Gesundheit Österreich
GmbH

Distribution of Healthcare Providers and Health Workforce in Slovenia

Measuring Health Needs – a new approach "MorbiSimmod"

Ines Czasný

Workshop 3, Vienna, 27 March 2018

Outline

- Definition of need
- Different Methods of Health Care Planning
- A morbidity based simulation model

Introduction / Definition of need

- Needs-based health care planning is a major objective of most modern health care systems (since 1990).
- Health care services should be designed to meet the needs of the community (usually based on the community's morbidity).
- Need can be seen in different ways and is not objectively measurable.
- In general **three different aspects** should be distinguished:
  - Desire → personal judgement → surveys give an impression
  - Utilization / Demand → routine health care data
    - Unmet needs (underestimation of need)
    - Supply induced demand (overestimation of need)
  - Need → somewhere in between
- The definition, when a desire becomes a need will differ within countries depending on societal values as well as budgetary constraints.
- This discussion can be very controversial and in the end a political decision is needed.

Different Methods of Health Care Planning (I)

- Depending on the available data different methods of estimating the requirement of health care services have been developed.
- *Manpower-Population-Ratio*
  - Setting benchmarks concerning the number of services per population (e.g. physicians per population)
  - usually derived from previous periods or taking over ratios from other regions/countries
  - Advantage: easy to calculate
  - Disadvantage: does not take into account regional or epidemiological diversities and future developments
- *Utilization-based Method*
  - focuses on the utilization of the existing health care services
  - Advantage: usually data are easily available
  - Disadvantage: possibly existing under- or over-supply are not taken into account

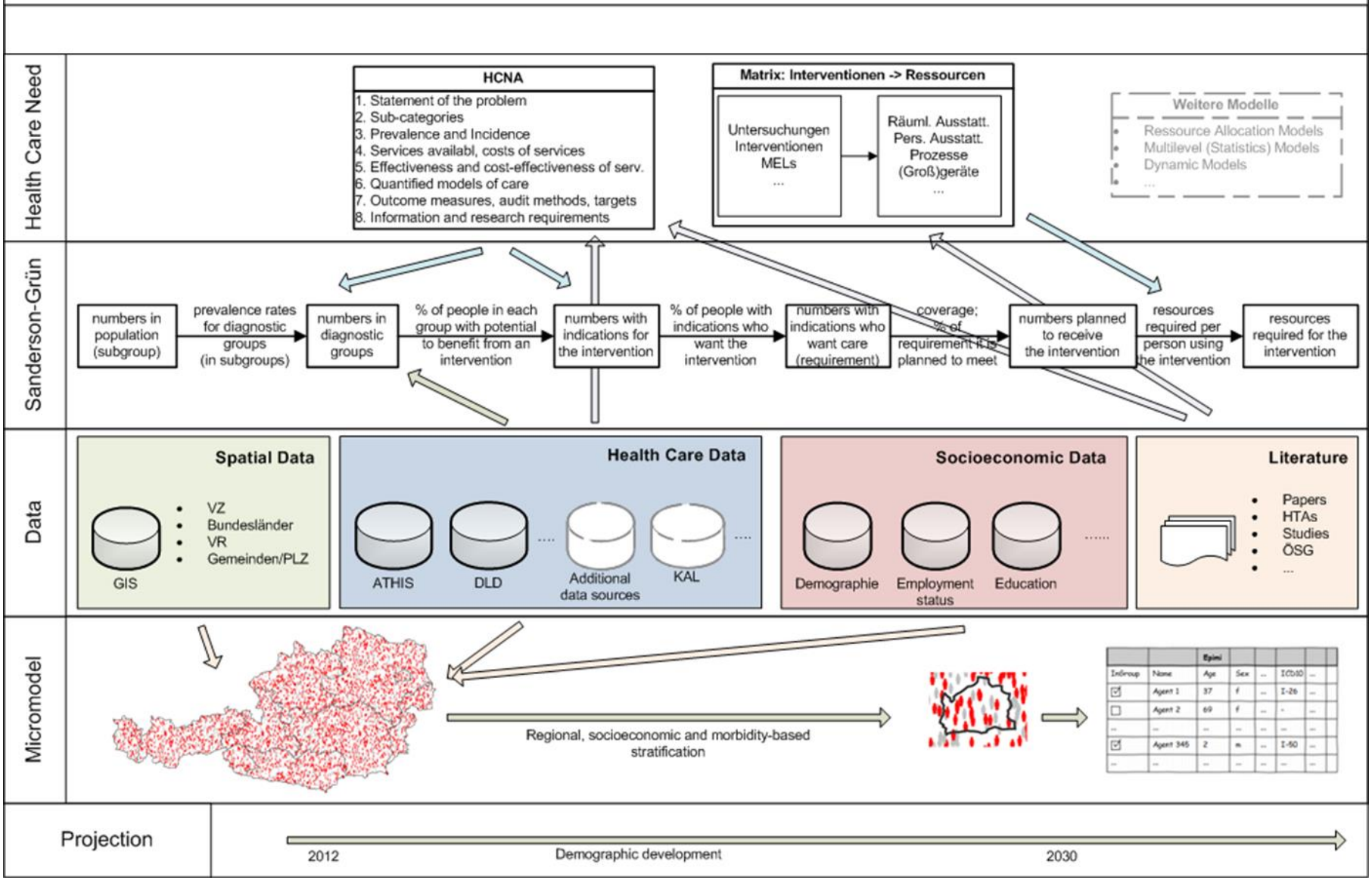
Different Methods of Health Care Planning (II)

- *Accessibility-oriented-Method*
  - fixes a distance or time within the next specific health care service has to be reached by the population living in a certain area
- *Structure-oriented-Method*
  - The capacities needs are derived from the actual given or planned structures (e.g. number od hospitals, beds)
- *Corporate needs assessment*
  - Negotiations between relevant stakeholders
  - Advantage: no complex data-analyses needed
  - Disadvantage: led by interests of the different stakeholders, usually very time consuming process
- In Austria a combination of these methods is used.
- Results can only be seen as estimations, giving some orientation, and have to be reviewed and adapted regularly.

Morbidity Based Needs Assessment

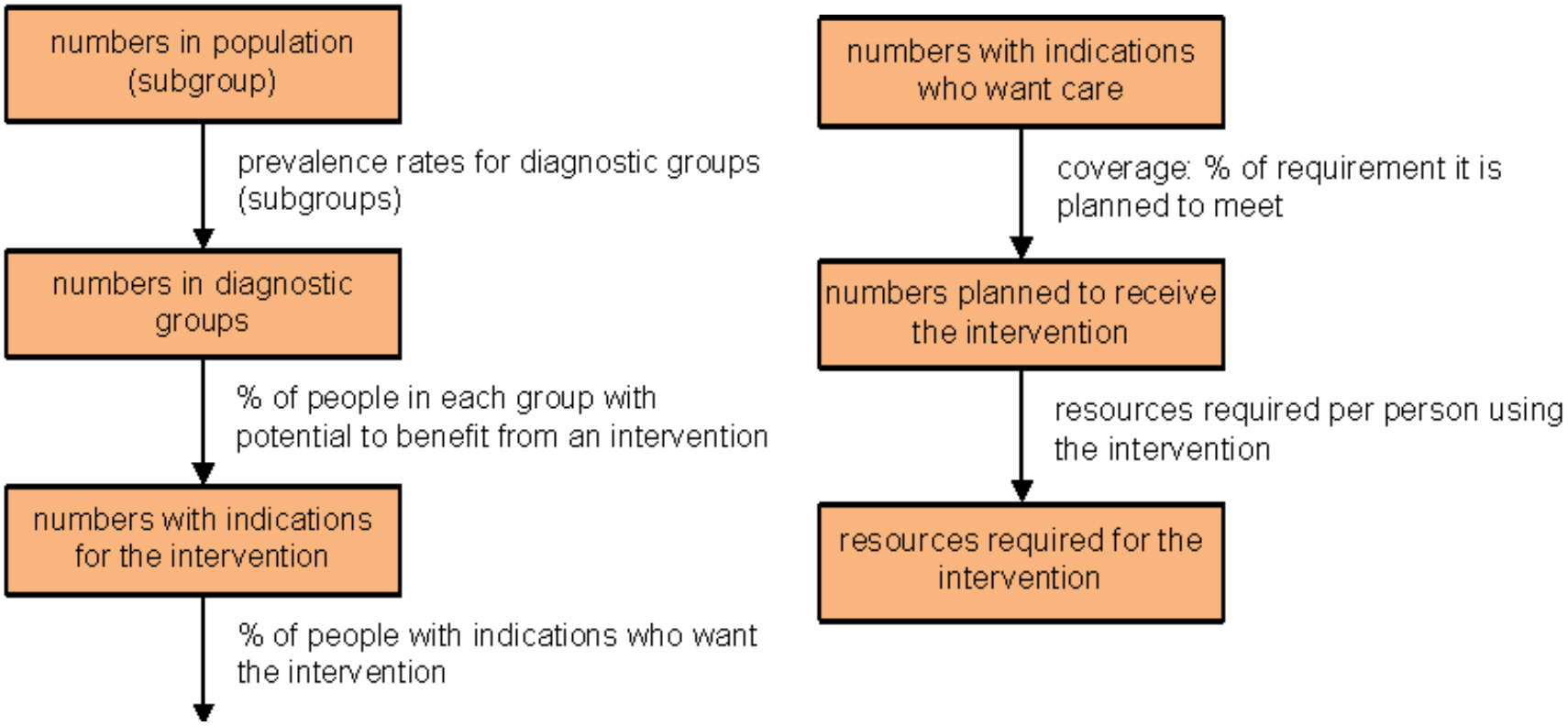
- All of these methods are limited by the fact that epidemiological diversities between regions and time are not or only marginally taken into account.
- Our aim is to complement these methods with the results of a *morbidity based needs assessment* → development of MorbiSimmod
- MorbiSimmod is a morbidity driven model that derives the epidemiologic information by a bottom-up microsimulation model.
- Aim: narrow the gap between usage-based planning and real need
- Joined a research project DEXHELPP (Decision Support for Health Policy and Planning)

MorbiSimmod – morbidity based health care planning



Needs-based policy model

- Introduced 2006 by Sanderson and Grün
- Incremental procedure to calculate morbidity of a given population with a given medical condition

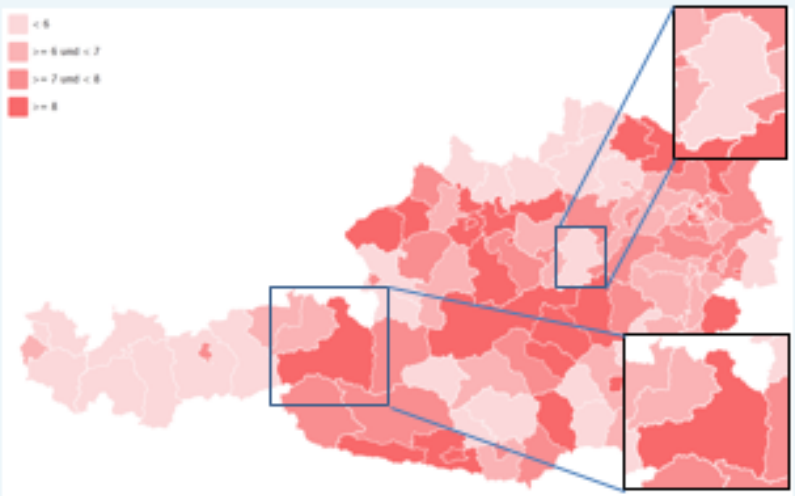


The Simulation Model

- The microsimulation model integrates
  - service utilisation data
  - data from major health surveys (AT-HIS) and
  - socio-economic data (e.g. data of income and education)
- This integration is performed by the generation of a population of statistical representants that carry demographic, spatial, morbidity and socio-economic properties.
- Based on these agents algorithms can be performed to calculate guideline values for the purpose of planning health services and health care structures (e.g. bandwidths for future services, hospital beds or other guideline values).
- To identify these calculation algorithms we underlay a specified process on the application of the model.

Planning guideline values derived from the morbidity state of the population

Map of morbidity and morbidity based calculation of health service supply guideline values



- Planning bandwidths for surgery services per 1000
- Planning bandwidths for hospital / ambulance capacity (beds, day care units) per 1000
- expected need of full-time equivalents

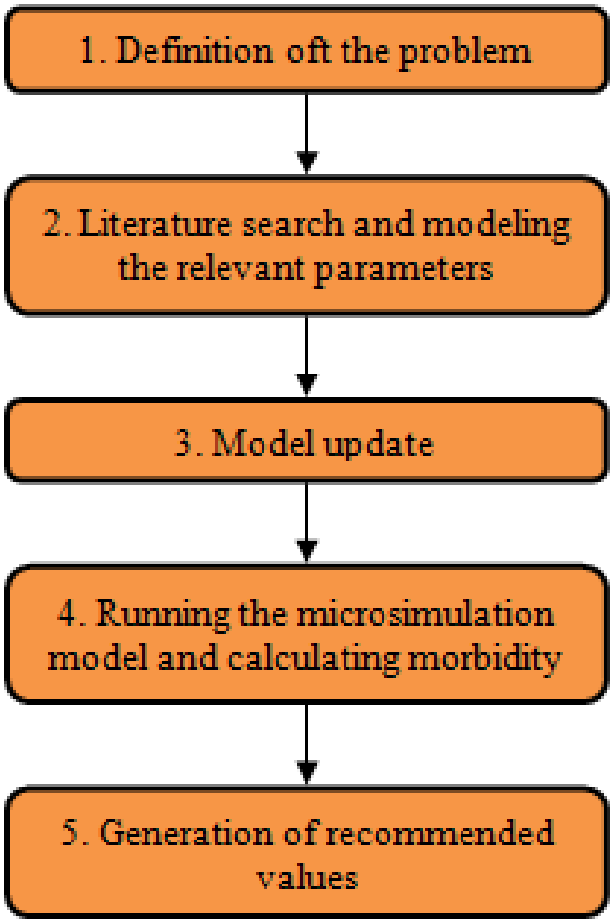
Map of morbidity per 1000 population

Planning guideline values

MorbiSimmod Process Model

In order to produce policy-relevant answers some pre- and post-processing steps are part of the MorbiSimmod.

1. Definition of
   - » morbidity spectrum
   - » target population
   - » time horizon
   - » relevant planning benchmarks
2. connect to relevant research
3. update the model according to
4. run a microsimulation model
5. generate answers to structural questions



MorbiSimmod – further development needed

- **Advantages**
  - forecast of health care needs based on morbidity groups
  - estimation for need in different areas with different epidemiologic and socioeconomic patterns
  - microsimulation
    - well established method in health care modelling
    - bottom-up approach suits well to available data
    - excellent extendibility for future data sources
- **Further development needed**
  - at the moment data availability is not sufficient (esp. diagnosis)
  - addition of further data sources
  - improve methods for value generation for structure planning
  - integration of health care routine data's panel properties

Gesundheit Österreich
GmbH

Many thanks for your attention!