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Book of Abstracts

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Conference Venue

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INSTITUTE FOR
ADVANCED STUDIES
VIENNA

Institute for Advanced Studies (IHS)

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Austria

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Title: A primary data collection approach to mental health reference unit cost development in Austria: findings and learnings from the STREAMLINE project

Authors: Sophie Diexer[1], Lazo Ilic[1], Michael Berger[1], Matthew Boersig McPhillips[1], Florian Bachner[2], Christoph Strohmaier[4], Judit Simon[1,3], Susanne Mayer[1]

[1] Medizinische Universität Wien

[2] Gesundheit Österreich GmbH (GÖG)

[3] University of Oxford

[4] Austrian Institute for Health Technology Assessment GmbH (AIHTA)

Abstract:

Objectives: Evidence-based healthcare evaluation and optimisation for improved efficiency of mental health-related service delivery depends on comprehensive and valid resource and cost data. To address the latter data gap in Austria, the STREAMLINE project aimed to gather cost data directly from mental health service providers, using Vienna as a case study to develop methodologically harmonized unit costs (reference unit costs, RUCs) in multiple sectors.

Methods: We conducted an online survey in spring 2025 among all mental health service providers in Vienna (N=7293). Providers were asked to report details on the services offered, patient contact volume, resources used for service provision, and the resulting annual full costs. The costing part of the survey consisted of two versions, one for organisations in line with the existing, validated PECUNIA RUC Templates for service cost development drawing on organisational cost accounting data, and one for individual (self-employed) service providers. The latter is a newly developed tool reviewed by external experts to estimate economic costs using i) income tax returns and, alternatively, ii) imputed provider salary plus expenses. RUCs were calculated and externally validated with expert feedback and secondary data.

Results: Of the 415 individual mental health service providers and 103 organisations that agreed to participate in the survey, 111 (26.7%) and 19 (18.4%) provided cost data. Using these data, we developed 20 aggregated RUCs – six for individual mental-health service providers and 14 for organisational services in the health and social care, justice and informal sector, complemented by taxonomy-based service descriptions. For individual mental health service providers, the imputed-salary-plus-expenses costing approach yielded robust estimates that were positively validated by external experts. The RUCs will be included in publicly accessible unit cost databases.

Conclusions: This study estimated new RUC for multi-sectoral mental health services in Vienna using existing costing tools and a new instrument, filling critical gaps where reliable cost data were previously unavailable. Despite limitations such as a low response rate and challenges with the survey distribution, the primary data collection exercise with its harmonized costing approaches and service descriptions provides a promising foundation for future evidence-informed healthcare planning and policy making.

Title: No country for cool homes: The association of summer energy poverty and health in Austria

Authors: Maximilian Kabas[1]

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Abstract:

This thesis addresses the emerging public health challenge of summer energy poverty (SEP) in the context of climate change, focusing on Austria. SEP is defined as the inability to maintain adequate indoor cooling during periods of high outdoor temperatures. Using nationally representative data from the 2023 EU-SILC survey (N ≈ 10,500), the study investigates the association between SEP as measured by the subjective indicator "inability to keep home adequately cool" and self-rated health, while controlling for socioeconomic, demographic, and housing-related factors.

The analysis employs generalized ordered logit models with adjusted standard errors to account for the ordinal nature of health outcomes, violations of the proportional odds assumption, and clustering on the household level. Results reveal a significant negative association between SEP and health: individuals experiencing SEP are substantially less likely to report very good health and more likely to report fair, bad, or very bad health. Average marginal effects indicate that SEP reduces the probability of reporting very good health by approximately 5 percentage points (−19% relative change) and increases the likelihood of reporting poor health categories by up to 27% in relative terms.

The study further examines moderating effects among vulnerable subgroups. Interaction analyses show that chronic illness and severe functional limitations amplify the adverse health impact of SEP. For these groups, SEP markedly increases the probability of reporting bad or very bad health, whereas other hypothesised moderators, such as age (≥60), unemployment, garden access, and lowest income quartile only exhibit negligible effects. This suggests that physiological vulnerability outweighs socioeconomic or environmental factors in shaping SEP-related health risks.

Robustness checks confirm the stability of findings across alternative energy poverty indicators (e.g., expenditure-based measures) and replicate results using 2012 EU-SILC data, indicating that the SEP-health association persists over time and may have intensified. Additional models demonstrate that SEP is also linked to chronic illness, reinforcing its relevance for public health.

The thesis contributes to the literature by highlighting SEP as a multidimensional phenomenon with significant health implications, challenging winter-centric energy poverty frameworks. Policy recommendations include integrating SEP-specific indicators into annual surveys, improving housing insulation, and implementing targeted heat mitigation strategies, such as accessible cooling facilities, to protect vulnerable populations amid rising temperatures.

Title: Bridging the wait gap: The role of private out-of-pocket funding in accelerating MRI access in Austria

Authors: Susanne Mayer[1], August Fuchs[1], Thomas Czypionka[2], Markus Kraus[2]

[1] Medizinische Universität Wien

[2] Institut für Höhere Studien (IHS)

Abstract:

Background: Prolonged waiting times for magnetic resonance imaging (MRI) pose risks to patient safety and quality of care, while faster access for patients paying out of pocket raises concerns from an equity perspective. Although maximum MRI waiting times were introduced in the Austrian outpatient sector in 2018, it remains unclear whether these targets are met in practice. This study aims to assess MRI waiting times across Austria and analyze disparities under statutory coverage compared to self-paying patients.

Methods: Data were collected in March and April 2025 through two standardized telephone calls to every Austrian MRI provider contracted with social health insurance (radiology institutes and hospitals; n=90) that serves outpatients with physician referrals. The next available MRI appointment was requested under two distinct medical case scenarios (case 1, case 2). Additionally, providers were asked whether self-payment yielded shorter waiting times and at what cost. Furthermore, waiting times were obtained from the provider's online booking systems and published official waiting times according to the Austrian social insurance, where available. Group differences in median waiting times (working days) were assessed using Wilcoxon-signed rank and Kruskal-Wallis tests.

Results: The median waiting time for an MRI appointment for anterior cruciate ligament rupture (case 1) was 15.0 working days (IQR: 7-27) under statutory coverage assessed via phone call (n=88) and 11.0 days (IQR: 8-16) through online booking (n=17); for hemochromatosis (case 2) 37.5 days (IQR: 26-52) via phone (n=82) and 39.0 days (IQR: 23-44) via online booking system (n=7). In 11.4% (case 1, n=10) and 13.4% (case 2, n=11), it was indicated over the phone that self-payment would result in shorter waiting times (waiting time case 1: 1 day, IQR: 1-5, p=<0.01; case 2: 2 days, IQR: 1-9, p=<0.01) at a mean cost of EUR 316 (case 1) and EUR 361 (case 2), respectively. Median waiting times according to the Austrian social insurance website were 20 days (IQR: 15-28; n=62). Waiting times varied both between and within federal states; for example, in case 1, Tyrol recorded the longest (median: 34, min 21, max 62) and Vienna had the briefest waits (median: 4.5, min 0, max 30) under statutory coverage.

Discussion: While MRI waiting times in Austria appear shorter than in international comparison, only 60% of radiology institutes met the stipulated national maximum of 20 working days in case 1 and just 11% in case 2. Albeit not commonly offered by the providers, self-payment substantially accelerated MRI access. Overall, heterogeneity in MRI waiting times is apparent across Austria, with important policy implications for equitable access and timely diagnosis.

Title: Applying a multi-criteria decision analysis framework for the optimization of a complex parenting intervention in Southeast Europe: A cost-consequences analysis of the FLOURISH factorial trial

Authors: Judit Simon[1,2], Dennis Wienand[1], Michael Radloff[3], Antonio Piolanti[3], Janina Müller[3], et al. on behalf of the FLOURISH Consortium

[1] Medizinische Universität Wien

[2] University of Oxford

[3] Universität Klagenfurt

Abstract:

Introduction: Adolescent mental health presents a considerable global health issue, particularly in low- and middle-income countries, requiring effective and scalable interventions to address associated challenges. The Family-Focused Adolescent & Lifelong Health Promotion (FLOURISH) programme aims to adapt, implement, and evaluate a complex intervention package to support adolescent mental health and well-being according to the Multiphase Optimisation Strategy (MOST) framework in the Republic of North Macedonia and Republic of Moldova. In phase 2 of FLOURISH, a factorial trial was conducted to test and evaluate different intervention component combinations in order to identify the most optimal condition. The aim of present paper is to describe the use of a multi-criteria decision analysis framework (MCDA) for the evaluation of the costs and consequences of the different intervention packages.

Methods: Within a factorial cluster randomised controlled trial, all adolescents aged 10-14 years and their primary caregivers received a core intervention, Parenting for Lifelong Health (PLH) Teens. In addition, they were randomized to three add-on components (HAT workshop, adolescent peer support resources, engagement boosters). Outcome data were collected at baseline and eight weeks after baseline. Cost data consisted of intervention costs, reflecting all training, material and staff costs.

We conducted a cost-consequences analysis (CCA) embedded within a MCDA framework. Eligible scenarios were identified based on the optimisation schedule of the intervention. Evaluation criteria, outcome measures and criteria weights were determined by the FLOURISH consortium stakeholders. Intervention conditions were assessed based on changes in outcomes from baseline to post-assessment using multi-level regression models. Combining criteria weights and scores facilitated calculation of the combined benefit score (CBS). In the CCA, viable interventions were identified based on the cost per CBS against a contextual threshold.

Results: The MCDA assessed eight conditions (2x2x2 combinations) ranked based on seven criteria (adolescent internalising symptoms, adolescent well-being, adolescent peer social support, family functioning, parental well-being, parenting practices caregiver report, weighted attendance). Delivery of the core intervention (PLH only) was the least cost-intensive at €162 per family and yielded a CBS of 42 with a contextual threshold of €3.86 per CBS. PLH plus add-on HAT (PLH+HAT) was the most effective, yielding a CBS of 75 at a cost of €248 per family and

dominated all conditions with two or three add-on components. While the other single add-on components also yielded positive incremental effects, they were less cost-effective. Overall, PLH+HAT was deemed the most cost-effective.

Conclusion: Present study provides a decision-aid for the optimised component selection for the FLOURISH study, and simultaneously pilots applications of MCDA methods for complex interventions. According to our analysis, PLH only and PLH+HAT were deemed the only two contenders for final implementation and evaluation based on very similar incremental cost per CBS ratios. While PLH+HAT provided highest overall CBS, its beneficial performance was heterogeneous across the different outcome measures. Further qualitative implementation information indicated outstanding optimisation needs for the HAT component, which was beyond the scope of the FLOURISH study.

Title: School health examinations

Authors: Katrin Zocher[1], Dominika Kocanova[1], Johanna L. Reuter[1]

[1] Johannes Kepler Universität Linz

Abstract:

Objective: We study the effectiveness of mandatory annual school health examinations in Austria. Specifically, we assess whether these in-school screenings induce timely healthcare utilization, improve subsequent health outcomes, and generate spillover effects within households.

Data and Methods: We assemble a novel administrative dataset linking five cohorts of Austrian first-graders (2011–2016) from 123 mainstream schools to monthly social insurance claims (2012–2024) and maternal sociodemographic characteristics. This linkage allows us to track healthcare utilization, diagnosed conditions, and health transitions over time, as well as to study siblings within the same household. We use event-study and difference-in-differences designs to estimate the impact of detected health problems on subsequent service use and health outcomes, focusing on prevalent conditions such as dental caries and impaired vision.

Results: Mandatory school health examinations generate a targeted and condition-specific response in healthcare utilization. Event-study estimates show statistically significant increases in visits to dentists, otolaryngologists, and ophthalmologists following the detection of corresponding health problems, accompanied by higher condition-specific healthcare expenditures, confirming that identified impairments translate into follow-up care. These utilization responses are associated with meaningful health improvements over time: 36.7% of first-graders flagged with impaired vision no longer exhibit vision problems in subsequent grades—consistent with the uptake of corrective glasses—while 28.5% of detected dental caries are resolved in later school years. Effects are substantially larger for conditions that are straightforward and low-cost to treat than for outcomes requiring sustained behavioral change, such as weight management. We document significant heterogeneity across households, with stronger effects in families with higher parental education and fewer children. In contrast, spillover effects to younger, unexamined siblings are small, particularly for vision and hearing outcomes.

Implications: Mandatory school health examinations play an important role in identifying unmet health needs and redirecting children into appropriate care pathways, including among families that may otherwise underutilize preventive services. Given the modest physician-hour costs, these examinations are a cost-effective monitoring instrument. However, their effectiveness is concentrated in health domains where timely diagnosis can be translated into simple and low-cost interventions.

Title: Parental cancer diagnosis and children's educational outcomes

Authors: Claudia Reiter[1], David Binder[1]

[1] Institut für Höhere Studien (IHS)

Abstract:

Children's educational trajectories are shaped not only by individual abilities and school contexts but also by the stability and resources of their families. When a parent is diagnosed with a serious illness, family life may be disrupted through income loss, reduced parental time and support, and heightened psychological stress. While a growing literature documents the consequences of parental death for children's outcomes, much less is known about the educational effects of severe but non-fatal parental illnesses. This paper studies how parental cancer diagnoses affect children's educational trajectories in Austria.

Cancer diagnoses represent a particularly well-defined and plausibly exogenous family shock: their timing is largely unrelated to children's schooling decisions and can be precisely dated using administrative health registers. The Austrian context provides an informative institutional setting, characterized by early educational tracking, a strong vocational education and training (VET) system, and a comprehensive yet stratified welfare state—features that may shape how family health shocks translate into educational disadvantage.

The analysis draws on newly linked, population-wide Austrian administrative data combining education registers, employment and earnings records, demographic information, and the Austrian cancer register. The study follows a complete cohort of students observed from primary school entry through upper-secondary education and into early adulthood (ages 6–23), allowing the reconstruction of full educational trajectories. Information on siblings enables within-family comparisons that strengthen causal interpretation.

Empirically, the paper exploits the quasi-random timing of parental cancer diagnoses using an event-study framework with child fixed effects. This design compares educational outcomes before and after diagnosis within the same child, net of all time-invariant family characteristics. The analysis considers a broad set of outcomes, including grade repetition, track changes, transitions between school types, upper-secondary completion, timing of completion, and post-school transitions into apprenticeship, higher education, employment, or NEET status. To account for the fact that some outcomes are observed only at specific educational milestones, timing-aligned models are used to link diagnoses to the relevant stages of schooling. Sibling fixed-effects models further assess whether exposure at particular educational stages—such as transitions between lower and upper secondary education—has especially strong consequences.

The paper also explores heterogeneity by parental role (mother versus father), cancer characteristics (type and severity), and the child's age at exposure, and examines potential mediating roles of parental employment and income trajectories. By tracing complete educational pathways rather than single outcomes, the study distinguishes

short-term disruptions in school progression from longer-term effects on educational attainment and early labor-market integration.

The findings contribute to research on educational inequality and family shocks by providing causal evidence on how serious parental illness shapes children’s educational trajectories within a tracked education system. The results are directly relevant for education and social policies aimed at supporting children during periods of family health adversity and at preventing temporary shocks from translating into long-term educational disadvantage.

Title: Compensating wage differentials and the health cost of job strain

Authors: Alexander Ahammer[1], Marco Caliendo[2], Felix Degenhardt[2]

[1] Johannes Kepler Universität Linz

[2] University of Potsdam

Abstract:

We estimate the trade-off between earnings and healthcare utilization resulting from strenuous working conditions, using rich administrative data from Upper Austria that link employment histories with healthcare claims over two decades. To address selection bias, we leverage mass layoffs as quasi-exogenous shocks that push workers out of strenuous jobs. By comparing workers with varying opportunities to re-enter strenuous employment, we can isolate the causal impact of job strain on earnings and health outcomes. We find that a 1% increase in wages due to strenuous work is associated with a 0.5% rise in healthcare expenditures. Our findings provide the first unified causal evidence of compensating wage differentials and their hidden health costs, showing that higher pay in strenuous jobs comes at a measurable and persistent cost to worker health.

Title: Hospital crowding and patient outcomes

Authors: Wolfgang Frimmel[1], Felix Glaser[1], Gerald Pruckner[1]

[1] Johannes Kepler Universität Linz

Abstract:

Objectives: This study investigates how hospital crowding affects patients’ short- and medium-term outcomes across a wide range of acute inpatient diagnoses. While existing evidence largely focuses on immediate clinical effects, little is known about whether crowding-induced reductions in treatment intensity translate into longer-term consequences for healthcare utilization or labor market performance.

Methods: We link the Upper Austrian Health Register (2005–2018) with the Austrian Social Security Database to track inpatient care, outpatient utilization, mortality, and labor market outcomes. To identify causal effects, we exploit idiosyncratic variation in daily diagnosis-related hospital occupancy rates, where crowding is measured as the ratio of patients treated on a given day to the annual maximum for each hospital department cell. We exploit within-hospital and within-diagnosis variation in crowding to estimate the effect on treatment intensity, health outcomes, and subsequent labor market behavior.

Results: Higher hospital crowding significantly reduces treatment intensity - a one standard deviation increase in crowding lowers length of stay by 3.45%, hospital expenditure by 2.37%, and the number of services by 1.42%. Despite these reductions, quality indicators measured as 30-day readmissions, ICU use or inpatient mortality - remain unchanged. Hospitals facing high crowding also admit fewer new patients, particularly in urban areas. In the medium-run crowding has no effect on outpatient specialist or GP spending, drug expenditures, rehospitalization costs, sick leave, or mortality. Medium-term labor market outcomes—including days employed, wages, and retirement indicators—are likewise unaffected.

Discussion: Our findings suggest that although crowding leads hospitals to reduce service intensity and shorten stays, these changes do not worsen patients’ health or economic situation in the medium term. In Austria’s high-capacity hospital system, moderate adjustments in treatment intensity during busy periods appear manageable without compromising patient well-being. This highlights the importance of evaluating not only immediate but also longer-term welfare effects when assessing hospital capacity constraints.

Title: Does ownership matter in emergency medical services?

Authors: Anna-Theresa Renner[1], Richard Kalis[2]

[1] Technische Universität Wien

[2] Bratislava University of Economics and Business

Abstract:

Background: This paper examines whether ownership structure affects performance in Emergency Medical Services (EMS). Using nationwide administrative data from a centralized dispatch system in which patients cannot choose providers, and ambulances are assigned primarily based on distance and availability, we study patient outcomes across public, private, and non-profit providers. Our research contributes to the literature on public versus private provision in regulated service markets.

Methods: We estimate the effects of ambulance ownership on mortality based on over 500,000 dispatches from 325 operating points between 2018 and 2025 in the Slovak Republic. Our identification strategy exploits within-location and within-time variation in provider assignment, absorbed by fine-grained spatial and temporal fixed effects. Due to the rich dataset, we are able control for a plethora of incident-level controls, such as staffing of the ambulance, priority at dispatch, diagnosis and time to treatment. We further explore several mechanisms that might explain any effects. In particular, we investigate the case mix of patients, the ambulance staff's qualifications and potential fatigue, as well as competition effects.

Results: Preliminary results indicate that publicly operated ambulances are associated with modestly worse out-of-hospital mortality outcomes relative to private providers, while non-profit providers perform similarly to private firms. Public ambulances are associated with 0.1 percentage points more deaths, which corresponds to approximately 4.4 % increased mortality, or 200 to 250 additional deaths per year. Subsample analyses show tentative evidence that these effects are driven by heterogeneities in critical cases, ambulances with doctors, and dispatches during late night/early morning hours. Further, the effects are larger during the years closer to nation-wide tender procedures, indicating welfare-enhancing competitive behaviour amongst providers.

Title: Economic evaluation of automated breast ultrasound (ABUS) in the Hungarian breast cancer screening pathway

Authors: Csaba Dozsa[1], Borbala Cseh[2], Timea Helter[2]

[1] University of Miskolc

[2] Med-Econ Kft.

Abstract:

Background: Breast cancer is the most common malignancy among Hungarian women, accounting for approximately 26% of all female cancers. Although a nation-wide organised mammography screening programme has been in place since 2002 for women aged 45–65, participation rates remain suboptimal (typically 35–40%), and the number of diagnostic and screening mammograms financed by the public system has shown a declining trend over the past decade. Furthermore, mammography has well-documented limitations in women with dense breast tissue—a group representing an estimated 80,000–100,000 Hungarian women aged 40–70 annually. Dense breast tissue not only increases cancer risk but significantly reduces mammographic sensitivity, contributing to interval cancers and delayed diagnoses. This structural challenge highlights the need for modern adjunct imaging technologies capable of improving early detection and optimising resource utilisation.

Aim and objectives: The aim of this health economic evaluation was to assess whether Automated Breast Ultrasound (ABUS) is a cost-effective and budget-feasible addition to the Hungarian breast cancer screening and diagnostic workflow. Objectives included: (1) estimating the incremental health gain associated with ABUS compared to handheld ultrasound (HHUS) and mammography alone; (2) evaluating ABUS’s long-term cost impacts from the payer (NEAK) perspective; and (3) quantifying its budgetary implications when applied as a targeted adjunct examination for women with dense breasts.

Methods: A cost-utility analysis (CUA) framework was employed following the official Hungarian guideline on health economic evaluations. The model incorporated direct medical costs of screening, diagnostics, and treatment, and expressed health benefits in quality-adjusted life years (QALYs). Comparator strategies included mammography alone, HHUS, and mammography supplemented with ABUS. Clinical inputs—particularly incremental cancer detection rates—were derived from international and domestic evidence demonstrating that ABUS can detect up to 35.7% more malignancies in dense breasts than mammography alone. Long-term outcomes included stage shift, treatment cost reductions, and survival gains.

Results: Results indicate that ABUS is a dominant strategy compared to HHUS: it provides higher QALY gains while reducing long-term costs. The incremental health benefit was quantified as 5.514 QALYs per patient, accompanied by a net payer saving of approximately 850,000 HUF, largely due to reduced spending on advanced-stage systemic therapies. Enhanced diagnostic efficiency—through automation and reduced reliance on scarce radiologist capacity—provides additional operational advantages. Budget impact analysis shows that introducing ABUS for the

defined target population is financially sustainable; although additional reimbursement costs arise, these are offset by treatment savings and workflow efficiencies.

Conclusions: In conclusion, the evaluation demonstrates that ABUS offers a cost-saving, health-improving solution to a critical gap in the current Hungarian breast cancer screening system. By improving early-stage detection in dense breasts, ABUS strengthens diagnostic accuracy, reduces long-term healthcare expenditure, and aligns with international recommendations prioritising early diagnosis and equitable access to advanced imaging technologies. This evidence supports ABUS's inclusion in the publicly financed diagnostic pathway as a modern, economically justified innovation.

Title: Costing in health economic evaluation guidelines – international evidence to inform an Austrian reference case

Authors: Christoph Strohmaier[1], Judit Erdös[1], Ingrid Zechmeister-Koss[1]

[1] Austrian Institute for Health Technology Assessment GmbH (AIHTA)

Abstract:

Background: Cost data are essential to health economic analyses for assessing the efficiency and affordability of healthcare interventions. Valid estimates rely on the core costing process: identifying the resources required, measuring their quantities, and assigning a monetary value to each unit. This research aimed to compare international reference cases in health economic analysis and the associated methods for identification, measurement, and valuation of resources, focusing on implications for a future Austrian reference case.

Methods: The study identified and synthesised health economic evaluation guidelines (HEEG), HTA guidelines (HTAG), costing manuals (CM) and relevant HTA-agency documents across multiple countries. Guidelines were selected based on the presence of either distinct costing sections, systematic information on the identification, measurement, and valuation of healthcare services and resources, or dedicated costing manuals. We collected information on costing guidance (e.g., perspective, costing approach, cost categories and types, unit cost definitions, data sources, valuation principles including information on accounting for uncertainty, and treatment of key domains such as outpatient and inpatient services, pharmaceuticals, medical devices, productivity and cross-sectoral costs). The extracted data were analysed descriptively and synthesised through thematic grouping to identify cross-country commonalities and system-specific features.

Results: Among 59 countries (66 guidelines), 12 countries (18%) provide guidelines matching the selection criteria. Comparative analysis of guidelines from these twelve countries (Australia, Belgium, Canada, Denmark, England & Wales, France, Germany, New Zealand, Norway, Scotland, the Netherlands, and the USA) reveals a partly heterogeneous landscape in costing taxonomies and methodologies, reflecting differences in underlying health system structures, alongside clear commonalities. Most guidelines do not prescribe a single costing approach but allow mixed methods, while consistently defining core cost domains such as non-inpatient healthcare services, pharmaceuticals, medical devices and hospital services, commonly using DRG-based or per diem costing. Significant heterogeneity persists for services beyond traditional healthcare (e.g., transport, formal and informal care) and, notably, in the handling of indirect costs (productivity losses). The adopted perspectives varied, with seven countries taking a health system perspective, four a societal perspective, and one (Germany) a social health insurance community perspective. Universal costing principles include using a time horizon sufficient to capture cost differences and comprehensively assessing uncertainty and variation, reflecting high methodological maturity and flexibility. The main variation concerns the discount rate. This variation is not arbitrary, as it reflects differing national economic circumstances, social time preferences, and ethical views on intergenerational equity.

Discussion and Conclusion: The synthesis of guidelines from twelve countries shows a high level of methodological development in costing processes. While a stable methodological core can be identified, differences in costing are not merely technical but reflect underlying governance, priorities, and philosophy. Consequently, the development of an Austrian health economic evaluation framework on costing cannot be reduced to the adoption of international practices alone. It necessitates explicit conceptual choices, an understanding of trade-offs, and careful alignment with Austria's institutional, organisational, legal, and policy context. This requires a deliberative process where decision-makers and experts jointly define the methodological foundations of the Austrian reference case.

Title: Development of national health economic evaluation guidelines: International best practices and implications for Austria

Authors: Diana Szivákova[1], Sarah Wolf[1], Christoph Strohmaier[1], Ingrid Zechmeister-Koss[1]

[1] Austrian Institute for Health Technology Assessment GmbH (AIHTA)

Abstract:

Introduction: Some decisions in the Austrian healthcare system are informed by evidence-based recommendations from Health Technology Assessment (HTA) reports. However, Austria lacks a formal, publicly endorsed health economic evaluation guideline (HEEG) with detailed methodological specifications, which hinders the broader application of health economic evidence in reimbursement decisions. This review systematically examined international HEEGs to identify common standards of health economic evaluations (HEEs) and inform the development of an Austrian guideline.

Methods: We conducted a comparative analysis of national HEEGs from countries with healthcare systems comparable to Austria's. Through a comprehensive manual search, we identified guidelines meeting the following inclusion criteria: mandatory regulatory status in the given national jurisdiction; published or updated by June 2025; originating in a high-income country; available in English or a European Union language. Recommendations on the core methodological domains of HEEGs were systematically extracted and summarized to identify common patterns and variations. The endorsed methodological choices and their implications were then critically examined in the light of their possible implementation in the Austrian context.

Results: Sixteen HEEGs were included. The analysis revealed a strong international convergence on core elements of HEEs, including the preferred analytic technique, use of standardized generic utility instruments, perspective in the base case analysis, reliance on modeling, and incremental analysis reporting. Greater variation was observed in discounting, modeling guidance detail, and uncertainty analysis requirements. Some variation in methodological preferences could be linked to differences in data infrastructure and analytical capacity, with several outliers originating from jurisdictions with well-established HTA traditions and therefore demonstrating more comprehensive and advanced approaches to HEE. Further variations were attributed to reflect normative preferences of healthcare policymakers.

Conclusion: International HEEGs demonstrate substantial methodological harmonization that supports credible, evidence-based decision-making while accommodating jurisdiction-specific preferences. The development of an Austrian HEEG should build on this convergence by prioritizing capacity-building in the identified areas that require pre-existing data infrastructure, while involving policymakers early in discussions of methodological requirements that shall reflect their preferences.

Title: Improving access, containing costs, impacting equity? Analysing priorities in pharmaceutical policies implemented in European countries since 2020

Authors: Sabine Vogler[1], Verena Knoll[1]

[1] Gesundheit Österreich GmbH (GÖG)

Abstract:

Background: Policymakers are responsible for designing and implementing pharmaceutical policies that foster equitable and sustainable patient access to safe, effective and affordable medicines. In doing so, they need to balance multiple and sometimes conflicting policy objectives, which is particularly challenging in times of economic slowdown with severe budget cuts and fiscal restraints. This research investigates pharmaceutical policy measures that countries have implemented since 2020, thereby analysing the relevance of savings measures compared to policies aiming to ensure and support access and equity.

Methods: Data was collected from the members of the Pharmaceutical Pricing and Reimbursement Information (PPRI) network, which comprises public authorities in pharmaceutical policy from 50 countries, mainly high-income countries in Europe. Two major data collection tools informed the research that covered a study period from 2020 to 2025: First, PPRI members produced, on an annual basis, a country poster, through which they informed about recent policy changes. Second, the study authors, in their role as the PPRI Secretariat, launched annual surveys and invited PPRI members to report policy changes implemented in the previous years and planned reforms. Data collection was supplemented by further information from the PPRI network such as PPRI Pharma Briefs (country reports) and individual contacts to some respondents for clarification.

Results: At the time of the abstract submission, data collection to the 2025 survey was still ongoing, so the results are preliminary and relate to the period from 2020 till mid of 2025 (at the ATHEA conference 2025, the analysis for the full year 2025 and an outlook in 2026 will be available). Preliminary results include data from 22 PPRI countries (mainly from the European Region, plus Brazil and Canada).

In the area of pricing, frequent measures included price increases, particularly for low-priced medicines, as a policy intervention of some countries to potentially address medicine shortages, as well as changes in the pricing methodology, especially regarding the reference countries defined for external price referencing. Some countries changed distribution mark-ups, usually increasing the remuneration granted to pharmaceutical wholesalers or pharmacies.

Reimbursement policies focused on the inclusion of new medicines into public funding, such as negotiating managed-entry agreements for expensive medicines, and strengthening reimbursement processes. The latter included mandating health technology assessments (HTA) in settings where they had not been conducted, earlier

start of HTA, review of reimbursement criteria, and introduction of e-health tools to support monitoring and prescribing. Moreover, a few countries increased co-payments for publicly funded medicines.

Conclusions: National public authorities in Europe, Brazil and Canada implemented a range of measures between 2020 and 2025. Policy changes tend to be focused on strengthening, and accelerating, procedures for decision-making and extending patient access to publicly funded medicines. While rather few savings measures were overall identified, increases in co-payments for medicines were observed in some countries, which may require further attention regarding their impact on vulnerable groups.

Title: Pushed to vaccinate? The impact of COVID-19 certificates on vaccine uptake

Authors: Petra Tschuchnig[1], Andreas Peichl[2], Hannes Winner[3]

[1] Institute for Research and Information in Health Economics (IRDES)

[2] ifo Institute

[3] Universität Salzburg

Abstract:

Motivation: Vaccination was crucial in reducing COVID-19 infections and severe outcomes, yet first-dose uptake stagnated in many high-income countries in summer 2021 despite ample vaccine supply. Governments introduced COVID-19 certificates restricting access to public life based on vaccination, recovery, or test status (VRT status), which increased uptake but not enough to prevent further waves. Policymakers therefore considered progressively stricter measures, from workplace VRT requirements to universal vaccination mandates, despite concerns about public resistance to coercive policies. Understanding which interventions effectively increase vaccination uptake, and under which conditions they may backfire, is critical for future public health interventions.

Background: By mid-October 2021, first-dose vaccination rates remained low in Austria (65%) and Germany (69%). During the severe fourth COVID-19 wave, Austria implemented a sequence of increasingly strict measures: workplace VRT requirements (M1), restriction of public life to vaccinated or recovered individuals (M2), a lockdown for the unvaccinated (M3), a lockdown for all combined with the announcement of a universal vaccination mandate (M4), and the later start of the mandate (M5). In contrast, Bavaria introduced only M1 and M2, and at later dates. These sharp cross-border differences, along with differences in targeting and enforcement of measures, create a quasi-experimental setting to analyse vaccination responses to these policies.

Empirical Analysis: We estimate the effects of COVID-19 policies on first-dose vaccination uptake using the two-stage difference-in-differences (2SDD) estimator, supplemented by event-study specifications to examine dynamic effects and pre-trends. Identification exploits cross-border differences in timing, targeting, and strictness of measures. Rapid policy sequencing is addressed through long-term and short-term event studies: the long-term study captures overall changes relative to Austria's first measure, while short-term analyses isolate individual measures by restricting the observation window to one month before and one week after each policy announcement. Data include daily district-level first-dose vaccinations, infection incidences, deaths, and holidays from September 25, 2021, to March 3, 2022, pooled into two-day periods.

Results: Long-term event-study estimates support parallel trends and reveal a strong increase in first-dose vaccinations following Austria's early measures, particularly M2, with positive effects persisting even after M1 and M2 in Germany, yielding a highly significant overall effect of 34.3%. Short-term analyses show significant increases of 27%–48% for M1 and 22%–171% for M2. In contrast, M3 and M5 have no statistically significant effect, while M4 shows a negative effect of -9%. Given the sequential introduction of policies, only the short-term effects of M1 and

M5 in Austria can be interpreted causally.

Discussion: Our findings indicate that COVID-19 measures can substantially increase first-dose vaccination uptake, but only when well timed, clearly targeted at unvaccinated individuals, and credibly enforced. The lack of a positive response to M3 and M4 likely reflects either the overshadowing effect of M2 or that stricter measures affecting the entire population provide little additional incentive. M5, implemented late without penalties for non-compliance during the spread of a less severe variant, caused also no effect. These results provide key lessons for designing effective public health interventions.

Title: Incentivising innovation and ensuring access: an access-based pricing model for newly authorised medicines

Authors: Maximilian Salcher-Konrad[1], Nicolas Xander[2], Anne Hendrickx[3]

[1] Gesundheit Österreich GmbH (GÖG)

[2] Erasmus University Rotterdam

[3] International Association of Mutual Benefit Societies (AIM)

Abstract:

Background: Newly authorised medicinal products (MPs) increasingly enter the market at unprecedented high prices, raising questions over how to achieve patient access to these products while ensuring the financial sustainability of health systems in Europe. Ensuring continued access to pharmaceutical innovations at affordable prices requires reconciliation of the perspectives of different stakeholders. The aim of this research was to develop a transparent tool to inform price negotiations and decision-making procedures for MPs which balances affordability with incentives for innovation.

Methods: Input for the development of the pricing model was obtained through two scoping reviews, additional targeted literature reviews, 22 semi-structured expert interviews, 13 informal expert interviews on methodological aspects, and an online stakeholder survey. Stakeholder feedback on a draft version of the model was collated through a series of eight workshops with representatives from payers, industry, investors, patient advocates, and academics. Based on the obtained input, the pricing model was developed using both Microsoft Excel® and R.

Findings: The access-based pricing model combines cost and value elements to calculate a European price for new MPs per treatment, or a price per month for chronic diseases. The product's added therapeutic value determines a price premium anchored in a base amount representing the research and development costs required to bring a new product to market (optionally including the cost of capital and adjusted for return on public investment). Other value elements can be added according to the preferences of the model users, including quality of clinical evidence, unmet medical need fulfilment and societal value. On the cost side, the model also considers manufacturing and operational costs, as well as an operational profit margin. Preliminary empirical evaluation of the pricing model highlighted the impact of the expected patient population on the price.

Conclusion: The access-based pricing model represents a new tool to inform price negotiations between public authorities and pharmaceutical companies, and health care decision-making procedures, respectively. Complementing existing national pricing and reimbursement processes, the model introduces transparent individual price determinants to help inform price negotiations. In addition, the model can support patient advocates and health care professionals in evidence-informed discussions with manufacturers and other stakeholders on access to new medicines.

Title: A pill a day, keeps the doctor away – and also public budgets healthy?

Authors: Peter Schneider[1], Stefan Fischer[1], Verena Knoll[1], Maximilian Salcher-Konrad[1]

[1] Gesundheit Österreich GmbH (GÖG)

Abstract:

Background: Fixed-dose combinations (FDCs) are medicines that contain more than one active ingredient. The intention behind their development is to reduce the number of pills taken to improve adherence, especially in chronic diseases, including in the treatment of diabetes.

The aim of this analysis is to examine how the prices of FDCs for the second-line treatment of diabetes compare with those of the monopreparations which contain the same active ingredients as FDCs. In addition, the study analyses the Austrian prices of selected FDCs in comparison to the prices of those products in European reference countries.

Methods: Prices of 13 oral FDCs for the treatment of diabetes, as well as the corresponding single-ingredient products, were collected as of April 2023 using the Pharmaceutical Price Information (PPI) service operated by the Austrian National Public Health Institute (GÖG) for Austria and 25 other EU Member States. Each selected medicinal product represents a different ATC level 4 group. Prices were compared based on the cost of a usual daily dose.

Results: Prices of a usual daily dose of fixed-dose combination products in Austria were generally lower than the sum of the prices of the corresponding monopreparations. This pattern was often not apparent in other countries. A comparison of FDC prices reveals a varied picture depending on the specific product. The Austrian prices of the analysed FDCs for diabetes are largely consistent with both the European median and mean. Some original preparations—such as vildagliptin/metformin and sitagliptin/metformin—are priced above the median and average, while others—such as pioglitazone/glimepiride and pioglitazone/metformin—have the lowest prices in a European comparison. However, the price comparison of these selected combination preparations also indicates that results may vary when less strict comparability criteria are applied and the pool of available price data is expanded. In such cases, Austrian prices tend to be lower compared to those in other European countries.

Conclusion: Austrian pricing policy appears to support the clinically desirable use of FDCs over the use of separate monopreparations—at least for the selected diabetes drugs—as the prices of FDCs in Austria tend to be lower than the combined cost of the corresponding monopreparations. A European price comparison of these FDCs reveals a heterogeneous picture regarding the Austrian prices of the medicines analysed. When interpreting the data, it is important to keep in mind different national reimbursement regulations and policies to promote the use of generic medicines. For instance, several European countries apply in the off-patent market a so-called reference-price systems, in which only a fraction of prices is covered by public payers. In contrast, in Austria - apart from the prescription fee - public payers typically cover the full cost of medicines. This could result in differences in the relevance of a product which could not be captured in price comparisons on a product basis.

Title: Exploring barriers and facilitators to health care access among patients with atrial fibrillation in Austria and Germany

Authors: Lea Koisser[1], Stephanie Reitzinger[1], Thomas Czypionka[1]

[1] Institut für Höhere Studien (IHS)

Abstract:

Atrial fibrillation is the most common cardiac arrhythmia, associated with reduced physical functioning, diminished quality of life, and an increased risk of stroke. While catheter ablation is guideline-recommended for symptomatic patients with paroxysmal atrial fibrillation or persistent atrial fibrillation without major risk factors, access to catheter ablation remains uneven in Austria and Germany. Information provision, treatment pathway navigation, and patient-centered access experiences remain insufficiently understood, despite their importance for equitable and timely specialist care. This study examines barriers and facilitators that shape patient-centered access to health care for adults with atrial fibrillation in Austria and Germany. The analysis is guided by the patient-centered access to care framework developed by Levesque et al., which defines access as the opportunity to attain appropriate health care services.

Semi-structured interviews (ongoing) are conducted with adult atrial fibrillation patients and medical professionals in Austria and Germany (n=22). These interviews examine patients' care-seeking experiences, referral and decision-making processes, and perceived barriers and facilitators to accessing treatment. Interviews are audio-recorded, transcribed verbatim, and pseudonymized. Data is analyzed using a codebook-based thematic analysis. The development of themes is guided by – but not restricted to – the dimensions of the Levesque et al. framework, describing the attainment of access as the interaction between dimensions of service accessibility and corresponding patients' abilities.

Preliminary findings indicate substantial inequities in access related to both system-level constraints and individual abilities. Patients describe gaps in information provision, with many patients unaware of catheter ablation as a treatment option. Other reported barriers include dismissiveness or limited engagement by physicians, receiving conflicting information about catheter ablation, long waiting times and limited availability of catheter ablation on the dimensions of accessibility. Patients also exhibit unequal abilities to navigate the healthcare system; especially the ability to perceive atrial fibrillation as a serious illness, which seemingly correlates with symptom burden, and the ability to engage in treatment decisions substantially impact access. Facilitators include having private insurance, medical or health system knowledge, and strong informal support networks, underlining the role of socioeconomic status and institutional embeddedness in navigating complex care pathways.

The study highlights how structural and individual characteristics shape barriers and facilitators and thereby inequities in access to atrial fibrillation treatment in Austria and Germany. Findings inform the development of a structured questionnaire to examine access barriers in a larger cross-country sample and can contribute valuable new evidence to social policy debates on equitable access to specialized cardiovascular care.

Title: Assessing integrated care for opioid use disorder – evidence from a case-control study using patient surveys and registry data

Authors: Miriam Reiss[1], Clemens Zech[1], Markus Kraus[1], Susanne Drexler[2], Thomas Czypionka[1]

[1] Institut für Höhere Studien (IHS)

[2] Wirtschaftsuniversität Wien

Abstract:

Background: Opioid use disorder (OUD) poses a persistent public health challenge in Europe. Opioid agonist treatment (OAT) is effective, yet many patients face co-occurring medical and social problems that require broader support. Integrated care – coordinated, person-centred services spanning medical, psychological, and social domains – may address these needs, though evidence remains limited, particularly from patient perspectives. This study examines integrated care for individuals receiving OAT at the Interdisciplinary Contact and Support Centre (IKA) in Graz, Austria, incorporating multiple outcome measures such as patient-reported well-being, experience of care and healthcare utilisation.

Methods: In this retrospective case-control study, we compare individuals receiving integrated OAT with patients receiving standard OAT in other care settings. Data sources include patient surveys and registry-based social health insurance (SHI) data. Due to data protection constraints, the survey sample (n = 108/106 in the treatment and control group) and the corresponding SHI dataset (n = 104/101) were analysed separately. Propensity score matching was applied to construct a balanced sample based on sociodemographic characteristics including age, sex, education and occupational status. Treatment effects were estimated as average treatment effects on the matched samples using regression-based outcome models.

Results: Regarding patient-reported outcomes, we find a significant positive effect of integrated OAT on person-centeredness and continuity of care, while no significant differences are observed for psychological well-being, social relationships and participation, enjoyment of life, or resilience. Only a limited set of registry-based variables could be analysed, as billing and reimbursement modalities differ between the two settings of care. Within these constraints, no significant differences were found for important healthcare utilisation and cost outcomes, including the number and cost of prescriptions, hospital stays, or hospital-related costs.

Conclusion: Our results suggest that integrated care for people with OUD has a positive effect on experience of care measured in terms of person-centredness and continuity of care. We do not find conclusive evidence with respect to broader well-being, health service utilisation and costs, which is in line with existing literature. We conclude that integrated care approaches may considerably improve the care situation of a population that is typically marginalised and faces difficulty in finding adequate care addressing their complex needs.

Title: Reducing breast cancer recurrences with CDK4/6 inhibitor treatment of HR-positive, HER2-negative early stage breast cancer from a societal perspective

Authors: Stephanie Reitzinger[1], Thomas Czypionka[1], Gabriel Rinnerthaler[2]

[1] Institut für Höhere Studien (IHS)

[2] Medizinische Universität Graz

Abstract:

Background: Hormone receptor (HR)–positive and HER2 receptor–negative breast cancer accounts for two thirds of all breast cancers. Although it is a relatively less aggressive subtype, the prognosis of survival depends on the anatomic stage and biological factors. In case of stage IV cancer, i.e. breast cancer with distant metastases, treatment intends to delay the progression, but – in contrast to early breast cancer (stage I-III) –implies a non-curative strategy. Therefore, new treatment options for early stage breast cancer to prevent metastatic recurrences are desirable, but the potential medical and economic impact in the population is unknown. Hence, the aim of our study was to estimate the economic effect of reducing breast cancer recurrence by treating Austrian stage II and III HR+/HER2− breast cancer patients with a CDK 4/6 inhibitor as an adjuvant treatment, based on the findings of the NATALEE trial.

Methods: We developed a 7-state Markov model with a time horizon of 30 years from a societal perspective and compared the follow-up direct and indirect costs between patients who were treated with and without a CDK4/6 inhibitor in the early stage. We distinguished between anatomic stage II/III and nodal status negative/positive subcohorts of patients. We used transition probabilities derived from the clinical trial NATALEE. The treatment schemes of our modelling were based on the guidelines of the AGO Breast Committee and information from clinical practice, reflecting the state of breast cancer treatment in 2024. We derived the Austrian female target population from the national epidemiological and local clinical registry data and matched it with the target patients of NATALEE. To evaluate treatment costs, we used public medication prices of the pharmacist association price list and in- and outpatient DRG (diagnosis related group) points of the DRG-model 2025 with the base year 2022. Based on Austrian employment and income statistics and presumptions about cancer-related work reductions derived from previous research, we varied the assumptions regarding productivity losses from paid and unpaid labor in three distinct models. To account for further uncertainties, we conducted probabilistic and one-dimensional deterministic sensitivity analyses.

Results: We identified 1,340 female Austrian target patients in 2022. For this cohort, the results showed societal follow-up costs of at least €50 million (discount rate=3%) associated with breast cancer recurrences that could be saved over 30 years. Thereby, the costs of recurrence were reduced by about 30% in anatomic stage II and nodal status negative patients and reduced by about 20% in the anatomic stage III and nodal status positive subcohorts, respectively. These costs mainly resulted from the reduction of approximately 200 metastatic breast cancer

recurrences and approximately 1,000 metastatic breast cancer years. Nearly 75% of the cost savings resulted from savings in health care expenditure and about 25% from productivity gains (incl. unpaid work).

Conclusions: We conclude that in Austria by treating early-stage HR+HER2− breast cancer patients with CDK4/6 inhibitors a significant number of metastatic cancer recurrences could be avoided based on a lasting long-term impact over 30 years, reducing a substantial sum of long-term healthcare costs and productivity loss for society.

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Title: Understanding preferences for telemedicine among Long Covid patients in Austria

Authors: Agata Łaszewska[1], Gertrud Kienreich-Nitsche[1], Peter Gamillscheg-Müllner[1], Susanne Mayer[1]

[1] Medizinische Universität Wien

Abstract:

Background: Telemedicine offers an important and potentially cost-saving alternative for managing chronic conditions such as long Covid, yet evidence on long Covid patients' attitudes towards telemedicine remains limited internationally. This study aimed to investigate long Covid patients' preferences for telemedicine versus in-person doctor consultations and to identify the reasons associated with their choices in Austria.

Methods: A cross-sectional survey, administered online and paper-based, was conducted including 430 individuals with long Covid across Austria (October-December 2024). Given prior evidence suggesting that the initial consultation between a healthcare professional and a patient should be conducted face-to-face rather than online, preferences for telemedicine versus in-person follow-up visits were examined using univariate and multivariate logistic regression analyses.

Results: Overall, 81% of respondents preferred telemedicine for their next follow-up appointment, although 39% had never used it. Multivariate analysis showed that prior telemedicine experience (OR 2.33; 95% CI: 1.34, 4.02), regular use of video-communication tools (OR 2.28; 95% CI: 1.07, 4.88), and long Covid severity (OR 2.57; 95% CI: 1.00, 6.66) were positively associated with selecting telemedicine. Participants reporting a worsened financial situation during long Covid had higher odds of preferring telemedicine than those without financial worsening (OR 2.26; 95% CI: 1.32, 3.87). Living in a federal state with a central long Covid coordination unit was associated with lower odds of selecting telemedicine (OR 0.42; 95% CI: 0.24, 0.73). Avoiding travel (95%), reducing infection risk (68%), shorter waiting times (53%) and improved access to expertise (53%) were the most frequently cited reasons for preferring telemedicine over in-person visits.

Conclusions: Long Covid patients in Austria show strong openness to telemedicine for follow-up consultations, particularly those with prior telemedicine experience or previous use of digital tools. Lower preference in regions with long Covid coordination units suggests that the regional organisation of healthcare might influence the perceived need for telemedicine. Expanding digital literacy initiatives, improving access to telehealth infrastructure, and ensuring adequate reimbursement models could enhance the use of telemedicine in future long Covid care pathways.

Title: The causal effect of retirement on cognitive functioning: exploring the role of gendered employment histories

Authors: Thomas Arnhold[1]

[1] Internationales Institut für Angewandte Systemanalyse (IIASA)

Abstract:

Maintaining good cognitive functioning is a requirement for living an independent life. Rates of cognitive decline show substantial variation between individuals around retirement age, with the underlying mechanisms remaining underexplored. In light of these heterogeneities, several studies have investigated the effect of retirement on cognitive functioning, often showing inconsistent results. At the same time, research has emphasized the roles of gender and employment trajectories in shaping cognitive resilience in older age. Bringing together these two strands of literature and acknowledging the role of gender-specific life-courses in shaping both later-life cognitive functioning and the character of retirement, this paper aims to estimate the role of gendered employment histories (in terms of work intensity and complexity) on the causal effect of retirement on cognitive functioning.

The study draws on data from the Survey of Health, Ageing and Retirement in Europe (SHARE) of Europeans aged 50-70, using episodic memory test scores as outcome variables. In a two-step design, I first derive gender-specific life-course clusters via sequence analysis using retrospective data on work intensity (full-time or part-time) and work complexity (higher or lower skill level). Second, I estimate causal effects using an instrumental-variable approach, exploiting discontinuity in retirement probabilities at the statutory retirement age.

Preliminary results indicate heterogeneities by gender and employment history, suggesting that retirement is not uniformly detrimental to cognition. Specifically, I find negative short-term retirement effects on cognitive functioning for men who held less complex jobs and women who had prolonged homemaking spells. Furthermore, retirement duration effects on cognitive functioning are negative for men overall, and for women who had less complex jobs or prolonged homemaking spells. Work intensity shows little explanatory relevance.

Preliminary findings suggest shifting from uniform retirement policies toward frameworks acknowledging gender- and employment history-specific contexts and their cognitive implications.

Title: How do rising care needs impact the formal and informal care sectors and existing inequalities? Comparing Austria and Spain

Authors: Ulrike Famira-Mühlberger[1], Thomas Leoni[2], Thomas Horvath[1], Martin Spielauer[1], Philipp Warum[1]

[1] Österreichisches Institut für Wirtschaftsforschung (WIFO

[2] Fachhochschule Wiener Neustadt

Abstract:

The different long-term care (LTC) systems in Europe differ considerably in their ability to create a functioning care market and to provide an adequate framework for informal carers. There is a lack of evidence on the role of LTC systems in long-term trends, on the impact of rising demand for care on different groups of carers, and on sustainable ways of organising care provision.

We assess how increasing care needs interact with institutional settings and impact on existing inequalities and systemic vulnerabilities. We compare Austria and Spain, combining the analysis of care systems with projections of the evolution of care needs based on dynamic microsimulation.

Austria and Spain share some common features of the long-term care system. Both countries have a family-based tradition of care provision, initially characterised by a low level of services and a lack of policies to support informal care. Over time, both countries have moved towards 'optional defamilialisation through the market' (Le Bihan et al., 2019), where families are encouraged to provide family care and are given alternatives through the provision of market care. The two countries are thus part of a wider international trend, underpinned by the expansion of cash-for-care (CfC) schemes, increasingly regulated care markets, and policies to support work and care. However, there are also important differences that make a comparison of interest in order to highlight the role of institutions and policies in shaping the organisation of care. Austria has a higher level of public service provision with a 'mixed' family/state model, whereas the Spanish system has retained stronger family features with less public care. The Spanish CfC system is conditional, with broad coverage but comparatively low benefits, whereas the Austrian system is unconditional, with more targeted but higher benefits. Both countries rely heavily on migrant workers to maintain care provision, with differences in the composition of the LTC workforce by skills and work arrangements.

We use a dynamic microsimulation model to project care needs and simulate scenarios of how they can be met formally by the market or government and informally by the family. The model is based on comparative data (EU-SILC and SHARE) and is consistent with Eurostat population projections. We model care needs in hours by age, sex and education, and institutionalisation by care needs (hours), age, sex and presence of a partner. We apply a universal concept of assessment and imputation of hours of care need to map characteristics observed in SHARE (ADLs, age, etc.). Our projections quantify future needs and explore options for necessary system adjustments in the context of socio-demographic changes and changes in women's labour force participation affecting informal

care.

Our preliminary results highlight the negative consequences of systems that rely heavily on informal care, as the supply of informal care comes under increasing pressure. Based on current patterns of unmet need, the results also highlight the increasing vulnerability of older people with care needs, leading to growing inequalities in access to adequate care.

Title: Gender differences in cognitive decline among older adults and the role of digital inclusion: Evidence from European countries

Authors: Daniela Weber[1], Viktoria Szenkurök[2]

[1] Internationales Institut für Angewandte Systemanalyse (IIASA)

[2] Wirtschaftsuniversität Wien

Abstract:

This study investigates the relationship between digital inclusion and cognitive functioning in later life, with a focus on gender differences and heterogeneities between urban and non-urban areas. As digital technologies increasingly shape access to information, services, and social participation, understanding their role in maintaining cognitive health is particularly relevant in the context of population aging, rising dementia-related costs, and persistent gender and spatial inequalities.

Using balanced panel data from the Survey of Health, Ageing and Retirement in Europe (SHARE), waves 5, 6, 8, and 9 (2013–2022), we analyze individuals who participated in all four waves and exclude respondents with cognitive impairment at baseline. The final analytical sample comprises 15,506 individuals from 13 European countries, yielding 62,024 observations. Episodic memory, our dependent variable, is measured by the cognitive ability to recall as many words as possible out of 10 words read aloud. It is a key cognitive domain and an early marker of cognitive decline, making it particularly relevant for studying preventive factors in aging populations. Conversely, we treat internet use as a proxy for digital inclusion, which serves as our primary independent variable of interest.

We estimate two-way fixed-effects models that account for unobserved time-invariant individual heterogeneity and common time trends. To assess heterogeneous associations, we include interaction terms between gender and internet use and further stratify the analysis by level of urbanization.

Our results indicate that internet use is associated with higher episodic memory performance for both men and women, consistent with previous evidence on the cognitive benefits of digital engagement. Once common time trends are accounted for, gender differences in this association are not statistically significant, although estimated effect sizes tend to be larger for men. However, substantial heterogeneity emerges across urbanization levels. The association between internet use and episodic memory is particularly pronounced in urban areas, and significant gender disparities persist within urban populations, especially between urban men and urban women. The literature suggests that urban regions often benefit from faster and more widespread internet access, making digital inclusion especially important due to the higher risks of loneliness and reduced social connectedness in these areas, particularly for urban men.

By documenting heterogeneous cognitive returns to digital inclusion across gender and place, this study contributes to the health economics literature on aging, technology use, and health inequalities. From a policy perspective, the

findings suggest that digital inclusion strategies may yield both efficiency and equity gains when they are better targeted to specific population groups and spatial contexts, thereby supporting healthy aging and potentially reducing future health and long-term care burdens.

Title: Linking environmental and clinical data: Assessing the predictive value of wastewater signals for unplanned hospital admissions

Authors: Stephanie Lackner[1], Martin Zuba[1]

[1] Gesundheit Österreich GmbH (GÖG)

Abstract:

Wastewater-based epidemiology (WBE) has emerged as a promising tool for infectious disease surveillance, yet its potential to inform health system capacity planning remains underexplored. This study investigates whether and how microbiological signals in wastewater can serve as early indicators of hospital utilization, specifically unplanned admissions, and evaluates methodological approaches for integrating environmental and clinical data.

We analyzed time series from about 60 wastewater treatment sites in Salzburg and Tyrol (pooled into 35 analytical units) covering approximately 93% of the regional population. Samples were tested for Influenza A/B, Respiratory Syncytial Virus (RSV), and SARS-CoV-2 for the season 2023/2024. Clinical data were derived from Austrian DRG data, focusing on unplanned admissions, partially sampled by diagnosis groups indicative of respiratory infections. Wastewater signals were smoothed and interpolated using three methodological approaches. The data sets were linked spatially by municipality (Gemeinde) of the treatment site catchment area and patients' municipality of residence. Correlation and cross-correlation analyses were used to assess the temporal associations and predictive lags between wastewater pathogen concentrations and unplanned hospitalizations.

Correlation strength varied by pathogen and outcome definition. All pathogens except for Influenza B exhibited robust correlations with unplanned admissions featuring pathogen-specific diagnoses, with median correlation coefficients markedly higher than for all unplanned admissions. Cross-correlation analysis revealed optimal predictive lags of 7–10 days for Influenza A and RSV, suggesting meaningful lead times for early warning. However predictive power remained significant at a predictive lag of 30 days for all pathogens except Influenza B, underscoring the potential for extended forecasting horizons. Aggregation at regional level amplified correlation strength, reflecting the smoothing effect of spatial pooling. Correlations with broad admission categories were substantially weaker, limiting generalizability beyond pathogen-specific outcomes. The results are robust to all three tested smoothing and interpolation methods.

Findings are constrained by a single-season observation window, and seasonal confounders (e.g., winter vacation accident rates) and regional heterogeneity may introduce spurious correlations. Furthermore, wastewater signals do not universally precede clinical indicators, emphasizing the need for pathogen-specific modeling.

This study provides empirical evidence that wastewater surveillance can complement traditional epidemiological indicators for hospital capacity forecasting. Integration of WBE into health system preparedness frameworks could enhance responsiveness during seasonal epidemics and pandemics. Future modeling approaches should explicitly account for pathogen-specific dynamics to ensure robust forecasting.

Title: Midwivery in Europe – A comparison of regulation and scope of practice across six countries

Authors: Monika Riedel[1], Eva Raschhofer[1], Christoph Iby[1]

[1] Institut für Höhere Studien (IHS)

Abstract:

Background and research question: Shortages in health workforce require adjustments of traditional resource allocation in health systems. One possibility to deal with physician shortages is to upgrade skills and tasks of other health professionals. Nurses, but also midwives, are candidates for which publicly financed health services in Europe consider upgrades in responsibilities to alleviate shortages in physician supply while maintaining quality of care.

This paper aims at highlighting differences and similarities in education, regulation and competencies among six European countries (Austria, Finland, France, Germany, Netherlands, United Kingdom) to derive recommendations for developing the role of midwives in Austria. This aim was triggered by increasing waiting times for appointments with specialists for obstetrics and a simultaneous increase of midwifery services covered by the main Austrian health insurer, which however had not been accompanied by a broadening scope of practice.

Method: We use a comparative literature review to analyze professional regulations, training structures, job profiles, and public funding for midwifery services. We complement the findings from scientific literature with information from legal documents and international statistics. Finally, we contacted national experts in midwifery in the six sample countries to validate our results and fill in remaining gaps.

Results and discussion: We find remarkable differences in regulation and scope of practice between European countries. In Austria and Germany, midwives' scope of practice is narrower than in Finland, France, the Netherlands and UK, where they can prescribe medication, apply sonography as well as a broader field of reproductive care. Accordingly, France, Finland and the Netherlands place educational requirements for midwives on Master or an extended bachelor level. Austria, similar like Germany, in contrast uses 3-year bachelor programs for education in midwifery, remains on the lower bound of EU competence profiles, and allocates a larger share of reproductive care to physicians rather than midwives.

International research shows that care for low-risk pregnancies and births does not necessitate involvement of physicians but has been shown to lead to lower use of medication as well as lower numbers of cesarean sections. Thus, the comparison elucidates that broader competencies for midwives in Austria could alleviate the workload for medical doctors without compromising quality of care. Overall, an increased scope of midwifery practice in Austria could be one step towards a more efficient health system but suggests increased initial training.

Title: Impact of biosimilar policies on availability, affordability and accessibility of biological therapies

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Abstract:

Background: Biological medicines represent a growing share of pharmaceutical spending in Europe. Available biosimilars offer clinically equivalent alternatives at lower cost, however, their uptake remains uneven across countries and therapeutic areas. This study presents a comprehensive impact analysis of biosimilar policies implemented in 32 European countries, focusing on the key dimensions availability, affordability, and accessibility.

Methods: The analysis was conducted within the AUGMENT Biosimilars project using a mixed-methods approach. We conducted a triangulation of systematic and narrative literature reviews, stakeholder consultations (online survey, interviews, multistakeholder workshops), and quantitative analyses based on IQVIA MIDAS® sales data (Q1/2008–Q2/2024). Indicators included biosimilar market entry, price developments, market shares, and competition measured by the Herfindahl–Hirschman Index (HHI). Studied policies comprise measures in the supply side (pricing, procurement, reimbursement) and in the demand side (policies to support medication change by prescribers, e.g., switching guidance, or by pharmacists such as substitution, and other measures such as gain-sharing and financial incentives or information and education activities targeted at for prescribers, pharmacists and patients).

Results: Availability of biosimilars has expanded steadily, with 126 biosimilars with marketing authorisation of the European Medicines Agency and follow-up market entry of several of them in European countries. However, on average, it takes 1.87 years for a biosimilar to reach the market after having received marketing authorisation. The number of biosimilars on the market varies substantially across European countries, with more biosimilars being marketed in larger countries. Similarly, while biosimilar market shares account, on average, for 41% (sales) and 44% (volume, 2024 data), large variation persists across countries and products: some countries remain below 30%, and insulin products show notably low competition. Affordability improved significantly, with estimated savings at over €13 billion in 2024, driven by lower biosimilar prices and originator price reductions following loss of exclusivity. While it is evident that achievements are attributable to a mix of policies, analysis of single policies suggested that gain-sharing models, the biosimilar price link policy (i.e., setting the biosimilar price in relation to the originator price), switching among biologicals and prescribing quotas for doctors were particularly effective in improving biosimilar uptake. Importantly, quantitative analysis revealed no indication for a trade-off between affordability and availability across policies.

Conclusions: Biosimilar policies can deliver substantial savings and improve access without compromising availability and affordability. However, there is still need of optimise biosimilar policies given the variation in uptake

across countries and products and continued limited knowledge and acceptability of biosimilars and their policies among prescribers and patients The study findings provide insights for policymakers seeking to optimise biosimilar uptake and their health system value.

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