

## Course EPI302: Introduction to Health Care Epidemiology

### Mini project

#### Evaluation report to Matthias Egger, President of the National Research Council of the Swiss National Science Foundation

The Swiss National Science Foundation (SNSF) funded a national research program (NRP) to investigate the effects of a tailored treatment protocol for Diabetes patients, in combination with specialized training of general practitioners (GP) and medical practice assistants (MPA), on patient and health care system outcomes. The SNSF mandated you for the evaluation of this NRP.

**Intervention:** The main intervention of the NRP was a treatment protocol which aimed to support the GPs and the patients in their shared-decision making process. The treatment protocol 1) highlighted the importance of at least three GP visits per year (as recommended by the Swiss Society of Endocrinology and Diabetology guidelines), 2) recommended smoking reduction according to the general public health advice, and 3) promoted either a more physical active lifestyle or an intensified pharmacotherapy treatment, depending on the living region:

- 1) In the French speaking cantons of Switzerland, GPs and MPAs received a specialized training on physical activity,
- 2) In the "Central" part of Switzerland, GPs and MPAs were sensitized and informed about the positive effects of pharmacotherapy use,
- 3) The "Eastern" part of Switzerland served as a control group which did not receive the treatment protocol.



**Figure 1:** NRP intervention regions: Green and white regions received a tailored treatment protocol in combination with specialized GP and MPA training.

Patients in the treatment regions received either: 1) A specialized program and motivational tips for physical activity, or 2) an intensified treatment with Metformin. Although Metformin is a well-established medication for Diabetes, its impact on quality of life, quality-adjusted life years, affordability and costs was unclear for Switzerland. Before the launch of the NRP project, several experts warned that an exclusively pharmacotherapy treatment regime could lead to a possible overtreatment, i.e. Metformin



doing more harm than good. Further, specific health economic evaluations about the mentioned Diabetic treatment regimens are lacking for Switzerland.

The Swiss Diabetes Cohort Study is the first longitudinal Diabetes research platform in Switzerland which allows to investigate the positive and negative effects of a tailored treatment protocol and the above-mentioned treatment regimens on individual health and health care system outcomes in a population of Diabetics. The NRP is a cornerstone project for the health care epidemiology of Diabetes in Switzerland.

**Your task:** You write an evaluation report to Matthias Egger, President of the National Research Council of the Swiss National Science Foundation, describing the results of the NRP.

The overall research questions of the project were:

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|--|---------------|
| 1) What are the positive and negative effects of the intervention (i.e. treatment protocol and specialized GP and MPA training) related to access and delivery of Diabetes care? | Joel<br>Xijin |
| 2) How does the intervention affect individual and population health?  |               |
| 3) How does the intervention affect health care system outcomes and variation in Diabetes care?  | Thomas        |

*Guiding points:*

- You do not need advanced statistics for fulfilling the task. Descriptive tables (i.e. counts and proportions) **are enough**. If you want to use regression models, you **can** do that.

*Notes on Variables:*

- The variable *intgroup\_0* contains the allocation of patients to the three treatment regions.
- Identify variables in the dataset which measure access, delivery and utilization of Diabetes care.
- Identify variables in the dataset which measure 'health' and 'harm'.
- Identify variables that measure health care system outcomes.
- The variables *death*, *cvd*, *qaly*, *obstime* and *cumcosttotal* are variables with information over the whole study period, i.e. *cvd* is an indicator whether a person ever had a cardiovascular disease within the follow-up period.
- Do not forget the variable 'Hospital density' or 'GP density'. These variables may support in topics like supply-sensitive care. Note that the variable *hosp10kmdens\_0* includes also the hospitals of neighboring cantons within a 10km distance. You may want to check whether there are any differences between the two variables.

*Notes on Analysis:*

- Think about how you could define overtreatment. How can you measure overtreatment? Which health care aspect is affected: Access, delivery or utilization of care? Use this for the formulation of your **research hypotheses**.
- We recommend to investigate first a variable for **whole Switzerland** in 2002 (say, adherence to glycemic control *ssedhba1ccat1\_0*) and then for 2012 (i.e. *ssedhba1ccat1\_9*). **After that** try to investigate the difference across the intervention regions (*intgroup\_0*). This helps you for a better understanding what happened in general, i.e. whether adherence to glycemic control changed in general,



not only within the intervention regions. Note: You can simply compare proportions between years, you do not need to build difference or something else.

- For the third question you can also analyze **costs per QALY**. And wasn't there information about hospital and GP densities?
- **You can assess variation in care simply by comparing the variable *intgroup\_0***. However, feel free to investigate other components as well (i.e. language regions or cantons). Hint: Variation in care between cantons exists.

*Notes on Writing:*

- Your report should include an *introduction* part with a description of the aims (and your research hypotheses) of the NRP, a *methods* part which describes the investigated variables and the used statistical methods, a *results* part where you provide a table and/or figures of your numerical findings and a small *discussion* part where you try to explain your findings and what the conclusions for the NRP are.
- Make use of your gained knowledge of the course. Keywords like uncertainty in decision-making, 'concerns', the role of patients and stakeholder, unwarranted variation, ... will likely help you in writing an evaluation report.

*Requirements for successful mini project:*

- You work as a team on this project. **First**, define together the role of **one responsible person** of this project. **Second**, allocate to each (of the three above) question one student (this will be the expert for addressing this question). The project responsible writes an email to André Moser ([andre.moser@uzh.ch](mailto:andre.moser@uzh.ch)) by Thursday, **26 March 2020** latest and tells him which question was allocated to which student. **Note:** All analyses for the questions should be done by each student, independent of the expert allocation. This allows that you can help each other: Use online conferences/emails/... to support each other in answering your questions.
- In case you have questions or you need support by André Moser (or other Faculties): Collect your questions and decide whether you organize an online conference or you write an email. By **7 May 2020** latest, the project responsible person writes a short summary (max. 10 bullet points) to André Moser ([andre.moser@uzh.ch](mailto:andre.moser@uzh.ch)) of your already achieved project steps, and a short statement whether you see problems in the finalization of your report by **28 May 2020**.
- **The role of experts:** There will be an online media conference on **28 May 2020, 9am**. The media conference is organized by André Moser who will send you the necessary login information. The project responsible will introduce the discussion (What is your aim? Who is in the project team?...), but **each expert** will present her/his answers to the questions of the NRP in max. 10 min (total max. 30min). The answers have to include findings (i.e. counts, proportions, ratios) from the Swiss Diabetes Cohort. Remember, the audience is strongly interested in Health Care Epidemiology. Some keywords like access, delivery or utilization of care should be mentioned in your report.
- An evaluation report to Matthias Egger, President of the National Research Council of the Swiss National Science Foundation, where you reply to **one research question** of the NRP. The report has to include findings (i.e. counts, proportions, ratios) from the Swiss Diabetes Cohort. Word count: Between 800 to 1,000 words.