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Health Technology Assessment (HTA)

Health Economic Report Protocol

Drivers Behind Increased Folate Testing in Switzerland

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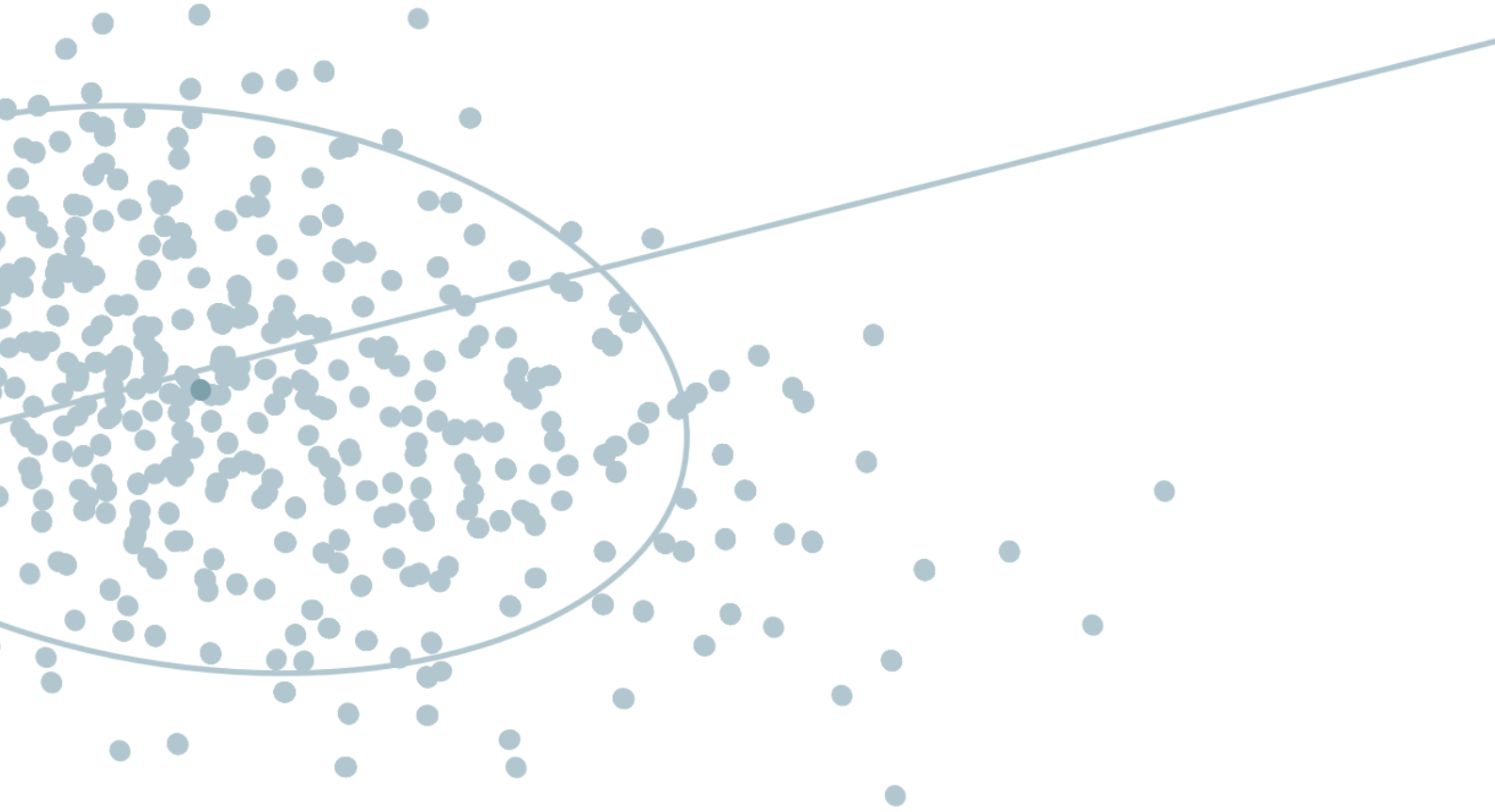

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The authors have no financial, academic, personal or any other conflicts of interest to declare in relation to this project.

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Cover image: Simplified representation of a fictional probabilistic sensitivity analysis on a cost-effectiveness plane with the diagonal willingness-to-pay line.

Executive Summary

Despite no corresponding changes in medical necessity, the sharp increase in folate testing in Switzerland has raised concerns about its appropriateness and economic implications. The Federal Office of Public Health (FOPH) highlighted this issue in its 2023 HTA Short Report, which projected that the costs of folate testing would rise from CHF 14.2 million in 2022 to CHF 21.5 million by 2026. The Short Report found no clear evidence that folate testing improves patient outcomes, influences treatment decisions, or significantly impacts supplementation strategies. The available studies were of low certainty or provided conflicting findings, and no Swiss-specific clinical guidelines for folate testing was identified. Building on these findings, the upcoming health economic report seeks to define and quantify the overuse of folate testing in Switzerland and identify the underlying factors contributing to this trend.

To achieve this, the study will apply a mixed-methods approach, combining a systematic literature review, expert interviews, claims data analysis, and cost evaluations from laboratories. The literature review aims to assess the prevalence of folate deficiency, identify relevant risk factors, and examine changes in medical guidelines. Expert interviews will be conducted to gather insights from clinicians, laboratory professionals, and health insurers regarding clinical decision-making, laboratory workflows, and reimbursement policies. Claims data from health insurers and the SASIS tariff pool will be analyzed to examine testing patterns over time, with a focus on regional differences, variations between medical specialties, and changes in testing volumes. Additionally, laboratory data will be collected to evaluate the cost structure of folate tests and explore potential economic drivers influencing testing behavior.

The analysis will focus on patterns of prescribing folate testing and tries to identify the extent of overuse by distinguishing between justified changes in medical practice and testing increases that cannot be explained by shifts in morbidity. A rate decomposition analysis using Das Gupta's method will be applied to separate increases driven by demographic changes from those resulting from shifts in testing behavior. By examining trends across subgroups such as age, gender, medical specialty, and canton, the study will determine whether the observed rise in folate testing can be attributed to legitimate medical needs or potential structural and economic factors.

By integrating data from various sources, the study will systematically evaluate the factors contributing to the increased use of folate testing. Claims data will be used to identify deviations in testing patterns, while laboratory cost analysis will help assess whether financial incentives play a role in test utilization. Expert interviews will complement these findings by providing context on medical decision-making and reimbursement structures.

The findings from this research will provide evidence-based insights into the drivers of folate test overuse in Switzerland. By systematically analyzing clinical, economic, and structural factors, this

study aims to contribute to a more efficient and evidence-based approach to folate testing within the Swiss healthcare system.

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Abbreviations and acronyms

ATC	Anatomical Therapeutic Chemical
BFS	The Swiss Federal Statistical Office
CBC	Complete blood count
FOPH	Federal Office of Public health
Holo TC	Holotranscobalamin
HTA	Health Technology Assessment
KVG / OKP	Compulsory health insurance
LDH	Lactate dehydrogenase
MCV	Mean corpuscular volume
MFS	Médecins sans frontiers
5-MTHF	5-methyltetrahydrofolate
MMA	Methylmalonic acid
N.A.	not applicable
OMN	Polymorphonuclear neutrophil
PLT	Platelet
RBC	Red blood cells
THF	Tetrahydrofolate
VVG	Supplementary insurance
WBC	White bood cells
ZSR	Zahlstellenregister

Objective of the Health Economic Report Protocol

Based on a preliminary screening of the literature the objective of the health economic report protocol is to formulate the research questions and describe the methodology to be applied.

1. Policy question and context

In Switzerland, there are currently no restrictions on compulsory insurance coverage for folate tests.[1] A sharp increase in the number of folate tests has been observed, despite no corresponding change in medical necessity. In June 2023, the Federal Office of Public Health (FOPH) published an HTA short report on folate testing. A budget impact analysis in this report projects that the total costs of folate testing, excluding the flat rate per contract laboratory order, will increase from CHF 14.2 million in 2022 to CHF 21.5 million in 2026.

The HTA short report examined the efficacy, effectiveness, and safety of folate testing. However, the reviewed studies were either of low certainty or provided conflicting findings, leaving the effectiveness of folate testing uncertain. There was no clear evidence that folate testing improves patient outcomes, influences supplementation decisions, or affects treatment strategies.

This health economic report aims to define and quantify the potential overuse of folate testing in Switzerland and identify potential drivers behind this overuse.

2. Background

In the following chapter the medical background of folate will be evaluated. First the sources of folate will be shown, second its uptake and function will be described and third, folate deficiency will be evaluated. For further details, the short report can be consulted as it provides foundational information on this topic.

2.1 Sources of folate

Most foods contain folates. The highest concentrations are found in animal-based sources such as liver, yeast, dark leafy greens such as raw spinach, other green vegetables, as well as nuts and fruits. For a Western diet, the folate content is approximately 400 µg/day. However, this varies depending on the type of food and its preparation. Folate is particularly sensitive to cooking and can be degraded by heat. The body's folate stores are sufficient for only 3-4 months in healthy adults. This means a folate deficiency can occur even in the short term.[2]

Some countries have introduced mandatory fortification of staple foods with folic acid, leading to significant reductions in neural tube defect rates and other deficiency-related conditions in these populations.[3] However, Switzerland does not currently mandate such fortification, instead relying on private initiatives to promote folate-rich diets and supplementation.[4]

2.2 Uptake and function

Folic acid, also known as vitamin B9 or pteroylglutamic acid, is a water-soluble organic acid. Its water solubility allows it to be easily absorbed and transported in the bloodstream; however, it is

not stored in significant amounts in the body, necessitating regular dietary intake.[5] In the gastrointestinal tract, polyglutamate folates must first be converted into simpler di- and monoglutamate forms by specific enzymes called conjugases to enable effective absorption.[4]

The primary role of folate is to facilitate the transfer of single-carbon (C1) units, a process that is critical in nucleic acid and amino acid metabolism. DNA synthesis, specifically the formation of thymidine and purines, depends on folate. Additionally, folate is essential for synthesizing methionine from homocysteine, a reaction that influences epigenetic processes such as DNA methylation. This regulation of gene expression is vital for developmental health, influencing cellular differentiation, growth, and the prevention of diseases like cancer.[6]

The metabolic pathway of vitamin B12-dependent methionine synthase is closely linked to the folate cycle. Vitamin B12 is essential for converting 5-methyltetrahydrofolate (5-MTHF) back into tetrahydrofolate (THF), a necessary step for DNA synthesis.[6] The 'methyl trap hypothesis' describes how, in the absence of B12, folate remains trapped in its inactive form, leading to a functional folate deficiency despite adequate intake. In contrast, B12 itself is already in its active form and does not require folate for activation.[7]

2.3 Folate deficiency

As stated above, folate plays an important role in DNA synthesis as well as in epigenetic processes.[6] Untreated folate deficiency has been linked to various medical conditions, including megaloblastic anemia, cardiovascular diseases and neuropsychiatric disorders, underscoring its critical role in maintaining overall health.[6,7,8]

Folate deficiency during pregnancy can lead to complications such as placental abruption, congenital malformations (notably neural tube defects), and developmental delays in offspring.[9] Therefore, periconceptional folic acid supplementation is advised, which has been shown to reduce the risk of neural tube defects and potentially other disorders like autism spectrum disorder, likely due to its role in DNA methylation and neurodevelopment.[10]

2.3.1 Causes and risk factors

The causes and risk factors of folate deficiency can be categorized in following groups: inadequate dietary intake, increased requirements, impaired absorption, increased loss and metabolic impairments. These causes are further clarified in more detail in the HTA Short Report.[1]

2.3.2 Signs and Symptoms

Clinical manifestation of folate deficiency includes megaloblastic anemia, characterized by enlarged and immature red blood cells due to impaired DNA synthesis, as well as leukopenia and thrombocytopenia. Non-specific symptoms such as fatigue, irritability, difficulty concentrating, and shortness of breath are common.[11]

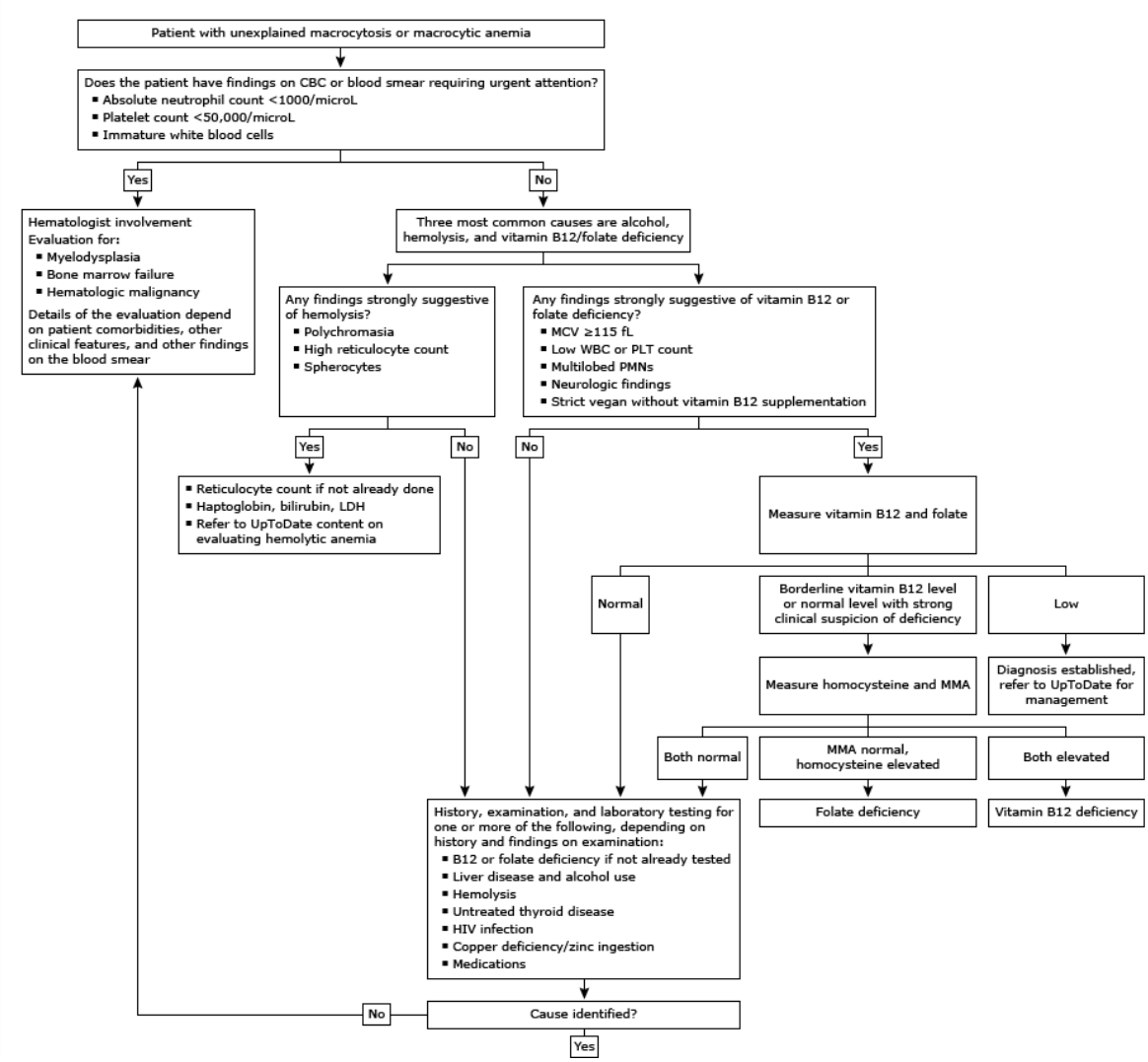
2.3.3 Diagnosis

The diagnosis of folate deficiency is complex, with no single test serving as a diagnostic reference standard.[11] Folate deficiency can be diagnosed by measuring folate levels in the blood, either in serum (1329.00) or erythrocytes (1330.00). Serum folate reflects recent dietary intake and can drop within weeks of insufficient intake. Therefore, serum folate is not strictly a diagnostic test for body folate depletion. Additionally, recent alcohol abuse may result in a low serum folate concentration without actual body depletion because alcohol interferes with folate absorption and accelerates its breakdown and excretion.[12]

However, folate levels in red blood cells provide a more stable measure of long-term folate stores, reflecting folate levels over the last four months. Direct methods of determining folate deficiency include measurement of folate concentration in the blood, using either serum folate or RBC folate tests.[13]

Clinical decision-support platforms such as SurfMed and UpToDate recommend folate testing in the context of anemia.[14,15] Anemia, which causes the symptoms associated with folate deficiency mentioned above, is typically diagnosed using a complete blood count (CBC). A low hemoglobin level in the CBC indicates anemia, which can be classified as microcytic, normocytic, or macrocytic. Macrocytic anemia is characterized by larger-than-normal red blood cells, measured by mean corpuscular volume (MCV) in the CBC.[15] The presence of macrocytic changes can be either megaloblastic or non-megaloblastic, with megaloblastic changes usually indicating a vitamin B12 and/or folate deficiency.[11] These platforms do not specify whether serum or RBC folate testing should be preferred.

Figure 1: Evaluation of unexplained macrocytosis (high MCV) or macrocytic anemia [15]



Common causes of macrocytosis and macrocytic anemia include alcohol; liver disease; pernicious anemia, bariatric surgery or strict veganism without vitamin B12 supplementation.

MCV: mean corpuscular volume; CBC: Complete blood count; WBC: White blood cell; PLT: platelet; OMN: polymorphonuclear neutrophil; LDH: Lactate dehydrogenase; HIV: human immunodeficiency virus; MMA: Methylmalonic acid

The HTA Short Report identified only one guideline that proposed a threshold for interpreting test results, with the supporting evidence being of low quality and partially outdated.[16] No Swiss-specific guidelines on folate testing were identified, and no general clinical practice guidelines for folate testing were found.

Since untreated B12 deficiency can lead to irreversible neurological damage, it is crucial to test for both vitamin B12 and folate in macrocytic anemia. Folate supplementation in patients with a concurrent B12 deficiency can temporarily correct the hematological abnormalities while the neurological symptoms progress, as the underlying B12 deficiency remains unaddressed. This highlights the importance of testing for both vitamin B12 and folate when evaluating suspected deficiencies.[7]

A folate level below the defined normal threshold indicates folate deficiency. However, threshold values vary across different guidelines, as highlighted in the HTA Short Report.[1] There is no consensus on the cut-off value for folate deficiency, and values differ depending on the source. The British Committee for Standards in Haematology, the European Food and Safety Authority, and the World Health Organization each define different cut-off values for serum and RBC folate levels.[11,17,18] For more detailed information regarding these cut-off values, refer to the HTA Short Report.

The cut-off values used by analytical laboratories in Switzerland to diagnose folate deficiency are not published.[8] Cut-off values have been found to depend on the analytical platform used.

The HTA Short Report underscores the variability in diagnostic standards and the lack of consensus on which test to use or what cut-off value defines deficiency.[1]

2.3.4 Prevalence

The lack of a standardized cut-off value for serum folate tests complicates accurate prevalence assessments.

In the HTA Short Report, no studies were identified that estimate the prevalence of folate deficiency in the general Swiss population; however, a recent cohort study investigating RBC folate levels in Swiss women (171 women of reproductive age and 177 who were pregnant) reported that 19.9% of women of reproductive age and 2.8% of pregnant women were folate deficient (RBC folate concentration <340 nmol/L). Of the women who were pregnant, 83% were on supplements containing folate, compared with 11% of women of reproductive age.[4]

2.3.5 Management

Folate deficiency is managed through folic acid supplementation, with dosage and duration depending on the underlying conditions. Standardized prophylaxis is recommended for risk groups such as pregnant women, individuals with chronic hemolytic states, patients on dialysis, chronic alcohol users, and those on medications that interfere with folate metabolism.

If a folate test is performed, treatment or supplementation is adjusted based on the severity and cause of the deficiency. Supplementation is available in various forms and dosages to suit individual patient needs. Acidum folicum is an example of a commonly used folic acid supplement, while prophylaxis during pregnancy in Switzerland is commonly provided through Elevit, which is a common choice for pregnancy prophylaxis in Switzerland. It is recommended for preconception, pregnancy, and postpartum stages.[8,11,18]

In many countries, folic acid fortification of food is implemented as a public health measure to reduce folate deficiency and associated conditions such as neural tube defects. Countries like the United States and Canada have mandatory folic acid fortification programs, which have been linked to a reduction in deficiency-related health issues. However, Switzerland does not have mandatory folic acid fortification. Instead, public health strategies focus on voluntary supplementation and dietary recommendations.[4]

For more detailed information on management strategies, refer to the HTA Short Report.[1]

2.4 Reimbursement in Switzerland

In Switzerland, both serum and RBC folate tests are reimbursed by compulsory health insurance when a medical indication is present. However, folate testing conducted as part of general health screenings, wellness check-ups, or similar preventive measures is not reimbursable and must be self-paid or fall under supplementary health insurance. Nevertheless, health insurances cannot determine from submitted invoices whether an indication for folate tests is present or not.

The reimbursement for folate tests changed in August 2022, as listed in the Swiss "Analysenliste" (German), "Liste des Analyses" (French), and "Elenco delle analisi" (Italian)[19]:

– Serum folate test: Tax points reduced from 13.1 to 11.8

– RBC folate test: Tax points reduced from 21 to 18.9

3. Research questions

The above-described developments of folate testing have raised concerns about the appropriateness of prescription of these tests and their economic impact, with projected annual costs escalating significantly.

The short report investigates the clinical, economic, and ethical challenges associated with folate testing in Switzerland.[1] This follow-up report addresses the following research questions:

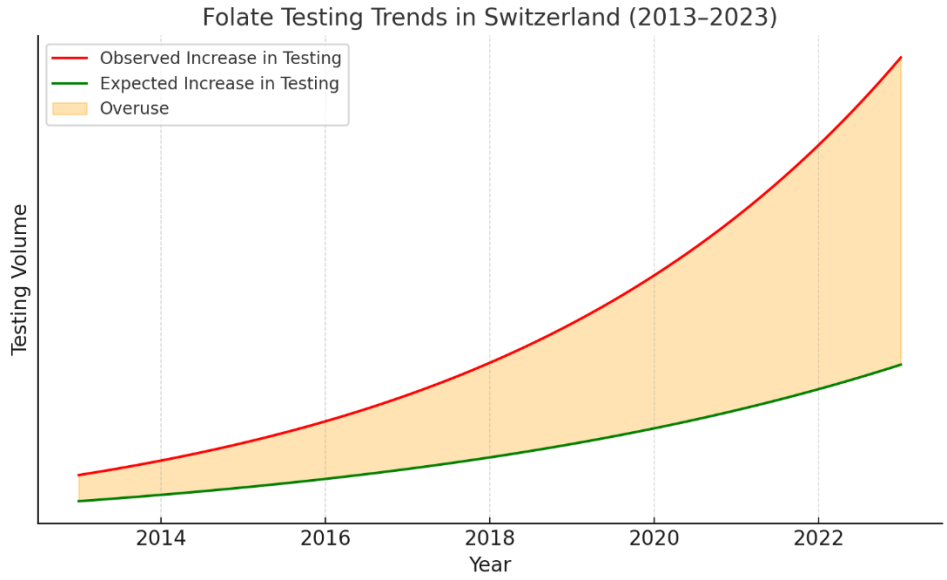
1. **Extent of Overuse**: What proportion of folate tests performed in Switzerland over the past years (2013-2023) can be classified as overuse?
2. **Budgetary Impact**: What are the financial implications of overuse on the healthcare budget?
3. **Root Causes**: What are the primary drivers of folate test overuse, and how significant is each factor?
4. **Mitigation Strategies:** How can overuse caused by each identified driver be effectively addressed?

4. Methodology

The following chapter outlines the empirical methodology of this report. The empirical contribution is derived from a literature review, a series of expert interviews, and the utilization of various data pools. The data collection is designed to address the main questions of this report, primarily aiming to analyze the increase in folate testing in Switzerland over time. By comparing results from different data sources, this study seeks to define folate overuse, quantify its extent and identify underlying drivers.

Overuse in the context of this report can be understood as folate tests that cannot be attributed to justified or adequate changes in medical practice or shifts in the morbidity of the Swiss population. The accompanying graph (fig 2) illustrates this by showing the observed increase in testing volume (red curve) compared to the expected increase (green curve) over time. The gap between these curves, highlighted in orange, visually represents the overuse of folate testing. A more precise definition of overuse will be established after data collection and analysis, allowing for clearer distinctions in clinical and economic evaluations.

Fig 2: Illustration of Folate Testing Trends in Switzerland (2013–2023)



Note: This graph is illustrative and not based on real data.

4.1 Research design – Mixed method approach

To address the research questions a mixed-methods approach combining qualitative and quantitative data collection and analysis will be applied. To ensure a comprehensive basis for the analysis data will be gathered from literature, expert opinions and existing data pools.

This approach is designed to assess the extent of folate overuse and explain its underlying causes using both bottom-up and top-down perspectives. While the bottom-up analyzes testing volumes at a granular level, the top-down approach evaluates broader trends, including regional and clinical variations.

By integrating both methods, potential deviations indicative of folate overuse can be systematically identified and interpreted.

4.2 Data sources and acquisition

In the following chapter the different data sources and its acquisition techniques will be explained.

4.2.1 Literature review data

A literature search will address the research questions from a top-down view. A systematic literature search aims to gain a deeper understanding of the change in morbidity by identifying the prevalence of risk factors and folate deficiency in Switzerland over time. This literature search will be conducted by two independent researchers with a vast medical background.
The systematic search of the scientific peer-reviewed literature addressing morbidity will be performed in PubMed.

Studies will be assessed by the following in- and exclusion criteria:

- Inclusion criteria:
    - Articles addressing the prevalence of folic acid deficiency in Switzerland.
    - Articles addressing the prevalence of vitamin B12 deficiency in Switzerland.
    - Articles addressing the prevalence of risk groups (malnutrition, inflammatory bowel disease) of folic acid deficiency in Switzerland.
- Exclusion criteria:
    - Articles published before 2013.
    - Articles addressing the prevalence of folic acid deficiency or its risk groups in other countries than Switzerland.
    - Articles focusing on other vitamin deficiencies.
    - Articles related to a small, specific population (e.g. vitamin deficiency among Swiss vegan and vegetarian populations in rural Switzerland).

The retrieved articles will initially be assessed on their title and abstract by the two reviewers. In terms of reproducibility, the reason of exclusion will be documented. The full text of the included articles will be assessed by one of the two reviewers. In case the article does not deem fit for inclusion, the article will be reviewed by the second reviewer. Disagreement on article inclusion will be resolved by consensus, if consensus cannot be reached, a third independent reviewer will be consulted.
Furthermore, grey literature searches on medical guidelines will be conducted by a single reviewer with a background in internal medicine. The medical guideline search aims to identify potential changes in medical guidelines concerning folate testing in Switzerland.

4.2.2 Interview data

The goal of the expert interviews is to complement the literature review and the analyzed data as well as using the unique knowledge of different experts in the specific field of research to expand the obtained results.

As part of this study, interviewees representing all relevant players will be contacted, these include three distinct key players, each offering different insights into folate testing practices:

- Medical experts (e.g., clinicians and specialists)
- Laboratory professionals
- Health insurers

The interview will explore various topics, including:

- Indications for folate testing – when and why folate deficiency testing is performed
- Folate testing practices – general testing procedures and laboratory workflows
- Reimbursement policies – how folate tests are reimbursed and the role of insurers

The potential interview participants will be contacted via e-mail. To increase the response rate for interview confirmations, 100 Swiss Francs will be donated to Médecins sans frontiers (MSF). If there are no responses or negative feedback, a follow-up e-mail will be written. By following this approach, the goal is to cover all perspectives listed above.

The interviews are planned to last one hour, with an additional hour allocated for the experts' preparation and debriefing. The interviews will be conducted in a semi-structured manner, meaning that each participant will receive the same interview guideline with standardized questions tailored to their expert group. The interview questions can be found in Appendix C.

This approach ensures that the results can be compared and analyzed consistently during the data analysis phase. At the end of the interview, the researchers will have the opportunity to ask a few exploratory questions based on the previous answers and the data affinity of the experts. If necessary, initial quantitative data can already be shown from the data pools to obtain perspectives on graphs that show folate testing over time (per age group, gender or canton).

4.2.3 Claims data

The goal of using multiple data pools is to obtain both granular and aggregated insights, allowing for a more comprehensive understanding of literature findings and expert opinions. This combination strengthens the data foundation to answer the research questions.

Data will be obtained from health insurers and the SASIS tariff pool, which contains aggregated data from all health insurers, ensuring representativeness and robustness in the subsequent analysis. Combining both data sources allows for a high level of granularity when examining testing patterns.

The data will focus on tests for folate in blood or erythrocytes, defined by tariff codes 1329.00 and 1330.00. Related tests, including Vitamin B12 (1749.00) and Holotranscobalamin (1727.10), as well as medications correlated to folate, will be included to ensure a holistic evaluation of folate-related diagnostics, prophylaxis and treatment. Data specifications for health insurers and the SASIS tariff pool are found in Appendix A and B.

A limitation of individual insurer data is, that it only covers the market share insured by each health insurer. Therefore, data needs to be obtained from a large-scale insurer, which covers a substantial proportion of the Swiss population and has a geographically even distribution across all cantons. The request for data acquisition will be submitted by the FOPH.

Once the data is acquired, data scientists with extensive experience in Swiss healthcare data will assess its completeness and quality before analysis. Any issues identified will be addressed directly with the data providers to ensure a comprehensive dataset.

4.2.4 Statistical data (BFS)

The Swiss Federal Statistical Office (BFS) provides a wide range of national statistical data related to demographics, health, and healthcare utilization. Data-acquisition of BFS will include the following topics:

- Age and sex distribution across the Swiss population
- Population growth over time
- Regional population distribution

This data will be used to contextualize and normalize found patterns in the data sources mentioned above.

4.2.5 Laboratory data for cost analysis

To gather insights of the process and costs of folate tests, data from a collaborating laboratory will be gathered. The laboratory will be asked about its size, structure, and costs. The goal is to evaluate the efforts and costs of folate testing, so that any possible structural or financial cost reasons for folate overuse can be identified.

To collect the data, the research team will visit a regional laboratory, which nonetheless has the necessary size to be representative for the cost calculation. This laboratory has agreed to provide the necessary data for understanding the process and to calculate the production cost of folate testing.

The research team will both ask for top-down (structural, size, overall cost) and bottom up (e.g. material cost, time effort of staff, technical cost) data. The gathered data will be used to calculate the costs of folate testing in the data analysis and thereby potentially identify structural or economic drivers of folate overuse.

4.3 Analytical Methods

In the following chapter the data analysis will be explained.

4.3.1 Literature Analysis of folate deficiency, risk factors, and testing guidelines

The literature analysis will be conducted by one reviewer with clinical experience in internal medicine. Based on the findings, the authors will evaluate whether the prevalence of given risk factor is large enough to meaningfully influence the rise in overall folate testing volume (2013-2023). If the literature identifies a high prevalence of a specific risk factor, further analysis of this factor will be conducted using previously acquired data from the sources outlined above. A cutoff value for prevalence will be defined based on the information gathered to determine which factors warrant additional investigation.

4.3.2 Interview analysis: perspectives on testing practices

The recorded interviews will be analyzed individually and summarized into their key statements and findings. Particularly interesting are statements that support or complement the literature search, or the quantitative data analyzed from the data pools, or that expand insights into the increased test volume. Furthermore, the interviews will be compared to identify both parallels and differences between the participants questioned.

4.3.3 Production cost analysis: evaluating laboratory tax point

The laboratory data will be analyzed top down using cost type, cost center, and cost unit accounting. Based on the total costs of the laboratory, an allocation key will be used to attempt a top-down calculation of the production costs for the two folate tests. Additionally, the direct costs of the folate tests will be calculated bottom-up to verify the top-down approach. For the bottom-up analysis, different cost units will be considered. First, costs of the start-module (e.g. unpacking the sample, feasibility check). Second, costs of the main module (e.g. personal cost, technical cost, material cost for the different process steps). Third, cost of the post-module (e.g. medical routine validation, order sign-off). Taking all these modules into account will help to calculate the production cost of folate acid from bottom-up.[20]

Both design techniques are combined to achieve an understanding of the overall system and to uncover as many details as possible. This analysis is used to compare the rates of the analysis list with the production costs of the laboratory. Understanding the actual production costs in relation to the tariff will help analyze structural and economic influences on prescribing and testing behavior over time.

4.3.4 Claims data analysis: testing patterns & utilization

Claims data analysis will be used to detect potential overuse by identifying deviations in testing frequency across medical specialties, types of insured individuals, and regional patterns. Specifically, statistical anomalies—such as a disproportionately high volume of tests ordered by specific providers or unexplained increases in folate testing among low-risk populations—will be flagged for further investigation.

Primarily, the analysis will investigate the increase in folate testing over time and the associated rise in costs. To explore the underlying drivers of this increase, the data will be examined from multiple perspectives. The specific analyses conducted will depend on available data and emerging findings.

The planned analyses include, but are not necessarily limited to:

- Testing trends across medical specialties (e.g., internal medicine, gynecology, gastroenterology, oncology).
- Differences in testing trends between mandatory health insurance and supplementary health insurance.
- Changes in folate-related medication use (treatment or prophylaxis).
- Trends in pregnancy rates and their impact on folate testing.
- Increase in medication use (e.g. methotrexate), as a risk factor for folate deficiency
- Changes in the number of folate tests per patient.
- Correlation between test-ordering patterns of specific physicians or medical specialists and laboratory utilization

Where relevant, the analyses will be stratified by sex, age, and canton to ensure a comprehensive assessment of testing patterns.

BFS data will be used to normalize the claims data findings, ensuring that observed trends are adjusted for population demographics and insurance coverage shifts. This approach will enable a more accurate estimation of overuse at the national level.

To further evaluate the data and understand the increase in folate testing, the rate decomposition analysis “Das Gupta principle” will be applied.[21]

Das Gupta’s method is used to decompose changes in overall folate testing rates into two key components:

- Compositional effect: The portion of the rate difference attributable to changes in population structure (e.g., shifts in age or gender distribution). This effect assumes that testing rates within each subgroup remain constant and isolates the impact of demographic changes.
- Rate effect: The portion of the rate difference caused by changes in testing rates within specific subgroups (e.g., an increase in folate testing among women of childbearing age, independent

of population growth). This captures actual shifts in medical practice and testing behavior over time.

The analysis will be conducted across the following subgroups: age, gender, medical specialty of the referring physician, laboratory, and canton. Group-specific testing rates will be calculated at the two time points 2013 vs. 2023 using data from health insurers, the SASIS tariff pool, and BFS.
This method will help determine whether the observed increase in folate testing between 2013 and 2023 is driven primarily by population changes or by shifts in testing behavior within subgroups. Identifying these drivers will possibly provide valuable insights into the factors contributing to the overall increase in folate testing. While this method aims to provide valuable insights, the extent to which the results will yield meaningful conclusions depends on available data.

4.4 Synthesizing findings

The integration of findings will synthesize results from all analyses, providing a comprehensive understanding of the factors driving the observed increase in folate testing in Switzerland. By triangulating insights from multiple sources—including claims data, BFS statistics, literature reviews, expert interviews, and production cost analysis—this process will ensure that the conclusions are robust and supported by diverse evidence.
Findings will be categorized into key driver groups that may explain the rise in folate testing. The main potential drivers include, but are not limited to:

- Changes in medical practice
- Changes in morbidity patterns in the Swiss population
- Economic factors, such as financial incentives and reimbursement policies

If discrepancies arise between data sources, findings will be weighted based on the strength of the evidence and its alignment with objective metrics. Claims data and statistical analyses will serve as primary quantitative indicators, while literature and expert opinions will provide both qualitative and some quantitative insights into causal mechanisms. Contradictory findings will be systematically examined to determine whether they reflect methodological differences, sample limitations, or genuine variations in clinical practice.
The results will be systematically aligned with the research objectives, quantifying the relative contribution of each driver to the observed trends as accurately as possible. Data-driven findings will be cross-referenced with expert interviews to validate interpretations, clarify uncertainties, and address potential discrepancies. Insights will also be compared to the literature to ensure consistency and to position the findings within a broader scientific context.

5. Summary and Outlook

5.1 Summary

This protocol outlines the background and methodology for an upcoming HTA report investigating the increase in folate testing in Switzerland. The HTA Short Report (2023) by the Federal Office of Public Health (FOPH) highlighted a sharp rise in folate testing despite no clear change in medical necessity. However, the available studies on folate testing's effectiveness were of low certainty or provided conflicting findings, leaving its clinical benefit uncertain. A budget impact analysis estimated that the costs of folate testing will increase from CHF 14.2 million in 2022 to CHF 21.5 million in 2026.

This protocol describes the planned research approach to define and quantify the potential overuse of folate testing and identify its underlying drivers. A mixed-methods approach will be applied, integrating literature review, expert interviews, claims data analysis, and laboratory cost assessments to assess trends in testing and reimbursement practices.

A rate decomposition analysis (Das Gupta method) will be used to differentiate between demographic effects and changes in testing behavior. Claims data from health insurers and the SASIS tariff pool will be analyzed to explore regional variations, specialty-specific trends, and overall utilization patterns. Expert interviews with clinicians, laboratory professionals, and insurers will complement the data analysis, providing insights into clinical decision-making and economic factors influencing testing rates.

5.2 Outlook

The protocol is followed by production of the health economic report. The objective of the report is to generate a focused assessment of various aspects of the health technology in question. The applied analytic methods, their execution and the results are described. The analytical process is systematic and transparent. The external review group that was consulted during the protocol phase is consulted again during the report phase. Subsequently, the draft report is presented to the stakeholders for consultation. Communication with the reviewers and the stakeholders is coordinated by the FOPH.

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7. Appendix

7.1 Appendix A: Data Specification Cost Carrier

DATEN AUF POSITIONSGRANULARITÄT

Bei Daten auf Positionsgranularität entspricht eine Zeile einer Rechnungsposition.

Erforderliche Filter

- Schadenart: Krankheit, Vorsorge, Schwangerschaft und Unfall
- Behandlungsart: Nur ambulante Positionen (keine stationären)
- Gesetzesgrundlage: KVG und VVG-Positionen
- Rechnungsstatus: Nur zur Auszahlung freigegebene Rechnungen berücksichtigen
- Behandlungszeitraum auf Positionsebene: 01.01.2013 - 31.12.2023

Benötigt werden alle **Labor-Positionen mit folgenden Tarifziffern**

- 1329.00: Folat, Blut
- 1330.00: Folat, Erythrozyten
- 1749.00: Vitamin B12 bzw. Cobalamin
- 1727.10: Holotranscobalamin (Holo TC)
- 1370.00: Hämatogramm I
- 1371.00: Hämatogramm II
- 1372.00: Hämatogramm III
- 1372.01: Hämatogramm III
- 1373.00: Hämatogramm IV
- 1374.00: Hämatogramm V

Dabei sollen folgende **Felder** bzw. Spalten ausgewiesen werden. Attribute, auf die ein Filter gesetzt werden muss (siehe oben), sind gelb markiert:

Nr.	Bezeichnung	Beschreibung	Beispiele[1]	Datentyp[2]	Bild[3]
1	rech_id	Rechnungsnummer (intern, vom Versicherer zugewiesen)	RG-165234852138, 359642587112, …	Varchar	---
2	rech_behgr	Behandlungsgrund der Rechnung (Schadenart)	Krankheit, Vorsorge, …	Varchar	A
3	rech_behart	Behandlungsart der Rechnung	Ambulant	Varchar	---
4	rech_gesetz	Gesetzesgrundlage der Rechnung (Rechnungskopf)	KVG	Varchar	B
5	rech_status	Rechnungsstatus (falls mehrere Felder den Status definieren, bitte kombinieren und nur einen Wert ausgeben)	Freigegeben	Varchar	---
6	lerb_zsr	Abrechnungsnummer (ZSR) des ausführenden Leistungserbringers (Rechnungskopf)	F485635, Z000010, …	Varchar	C

[1] Fiktive Beispiele zum Verständnis, intern definierte Werte (z.B. Rechnungsnummer, pseudonymisierte Versichertennummer, Rechnungsstatus etc.) können je nach Kostenträger anders aussehen.
[2] Varchar: Zeichenkette (Buchstaben, Zahlen, Sonderzeichen) mit variabler Länge / Date: Datum im Format JJJ-MM-DD / Decimal: Dezimalzahl mit mind. 2 Nachkommastellen / Integer: Ganze Zahl (ohne Nachkommastellen)
[3] Verweis, wo sich das Feld auf der TARMED-Beispielrechnung befindet (siehe Bild im Anhang).

Nr.	Bezeich-nung	Beschreibung	Beispiele[1]	Daten-typ[2]	Bild[3]
7	lerb_nm	Nachname des ausführenden Leistungserbringers	Müller, Schmid, …	Varchar	D
8	lerb_kt	Kanton des ausführenden Leistungserbringers (gemäss ZSR-Nummer)	GE, BE, ...	Varchar	---
9	lerb_og	Partnerart-Obergruppe des ausführenden Leistungserbringers (bitte folgendes Format verwenden: Code - Beschreibung)	21 - Laboratorien, …	Varchar	---
10	lerb_ug	Partnerart-Untergruppe des ausführenden Leistungserbringers (bitte folgendes Format verwenden: Code - Beschreibung)	2100 - Privatlaboratorien, …	Varchar	---
11	lerbzw_zsr	Abrechnungsnummer (ZSR) des zuweisenden (veranlassenden) Leistungserbringers (Rechnungskopf)	B098476, M493612, …	Varchar	6
12	lerbzw_nm	Nachname des zuweisenden (veranlassenden) Leistungserbringers (Rechnungskopf)	Meier, Frei, …	Varchar	---
13	lerbzw_kt	Kanton des zuweisenden (veranlassenden) Leistungserbringers (gemäss ZSR-Nummer)	VS, LU, ...	Varchar	---
14	lerbzw_og	Partnerart-Obergruppe des zuweisenden (veranlassenden) Leistungserbringers (bitte folgendes Format verwenden: Code - Beschreibung)	01 - Ärzte, …	Varchar	---
15	lerbzw_ug	Partnerart-Untergruppe des zuweisenden (veranlassenden) Leistungserbringers (bitte folgendes Format verwenden: Code - Beschreibung)	0100 - Allgemeinmedizin, …	Varchar	---
16	vers_id	Versichertennummer (intern, vom Versicherer zugewiesen). Bitte pseudonymisieren!	32658dgh3258, 3568423693632, …	Varchar	---
17	vers_gebjr	Geburtsjahr des Versicherten	1976, 1950, …	Integer	E
18	vers_gs	Geschlecht des Versicherten	m, f, …	Varchar	---
19	vers_kanton	Wohnkanton des Versicherten zum Zeitpunkt der Leistungserbringung	AG, GR, …	Varchar	---
20	pos_code	Code zur eindeutigen Identifikation der Position (technischer Schlüssel)	kjiu-52369-kiuhg-56985-fdrvc, …	Varchar	---
21	pos_leistbg	Leistungsbeginndatum der Position	2023-10-09, …	Date	9
22	pos_tarif	Nummer des angewendeten Tarifs der Position (Tariftyp)	316, 317, …	Varchar	10
23	pos_tarifziff	Tarifziffer der Position	1749.00, 1329.00, …	Varchar	F
24	pos_txt_std	Standard-Tarifziffertext gemäss Tarifstammdaten der Position auf Deutsch	Vitamin B12 bzw. Cobalamin, …	Varchar	G

Nr.	Bezeich-nung	Beschreibung	Beispiele[1]	Daten-typ[2]	Bild[3]
25	pos_anz	Verrechnete Menge pro Tarif-position	1.00, 2.50, ...	Decimal	13
26	pos_betrag	Vom Leistungserbringer gefor-derter Positionsbetrag	147.95, 15.81, …	Decimal	24
27	BVL_KVG	Vom Versicherer geleistete Bruttoversicherungsleistung KVG	100.00	Decimal	---
28	BVL_VVG	Vom Versicherer geleistete Bruttoversicherungsleistung VVG	23.60	Decimal	---
29	BVL_NPF	Vom Versicherer nicht ge-deckte Leistung	0.00	Decimal	---

Datenlieferung

- Eine CSV-Datei (Codierungsstandard UTF-8) pro Behandlungsjahr
- Vor der Datenlieferung bitte sicherstellen, dass sensible Daten (Versichertennummer) pseudonymisiert wurden und keine Duplikate vorhanden sind. Jede Zeile (Rechnungsposition) sollte nur einmal vorhanden sein, dies kann mittels Feld pos_code überprüft werden.

AGGREGIERTE ÜBERSICHTSTABELLE

Zusätzlich wird eine Übersichtstabelle mit den untenstehenden **Dimensionen und Fakten** benötigt. Die Fakten sollen dabei über die Dimensionen aggregiert werden:

- Dimension: Behandlungsjahr, basierend auf dem Leistungsbeginndatum der Position
- Dimension: ZSR-Nummer
- Fakt: Distinct Anzahl Erkrankte (jeder Versicherte, bei dem mind. eine Leistungsposition bei der jeweiligen ZSR im jeweiligen Behandlungsjahr abgerechnet wurde. Jeder Erkrankte wird nur einmal gezählt auch wenn er mehrere Leistungspositionen/Leistungsdaten bei der jeweiligen ZSR im entsprechenden Behandlungsjahr hatte)

Erforderliche Filter

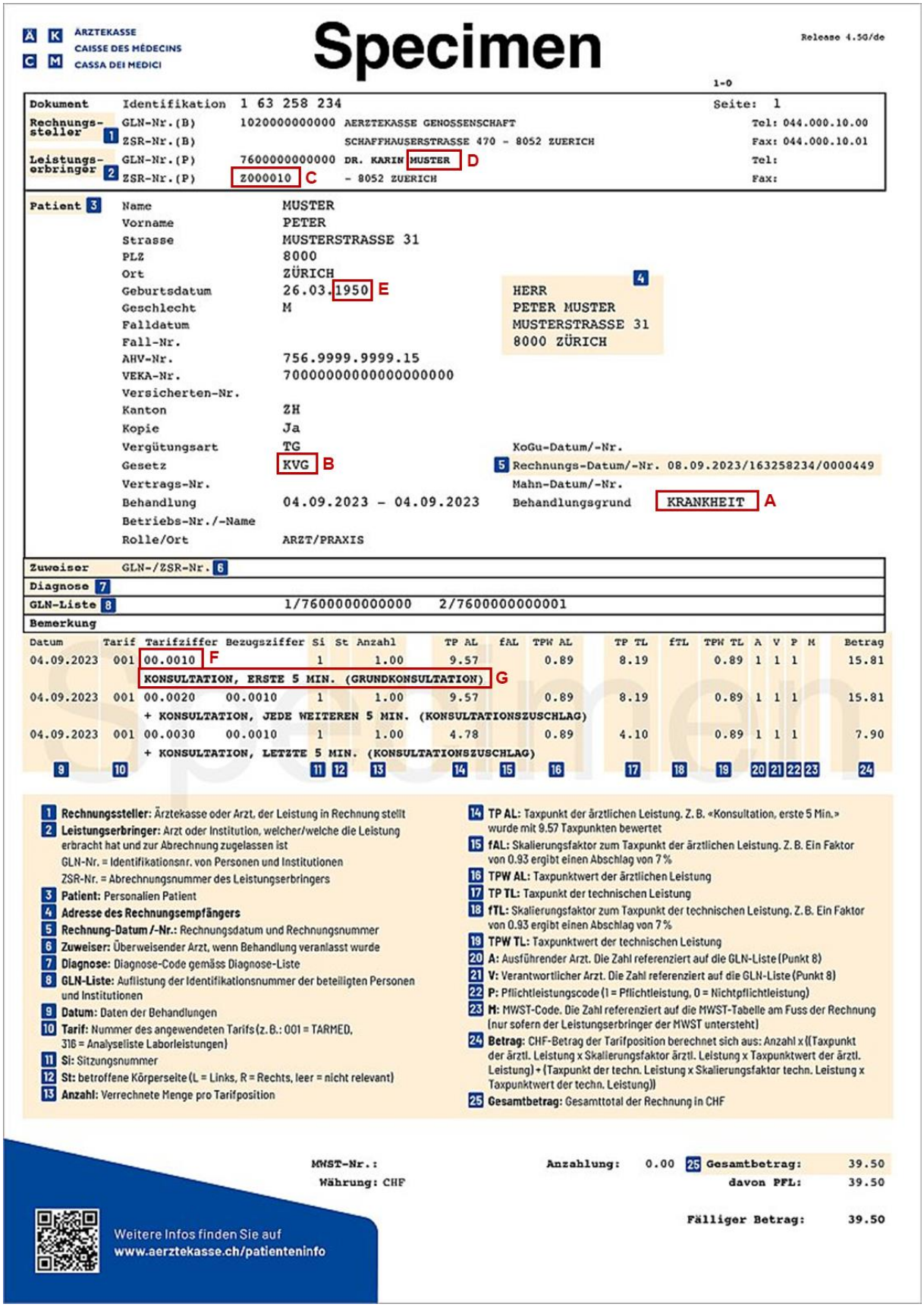
- Schadenart: Krankheit, Vorsorge und Schwangerschaft und Unfall
- Behandlungsart: Nur ambulante Positionen (keine stationären)
- Gesetzesgrundlage: Alle Positionen
- Rechnungsstatus: Nur zur Auszahlung freigegebene Rechnungen berücksichtigen
- Behandlungszeitraum auf Positionsebene: 01.01.2013 - 31.12.2023

Abgesehen von den oben genannten Einschränkungen sollen keine zusätzlichen Filter angewendet werden. Die Tabelle soll also sämtliche existierenden ZSR-Nummern umfassen und für jede Kombination aus Behandlungsjahr und ZSR-Nummer die distinct Anzahl der Erkrankten der jeweiligen ZSR ausweisen – unabhängig davon, welche Tarifpositionen abgerechnet wurde.

Datenlieferung

- Eine CSV-Datei (Codierungsstandard UTF-8) pro Behandlungsjahr

ANHANG



ÄRZTEKASSE
CAISSE DES MÉDECINS
CASSA DEI MEDICI

Specimen

Release 4.5G/de

1-0

Dokument	Identifikation	1 63 258 234		Seite: 1
Rechnungs-steller 1	GLN-Nr.(B)	1020000000000	AERZTEKASSE GENOSSENSCHAFT	Tel: 044.000.10.00
	ZSR-Nr.(B)		SCHAFFHAUSERSTRASSE 470 - 8052 ZUERICH	Fax: 044.000.10.01
Leistungs-erbringer 2	GLN-Nr.(P)	7600000000000	DR. KARIN MUSTER D	Tel:
	ZSR-Nr.(P)	Z000010 C	- 8052 ZUERICH	Fax:

Patient 3			
	Name	MUSTER	
	Vorname	PETER	
	Strasse	MUSTERSTRASSE 31	
	PLZ	8000	
	Ort	ZÜRICH	
	Geburtsdatum	26.03.1950 E	4 HERR PETER MUSTER MUSTERSTRASSE 31 8000 ZÜRICH
	Geschlecht	M	
	Falldatum		
	Fall-Nr.		
	AHV-Nr.	756.9999.9999.15	
	VEKA-Nr.	70000000000000000000	
	Versicherten-Nr.		
	Kanton	ZH	
	Kopie	Ja	
	Vergütungsart	TG	KoGu-Datum/-Nr.
	Gesetz	KVG B	5 Rechnungs-Datum/-Nr. 08.09.2023/163258234/0000449
	Vertrags-Nr.		Mahn-Datum/-Nr.
	Behandlung	04.09.2023 - 04.09.2023	Behandlungsgrund KRANKHEIT A
	Betriebs-Nr./-Name		
	Rolle/Ort	ARZT/PRAXIS	

Zuweiser	GLN-/ZSR-Nr. 6
Diagnose 7	
GLN-Liste 8	1/7600000000000 2/7600000000001
Bemerkung	

Datum	Tarif	Tarifziffer	Bezugsziffer	Si	St	Anzahl	TP AL	fAL	TPW AL	TP TL	fTL	TPW TL	A	V	P	M	Betrag
04.09.2023	001	00.0010 F		1		1.00	9.57		0.89	8.19		0.89	1	1	1		15.81
		KONSULTATION, ERSTE 5 MIN. (GRUNDKONSULTATION) G															
04.09.2023	001	00.0020	00.0010	1		1.00	9.57		0.89	8.19		0.89	1	1	1		15.81
		+ KONSULTATION, JEDE WEITEREN 5 MIN. (KONSULTATIONSZUSCHLAG)															
04.09.2023	001	00.0030	00.0010	1		1.00	4.78		0.89	4.10		0.89	1	1	1		7.90
		+ KONSULTATION, LETZTE 5 MIN. (KONSULTATIONSZUSCHLAG)															
9	10			11	12	13	14	15	16	17	18	19	20	21	22	23	24

1 **Rechnungssteller:** Ärztekasse oder Arzt, der Leistung in Rechnung stellt
2 **Leistungserbringer:** Arzt oder Institution, welcher/welche die Leistung erbracht hat und zur Abrechnung zugelassen ist
GLN-Nr. = Identifikationsnr. von Personen und Institutionen
ZSR-Nr. = Abrechnungsnummer des Leistungserbringers
3 **Patient:** Personalien Patient
4 **Adresse des Rechnungsempfängers**
5 **Rechnung-Datum /-Nr.:** Rechnungsdatum und Rechnungsnummer
6 **Zuweiser:** Überweisender Arzt, wenn Behandlung veranlasst wurde
7 **Diagnose:** Diagnose-Code gemäss Diagnose-Liste
8 **GLN-Liste:** Auflistung der Identifikationsnummer der beteiligten Personen und Institutionen
9 **Datum:** Daten der Behandlungen
10 **Tarif:** Nummer des angewendeten Tarifs (z. B.: 001 = TARMED, 316 = Analyseliste Laborleistungen)
11 **Si:** Sitzungsnummer
12 **St:** betroffene Körperseite (L = Links, R = Rechts, leer = nicht relevant)
13 **Anzahl:** Verrechnete Menge pro Tarifposition
14 **TP AL:** Taxpunkt der ärztlichen Leistung. Z. B. «Konsultation, erste 5 Min.» wurde mit 9.57 Taxpunkten bewertet
15 **fAL:** Skalierungsfaktor zum Taxpunkt der ärztlichen Leistung. Z. B. Ein Faktor von 0.93 ergibt einen Abschlag von 7 %
16 **TPW AL:** Taxpunktwert der ärztlichen Leistung
17 **TP TL:** Taxpunkt der technischen Leistung
18 **fTL:** Skalierungsfaktor zum Taxpunkt der technischen Leistung. Z. B. Ein Faktor von 0.93 ergibt einen Abschlag von 7 %
19 **TPW TL:** Taxpunktwert der technischen Leistung
20 **A:** Ausführender Arzt. Die Zahl referenziert auf die GLN-Liste (Punkt 8)
21 **V:** Verantwortlicher Arzt. Die Zahl referenziert auf die GLN-Liste (Punkt 8)
22 **P:** Pflichtleistungscode (1 = Pflichtleistung, 0 = Nichtpflichtleistung)
23 **M:** MWST-Code. Die Zahl referenziert auf die MWST-Tabelle am Fuss der Rechnung (nur sofern der Leistungserbringer der MWST untersteht)
24 **Betrag:** CHF-Betrag der Tarifposition berechnet sich aus: Anzahl x ((Taxpunkt der ärztl. Leistung x Skalierungsfaktor ärztl. Leistung x Taxpunktwert der ärztl. Leistung) + (Taxpunkt der techn. Leistung x Skalierungsfaktor techn. Leistung x Taxpunktwert der techn. Leistung))
25 **Gesamtbetrag:** Gesamttotal der Rechnung in CHF

MWST-Nr.:
Währung: CHF

Anzahlung: 0.00 25 Gesamtbetrag: 39.50
davon PFL: 39.50

Fälliger Betrag: 39.50

Weitere Infos finden Sie auf
www.aerztekasse.ch/patienteninfo

7.2 Appendix B: Data Specification Industry-Wide Data SASIS

Von Interesse sind **Tarifpool-Daten** mit folgenden Filtern:

- Schadenart: Nur Krankheit, Vorsorge, Schwangerschaft und Unfall
- Behandlungsart: Nur ambulant (Positionen von stationären Rechnungen ausschliessen)
- Gesetzesgrundlage: KVG- und VVG-Positionen
- Behandlungsjahre: 2013-2023 (falls verfügbar, ansonsten Geschäftsjahre)

Benötigt werden alle

- **Labor-Positionen mit folgenden Tarifziffern**
  - 1329.00: Folat, Blut
  - 1330.00: Folat, Erythrozyten
  - 1749.00: Vitamin B12 bzw. Cobalamin
  - 1727.10: Holotranscobalamin (Holo TC)
  - 1370.00: Hämatogramm I
  - 1371.00: Hämatogramm II
  - 1372.00: Hämatogramm III
  - 1372.01: Hämatogramm III
  - 1373.00: Hämatogramm IV
  - 1374.00: Hämatogramm V

- **Medikamenten-Positionen mit folgenden ATC-Codes**
  - L04AX03: Methotrexat
  - J01EE01: Trimethoprim
  - N03AB02: Phenytoin
  - N03AA02: Phenobarbital
  - N03AF01: Carbamazepin
  - N03AG01: Valproinsäure
  - A07EC01: Sulfasalazin
  - B03BB01: z.B. Acidum Folicum
  - B03AE01: z.B. Eisen Biomed
  - B03AE02: Elevit
  - B03AD03: z.B. Gyno-Tardiferon
  - B03AD04: z.B. Maltofer
  - L01BA01: Folsäure-Analog
  - L01BA03: Folsäure-Analog
  - L01BA04: Folsäure-Analog
  - L01BA05: Folsäure-Analog
  - A11AA03: Supradyn
  - A11EA: Becozym
  - A11DA01: Benerva

Dabei sollen folgende **Dimensionen und Fakten** ausgewiesen werden. Die Fakten sollen über die Dimensionen aggregiert bzw. aufsummiert werden. Attribute, auf die ein Filter gesetzt werden muss (siehe oben), sind gelb markiert:

Kategorie	Bezeich-nung	Beschreibung	Beispiele	Datentyp
Dimension	rech_behgr	Behandlungsgrund der Rech-nung (Schadenart)	Krankheit, Vorsorge, …	Varchar
Dimension	rech_behart	Behandlungsart der Rech-nung	Ambulant	Varchar
Dimension	rech_gesetz	Gesetzesgrundlage der Rechnung	KVG	Varchar
Dimension	beh_jahr	Behandlungsjahr	2020, 2021, …	Integer
Dimension	beh_monat	Behandlungsmonat	01, 02, …	Integer
Dimension	lerb_og	Partnerart-Obergruppe des ausführenden Leistungser-bringers	01 - Ärzte, 21 - Labora-torien, …	Varchar
Dimension	lerb_ug	Partnerart-Untergruppe des ausführenden Leistungser-bringers	0100 - Allgemeinmedi-zin, 2100 - Privatlabo-ratorien, …	Varchar
Dimension	lerb_kt	Kanton des ausführenden Leistungserbringers	GE, BE, ...	Varchar
Dimension	lerbzw_og	Partnerart-Obergruppe des zuweisenden Leistungser-bringers (Veranlasser)	01 - Ärzte, 21 - Labora-torien, …	Varchar
Dimension	lerbzw_ug	Partnerart-Untergruppe des zuweisenden Leistungser-bringers (Veranlasser)	0100 - Allgemeinmedi-zin, 2100 - Privatlabo-ratorien, …	Varchar
Dimension	lerbzw_kt	Kanton des zuweisenden Leistungserbringers (Veran-lasser)	GE, BE, ...	Varchar
Dimension	pos_tariftyp	Nummer des angewendeten Tarifs der Position (Tariftyp)	317, 400, …	Varchar
Dimension	pos_tarifziff	Tarifziffer der Position	1749.00, 1329.00, …	Varchar
Dimension	pos_tariftext	Tarifziffer-Text der Position	Vitamin B12 bzw. Co-balamin, …	Varchar
Dimension	pos_atc	ATC-Code der Position (nur bei Medikamenten vorhan-den)	J01EE01, N03AG01, …	Varchar
Fakt (ag-gregiert)	pos_anz	Summe der verrechneten Menge (Anzahl) Positionen	934.00, 62.50, ...	Decimal
Fakt (ag-gregiert)	pos_betrag	Summe der geforderten Posi-tionsbeträge (Bruttoleistung)	22957.00, 1548.35 …	Decimal

Datenlieferung

- Eine CSV-Datei (Codierungsstandard UTF-8) pro Behandlungsjahr

7.3 Appendix C: Interview questions

The following appendix contains the interview questions that are posed to the key players (Veranlasser = V, Labor = L, Krankenversicherung = K). The interviews will be conducted in German (partially in French) as this is the local language of the experts.

Interviewfragen	Key-Player		
	V	L	K
Wie hoch schätzen Sie die Prävalenz von Folsäuremangel in der Schweiz ein?	x	x	x
Haben Sie in den letzten Jahren eine Veränderung der Prävalenz/Inzidenz von Folsäure beobachtet? Welche Faktoren haben zu dieser Veränderung beigetragen?	x	x	x
Warum haben Ihrer Meinung nach die Folsäuretests in der Schweiz zugenommen?	x	x	x
Haben sich in Bezug auf die Zweckmässigkeit von Folsäuretests in den letzten Jahren Änderungen ergeben?	x	x	x
Hat sich im Zusammenspiel / Leistungserbringungskette Patientin/Patient, Leistungserbringer, Labor und Versicherungen in den letzten Jahren etwas verändert, dass den Anstieg der Tests erklären könnte?	x	x	x
Können Sie sich Gründe für regionale Unterschiede erklären?	x	x	x
Wie wird sich die Menge an veranlassten Folsäuretests Ihrer Expertise nach in Zukunft entwickeln?	x	x	
Wie wird der Aufbau des Auftragsformulars festgelegt? Werden bestimmte Tests dabei zusammengeführt, und wer trägt die Verantwortung für diese Entscheidungen?	x	x	
Fragen zu Testindikation und -durchführung			
Bei welcher Anamnese oder Indikation führen Sie einen Folsäurentest durch? Warum handhaben Sie das so? Referenzen? Gibt es Gründe von bestehenden Guidelines abzuweichen?	x		
In welchen Fällen ziehen Sie es vor, nur Folsäure zu testen, ohne zusätzliche Blutparameter zu bestimmen?	x	x	
Bei welchen Patientengruppen führen Sie Folsäurentests durch? (Patientengruppen aufzeigen)	x		
Wie häufig veranlassen Sie Folsäuretests? (täglich, wöchentlich, monatlich, seltener)	x		
Welche Art von Folsäurentest verordnen Sie in den meisten Fällen? (1330.00 Folat, Erythrozyten; 1329.00 Folat, Blut) Wieso?	x	x	
Welche Faktoren beeinflussen Ihre Entscheidung, einen spezifischen Typ von Folsäurentest zu verordnen? (Kosten, Sensitivität, Spezifität, Patientenpräferenz, andere Gründe)	x		
Wie läuft ein Folsäuretest ab? Wie ist die Prä-Analytik (Patientenvorbereitung, Blutmenge, Röhrchentyp, etc.)? Wie ist die Analytik (gleichzeitige Bestimmung des Blutbilds/Vitamin B12 oder mittels Stufenanalytik)?	x		

Werden oft Tests auf Wunsch der Patientinnen durchgeführt? Wie oft geht es um Prävention und wann um einen Krankheitswert? (OKP vs. Selbstzahler/VVG Leistung)	x		x
Fragen zu zusätzlichen Blutparametern			
Bei der Verordnung eines Folsäurentests: Welche anderen Blutparameter bestimmen Sie häufig gleichzeitig? (1372.00: Hämatogramm II, 1374.00 Hämatogramm V, 1749.00 Vitamin B12 bzw. Cobalamin, 1727.10 Holotranscobalamin (Holo TC). Bei gleichzeitigem Testen, warum und aufgrund von welcher Referenz?	x	x	
Sind die Ergebnisse von zusätzlichen Blutparametern für Ihre Entscheidung zur Supplementation ausschlaggebend? (Ja/Nein, bitte erläutern)	x	x	
Testen Sie bei Verdacht auf einen Vitamin-B12-Mangel standardmässig auch den Folsäurestatus? Falls nein, welche Gründe sprechen dagegen? Falls ja, führen Sie die Tests parallel durch oder erst nach einer Bestätigung des Vitamin-B12-Mangels?	x		
Werden bei einem isolierten Vitamin-B12-Mangel im Anschluss auch die Folsäurewerte überprüft oder erfolgt teilweise direkt eine Supplementierung? Und umgekehrt: Werden bei einem isolierten Folsäuremangel ebenfalls die Vitamin-B12-Werte bestimmt oder direkt supplementiert?	x		
Fragen zur Supplementation			
Bei welchen Patienten verordnen Sie eine Folsäurensupplementation? Welche Guideline verfolgen Sie?	x		
Ab welchem Folsäurewert spricht man von einem Folsäuremangel? Ab welchem Wert wird supplementiert?	x		
Welche Folsäure Thresholds handhaben Sie? Auf welcher Referenz ist diese Threshold basiert?		x	
In welcher Form empfehlen Sie die Supplementation durchzuführen? (Brausetabletten, Tabletten (welche?), andere)	x		
Welche konservativen Behandlungsstrategien gibt es bei Folsäuremangel, insbesondere in Kombination mit oder als Ergänzung zur Supplementierung?	x		
Welche Dosierung empfehlen Sie in der Regel bei einer Folsäurensupplementation?	x		
Welche Faktoren beeinflussen Ihre Wahl der Supplementationsform? (Patientenpräferenz, Kosten, Verfügbarkeit, Compliance, Nebenwirkungen, Vergütung durch Versicherung)	x		
Wie lange empfehlen Sie in der Regel eine Folsäurensupplementation?	x		
Empfehlen / machen Sie den Patienten nach der Folsäuresupplementation eine erneute Testung?	x		
Verwenden Sie für das Retesting denselben Folsäuretest wie für die Diagnosestellung? Warum (nicht)?	x	x	
Gibt es eine Übersupplementierung? Wie häufig sehen Sie eine Hyperfolatämie? Was sind die Folgen? Referenz?	x		
Fragen zu Kosten und Patientenperspektiven			
Sprechen Ihre Patienten häufig Vitaminmangel an? Wenn ja, welche Arten?	x		

Wie gut sind Ihre Patienten über die Bedeutung von Folsäure aufgeklärt (im Allgemeinen vs. Leute die Folsäure testen müssen)? (Sehr gut, gut, moderat, schlecht, sehr schlecht)	x		
Machen Sie Ihre Patienten auf die Kosten bzw. die verschiedenen Behandlungsverfahren aufmerksam?	x		
Haben Ihre Patienten Bedenken hinsichtlich der Tests oder der Supplementation? (Ja/Nein, bitte angeben)	x		
Spielen die Kosten für die Patienten bei Ihrer Entscheidung zur Durchführung eines Tests oder einer Supplementation eine Rolle?	x		
Fragen zum Analysenverfahren und Vergütung			
Wie unterscheidet sich die Prä-Analytik und die Analytik der beiden Analysen "Folat, Erythozyten" vs. "Folat, Blut"?		x	
Wie unterscheiden sich die beiden Verfahren hinsichtlich Qualität (Accuracy, PPV (Positiv Predictive Value) etc.)?		x	
Wie viele Prozent der getesteten Werte weisen ungefähr einen Mangel auf? (Ab wann ist ein Mangel kritisch?)	x	x	
Ist die Vergütung akkurat? (1330: 18.9 TP (Ery), 1329 11.8 TP (Blut))		x	x
Existiert für Folsäuretests ein Markt für Selbstzahler? Bieten Sie Ihre Leistungen auch in diesem Bereich an?		x	
Gibt es Fachspezialisten (Hämatologie, Gynäkologie etc.) die mehr Tests als andere beauftragen?	x	x	x
Fragen zur Kostenübernahme			
Befasst sich Ihre Versicherung mit dem Thema Folsäuremangel? Prävalenz in der Schweiz? Werden Informationen / Hilfestellungen an ihre Kundinnen und Kunden zur Verfügung gestellt?			x
Gibt es besondere Regelungen oder Programme für Schwangere oder Frauen im gebärfähigen Alter bezüglich Folsäureversorgung? Wenn ja, gibt es gleichartige Programme für andere Risikogruppen?			x
Welche Voraussetzungen müssen erfüllt sein, damit die Kosten für Folsäuretests in der OKP übernommen werden?	x		x
Welche und wann werden Folsäure Supplemente aus der OKP bezahlt?	x		x
Wie viele Folsäuretests werden von OKP und wie viele durch Selbstzahler übernommen?			x
Gibt es eine automatische Rückvergütung der Tarifpositionen gemäss Analyseliste oder kann es zu Auslenkungen kommen?			x
Wie entwickeln sich die Abrechnungspraktiken bei anderen Blutparametern?			x
Wird der Folsäuretest häufig zusammen mit anderen Parametern vergütet?			x
Gibt es Fachspezialisten / Labor welche besonders oft Folsäuretests einreichen?			x