Bachelor Eindwerk

Final presentation

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ACED

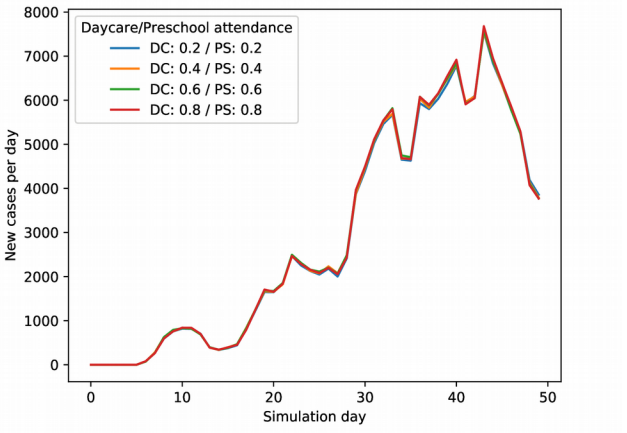
Overview

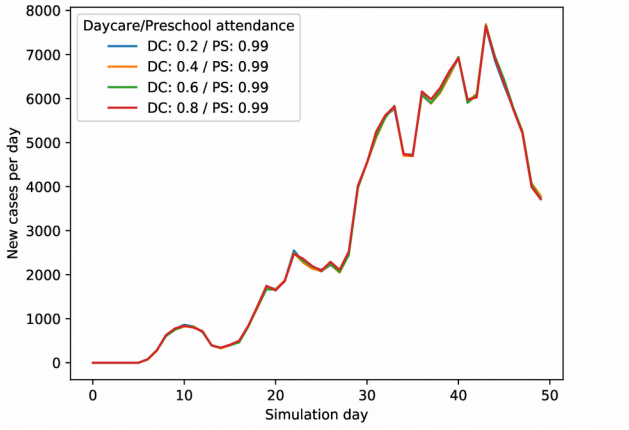
- Features
  - Daycare & Preschool
  - Data formats
  - Refactoring
  - Data visualisation
  - Demographic profiles
  - Workplace size distribution
  - Simulation – Belgium
- Demo

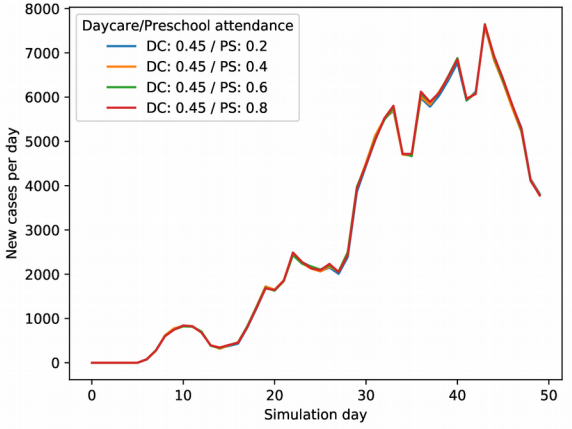
Features – Daycare & Preschool

- Added daycare & preschool contacttypes
- Configurable participation rates
- Impact
  - Seemingly negligible
  - Small fraction of population
  - Small contact pools

Daycare & Preschool - Results







20 runs, seeding rate = 0.2%, immunity rate = 70%, R0 = 15

Features – Data Formats

- GeoGrid
  - Added HDF5 import/export
  - Switched over to Nlohmann JSON
  - Time comparison

	Write time	Read time	Storage size
Protobuf	7.4s	2.0s	14 MB
HDF5	34.5s	23.3s	159.8 MB
JSON	23.2s	7.9s	119.2 MB

- Households now use JSON (import)

	Read time	Storage size
CSV	4s	312 KB
JSON	4s	685 KB

Features – Refactoring

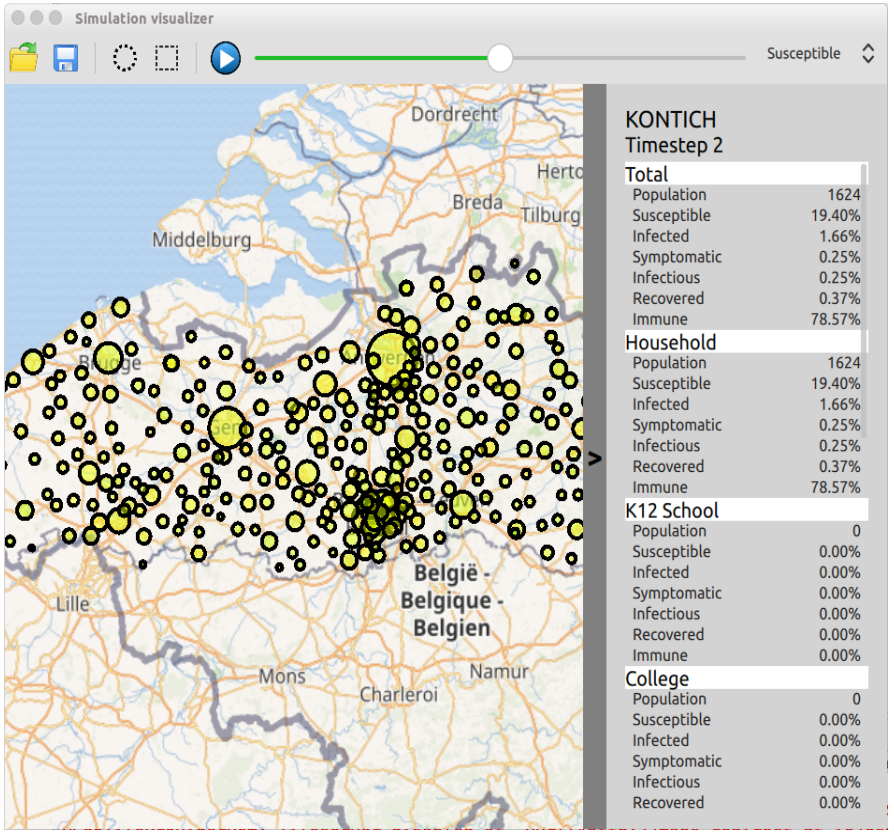
- GeoGrid
  - GeoGridBase (templatized): has locations
  - GeoGrid: inherits from GeoGridBase, all other GeoGrid functionality
  - VisGeoGrid: for use with visualiser & VisLocation

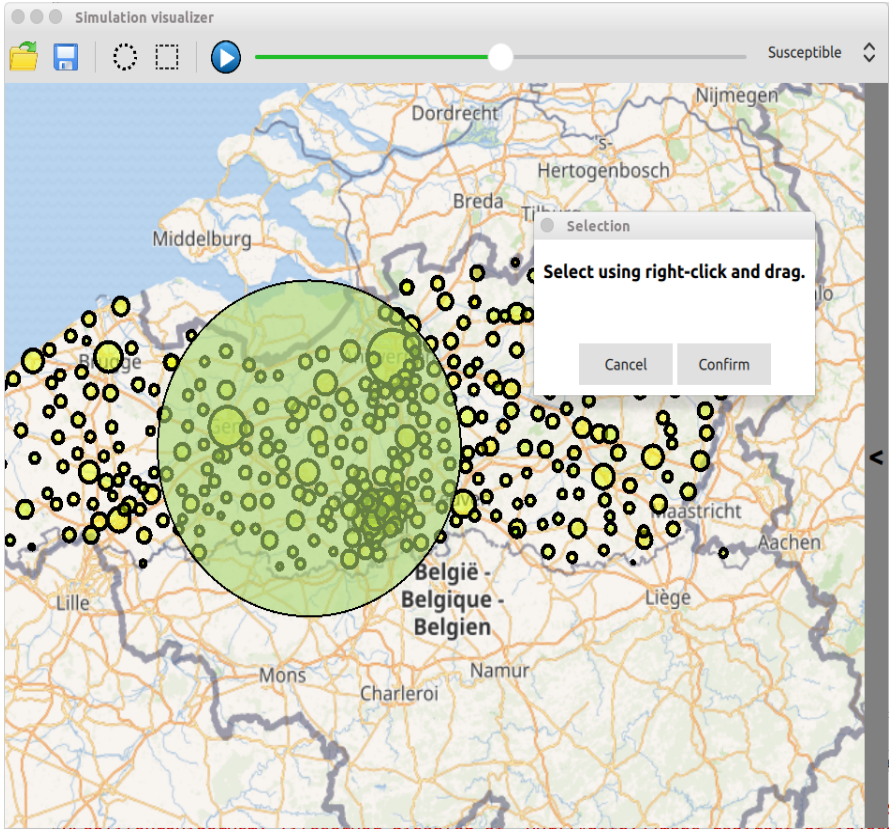
- Location
  - LocationBase: Name, ID & Coordinate
  - SimLocation: Persons, contactpools
  - VisLocation: Epidemiological data

Features – Data visualisation

- Added EpiOuput viewer
  - Can be configured (HDF5/JSON/Protobuf)
- Created visualiser
  - Separate program
  - Reads and visualises EpiOutput
  - Interactive interface

Features – Data visualisation

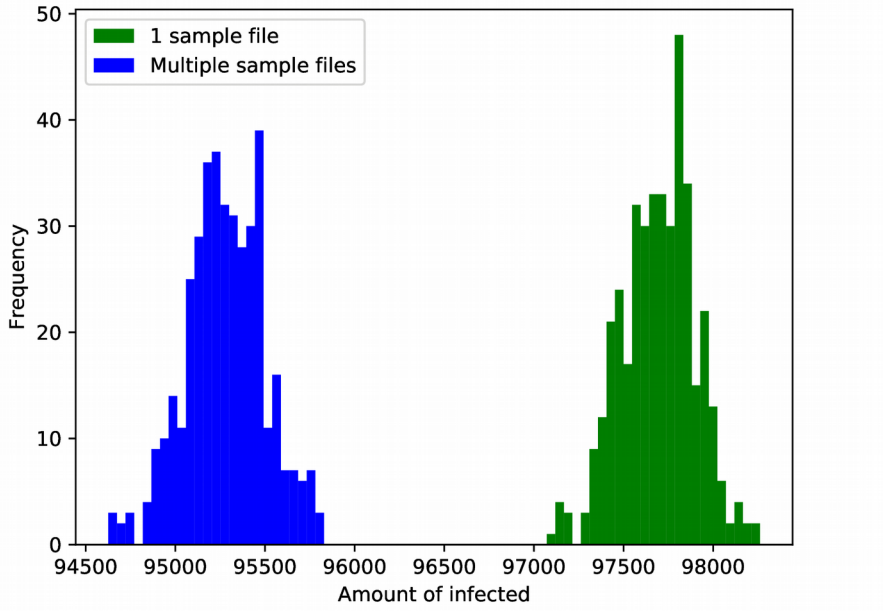


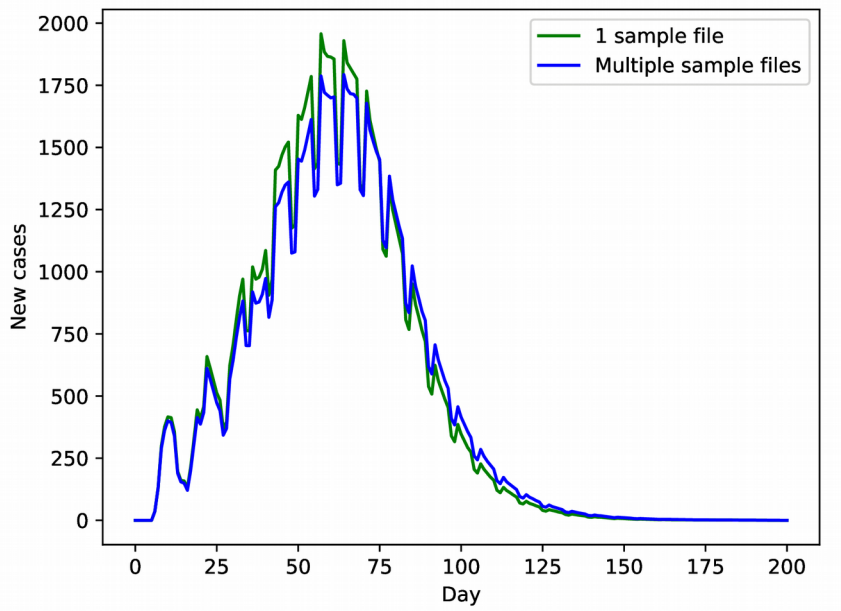


Features – Demographic Profiles

- Can now populate using multiple reference sets
- Created sets for Flanders:
  - Reference for province
  - Reference for centrum cities
  - Sources: StatBel & https://provincies.incijfers.be

Demographic Profiles – Results



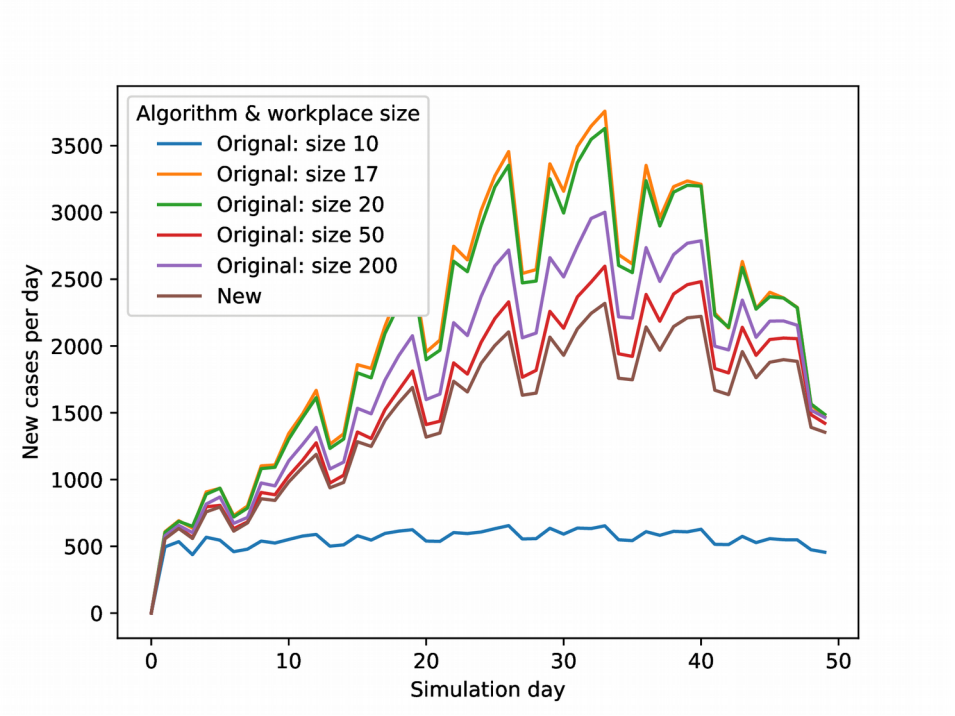


400 simulations, seeding rate = 0.2%,
immunity rate = 80%, R0 = 11

Features – Workplace size distribution

- Can now populate using a workplace distributions file
- Algorithm:
  - Determine size of workplace beforehand
  - Assign weights based on size
  - Weighted selection to populate workplaces

Workplace size distribution – Results



Seeding rate = 0.2%, immunity rate = 40%,
R0 = 2

Features – Simulation: Belgium

- Created files for Belgium:
  - belgium_cities.csv to right format
  - belgium_commuting.csv to right format
  - household_config_belgium.xml added
  - Population files for cities/provinces

Demo