

Do Pharmaceutical Cost Groups improve the accuracy of Physician Profiling in Switzerland?

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Introduction

In a discussion with trust center managers, it was noted that, with the introduction of the regression index by santésuisse, non-prescribing cardiologists suddenly had a very high cost-index and were forced to refund a part of their earnings, because they could not substantiate the increased costs.

Their high cost-index is not the result of wrongdoing on the part of doctors, but is caused by the regression-index itself, as its calculation is based on variables that have no correlation with the cost of care provided by physicians. In order to understand this and provide a basis for defence against reclaims by santésuisse, we have reviewed the facts in this article.

Although the Swiss Federal Supreme Court denied the regression index any probative value with the publication of decision 9C_135/2022 in February 2024, our recent experience shows that this is ignored by santésuisse, the insurance courts and the joint commissions, because santésuisse is ultimately left empty-handed without regression indices. It is therefore essential to understand the regression index.

In an attempt to increase the sophistication of the evaluation of cost-effectiveness among physicians in private practice (so-called physician profiling), the regression index was developed, and includes demographic (e.g. age, gender, canton of residence, deductible) and medical data (hospitalization in the previous year, pharmaceutical cost groups [PCG]) of patients. A linear regression model calculates the allowances per PCG, for example in 2022 the PCG "NIE" (kidney disease) allowed for additional expenses of CHF 67,962, "PAH" (pulmonary arterial hypertension): CHF 51,961, "CRC" (cancer): CHF 41,342, and "MSK" (multiple sclerosis): CHF 22,038.¹

Pharmaceutical Cost Groups depict chronic and costly diseases, an insurers risk

Pharmaceutical cost groups (PCGs) were developed and used worldwide exclusively for the risk equalization among *health insurers*, operationalized by the Swiss federal

government by ordinance (VORA)². Their purpose is to estimate the degree of morbidity of the insured in order to extrapolate the total costs they incur.

What effect do PCGs have on risk equalization among health insurance companies?

The number of persons who switch health insurance companies has exploded recently: around one million (more than 1/10 of the population) per year. With costs of CHF 500-800 per person changing their insurer, this results in annual costs of CHF 500-800 million. Risk-equalization among health insurance companies is intended to reduce the interest of these companies to attract low-risk-insured, however the use of PCG leads to a paradoxical effect³. The list of pharmaceutical cost groups used in Switzerland has already proven to be unsuitable for risk equalization among health insurers⁴.

The PCG model does not work, among other reasons, because a linear regression model is used instead of a hurdle model in heavy-tail (Pareto) distributed cost structures⁵, and risk equalization is more effective when diagnostic cost groups (with marginal use of PCG) are used.⁶

We observe a failure of the PCG method for risk equalization among health insurers covering several million patients. The problem of statistical error and the statistical uncertainty term of risk equalization is multiplied at the level of medical practices, where only about 1000 patients are usually treated. How can the scientific verification of the regression index have failed to such a degree? How, in particular, could the emphasis on costs of chronic diseases, which have the greatest impact on the *costs insurers have to cover*, be applied to physicians in ambulatory medicine with the concomitant assumption that the treatment of chronic diseases is more economical than the treatment of acute diseases?

When confronted with this problem, the press office of the Federal Department of Home Affairs and the Federal Office of Public Health responded that a report by the ZHAW Winterthur had demonstrated the positive effect of the PCG regression model⁷.

However, the authors of this report made the following observations in their assessment:

- "Based on the feedback from the insurers, it can be stated that the predictability of both the total transfer amount and the individual approaches in risk equalization with PCG became significantly worse compared to risk equalization without PCG."
- "From a statistical point of view, the question arises as to whether the linear regression model on which the risk equalization is based should be adjusted. As explained in more detail in Appendix 9.11, the model used leads to distortions and possible false statements."

- "However, 20% of insured persons without costs are also incorrectly identified by the PCG as having costs in subsequent years, which corresponds to a high error rate."
- "Furthermore, the large differences in scattering mean that the assumptions of the underlying linear regression model are in some cases severely violated".

All approved medication is cost-effective

Members of our group have analyzed the methods used in Switzerland to determine whether doctors work cost-effectively for more than 20 years⁸.

All medication that is approved by Swissmedic is cost-effective⁹, so using only one third of the Swissmedic-approved pharmaceuticals in cost groups (PCG) to evaluate the cost-effectiveness of doctors is not only nonsensical, but also more complicated and error-prone than the morbidity-adjusted index (MBI)¹⁰, where the total cost of medication is used as a proxy for morbidity. The potential for misidentifying doctors as not cost-effective has been described by our group in 2014: "For the time being, the high segment of total costs of medicines (e.g. > 5'000 CHF per patient year [author's note]) should provisionally replace the PCG-based models as a proxy variable. In order to improve risk equalization, from morbidity variables (severity of illness), sociological factors and multimorbidity should be evaluated from 2017¹¹."

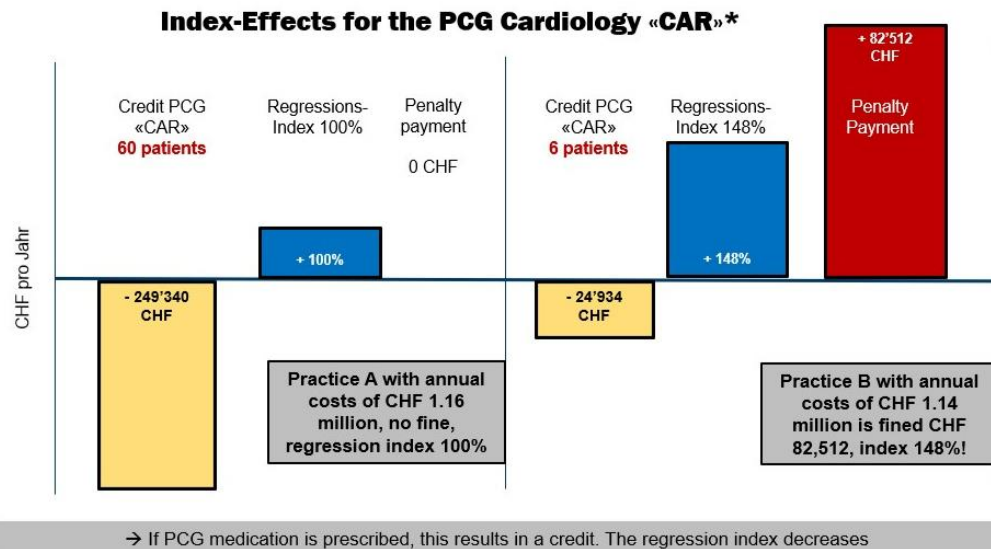
Since 2017, an *abbreviated* PCG list (originally stipulated by the Swiss federal government to improve risk equalization among health insurers) is used in the calculation of the regression index that represents the decisive criterion in determining whether doctors treat cost effectively in private practices.

Thus, the risk for reclaims by santésuisse has increased dramatically since the regression index was implemented in 2017, especially for cardiologists, among other physicians, who do not prescribe drugs included in the PCG-list or do not prescribe medication at all, while those cardiologists, who more frequently prescribe PCG-listed medications receive an allowance in Swiss Francs, reducing their total cost per year generated in their cardiological practice.

Medical practices are therefore not judged on the basis of the appropriateness of their prescriptions, but are interpreted as economically inconspicuous if they treat (chronic) diseases expensively enough.

We have developed an app to simulate the effect of drug prescriptions on the regression index and the associated allowances (up to several 100,000 CHF) for the outpatient cardiology specialist group. You are guided through step by step.¹²

Santésuisse Regressionsindex



*There is a reimbursement of CHF 4,420 per PCG "CAR". **Base case:** Prescription of ivabradine, amiodarone and nitrates each for 20 patients, respectively, and total care costs of CHF 1.15 million for 1,000 patients leads to a total allowance of CHF 249,340. The regression index is 100% in the base case. **Suspicious practice:** treats 2 instead of 20 patients and receives a reimbursement of CHF 24,934. This results in an increase in the regression index from 100% to 148% and is associated with a reclaim of CHF 82,512.

Are PCGs useful in comparisons of cost-effectiveness (physician profiling)?

Health insurers have been using the PCG model for comparisons of cost-effectiveness (physician profiling) among *all* ambulatory medical practices since 2017 (the regression index uses linear regression instead of a hurdle model¹³).

Instead of being calculated at the health insurer level, the regression method is calculated at the level of *speciality-groups (such as cardiologists)*, and santésuisse has not disclosed the amount of reimbursement per PCG and per speciality-group.

However, by analogy with the individual health insurers, the function of this model shows that, for example, a doctor's practice that prescribes Xarelto 20 mg/d might be penalized with annual drug costs of CHF 1,397 (because this drug is not assigned to a PCG), while the prescription of sildenafil 3x20 mg per year is linked to the PCG "PAH", which means that the doctor's practice could receive an allowance of CHF 45,371.¹⁴

These figures for penalties and allowances per PCG were taken from the risk equalization among health insurers. There, only pharmaceuticals with high annual costs for predominantly chronic diseases are considered in the PCGs.¹⁵ Drugs that *avoid* high medical costs, i.e. are particularly cost-effective in acute (or chronic) medicine, do not even appear on the PCG list.

In December 2023, the Swiss Federal Supreme Court negated the evidentiary value of the regression index in its decision 9C_135/2022¹⁶. This decision is correct and was overdue, as around 2/3 of all medication approved by Swissmedic - with annual costs of around CHF 5 billion in 2022¹⁷ - are fully attributed as uneconomical costs to medical practices using the regression index, because these pharmaceuticals are not included in the PCG-list. This means that many medical practices that are identified as potentially not cost-effective, simply prescribe the "wrong" or non-PCG-listed medication¹⁸.

Conclusion

PCG's are not suited to reveal a lack of cost-effectiveness for the purpose of physician profiling: only 1,084 of 3,267 pharmaceuticals appear on the PCG list, even though all pharmaceuticals that are approved by Swissmedic are by definition cost-effective.

In other words, practices are penalized for correct prescriptions. This cannot be the basis for evaluating the cost-effectiveness of doctors in private practice in Switzerland as part of an equitable cooperation between collective bargaining partners. A new WZW contract¹⁹ (without pharmaceutical cost groups as implemented in Switzerland at present) must be built on a correct statistical and legal basis, and the criteria of clinical effectiveness and appropriateness must be given priority for an adequate physician profiling.

As several thousand doctors a year were falsely identified by santésuisse between 2017 and 2024 as not cost-effective, they were forced to pay fines to santésuisse, some of which amounted to several hundred thousand francs.

Our investigations also lead to fundamental considerations:

1. flawed methodology: as the PCG-based models are demonstrably unsuitable for identifying cost-inefficiency, and santésuisse knew or should have known this, a claim for recompensation of damages incurred could exist.
2. breach of trust: Medical practices have acted in trust in the accuracy and fairness of the physician profiling methods used. If this trust was knowingly abused, this may provide the basis for litigation.

A failure of scientific regulation has led to injustice. Now, science must be implemented correctly to prevent further injustice and worse medical care.

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