CRP"
gl120	"Glukose 120"	gad	"GAD65"
tchl	"Total kolesterol"	egfr	"eGFR"
ldl	"LDL kolesterol"	gfr	"GFR"
hdl	"HDL kolesterol"	alat	"ALAT"
vldl	"VLDL kolesterol"	alcp	"Basisk fosfatase"
trig	"Triglycerid"	cobl	"Cobalamin"
plcr	"Plasma Kreatinin"	trmb	"Trombocytter"
uacr	"Ualbcrea"	leuc	"Leucocytter"
pota	"Kalium"	hmgb	"Hæmoglobin"

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This is collected for all persons in DK at 1 Jan 1996–2019

The status file in SAS I

The CONTENTS Procedure

Data Set Name	DMDAT.POPSTAT	Observations	131784868
Member Type	DATA	Variables	8
Engine	V9	Indexes	0
Created	11/08/2020 15:04:49	Observation Length	64
Last Modified	11/08/2020 15:04:49	Deleted Observations	0
Protection		Compressed	NO
Data Set Type		Sorted	NO
Label	The population status at start of each year		
Data Representation	WINDOWS_64		
Encoding	wlatin1 Western (Windows)		

Engine/Host Dependent Information

Data Set Page Size	65536
Number of Data Set Pages	129075
First Data Page	1
Max Obs per Page	1021
Obs in First Data Page	990
Number of Data Set Repairs	0

The status file in SAS II

```
ExtendObsCounter      YES
Filename              E:\workdata\707655\DMreg\data\popstat.sas7bdat
Release Created       9.0401M5
Host Created          X64_SR12R2
Owner Name            DSTFSE\FDIY7655
File Size             8GB
File Size (bytes)    8459124736
```

Variables in Creation Order

#	Variable	Type	Len	Format	Informat	Label
1	PNR	Char	12	\$12.	\$10.	personnummer
2	KOM	Char	3	\$KOM_V4_KT.		kommune
3	reg	Char	2	\$REG_V4_KT.		region
4	yr	Num	8			dato (år)
5	find	Num	8			disponibel fam. indkomst
6	udd	Num	8			uddannelseskode
7	udddk	Num	8	AUDD_HOVED_L5L5_KT.		grupperet uddannelse
8	eduen	Num	8	AUDD_LEVEL_L4L4_KT.		grouped education

`findec` — family income decile is added in the **R**-version.

Note: Deciles are computed per year.

```
> str( popstat, v=0 )
```

```
Classes 'tbl_df', 'tbl' and 'data.frame': 131784868 obs. of 9 variables:
```

```
$ pnr      : chr      ...  
  ..- attr(*, "label")= chr      ...  
  ..- attr(*, "format.sas")= chr      ...  
$ yr       : num      NULL ...  
  ..- attr(*, "label")= chr      ...  
$ kom      : Factor w/ 99 levels "København","Frederiksberg",...: NULL ...  
$ reg      : Factor w/ 5 levels "Nordjylland",...: NULL ...  
$ find     : num      NULL ...  
  ..- attr(*, "label")= chr      ...  
$ findec   : Factor w/ 10 levels "1","2","3","4",...: NULL ...  
  ..- attr(*, "label")= chr      ...  
$ udd      : num      NULL ...  
  ..- attr(*, "label")= chr      ...  
$ udddk    : Factor w/ 15 levels "Førskoleuddannelser",...: NULL ...  
$ eduen    : Factor w/ 9 levels "Early childhood education",...: NULL ...
```

Reading the status file in R

```
> system.time(popstat <- read_sas("../data/popstat.sas7bdat"))
```

```
   user  system elapsed  
810.06    6.65  1903.40
```

```
> system.time( save(popstat, file="../data/popstat.Rda") )
```

```
   user  system elapsed  
493.72    5.12   571.10
```

```
> rm( popstat )
```

```
> system.time( load(                file="../data/popstat.Rda") )
```

```
   user  system elapsed  
112.73    1.56   168.81
```

Summary

- ▶ A complete documentation of the `DMreg` is available in `v:\sdc\469drive\DMreg\tex\DMreg2018.pdf`
- ▶ A complete documentation of the `R`-version of `DMreg` is available in `v:\sdc\469drive\DMreg\tex\DMreg2018-R.pdf`
— this document also contains accounts of the complications files, the LABKA files and the status file.

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- ▶ Once they are on your own computer you can use them

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```
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- ▶ you cannot use results in articles etc. **unless** you have sent home the files.