Process optimisation in memory outpatient clinics oriented towards value-based healthcare (VBHC)

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Accelerated diagnosis of Alzheimer's disease by increasing efficiency including cost-revenue analysis

Due to demographic trends, the incidence of dementia will increase (National Dementia Strategy, BMFSFJ and BMG (2020)). The most common cause of dementia in old age is Alzheimer's disease (Scheltens et al. 2021). In the last 20 years, the development of meaningful biomarkers in cerebrospinal fluid and positron emission tomography (PET), among other things, has made it possible to diagnose Alzheimer's disease at an early stage of mild cognitive impairment (MCI) (Dubois et al. 2024). In the near future, the diagnostic possibilities will be expanded by blood-based biomarkers, which can supplement and simplify the early biological diagnosis of the disease and in some cases replace conventional biomarkers (Hansson et al. 2023). At the clinical-symptomatic level, the challenge remains to recognise the early syndrome of MCI in healthcare practice and to correctly interpret the associated biomarker findings. Memory outpatient clinics, which were initially developed at university hospitals in the 1980s and 1990s and are now also located at care hospitals, as well as a few specialised neurological practices, are the centres of expertise for early and differential clinical diagnosis, the use of biomarkers and the counselling and treatment of **patients1** (Hausner et al. 2021).

Summary

New disease-modifying Alzheimer's therapies and the associated increase in patient numbers pose major challenges for memory outpatient clinics specialising in diagnostics and therapy, as their capacities are already

reaching their limits. This paper describes how it was possible to optimise workflows by applying the Value-based Healthcare (VBHC) concept for the first time in two memory outpatient clinics in Germany (Mannheim and Cologne). According to the central VBHC formula (Value = Outcome/Costs), a better outcome for patients and carers was achieved with a more efficient use of existing resources (costs).

In an initial survey of patients and relatives, key aspects relating to VBHC were recorded. The respondents indicated a general satisfaction with the presentation in both memory outpatient clinics, but cited the long duration of the diagnostic process, sometimes lasting several months, as a central point of criticism. After VBHC-based modification of the workflows, the diagnostic process was reduced to three weeks. At the same time, a reduction in staff retention times was achieved. In a subsequent second survey, patients and relatives rated the modified processes more favourably. Resources were also saved.

The cost-revenue analysis showed that the profitability of the memory outpatient clinics deteriorated due to the usual quarterly flat-rate remuneration for faster diagnostics. This problem should be addressed by adjusting the remuneration system.

Keywords

Value-based healthcare (VBHC), memory outpatient clinic, process optimisation, patient care, Alzheimer's disease, health economics, costs, cost-revenue analysis

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>> Recent breakthroughs have been made in the treatment of early Alzheimer's disease. In some countries, e.g. the USA, monoclonal antibodies against the amyloid pathology of Alzheimer's disease have been approved and are in clinical trials.

[1]For reasons of better readability, the masculine form is used for personal names and personal nouns in this manuscript. Corresponding terms apply to all genders in the interests of equal treatment. The abbreviated form is for editorial reasons only and does not imply any judgement.

Application (Heneka et al. 2024). In April 2025, the monoclonal antibody lecanemab was approved in the EU, followed by the EU approval of donanemab in September 2025. Anti-amyloid therapy leads to a clinically

relevant, approximately 30 per cent slowdown in disease progression. The therapy requires magnetic resonance imaging (MRI) monitoring, as local oedema [amyloid-related imaging abnormalities-effusion (ARIA-E)] in the brain or microbleeds [amyloid-related imaging abnormalities-haemosiderin (ARIA-H)] may occur as side effects, as well as other risk management measures. These therapies are only approved for the early stages of Alzheimer's disease, i.e. MCI and mild dementia, which is why expert-based early diagnosis is becoming increasingly important. There are specific exclusion criteria, e.g. in MRI imaging, which also require expert knowledge for the correct indication. ARIA monitoring using MRI during treatment and the decision as to whether treatment should be interrupted or cancelled, for example, must also be guided by experts.

These developments are leading to increased referral pressure on memory outpatient clinics. Many outpatient clinics already have waiting times of several months, which will increase in the future (Meiberth et al. 2019). There is a risk that some patients will miss the window of opportunity for treatment due to long waiting times for diagnosis. For this reason, memory outpatient clinics must rethink and modify established diagnostic procedures to be more patient-centred. This primarily concerns the sequence of various complex examinations, such as neuropsychological tests and biomarker determinations.

In order to increase the efficiency of work in memory outpatient clinics without compromising diagnostic quality through simplification or reduction, a conceptually controlled approach to process modification is required. The concept of value-based healthcare (VBHC) offers corresponding starting points.

VBHC focuses on the patient-related benefits (value) of care. According to the formula Value = Outcome/Costs, value is defined as the ratio of patient-related results (outcome) relative to the costs, which include all resources used (Porter 2010). Patient-related outcomes are primarily measured using Patient-Reported Outcome Measures (PROMs) and Patient-Reported Experience Measures (PREMs).

Although the VBHC approach is already used in various medical disciplines (Engels et al. 2024; Schlomm et al. 2014), it has not yet been used in the context of memory outpatient clinics or the care of Alzheimer's patients. The aim of this pilot project was therefore to work with memory outpatient clinics and industrial partners to investigate the extent to which VBHC-based optimisation of workflows in memory outpatient clinics can lead to an improved outcome in terms of VBHC. In addition to the joint project concept, particular

emphasis was placed on establishing a continuous exchange and sustainable cooperation between the participants. The long-term goal is to transfer the project results to everyday clinical care and to implement them in standard care in the long term.

The primary objective of the pilot project was to analyse and optimise the work processes in the memory outpatient clinics by conducting surveys according to VBHC aspects. The processes were to be changed in such a way that they represent the greatest possible benefit for patients and practitioners (best possible and cost-optimised diagnosis and transmission). The project was designed jointly with Roche Pharma AG, Roche Diagnostics GmbH, the Centre for Memory Disorders (ZfG) at Cologne University Hospital and the Memory Outpatient Clinic of the Central Institute of Mental Health (ZI) in Mannheim and was carried out in both memory outpatient clinics. The study design and clinical results can be found in two separate publications and are only summarised in this publication (Hausner et al. 2025; Schönberger et al. 2025). The focus of this publication is the cost-revenue analysis.

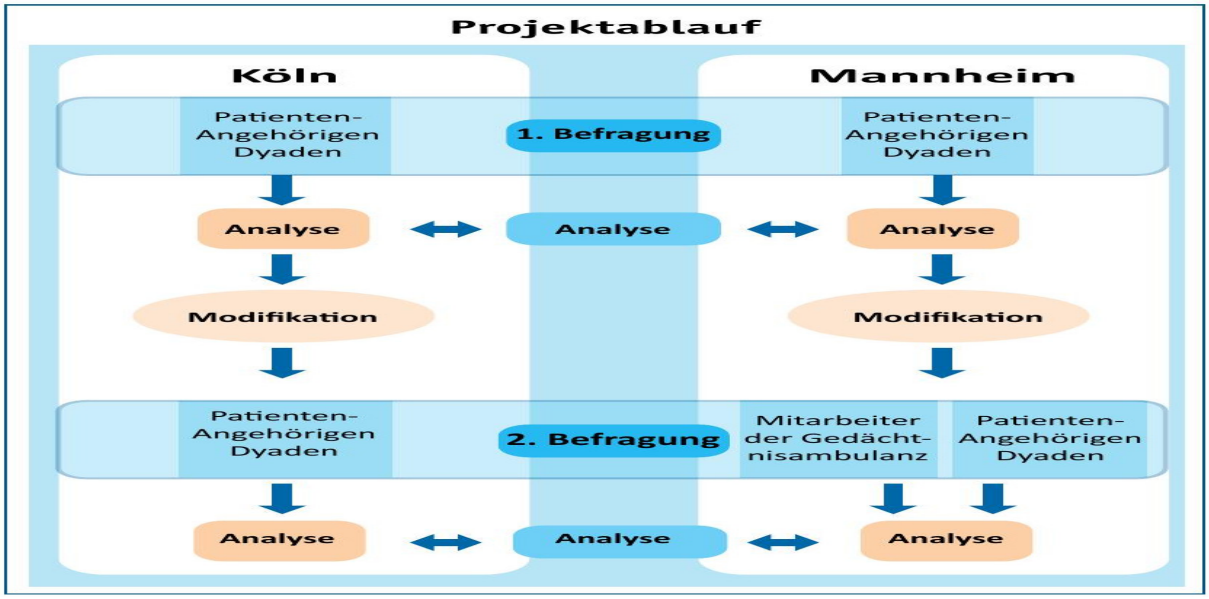


Fig. 1: Project process. Own illustration.

Methods

Project procedure

In an initial survey, patients from both memory outpatient clinics were each interviewed with a reference person (dyads) on patient-related outcomes (PROM) and subjective experience of the diagnostic processes (PREM). After analysing the results of the first survey, modifications to the existing processes

were developed in order to achieve an improvement in terms of VBHC. To this end, joint workshops were held with employees from both outpatient memory clinics as well as Roche Pharma AG and Roche Diagnostics GmbH to discuss the survey results. The modified processes were implemented in both outpatient memory clinics. The effects of the modified procedures were evaluated in a second survey in which new dyads who had undergone the modified diagnostics were interviewed (Fig. 1).

In addition, a staff survey was conducted at the Mannheim Centre of Excellence in which doctors, psychologists, social workers, medical-technical staff and medical assistants of the memory outpatient clinics were asked anonymously about their perception of the modifications in their institution using open response formats.

The study protocol was evaluated favourably by the ethics committees of the Medical Faculty in Cologne (application number: 23-1291) and the Medical Faculty in Mannheim (University of Heidelberg, application number: 2023-601).

Study participants

Study participants were patients with cognitive complaints aged ≥50 years who presented to one of the two memory outpatient clinics for the first time for a diagnosis. The inclusion criteria included the availability of a caregiver who was willing to be interviewed in parallel during the diagnostic process, sufficient knowledge of German (questionnaire comprehension) and the ability to give informed consent. Exclusion criteria were serious physical illnesses or disabilities that made participation in diagnostic appointments in the outpatient clinics (medical consultation, neuropsychological examination, MRI, lumbar puncture (LP), diagnostic information and consultation) unlikely.

Measurement times

Both surveys of the patients and their carers were conducted at two points in time, i.e. before and after the diagnosis. One survey was conducted in person on site before the initial medical consultation and a second survey was conducted by telephone four to six weeks after the final consultation (notification of diagnosis).

Questionnaires

Both validated and self-designed questionnaires were used in both surveys. The validated questionnaires included the short version of the Patient Assessment of Chronic Illness Care (PACIC) (Gugiu et al. 2009) to assess the quality of care for chronically ill patients and the visual analogue scale of the European Quality of Life 5 Dimensions Scale (EQ-VAS) to record the subjective state of health (Herdmann et al. 2011). The adapted German short version of the State-Trait-Anxiety Inventory (STAI-S) (Grimm, 2009; Spielberger et al. 1970) was used to assess anxiety and worry.

The self-designed process-oriented questionnaires included questions on expectations and experiences at the presentation in both memory outpatient clinics, on the individual benefit of the diagnostics performed, on satisfaction with the diagnostic processes and on the reasons for possible dissatisfaction as well as suggestions for improvement.

Statistical analysis

The first and second dyad samples were compared using a t-test for independent samples with regard to disease severity (Mini Mental Status Test, MMST) and age. PACIC, EQ-VAS, STAI-S and diagnostic duration were also compared before and after modification using a two-sided t-test for independent samples. At the ZfG Cologne, these calculations were also carried out for the number of necessary visits and staff retention times. The Fisher exact test was calculated for individual PROMs and PREMs from the self-designed questionnaires (before vs. after modification). A Bonferroni correction was omitted due to the exploratory nature of the study.

Cost-revenue analysis

A cost-revenue analysis was carried out at the Mannheim Centre for Infectious Diseases in order to evaluate the economic impact of the modified diagnostic process.

To analyse the economic efficiency, the costs incurred for diagnostic services in the outpatient memory clinic were recorded and compared with the revenues from the reimbursement of services. The cost and revenue structures were then compared between the established diagnostic procedure before modification and the procedure optimised in the pilot project.

The cost-revenue analysis was based on 100 consecutive first consultations for the assessment of cognitive disorders, starting in March 2023 and ending in October 2023 at the latest. The duration of the diagnostic

process required per case - measured in days from the initial consultation to the final consultation - as well as the number and duration of appointments required and the procedures used (neuropsychological testing (NPT), MRI, lumbar puncture) were recorded.

For the costs of diagnostics, material and shipping costs or costs of instrumental diagnostics and real personnel costs were taken into account using bottom-up calculation. Costs for the overhead budget (e.g. infrastructure, cleaning, IT, administration) were not taken into account due to a lack of suitable estimates. The costs associated with MRI are not included in the cost analysis, as this examination is carried out at the ZI Mannheim via a different cost centre outside the outpatient memory clinic.

For those with statutory health insurance, the university outpatient clinic (HSA) flat rate B of the ZI Mannheim, which is used for complex medical measures in memory outpatient clinics, was used as the basis for the revenue from diagnostics. For the approx. 15% of privately insured patients, the figures from the German Medical Fee Schedule (GOÄ) were used. Third-party income or third-party funding was not included in the total revenue calculation because it is earmarked for specific research projects and cannot be used for routine tasks or diagnostics.

Analysis of staff retention times at the ZfG Cologne

The recorded number and duration of all medical and neuropsychological appointments, including preparation and follow-up times, were added up to an individual total time, the staff retention time. In order to ensure comparability before and after the process modification, MRI imaging was not included in this indicator, as it was usually performed externally before the appointment in the memory outpatient clinic (Schönberger et al. 2025).

Results

The pilot project was designed and conducted over a period of 17 months, from November 2022 to April 2024. 22 patients/caregivers (dyads) at the ZfG Cologne and 25 dyads at the ZI Mannheim took part in the first survey. Participants in the second survey in spring 2024 included 21 additional dyads at the Cologne Centre for Complementary Medicine and 17 dyads and 8 additional patients at the Mannheim Centre for Complementary **Medicine2** (Fig. 1). The clinical and demographic data of the participants are summarised in Table 1 (available in the online supplement).

Results of the surveys

The detailed results of the initial survey, the modifications of existing work processes in the memory outpatient clinics and their evaluation in the second survey are the subject of separate open access publications in the specialist journal "Der Nervenarzt". Therefore, only a brief summary of the results is provided here:

The results of the first survey showed that the expectations that patients and their carers had of the diagnostics in the memory outpatient clinics, i.e. diagnostic clarification and information, were basically fulfilled. The vast majority of patients and carers indicated a high level of satisfaction with the diagnosis and treatment in the memory outpatient clinics. The main point of criticism in both outpatient clinics was the long duration of the diagnostic process (excluding waiting time for the first appointment), which was four to six months (ZfG Cologne: 130.2 days; ZI Mannheim: 116 days).

2Inthe 2nd survey wave at the Mannheim Centre, not all caregivers could be reached for the final interview.

In order to implement a more efficient, shorter diagnostic process, a targeted reduction and consolidation of diagnostic steps into fewer appointments was carried out for the subsequent pilot project. The procedural modifications are shown in Table 2 (available in the online supplement). The aim of the pilot project was to implement a standardised and optimised, accelerated diagnostic procedure that would enable a complete diagnosis to be made within three to four weeks. This goal was achieved (Fig. 2a).

The process modifications significantly reduced staff commitment times at the ZfG Cologne from 260.5 minutes before modification to 164.4 minutes after modification ($p < 0.001$). The number of necessary appointments was significantly reduced from 4.7 to 3.1 ($p < 0.001$). (Schönberger et al. 2025). The duration of the diagnostic process at the Mannheim Centre was reduced from 116 days and 9 appointments to 29 days and 6 appointments (Hausner et al. 2025).

Compared to the first survey, the second survey showed a significantly higher level of satisfaction among patients and their carers with the accelerated diagnostic process. This was shown both for the standardised PACIC questionnaire (Fig. 2b) and for questions from the self-designed questionnaires on satisfaction with the diagnosis, fulfilment of pre-existing expectations and generation of a personal benefit through the presentation at the memory outpatient clinics.

In the employee survey at the ZI Mannheim, 11 of the 13 respondents stated that patients benefited from faster diagnostics. Among other things, the shorter waiting times, continuity of treatment, earlier certainty of diagnosis and faster initiation of treatment were rated positively (Hausner et al. 2025). Despite the increased number of appointments, none of the employees reported an additional workload.

Results of the cost-revenue analysis at ZI Mannheim

Basic data before VBHC modification

- **Number of patients:** Approx. 800 new patients per year (67 per month) are recorded at the Mannheim centre.

- **Duration of diagnosis:** To determine the duration of the diagnostic process, the diagnostic processes of 196 patients were analysed. The average duration of the diagnosis was 116 days or two quarters from the initial consultation to the final diagnosis.

- **Frequency of diagnosis:** To determine the frequency of the diagnostic procedures performed, the diagnostic process of the patients was analysed. For this purpose, the chronological courses of finally diagnosed patients from Q3/2023 were available (n = 196). Diagnostic procedures such as NPT, laboratory tests, MRI and lumbar punctures were performed at different frequencies. MRIs were used in 95% and lumbar punctures in 46% of patients. (Tab. 3, online supplement tables).

Costs of diagnostics

- **Material and shipping costs or costs for instrumental diagnostics** : The pro rata material costs per patient totalled 25.58 euros, with a large proportion being accounted for by the shipping of blood and cerebrospinal fluid samples (Table 4, online supplement tables). MRI costs were not included as these were carried out externally.

- **Personnel costs:** The total monthly costs including the full personnel costs were calculated for each diagnostic process step. As the personnel costs are fixed costs, the total personnel costs were allocated proportionately to the patients treated. The average diagnostic costs per new patient were calculated on this basis - in contrast to time-based models, which only take into account the immediate examination period.

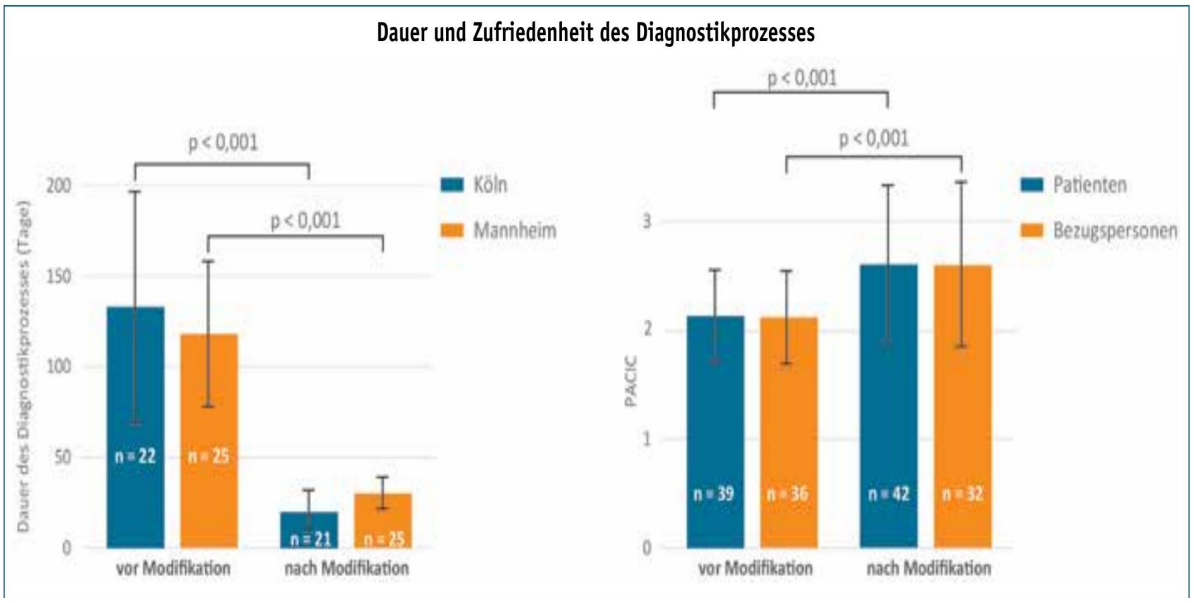


Fig. 2a: Duration of the diagnostic process (mean days from initial consultation to final consultation) - comparison between first and second survey (Schönberger et al. 2025; Hausner et al. 2025). Own representation. *Fig. 2b:* Satisfaction with the diagnostic process, measured with the short form of the PACIC questionnaire to assess the quality of care for chronically ill patients - comparison between the first and second survey (Schönberger et al. 2025; Hausner et al. 2025). The combined mean values of both memory outpatient clinics are shown. Only complete data sets were included in the analysis. Own representation.

Erlöse durch PKV-Patienten (GOÄ-Abrechnung) am ZI Mannheim*									
ZI Mannheim	Patienten-aufnahme	EG	Blutabnahme	LP-Auf-klärung	LP	NPT	AG	Sozial-beratung	Gesamt
Erlöse	0,00 Euro	233,14 Euro	4,20 Euro	67,04 Euro	124,98 Euro	100,33 Euro	156,06 Euro	0,00 Euro	**686 Euro**
Häufigkeit Durchführung	100,00%	100,00%	81,00%	48,50%	46,00%	86,00%	98,00%	20,00%	
Erlöse anteilig	0,00 Euro	233,14 Euro	3,40 Euro	32,51 Euro	57,49 Euro	86,28 Euro	152,94 Euro	0,00 Euro	**566 Euro**

Tab. 6: Revenues from private health insurance patients (GOÄ billing) at ZI Mannheim. * It should be noted that social counselling cannot be billed as a service. The standard maximum rate of the respective GOÄ figures was applied here for the amount of remuneration for blood sampling. As private health insurance patients are only billed for services actually provided, the cumulative revenue calculation takes into account the frequency with which each diagnostic step is performed. This is how the proportionate revenue per private health insurance patient at ZI Mannheim was calculated. Legend: EG = initial consultation; NPT = neuropsychological testing; MRT = magnetic resonance imaging; LP = lumbar puncture; AG = final medical consultation. Own representation.

Based on existing data, it was assumed that 67 patients present at the Mannheim Centre per month (Table 5, Supplementary Tables). The real personnel costs per new patient totalled 502.34 euros. The majority of the costs were attributable to patient consultations, NPT and documentation.

Revenues from diagnostics

- **Revenue from SHI patients (HSA flat rates):** The HSA-B flat rate for outpatients at the Mannheim Centre amounts to 337.86 euros per quarter. As the diagnostics took a median of two quarters, the HSA-B flat rate was generally billed twice per patient, resulting in a cumulative revenue of 675.72 euros. For the diagnostics performed within three weeks in the pilot project, the revenue totalled 337.86 euros.
- **Revenue from private health insurance patients (GOÄ billing):** The average revenue per private health insurance patient billed individually according to GOÄ codes was 565.77 euros (Table 6).

Comparison of costs and revenues of diagnostics - established procedure vs. pilot project

The analysis of costs and revenues showed that personnel costs represented the highest proportion of costs and that the main source of revenue for diagnostics was generated by the flat rates per case (HSA flat rates for SHI-insured patients) (Table 7).

Discussion and outlook

This pilot project was the first to apply the VBHC concept in the context of the work of memory outpatient clinics, resulting in a significant improvement in the diagnostic process from the perspective of patients and their carers. The main point of criticism in the first survey, the long duration of the diagnostic process, was addressed through targeted process modifications, which reduced the time to diagnosis to three to four weeks. In the second survey (after modification), both patients and their carers were significantly more satisfied with the diagnostic process, which corresponds to a considerable improvement in the perceived quality of care (outcome).

Vergleich der Kosten und Erlöse der Diagnostik – etablierter Ablauf vs. Pilotprojekt					
ZI Mannheim		Status quo (2023)		Pilotprojekt	
n = 67 Pat.		GKV	PKV	GKV	PKV
Kosten	Personal	502,34 Euro	502,34 Euro	502,34 Euro	502,34 Euro
	Material	25,58 Euro	25,58 Euro	25,58 Euro	25,58 Euro
	Gesamt	527,92 Euro	527,92 Euro	527,92 Euro	527,92 Euro
Erlöse	Fallpauschale	675,72 Euro		337,86 Euro	
	GOÄ		565,77 Euro		565,77 Euro
	Gesamt	675,72 Euro	565,77 Euro	337,86 Euro	565,77 Euro
Vergleich	Kosten vs. Erlöse	147,80 Euro	37,85 Euro	-190,06 Euro	37,85 Euro
	GKV:PKV(85%:15%)	125,63 Euro	5,68 Euro	-161,55 Euro	5,68 Euro
	Saldo pro Patient	131,30 Euro		-155,88 Euro	

Tab. 7: Comparison of the costs and revenues of diagnostics - established procedure vs. pilot project. Legend: GKV = statutoryhealth insurance; GOÄ = scale of fees for doctors; PKV = private health insurance. Own illustration.

In addition, staff retention times (costs) were reduced, which led to an increase in value according to VBHC's central formula (Value = Outcome/Costs). Patients also benefited from the perspective of the outpatient memory centre staff. The primary goal of the pilot project, to optimise the work in the two outpatient memory clinics through the use of VBHC, was achieved (Hausner et al. 2025; Schönberger et al. 2025).

The successful implementation of this pilot project was based on the joint concept and constructive collaboration between the memory outpatient clinics involved and Roche Pharma AG and Roche Diagnostics Deutschland GmbH. This made it possible to implement an innovative and practical approach to optimising diagnostic processes.

The faster diagnostic process established as part of the pilot project is particularly important in the context of new treatment options for Alzheimer's patients. As these therapies can only be used in the early stages of the disease (Honig et al. 2024), rapid diagnosis is essential in order to enable patients to receive these disease-modifying treatments. The pilot project was able to show that more efficient diagnosis in memory outpatient clinics is not only feasible, but is also desired by patients and their carers. This model could serve as a stimulus for the implementation of more efficient diagnostic processes in other memory outpatient clinics.

The cost-revenue analysis showed a considerable discrepancy between patient-centred rapid diagnostics and the current quarterly-based flat-rate remuneration structure. Despite a constant number of examinations per patient

as well as optimisation from the patient's perspective and improved quality of care (faster diagnosis in early stages of the disease), accelerated diagnostics are remunerated at a lower rate (Table 7). The personnel and material costs of diagnostics remain the same regardless of insurance status because SHI and private health insurance patients receive the same services. The HSA flat rates for SHI patients, which are the main source of revenue for diagnostics, can be billed for two quarters with the established longer diagnostic procedure, but generally only for one quarter with the shorter diagnostic duration of three to four weeks. This problem should be addressed in future by adjusting the remuneration of memory outpatient clinics, e.g. with single service remuneration or the introduction of outpatient specialist care (ASV) for dementia.

The increase in efficiency achieved offers the potential to treat more patients with the same resources and thus to be able to respond better to the challenges of the new treatment options for Alzheimer's disease.

Both memory outpatient clinics have decided to maintain and further develop the optimised processes. Longer-term measures such as modified appointment allocation processes, stricter indications for individual examinations and expanded MRI capacities were implemented as the basis for this.

Conclusion and outlook

This study shows that the VBHC approach can be implemented in memory outpatient clinics and can be associated with a significant improvement in the quality of care. Further research is required to analyse the systemic implications in greater depth, particularly with regard to financing structures and institutional framework conditions.

The experience gained in this project should be used in the future to enable improved, patient-benefit-oriented value creation and optimised patient care in memory outpatient clinics.

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For future projects and analyses, it seems sensible to systematically apply the VBHC approach to the entire care network, including downstream and cross-sector structures. <<

Author's statement

A-K. Schild has received lecture fees from Novo Nordisk Pharma GmbH and Lilly Deutschland GmbH between 2022 and 2025.

G.S.-Benson has received fees for consulting and lectures from Roche Pharma AG in 2022 M. Schöttler and S. Fehrenbach are employees of Roche Pharma AG and hold shares in F. Hoffmann-La Roche AG.

B. Hennig is an employee of Roche Diagnostics Deutschland GmbH and holds shares in F. Hoffmann-La Roche Ltd.

A. Knudsen was employed by Roche Pharma AG from 2023-2024 and held shares in F. Hoffmann-La Roche AG during this period. He was employed by Novartis Pharma GmbH from 2024-2025. He has been an employee of Roche Diagnostics Deutschland GmbH since 2025.

L. Frölich has received consulting and speaking fees from Biogen, BioVie, Eli Lilly, Eisai, GE Healthcare, Grifols, Janssen, Neurimmune, Noselab, Novo Nordisk, Roche Pharma AG, TauRX, Schwabe, Medscape, Medfora and FOMF as well as institutional funding from Roche Pharma AG between 2020 and 2025. L. Frölich is also associated with the German Society for Psychiatry, Psychotherapy and Neurology (Guideline Committee), European Alzheimer Disease Consortium, German Network of Memory Outpatient Clinics, Alzheimer Europe, Alzheimer Society Baden-Württemberg.

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A. Schönberger, A. Steinmetz, F. Simandi and V. Kirchberger declare that there are no conflicts of interest.

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Process optimisation in memory clinics based on value-based healthcare (VBHC)

New disease-modifying Alzheimer's therapies and the associated increase in patient numbers present major challenges for memory clinics specialised in diagnosis and therapy, as their capacities are already reaching their limits. This paper describes how workflow optimisation was achieved through the first-time implementation of the Value-based-Healthcare (VBHC) concept in two memory clinics in Germany (Mannheim and Cologne). In accordance with the core VBHC principle (value = outcome / costs), improved outcomes for patients and caregivers were achieved through more efficient utilisation of existing resources (costs).

In an initial survey of patients and caregivers, key aspects relevant to VBHC were assessed. While respondents expressed general satisfaction

with the services provided at both sites, the lengthy diagnostic process - sometimes taking several months - emerged as a major point of criticism. Following VBHC-based modification of the workflows, the diagnostic process was reduced to three weeks. At the same time, a reduction in staff commitment times was achieved. In a subsequent second survey, patients and caregivers rated the modified processes more favourably. In addition, resources were saved.

The cost-revenue analysis showed that the accelerated diagnostic process negatively impacted the economic efficiency of the memory clinics due to the existing quarterly remuneration scheme. This issue should be addressed by adjusting the remuneration system.

Keywords

Value-based Healthcare (VBHC), memory clinic, process optimisation, patient care, Alzheimer's disease, health economics, costs, cost-revenue analysis

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