



National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport

Missing links

Capacity models at aggregate
time and spatial scale

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Missing links – 1st Int Workshop on planning of EMS |
June 27th 2014



Foto: Archief Thijs Gras



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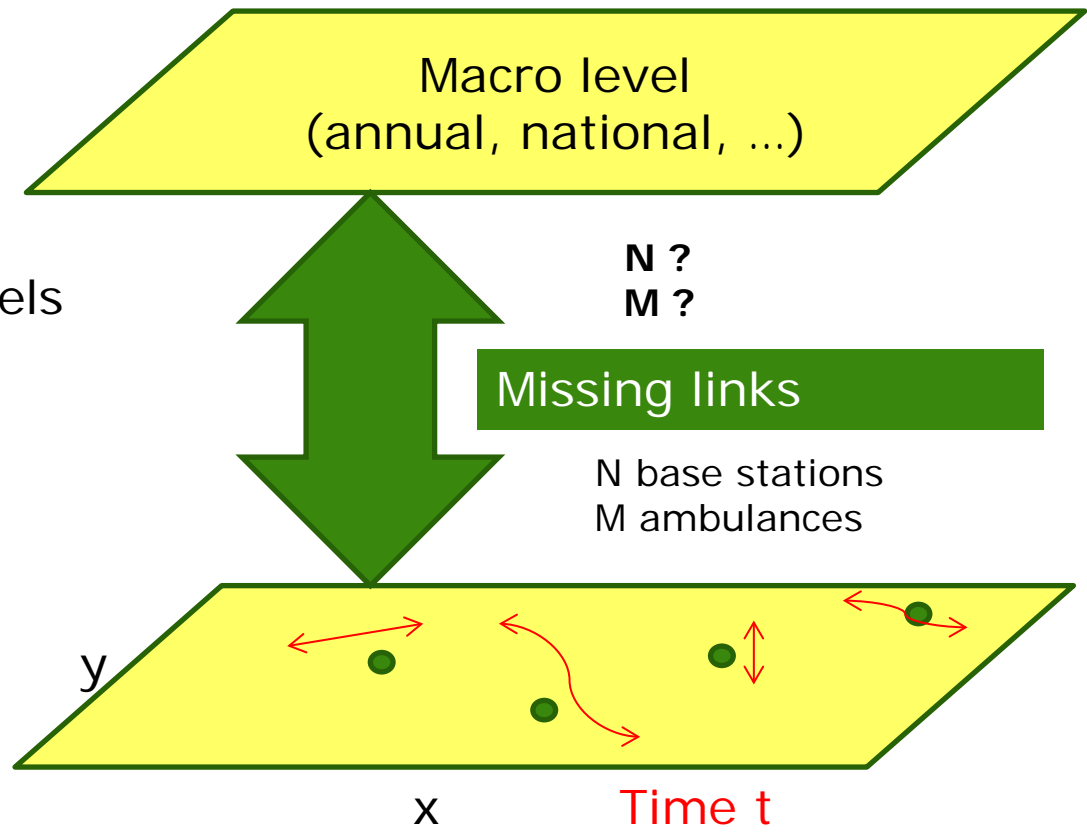


Foto: Richard Haller



Capacity and location models

- Demand for EMS
- Drive time models
- Location / deployment models
- Dispatch models / DAM
- Capacity models
- Performance measurement robustness

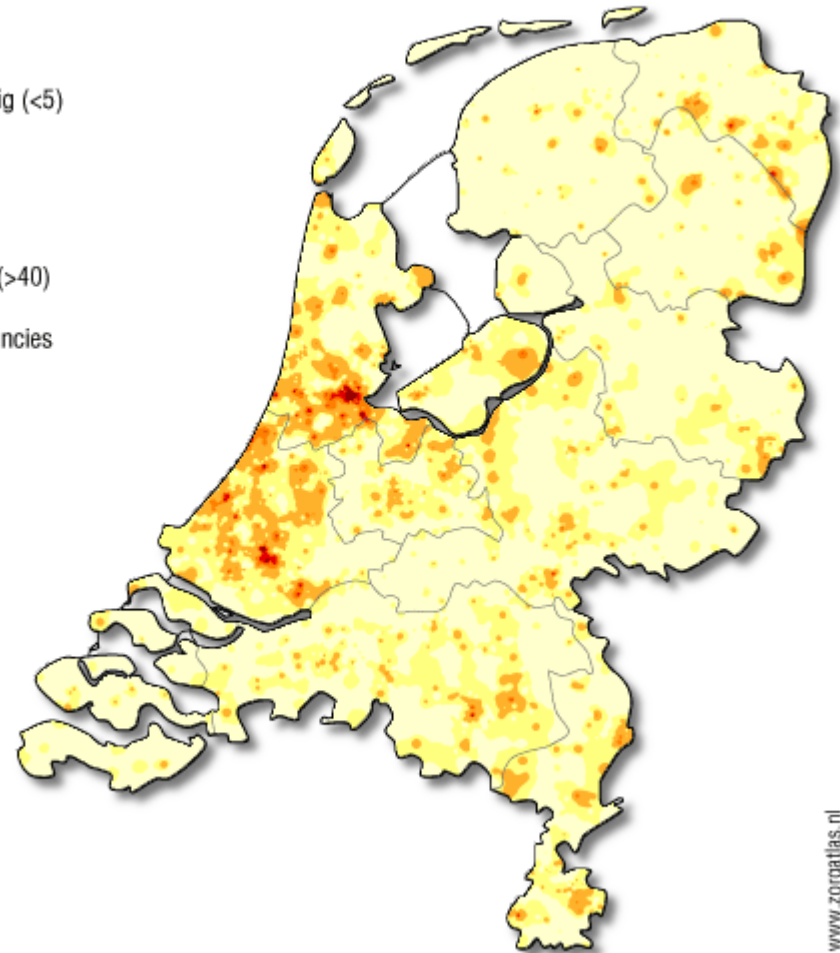
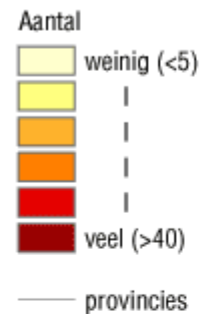




An average day in 2008

A1 and A2 services

Spoedritten 2008 0 - 2 uur



Bron: RIVM

www.zorgatlas.nl

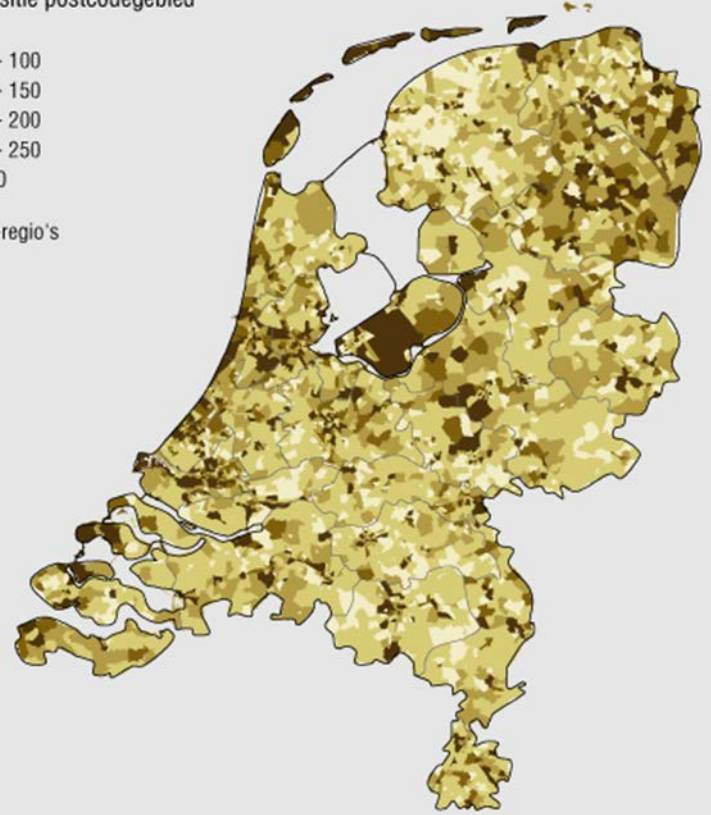


Demand for EMS

A1+A2 services per 1.000 inhabitants per vierposities postcodegebied

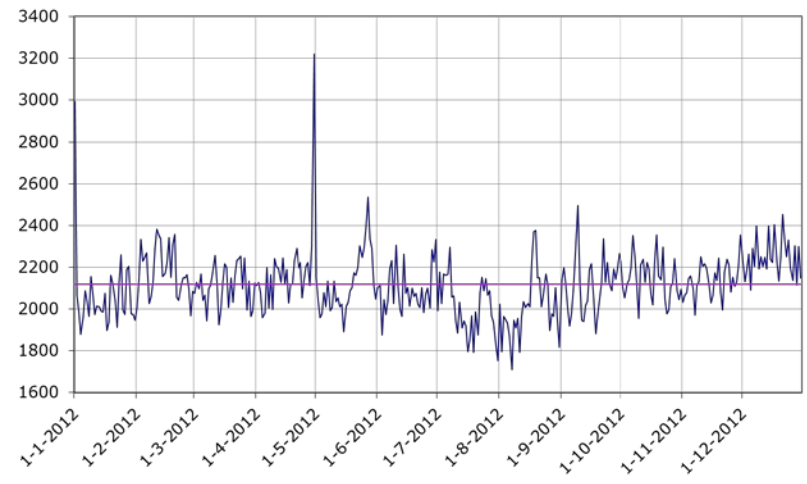
- 0 - 100
- 100 - 150
- 150 - 200
- 200 - 250
- > 250

RAV-regio's



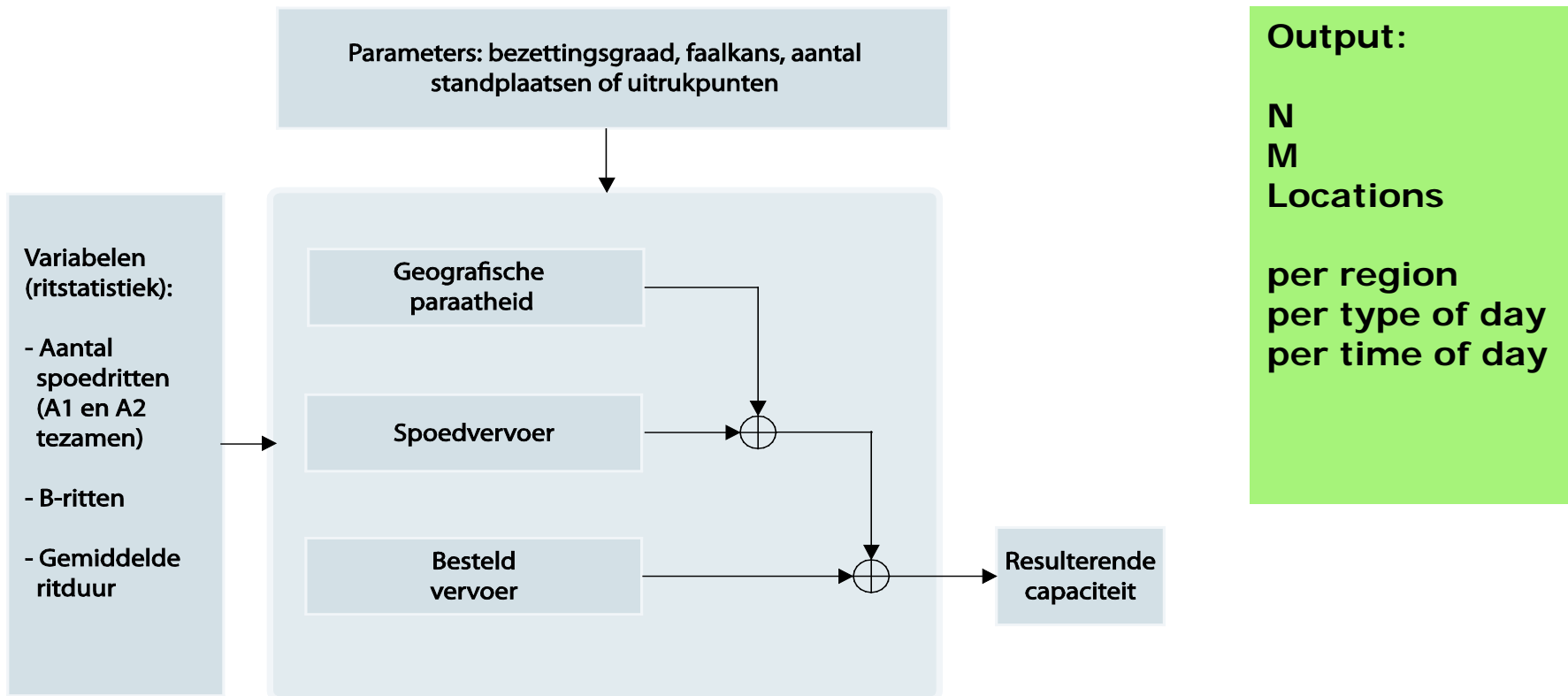
Bron: RIVM

A1- and A2-services per day in 2012



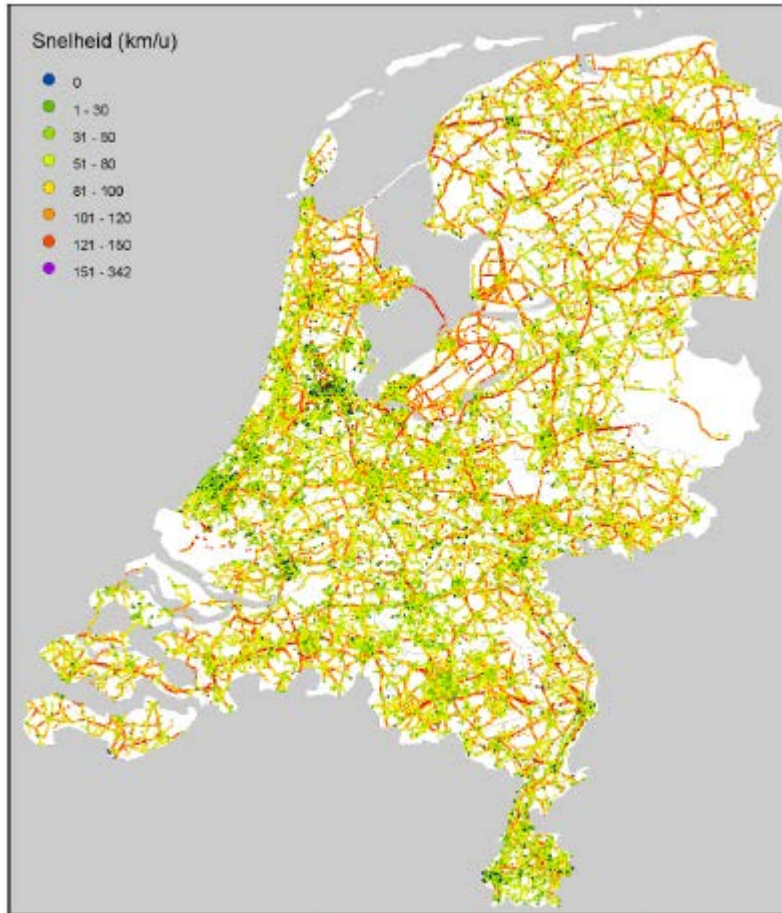


Macro level: National ambulanceplan



Based on +/- 40 assumptions and pre-conditions

Macro level: Drive time model



Collected 1 year of AVLS-data

Each ambulance every minute

Location, velocity, angle, status

Estimate the average velocity

11 road types

3 regions

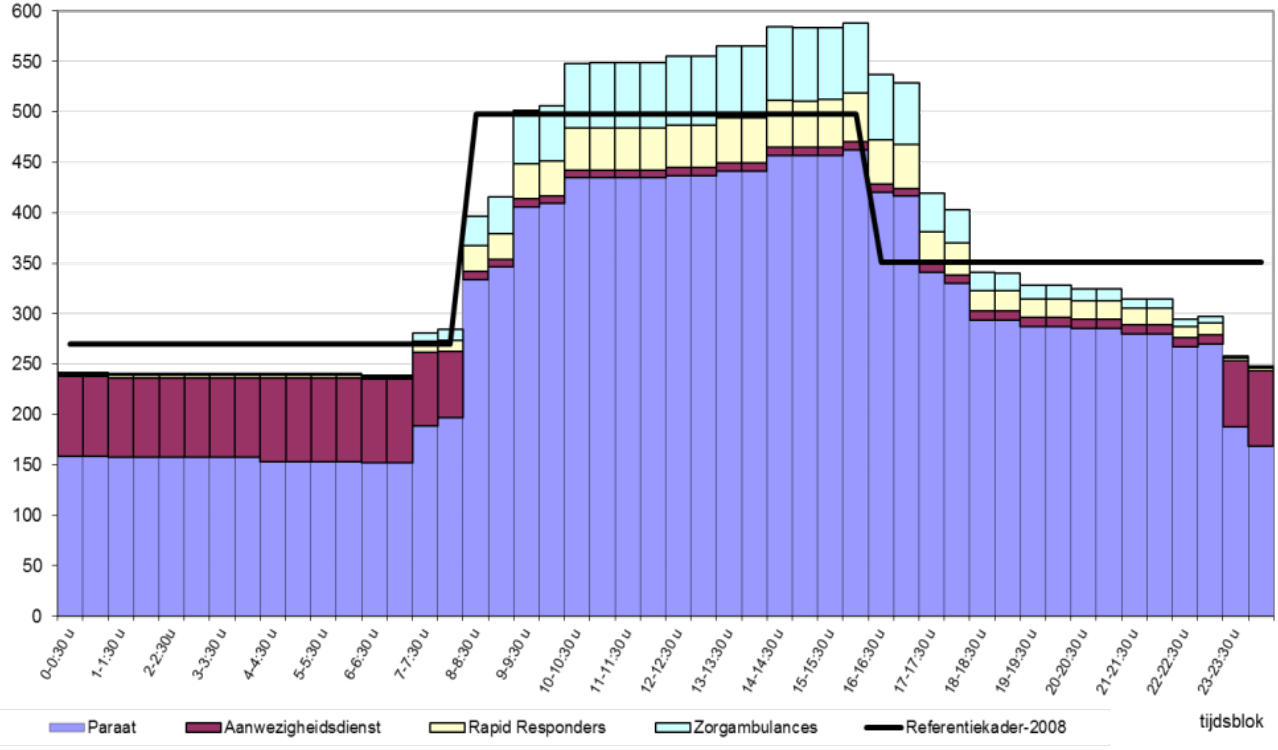
3 timeblocks of day

Calculate all trips (4.000 x 4.000)



Compare the plan with the practice

Totaal aantal ambulances in Nederland per soort (werkdagen)

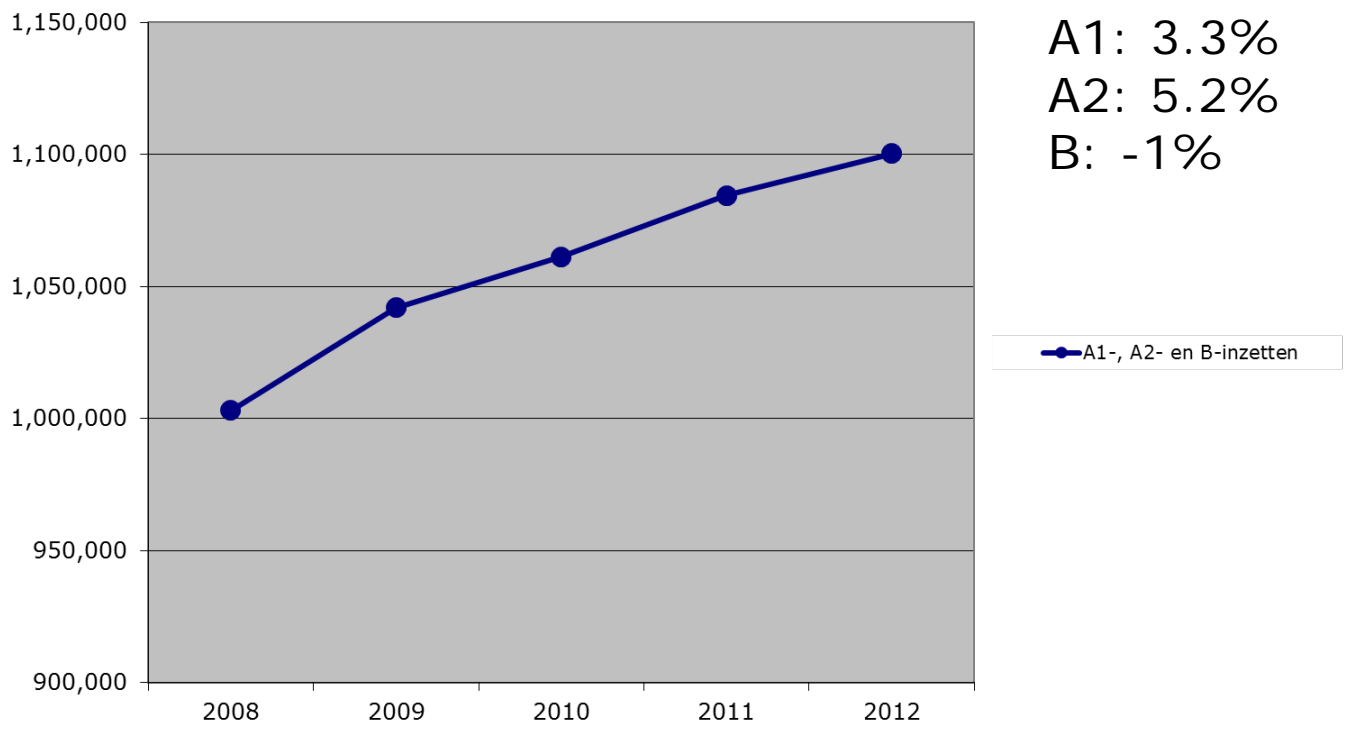




Practice: volume growth

Average increase per year
2008-2012

Ambulance services 2008-2012



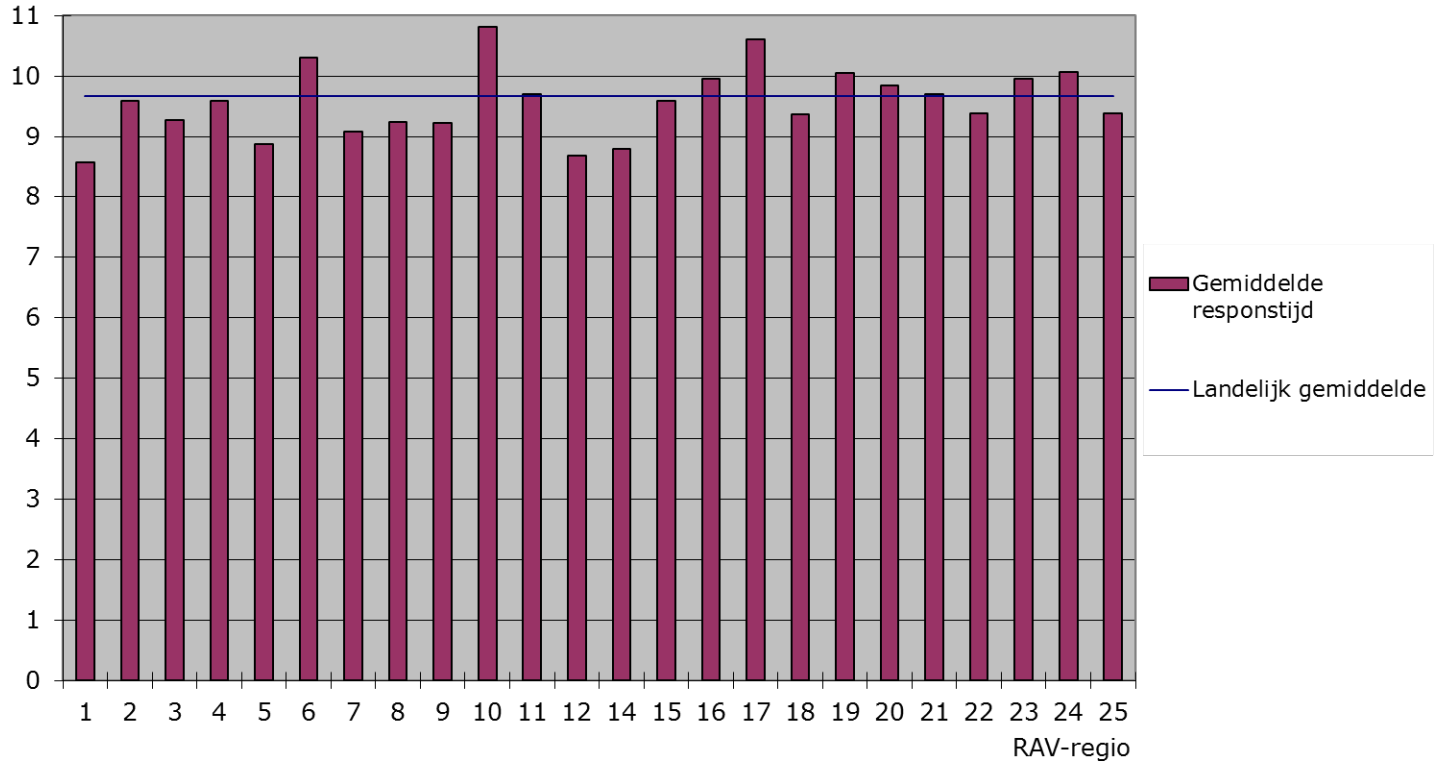
A1: 3.3%
A2: 5.2%
B: -1%



Practice: average response times A1

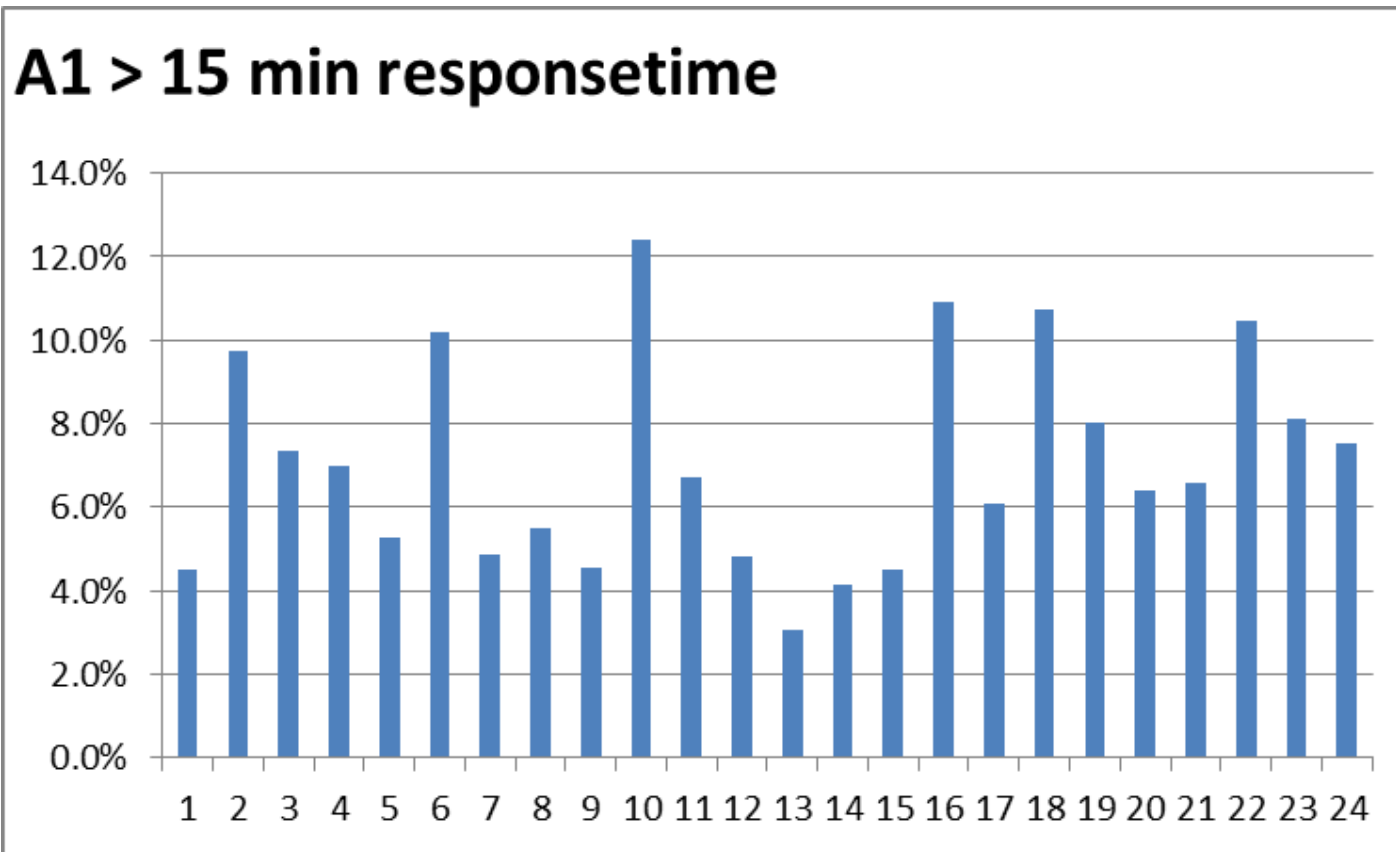
Gemiddelde responstijd A1-inzetten per regio in 2012

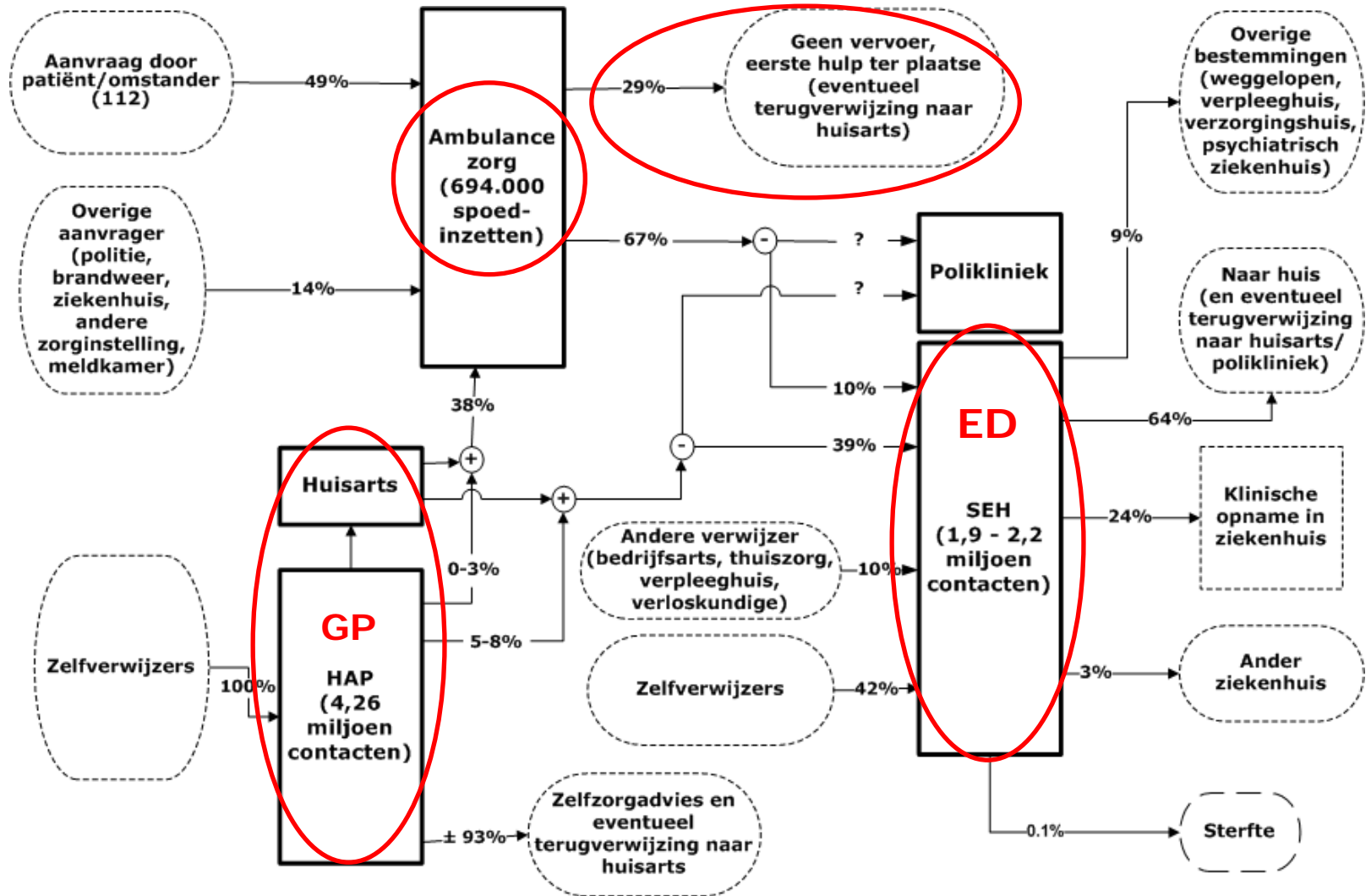
minuten





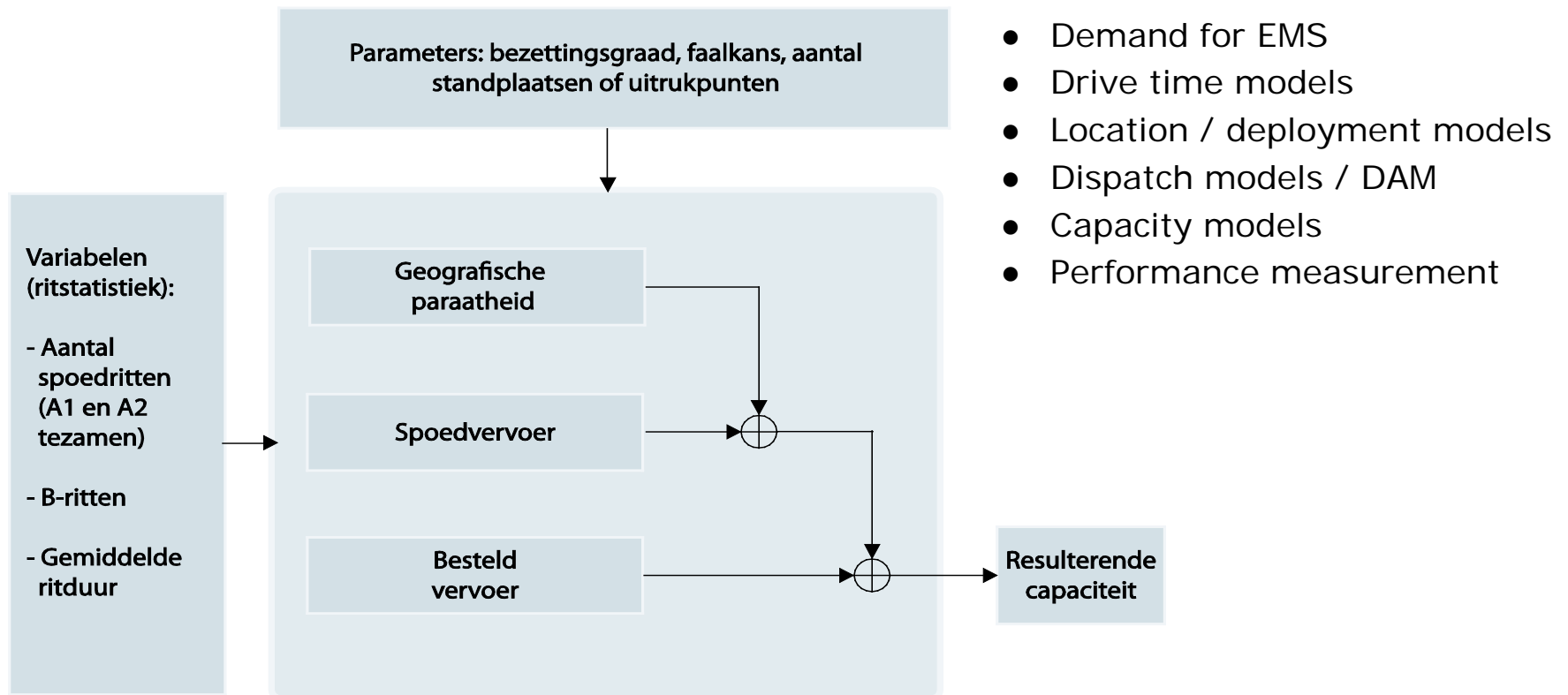
Practice: response times A1







National ambulanceplan





Missing links

- Demand for EMS → Robustness?
- Drive time models → more detail?
- Dispatch models / DAM → efficiency gains?
- Capacity models → integral model
- Location / deployment models → minimize risks?
- Performance measurement → macro performance?



Missing links – capacity and location models

- Robustness
- Performance measures

