

## Medical coding and hospital complications – What complications can be identified in routine data?

### Background

In Swiss hospitals, medical information, including diagnoses and procedures, are coded primarily for the reimbursement scheme. Diagnoses are documented with so-called ICD-codes (international classification of diseases) while procedures are given by CHOP-codes (Swiss operation and procedure catalogue). The combination of main diagnosis, secondary diagnoses (co-morbidities), and procedures are grouped into so-called DRG-codes (diagnosis related group) determining the revenue received by a hospital for treating a certain patient. Ultimately, as documentation takes time and effort and distracts from patient engagement, there is an incentive to only collect medical information if this potentially increases treatment revenue.

In principle, hospital complications, a sign for bad quality, can be identified via combinations of ICD- and CHOP-codes. Still, it is only possible to identify complications if they are coded in the routine data for the reimbursement scheme. If coding complications does not increase revenue, hospitals might not document this information and quality of care is not as transparent as it could be.

### Data

At our chair, there are two datasets available from the Swiss federal office of statistics including all patients undergoing hospital treatment between 2010 and 2019. Among others, the datasets include patients' observed medical information and one dataset also includes treatment costs.

### Possible research topic « *The effect of premium reduction on health care utilization* »

As bachelor or master thesis, it could be investigated what complications can be identified in the available routine data and how the prevalence in the routine data compares to the prevalence in the medical literature. Additionally, it could be investigated how coding practices relate to treatment revenue, cost, and outcome quality. For instance, does coding complications such as wound infections post-surgery increase revenue more or less strongly than costs linked to treating the complication?

If you are interested in and/or have questions about the above-mentioned topic area and would like to write your thesis at our chair, please contact [Johannes.Cordier@unisg.ch](mailto:Johannes.Cordier@unisg.ch) and [Justus.Vogel@unisg.ch](mailto:Justus.Vogel@unisg.ch). You can also propose your own research topic, and we will be happy to advise you. We can generally supervise all students of management, finance, economics, and medicine (Joint Medical Master).

We look forward to receiving your exposé with a proposal for a concrete research question, methodology, and approach!