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Book of Abstracts

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„Improving efficiency in healthcare systems “

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Conference venue

Address:

Institute for Advanced Studies (IHS)

Josefstädter Straße 39

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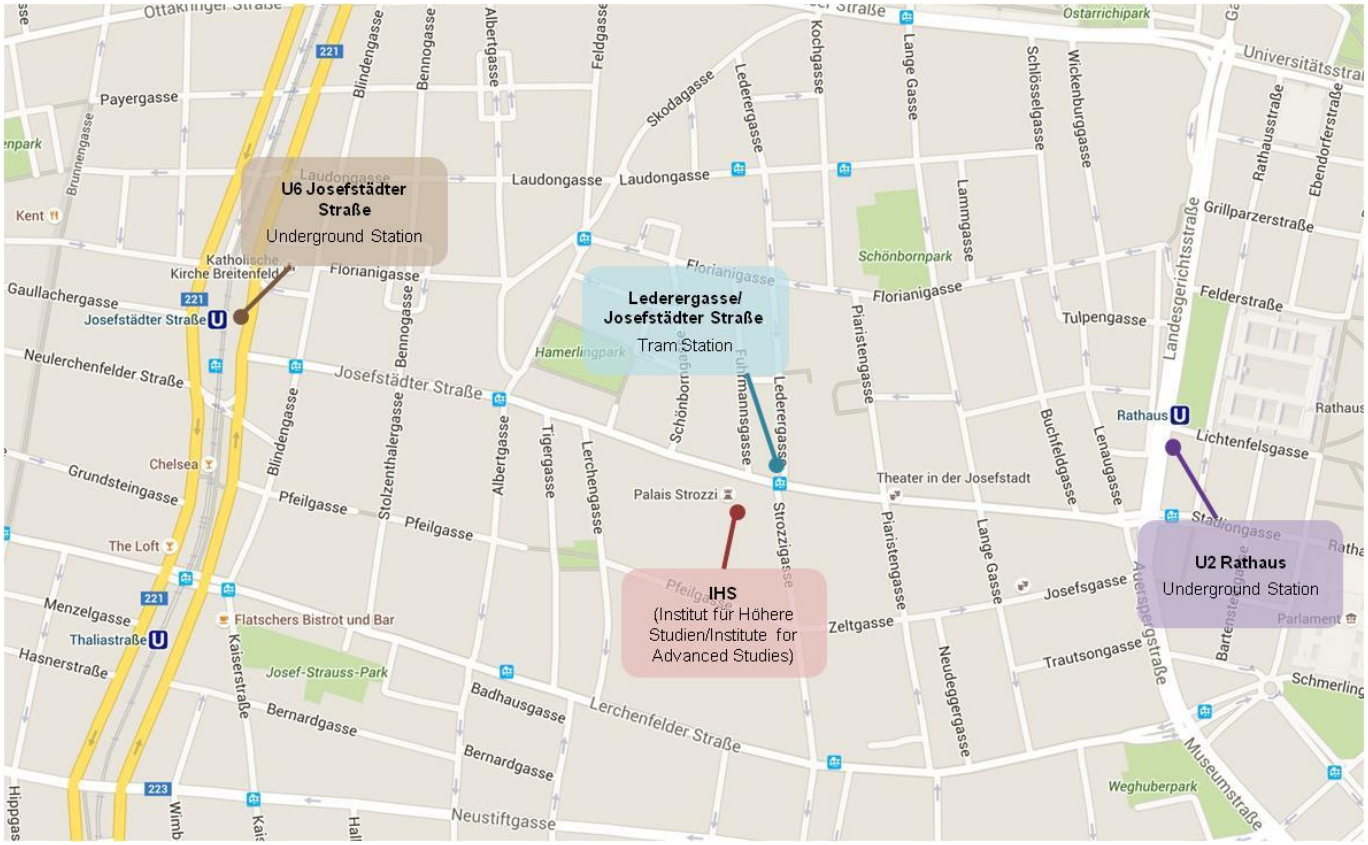

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Title: Evaluating hospital performance using instrumental variables

Authors: Thomas Schober[1]

[1] Johannes Kepler University Linz

Abstract:

Hospitals are a key health care provider, accounting for nearly two-fifth of all health expenditure in the European Union. They therefore also play a central role in policy considerations to improve the efficiency of health care systems. One initiative being pursued in many countries is a stronger focus on patient outcomes instead of inputs. Large amounts of routinely collected data are used increasingly to measure and compare the quality of care in hospitals. The aim is to detect problems and weaknesses in the health care system and to identify options for reform. A main challenge when comparing hospitals is patient selection. Widely used risk adjustment methods rely on observable characteristics to account for patient selection, but are often criticized for their inability to fully control for differences in patients across hospitals. We assess hospital performance using exogenous variation shaped by the institutional setting of inpatient care in Upper Austria. Hospitals have agreed on a rotating schedule, where on every day, one or two hospitals are primarily responsible for the admission of inpatients. For patients in need of acute care, this schedule creates a quasi-random allocation into different hospitals. We use this variation in an instrumental variable (IV) framework to estimate hospital performance, and compare the results to traditional risk adjustment methods. We use patient mortality and readmissions as quality indicators and draw on administrative data from Upper Austria with hospital visits from the years 2005 to 2017. We find substantial differences between IV and risk adjustment estimates, and show that increasing the number of variables used to control for patient differences often does not provide more credible results.

Title: Frontier efficiency studies and quality: a review

Authors: Margit Sommersguter-Reichmann[1]

[1] University of Graz

Abstract:

Background:

There is a broad consensus that health care providers' efficiency assessments should take into account the quality of service delivery to capture adequately any relationship between cost and quality of health care delivery. Given the multi-dimensional nature of quality, the ambiguous relationship between quality and cost, and the various ways in which quality can be included in the efficiency assessment, different findings may result from considering one or more quality dimensions in efficiency studies.

Objective:

This article systematically reviews articles, which use the frontier efficiency methods of data envelopment analysis and stochastic frontier analysis and include quality dimensions to assess the efficiency of service providers. In detail, the goal is to categorize the papers according to

1. the methodological approach (DEA vs. SFA)
2. the analysis level (aggregation level: patient level/institutional level; type of decision making unit)
3. the quality dimensions (structure, process, outcome)
4. the study design (one-stage versus two-stage evaluation),

to derive general statements about the relationship between efficiency and quality.

Method:

First, we searched the Web of Science using relevant keywords for articles published be-tween 1978 and 2019 (deadline: February 2019) and covered by the Science Citation Index (SCI), Social Sciences Citation Index (SSCI) and Emerging Sources Citation (ESCI). We then checked the full text to assess the relevance of the paper for inclusion in the review. In a final step, we will analyze the references of these articles to identify papers that are not covered by the initial search.

Results:

Using the keyword search, we identified 213 papers, of which 128 papers actually consider one or more quality dimensions to assess the efficiency of healthcare providers. Of these 128 contributions, 70% apply a DEA and 30% a SFA approach. Among the DEA studies, almost one third assumes that the quality of the service provided does

not have an impact on the efficiency frontier, but on the distribution of inefficiency given the technology set. SFA studies prioritize a one-step approach and heavily rely on the simultaneous estimation of the efficiency frontier and the influence of covariates on the inefficiency term. With regard to the quality dimensions, outcome quality is frequently considered, while process quality is used less often. Outcome quality indicators comprise (risk-adjusted) mortality or readmission rates, either at the aggregate or disease level. Shares of particularly qualified personnel, existence of accreditation and/or teaching status serve as structural quality indicators. Process indicators focus on certain diseases and comprise clinical quality indicators, such as the administration of particular drugs at different stages of treatment.

Limitations:

General statements about the association between quality and efficiency are hardly possible, since the results seem to be valid in the respective context only.

Title: Patient mobility and information about provider quality: the case of elective hip replacement surgery in the Italian NHS

Authors: Anna-Theresa Renner[1], Yuxi Wang[2], Aleksandra Torbica[2]

[1] Health Economics and Policy Group, Vienna University of Economics and Business

[2] CERGAS, Bocconi University, Milan

Abstract:

In the Italian National Health Service patients have free provider choice when it comes to hospital care. This means that some of the local health authorities (LHA) are "exporters" of care as they treat patients outside of their own LHA, whereas others are "importers" meaning that patients travel to get care outside of their LHA. In general, regions have an incentive to increase inflows as they are paid for each external patient on a pay-per-case basis. In general, southern Italian regions are importers, whereas northern regions are exporters of inpatient care. While this might increase efficiency for some specialised treatments, it raises concern of reduced equity of access and financial sustainability in the South. Since, especially for elective services such as hip replacements, patients can carefully select the provider, it is highly relevant to know how patients form their decision to bypass their closest provider(s) and incur the private costs of travelling. We therefore exploit a patient-level dataset on all hip replacement procedures in Italian hospitals performed on the elderly population (65+) from 2010 to 2015. In particular we are interested whether, all else equal, patients take into account hospital specific quality indicators related or unrelated to hip replacements, or whether they are primarily reacting to information from their closer (regional) network. The theoretical framework of our study builds upon the theory of decision heuristics from behavioural economics, namely the availability heuristic and the "law of small numbers", as well as patient choice models often used in health economics. In our empirical model we will estimate the share of patients from region r undergoing hip replacement surgery in hospital h in year t. The main explanatory variables of interest are the overall quality of a hospital, and the quality of a hospital as it was experienced by patients from a specific comune only (both variables are lagged by one year). The former will be referred to as global quality information, the latter as local quality information. Both level of quality information will include broad quality indicators such as overall inhospital mortality and readmission rates, as well as surgery specific quality indicators such as length of stay or 30-day-readmission. We will include an extensive set of patient, hospital and comune specific control variables, such as age, gender, education, number of beds, and economic indicators, as well as the travel time between the comune of the patient and that of the hospital. Depending on data availability, we will also control for commuting flows between comune r and hospital h's comune, as well GPs per person in each comune. To see if our specification actually identifies the treatment effects of quality, we will perform placebo regressions on a control group of

emergency care patients. The coefficients will be estimated using different specifications to account for the likely overdispersion in the data, such as Poisson, Negative binomial or Tobit.

Title: The self-reported PECUNIA resource use measurement instrument module for the health and social care sectors: item development and questionnaire structure

Authors: Claudia Fischer[1], Susanne Mayer[1], Alexander Konnopka, Valentin Brodszky, Silvia MMA Evers, Leona Hakkaart-van Roijen, Luis Salvador-Carulla, A-La Park, William Hollingworth, Judit Simon[1]

on behalf of the PECUNIA Group

[1] Medical University of Vienna, Department of Health Economics, Center for Public Health, Medical University of Vienna

Abstract:

Objective and background:

An important step for the generation of high-quality economic evaluations for evidence-based decision-making is the measurement of relevant resource use. In trial-based economic evaluations, patient-reported resource use measurement (RUM) instruments can be used to collect data on true quantities of resources utilized. One of the main objectives of the ProgrammE in Costing, resource use measurement and outcome valuation for Use in multi-sectoral National and International health economic evaluAtions (PECUNIA) is to develop a modular, internationally standardised and validated, generic, self-reported RUM instrument consistent with a harmonised unit cost approach. This paper presents the development process of the work-package 1 (WP1) self-reported PECUNIA RUM instrument module for the health and social care sectors, describing selected service items, the questionnaire structure and methodological foundation of the questionnaire module.

Methods:

A comprehensive list of international service items in the health and social care sectors identified and prioritized in course of Horizontal Activity (HA) 1 – `Identification´ served as the basis for the development of the WP1 PECUNIA RUM instrument module. These service items were linked to the Description and evaluation of services and directories in Europe - long term care (DESDE-LTC) coding system in course of HA2 - `Description´ to match the item content and the conceptual framework of the PECUNIA care atom. The development process of the WP1 PECUNIA RUM instrument module for the health and social care sectors was guided by the PECUNIA HA3 'measurement' harmonization strategy and complemented with input from HA4 for unit cost 'Valuation' in order to assure the link between the two tools.

Results:

The WP1 PECUNIA RUM instrument module, which combines services for the health and social care sectors, covers five domains including residential/inpatient care, day care, outpatient care, self-help groups and vocational services. The measurement unit for resource use in all domains was 'contact' with the exception of the

residential/inpatient sector (nights), and the day care sector (days). The recall period was set at three months throughout the entire module. All individual service items listed in the WP1 PECUNIA RUM instrument module were developed with the aim to be able to link them to existing DESDE-LTC codes. This should facilitate valid comparisons of the listed items across countries based on service content rather than linguistic equivalence and assure the linkage to the WP1 unit cost template. Next to this basic version of the WP1 PECUNIA RUM instrument module, also more extended versions of the questionnaire module were developed allowing to collect additional levels of information including the average length of a contact and patient out-of-pocket payments.

Discussion:

The first draft of the WP1 PECUNIA RUM has undergone several harmonisation steps and validation activities. Following harmonisation with the other modules, a first external validation of the whole PECUNIA RUM took place with a health economic expert focus group. Further piloting with ex-service users and carers in the PECUNIA countries and a linguistic translatability assessment are foreseen for 2020. Based on these, a final multi-sectoral, harmonized RUM instrument will be developed, covering not only the health and social care sectors, but also the education and (criminal) justice sectors, productivity losses, as well as patient and family costs and informal care. This RUM instrument will be developed with a strong focus on the methodology for the appropriate measurement of resource use data, presenting a methodological evidence based tool for future trial-based economic evaluations.

Acknowledgements: The PECUNIA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 779292.

Title: Development of the PECUNIA unit cost calculation templates for harmonized cross-country and cross-sector valuation of services

Authors: Susanne Mayer[1], Claudia Fischer[1], Alexander Konnopka, Valentin Brodszky, Silvia MMA Evers, Leona Hakkaart-van Roijen, Luis Salvador-Carulla, A-La Park, William Hollingworth, Judit Simon[1]

on behalf of the PECUNIA Group

[1] Medical University of Vienna, Department of Health Economics, Center for Public Health, Medical University of Vienna

Abstract:

Objective and background:

For economic evaluations to be able to inform efficient resource allocation based on valid high-quality evidence, it is crucial that costs are assessed rigorously and comparably. A universally accepted costing methodology, however, does not yet exist, neither for the health care sector nor for other sectors affected by the spill over effects of healthcare interventions (e.g. education sector, (criminal) justice sector). Currently, unit cost estimates between studies, sectors and countries are often not comparable due to differences in the applied methodologies. To allow for harmonized unit cost development for services across sectors and countries, we aimed to develop internationally standardized unit cost calculation templates for services as part of the European PECUNIA (ProgrammE in Costing, resource use measurement and outcome valuation for Use in multi-sectoral National and International health economic evaluAtions) project.

Methods:

The service unit cost calculation templates were developed by the MUW team based on the findings of a scoping review on methodological issues in costing, the conceptual framework of the PECUNIA care atom and the results of horizontal activities 'Identification', 'Definition' and 'Measurement', and follow the harmonisation strategy outlined by the PECUNIA horizontal activity 'Valuation'. International unit costing calculators and databases with established methodologies from PECUNIA partner countries served as further illustrative examples in the development phase. The templates were validated from a methodological perspective based on expert input and pilot tested on multiple selected services within the health care, social care and education sectors in five PECUNIA countries (Austria, Germany, Hungary, The Netherlands, United Kingdom).

Results:

Two unit cost templates for costing services across different sectors were developed, both in line with the long-run marginal opportunity cost principle. The unit cost template "SERVICE-1" was designed as unit cost calculation template per setting-specific contact minute based on a bottom-up costing approach, whereas "SERVICE-2" was

developed as a template for unit cost calculation per day or night based on a top down-costing approach. Both templates may be completed with published national-level secondary data or primary data collected specifically for costing purposes. To facilitate the unit cost development based on primary data, a complementary data collection template to be completed by service providers was developed. The country-level validation demonstrated the general applicability of the templates in the calculation of unit costs for the selected services, sectors and countries.

Discussion:

These are the first unit cost calculation templates developed for costing services not only in the health and social care sectors but also in other sectors affected by healthcare interventions. The templates allow for standardized unit cost development while incorporating flexibility in the choice of the costing approach and data sources and provide transparency in the used costing elements. The unit cost templates can be jointly used with the multi-sectoral PECUNIA resource-use measurement (RUM) instrument that also incorporates harmonized service definitions, allowing for resource use measurement and valuation based on aligned and linked tools. The templates will be further validated for HTA in the final year of the project parallel to a comprehensive primary data collection exercise which is currently being developed, and are expected to significantly improve the quality of future economic evaluations and their transferability across countries.

Acknowledgements: The PECUNIA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 779292. We gratefully acknowledge expert feedback on the first draft of the unit cost templates from an external health economist and an external cost accountant.

Title: Economic evaluation of eHealth – methodological challenges and recommendations

Authors: Christian E.H. Boehler[1*], Timo Fischer[2]

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[*] Corresponding Author

Abstract:

Background:

As the relevance of eHealth in the provision of healthcare is rapidly increasing, decision makers require information to help them decide which innovations are worthwhile. Economic evaluation of healthcare technologies may provide suitable methods to assess cost and outcomes of eHealth in a comparative fashion, however, the idiosyncrasies of eHealth may pose methodological challenges that need to be addressed adequately.

Aim and objectives:

This presentation aims at reviewing current methods for the economic evaluation of eHealth and to identify and discuss methodological challenges, together with potential solutions.

Methods:

Based on a systematic literature review and the analysis of use cases in Denmark, Germany and Scotland, we identified challenges related to the economic evaluation of eHealth, together with potential methods to tackle these challenges. Based on this review, we developed first methodological recommendations for the economic eHealth evaluation in Austria.

Results:

eHealth innovations constitute complex interventions, which poses immense challenges for assessing their clinical effects, outcomes and potential value for the resources invested. They frequently bear the potential to generate outcomes beyond their intended target groups and indications, as well as beyond the boundaries of publicly financed healthcare systems. An iterative approach to economic evaluation along their product life cycle, taking into account multiple potential outcomes for various decision makers, as well as consideration of evidence beyond the realm of traditional randomized controlled trials to triangulate innovations' cost and effects appears to be indicated.

Conclusions:

eHealth may have the potential to transform clinical pathways, the way healthcare is currently being delivered, and ultimately how entire healthcare systems are being organised. Decision making, however, should be based on solid evidence regarding innovations' potential cost and outcomes, but current methods for the economic evaluation of healthcare technologies may fall short of tackling the challenges associated with the assessment of eHealth. Solving these issues will determine the extent to which decision makers can proactively shape the transformation of healthcare systems through eHealth, which is not just inevitably going to happen, but already in full pace!

Title: Identification of cross-country differences in health state valuations to identify criteria guiding future development of supra-national value sets for EQ-5D – the PECUNIA project

Authors: A. Laszewska[1*], A. Sajjad[2*], J. Busschbach[3], J. Simon[1], L. Hakkaart van Roijen[2]

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Abstract:

Background:

Differences between countries and population characteristics propel towards the use of country-specific value sets for the EQ-5D. However, some countries lack national valuation tariffs and will be unable to establish such value set in the near future. There are no defined criteria that guide the choice of most appropriate tariffs for countries that lack their own valuations. This has led to the use of 'substitute values sets' that are chosen ad hoc. A related development is combining a selection of country-specific valuation tariffs into supra-national value sets.

Objectives:

This study aims to identify relevant variables attributed to cross-country differences in EQ-5D valuations and to guide the future development of supra-national value sets.

Methods:

The focus was on 28 European Union countries, Switzerland and Norway. First, common practices in the use of EQ-5D value sets in the countries with no country-specific tariffs were identified. Second, a structured literature review was conducted in Embase, Medline, Econlit, and Web of Science to identify factors influencing cross-country differences in EQ-5D valuations. Based on the literature, relevant criteria driving variations in health state valuations were specified and used for generating clusters of comparable countries contributing to the supra-national value sets.

Results:

Among the 30 investigated countries, currently, sixteen do not have valuation tariffs neither for the EQ-5D-3L nor EQ-5D-5L. The most common practice in these countries is the use of value sets from the UK or the European VAS-based value set with an exception of Switzerland where French and German value sets are also used. The structured literature review identified 71 studies that empirically examined or discussed cross-country differences in EQ-5D

valuations. Variables attributed to these variations identified in the literature were: cultural values, language/translation issues, health system differences, socio-demographic or economic factors, religious beliefs, and racial/ethnic differences. Four clusters of comparable countries were identified based on 1) cultural zones shaped by religious traditions, 2) distribution of languages spoken in Europe, 3) healthcare systems and health indicators, 4) neighboring countries with one common feature.

Conclusions:

This research identified a number of cultural and societal variables that contribute to cross-country differences in EQ-5D valuations. Clusters of countries were created as a starting point for the future development of supra-national value sets for the EQ-5D.

Title: Developing a linguistically and culturally valid Hungarian version of the OxCAP-MH questionnaire

Authors: Timea Mariann Helter[1], Ildiko Kovacs[2], Andor Kanka[2], Orsolya Varga[3], Janos Kalman[2], Judit Simon[1,4]

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Abstract

Introduction:

The capability framework has gained increasing attention when moving beyond the quality-adjusted life years (QALYs) framework to account for broader well-being outcomes in the assessments of Patient Reported Outcomes (PROs). The Oxford CAPabilities questionnaire-Mental Health (OxCAP-MH) is a capability measurement instrument purposively developed and validated for the mental health setting in the UK in English. It has recently been translated to and validated for German language and context. The feasibility of the German OxCAP-MH has been confirmed, but the linguistic and cultural validation process also identified some changes needed due to ambiguous wordings, possibilities for differential interpretations, politically unacceptable expressions, cross-country language differences and differences in political and social systems. Further language version developments, especially those with different linguistic background, would provide stronger evidence on the appropriate process of cross-country adaptation and how much equivalency between source and target based on content can be achieved. Compared with the English and German languages, Hungarian is much more phonetic and agglutinative, with flexible word order and less regional differences, which could have an impact on the translation process. Hence, this study aimed to develop a linguistically and culturally valid Hungarian version of the OxCAPMH questionnaire and to compare the experiences gained in this process with the development of the German version.

Methods:

The translation process, led by the Medical University of Vienna, took place in 2019 and followed relevant guidelines and the methods applied during the development of the German version of the OxCAP-MH instrument. Following forward and back translations, a reconciled Hungarian version of the OxCAP-MH was developed by an expert committee. The wording of the questionnaire underwent cultural and linguistic validation with input from a sample of Hungarian speaking mental health patients at the Department of Psychiatry, University of Szeged in 2019. Qualitative feedback was obtained from patients and analyzed with content analysis, using the codes developed during the development of the German version.

Results:

Twenty-nine phrases were translated from the English source questionnaire to both German and Hungarian language, including the 16 questions of the OxCAP-MH instrument, response options, instructions, and explanatory sentences. Following a successful preparation step, the two forward translators created two independent Hungarian versions of the OxCAP-MH. There were 25 significant differences in the question and answer options, and some further discrepancies due to the high number of inflected, affixed words and word fragments that characterize the Hungarian language in general. The translated version of the OxCAP-MH was piloted with a sample of 11 Hungarian mental health patients of heterogeneous age, gender and diagnoses. Participants raised major issues with 5 phrases with possibilities for differential interpretation. Compared with the development of the German version, there were a higher number of linguistic changes throughout the translation process, but no cross-country language differences, politically unacceptable expressions or differences in political or social systems.

Conclusion:

Based on the results of the translation process and the pilot study, the Hungarian version of the OxCAP-MH instrument is a culturally and linguistically valid questionnaire, which is ready for further validation process.

Title: Cost-Effectiveness of the PReDicT Test: results and lessons learned from a European multinational depression trial

Authors: J. Simon[1,2], N. Perić[1*], S. Mayer[1], J. Deckert[3], P. Gorwood[4], V. Perez Sola[5], A. Reif[6], H.G. Ruhe[7], D. Veltman[8], A. van Schaik[8], R. Morriss[9], A.C. Bilderbeck[10], G.R. Dawson[10], C. Dourish[10] R. Dias[11], J. Kingslake[11], M. Browning[2, 10] on behalf of the Predict Group

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Abstract

Background:

Long delays are common between the initiation of antidepressant therapy and the identification of an effective treatment regimen. The P1vital® PReDicT Test was developed as a digital tool to provide an early indication of response or non-response to antidepressant medication, helping to reduce time to recovery. The PReDicT randomised-controlled trial (H2020) has been conducted (2016-2019) in five European countries (DE, ES, FR, NL, UK) to assess the tests' clinical and cost-effectiveness in primary depression care.

Methods:

An incremental within-trial economic evaluation comparing the value of the PReDicT Test with Treatment-As-Usual (TaU) over 24 weeks for patients with depression (n=913; DE:130, ES:164, FR:76, NL:54, UK:489) from the I) health care, II) health and social care and III) societal perspectives. Between group differences in costs and outcomes using quality-adjusted life years (QALYs) based on the EQ-5D-5L, and capability-weighted life years (CWLYs) based on capability well-being measured by the OxCAP-MH (UK and DE), were assessed using a regression-based approach adjusted for missing data. Uncertainty was explored using bootstrapping and sensitivity analyses. Beside country-

specific estimates which showed great variation, a single set of EQ-5D tariffs and unit costs was deployed to achieve harmonized estimates.

Results:

Quality of life (QoL) improved substantially in both groups during 24 weeks follow-up with no significant group difference in EQ-5D-5L, but a significant difference in broader well-being as measured by the OxCAP-MH (PReDicT vs. TAU: +2.127; p=0.0210). This corresponds to an additional 24% improvement in comparison to TAU (PReDicT: 11.056 vs. TAU: 8.929). The group difference in QALYs or CWLYs were not significant. Total intervention cost was €93 (59% health care related). There were no other significant cost differences between the groups from any of the analytical perspectives. The probability of PReDicT being cost-effective at a €50,000/QALY threshold varies between 53-71% depending on the perspective. Comparing before trial costs to during trial costs shows significant savings for the health and social care sectors across both arms (average per patient: PReDicT: -€929.08, TAU: -€828.12) and even bigger savings from a societal perspective (mean per patient: PReDicT: -€3037.10, TAU: -€3353.73) over 6 months.

Conclusions:

The beyond-expected improvement in terms of QoL and the observed cost reductions across both study arms provide some evidence of the potential major positive impact of active monitoring of patients on antidepressant therapy in the PReDicT trial. It also highlights the additional substantial socioeconomic benefits of active depression therapy, stressing the need for further health services research in this area. The PReDicT study also confirms the need for harmonised multi-national outcome and costing tools.

Funding: This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 696802.

Title: Future supply of and demand for midwifery in the Vienna region of Austria: a gap analysis

Authors: Monika Riedel*[1], Gerald Roehrling[1], Thomas Czypionka[1]

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Abstract:

Background:

With 26 compared to 35 midwives per 1000 live births (2017), Austria is well below the EU average. Hospitals in Austria are already facing problems in recruiting sufficient numbers of midwifes, while baby boomers among them are approaching retirement. From 2009 to2018, average employment of midwives in hospitals decreased from 32 to 29 hours/week (Vienna region) and 35 to 28 hours/week (city of Vienna) respectively, thus reducing further the capacity of existing personnel in the public sector and freeing up time for work in private practice. Over the same period, average length of inpatient stay for childbirth decreased by 0.7 days (with the rate of caesarean sections constant at 30%), thus increasing the demand for postpartum midwifery support at home.

Methods:

Based on population forecasts, we project the future demand for midwives (head counts) across all settings of care in the Vienna region of Austria. Administrative data are used to take account of place of birth (at home, midwife-led birth clinic, hospital with or without postpartum inpatient stay) and mode of delivery (spontaneously, caesarean section, other) in order to adjust for a midwife's required working time per birth. Future inflows into the profession are based on statistics from regional midwifery schools, adjusted for migration patterns. Stocks and outflows are based on professional registration data. Projection horizon is 2030.

Results:

Assuming a moderate further decline of working hours over the next years that will fade out at 27 hours / week, a gap of more than 40 unfilled vacancies will result by 2030. Assuming a stronger fade out at 25 hours / week, a gap of 120 will open by 2030.

Conclusions:

In spite of increased capacities in midwifery schools, birth wards in the Vienna region are likely to face increasing difficulties in attracting a sufficient number of midwives in all but the most optimistic scenarios. Thus, increasing

the ratio (of practicing midwives per 1000 births) to levels as recommended e.g. by the German Association of Midwifery is out of reach, even if education capacities in Vienna duplicate.

Keywords:

projection, demand for midwives, supply of midwives, gap analysis, stock-flow model, place of birth

Title: Congestion in a Public Health Service: a Macro Approach

Authors: Mark Kelly[1], Michael Kuhn[2]

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[2] Wittgenstein Centre (IIASA, OEAW, WU) and Vienna Institute of Demography, Austria.

Abstract:

Healthcare services in the UK (and other public health care systems) are provided, mostly free of charge at the point of service, by the central government via the National Health Service (NHS). NHS services are therefore allocated according to a queuing rule, with total NHS expenditures constrained by a predetermined budget. Since there is no price mechanism for allocating NHS services, an increase in the demand for healthcare services requires that the government either increases funding to the NHS or allow patient waiting times to increase. In this study, we develop a continuous-time lifecycle model with a realistic aging process in the spirit of Dalgaard-Strulik and publicly provided healthcare services. Healthcare slows the rate of aging and is subject to congestion, which lowers its efficacy. Households optimally determine how much time to devote consuming NHS services given the current wait time. We calibrate the model to match UK data from 2007-2016 and analyze the steady-state, general equilibrium response of the model to various shocks to economy. Our analysis suggests that the optimal NHS response to an increase in the demand for healthcare depends strongly on what is driving the increasing demand for healthcare (i.e. income growth or medical progress). In an extension, we study what would be first-best NHS policies for a small open economy and how they could be implemented. In recent decades, policy makers worldwide have implemented reforms targeting efficiency of health service provision in hospitals. Yet, effectiveness of such reforms is undermined by soft budget constraints when hospital managers can count on being bailed out by (subnational) governments in case deficits occur. The purpose of this paper is to examine the relationship between a de facto gradual tightening or relaxation of soft budget constraints mirroring the ability of governments to provide a bailout in consequence of increased fiscal regulation, and changes in hospital efficiency in a decentralized healthcare system. We add to the existing literature by exploring the possibility of using the debt burden of governments as a proxy for the credibility of imposing tighter budget constraints and greater budgetary discipline on the hospital level. This paper further aims to analyse whether private hospital owners respond differently to changes in budgetary constraints compared to public owners.

Title: Competition, reputation and feedback in health care markets: experimental evidence

Authors: Silvia Angerer[1], Daniela Glätzle-Rützler, Thomas Rittmannsberger, Christian Waibel

[1] UMIT Private Universität für Gesundheitswissenschaften, Medizinische Informatik und Technik GmbH

Abstract:

Background:

A key characteristic of health care markets is the information asymmetry between patients and physicians. This may result in three forms of physician misbehavior: providing more treatments than necessary, i.e., overtreatment; providing less treatment than necessary, i.e. undertreatment, and charging more treatments than provided, i.e., overcharging. Patients have to trust in physicians that they receive appropriate treatment. This is why health services are often referred to as credence goods (Darby and Karni, 1973; Dulleck and Kerschbamer, 2006).

The provision of feedback on rating platforms and the associated reputation building has gained more and more attention in the past two decades in the context of physician-patient interactions. We capture these recent developments and investigate whether reputation building and the provision of feedback to physicians can help reducing mistreatment in health care with the use of a laboratory experiment.

Method:

The experimental design is based on the credence goods framework established by Dulleck and Kerschbamer (2006) and Dulleck et al. (2011). In total, 5 conditions of market interactions with 240 undergraduate students either in the role of physicians (N=120) or patients (N=120) were conducted. The conditions vary with respect to the degree of reputation building. In our baseline condition (B) patients and physicians cannot identify their interaction partner and they are matched randomly, thus no reputation building is possible. In condition R, patients can identify physicians they interact with and vice versa. Condition RC is identical to condition R but allows patients to choose their preferred physician. In two additional feedback conditions, based on condition RC, patients may rate the interaction with the respective physician on a 5-star rating system. In condition RC-FB-Private the rating is visible to the rated physician only whereas in condition RC-FB-Public the rating is publicly visible to all market participants.

Results:

Our results show a significant level of undertreatment in our baseline condition B. In roughly 40% of the cases, patients are undertreated. Market efficiency amounts to 63%. Introducing reputation R decreases the level of undertreatment to 25%. The introduction of reputation and physician choice (RC) significantly reduces the level of undertreatment and compared to condition R. Allowing feedback (private and public) in the form of a 5-star rating system has no effect on physician behavior compared to condition RC.

Conclusion:

In our health care setting, a feedback rating system had no effect on the quality provided. This is due to the fact that in competitive markets where patients gain experience and can identify physicians the level of efficiency is already very high. Future research should investigate the effect of feedback platforms in situations where patients are inexperienced and thus cannot base their physician choice on their own experience in the past.

Title: What drives day surgery rates in Austrian acute care hospitals? An analysis of variability at hospital level

Authors: Florian Bachner[1], Martin Zuba[1], Herwig Ostermann[1]

[1] Austrian Public Health Institute (Gesundheit Österreich GmbH)

Abstract:

Objectives:

Advances in medical technologies such as less invasive forms of surgeries as well as increased efforts to reduce hospital length of stay have led to a sharp increase of day surgery rates in many European countries. This uptake has been comparatively low in Austrian hospitals. In 2012 Austrian policy makers set targets for a number of procedures based on international good practice in order to promote day surgery within the health reform framework. However, in 2018 day surgery rates still vary significantly at state and hospital level and are below European average. This study aims to explore what structural components may cause this variance and which covariates are driving day surgery rates.

Methods:

Day surgery rates and structural covariates for all public acute care hospitals were calculated by the use of secondary Austrian administrative datasets (DRG and accounting data) for the years 2012-2018. We regressed day surgery rates in a mixed-effects panel regression including random intercepts for federal states, hospitals as well as a matrix of hospital-specific time variant and time invariant covariates. These include caseload, type of hospital ownership, size, costs, efficiency (cost per DRG-point), staff intensity (FTE per DRG-point), the hospital service population and a proxy for the share of patients with additional private insurance, as well as the existence of an explicit day surgery unit.

Results:

The existence of an explicit day surgery unit was significantly associated with a higher day surgery rates for almost all investigated procedures except for adenotomy/paracentesis. Total number of relevant services performed had a small significant positive impact on day surgery rates for adenotomy/paracentesis and varicose vein surgery, while lower staff intensity was significantly associated with higher day surgery rates for all services but hernia and carpal tunnel surgery. For carpal tunnel and cataract surgery, the share of persons with private insurance amongst the service population had a significantly negative impact on day surgery rates.

Discussion:

Our findings show that the establishment of specific day surgery units as well as higher caseload promote the uptake of day surgery services at the hospital level. For some procedures, hospital size and/or staff intensity are

decisive for the implementation day surgery. A significant coefficient of the type of hospital ownership or of the proxy for patients with private insurance reveal financial incentives associated with some day surgery procedures. Overall, our results highlight the importance of tailored policies in order to support day surgery uptake. Further research is necessary to analyse other unobserved confounders such as education of doctors, post-acute care and community health services following the interventions and health literacy of patients.

Title: Regional disparities in outpatient MRI utilization in Austria: a Blinder-Oaxaca decomposition

Authors: Michael Berger[1]

[1] Institut für Höhere Studien – Institute for Advanced Studies (IHS)

Abstract:

Objectives:

Policy makers are increasingly confronted with the dilemma of curbing the growth of public spending on health care while avoiding unintended adverse consequences. Actively targeting expenditure that does not provide adequate medical benefits is a possible way out of this dilemma. Magnetic resonance imaging (MRI) is a promising target from this perspective for the following reasons: MRI is a popular diagnostic measure whose strengths compared to other medical imaging technologies have led to increased application in health care systems worldwide. Moreover, it is already a rather cost-intensive diagnostic measure, but unnecessary application can cause additional avoidable costs. The basis for MRI should therefore be indicated by patients' need for treatment alone. In Austria, however, previous research shows substantial regional differences in outpatient MRI exams per 1,000 population. The purpose of this research is to investigate the driving factors behind the regional variation. To this end, I formulate four hypotheses for the cause of the variation (epidemiological factors, supply side factors, substitution with computer tomography, and bureaucratic factors) which I then test in a cross-section regression design.

Methods:

I utilise a set of routine healthcare data provided by the Main Association of Austrian Social Security Institutions on outpatient MRI service consumption of Austrian patients between Q3-2015 and Q2-2016 aggregated on the district level based on the area of residence. Complementary data on MRI exams in outpatient departments of hospitals were provided by the Ministry of Health. In total, the dataset contains a sample of 587,054 outpatient MRI exams and 172,769 MRI episodes in outpatient departments of hospitals. Further data on epidemiology, socioeconomic status, etc. are taken from the ATHIS survey and other publicly available databases. The initial hypotheses are tested using a multivariate generalized linear regression model. Blinder-Oaxaca decomposition is further used to highlight the extent of unexplained variation.

Preliminary Results:

I find that the regional disparities of outpatient MRI exams per 1,000 population on the district level in Austria remain largely unexplained by the four hypotheses, even though several covariates have statistically significant effects. Even when all covariates are included, only 27% of the variation between districts with high and low MRI

utilization rates is explained through differences in the observable characteristics, whereas the remaining 73% are due to differences in the coefficients (i.e. the district-specific MRI utilization behaviour).

Discussion:

MRI usage is high in Austria, and the presence of substantial regional disparities that do not reflect differences in need for treatment indicate that there could be potential for improving efficiency in the usage of MRI as a diagnostic measure. In order to devise well-targeted policy actions, a sound knowledge base is necessary that provides vital information for the causes of the observed peculiarities and how they could be effectively addressed. All findings must be interpreted cautiously against the background of missing information on healthcare service utilization in private practices.

Title: Regionale Variation in der österreichischen Gesundheitsversorgung

Authors: Sophie Fößleitner[1]

[1] Institut für Höhere Studien – Institute for Advanced Studies (IHS)

Abstract:

Hintergrund:

In den letzten Jahren hat die Auffassung, dass es regionale Unterschiede in sowohl den Gesundheitsausgaben als auch den Gesundheitsoutcomes gibt, immer größeren Anklang in der Wissenschaft und Literatur gefunden. Analysen wurden vor allem für die USA, aber auch für andere westliche Länder wie Deutschland, die Niederlande, Kanada, Spanien oder die Schweiz durchgeführt. Für das österreichische Gesundheitswesen fehlt eine solche Untersuchung bisher.

Fragestellung:

Meine Masterarbeit liefert eine Bestandsaufnahme und Darstellung der regionalen Variation in der österreichischen Gesundheitsversorgung, gemessen an den Ausgaben der Sozialversicherung („Kosten“). Zusätzlich wird auch auf die Höhe der Kosten pro PatientIn in unterschiedlichen Leistungsbereichen bzw. -positionen eingegangen und untersucht, ob ein Zusammenhang in der Höhe der Kosten zwischen den einzelnen Versorgungssektoren besteht. Die Fragestellung ist insbesondere von Bedeutung, da das Wissen über regionale Unterschiede für eine bedarfsgerechte Gesundheitspolitik unumgänglich und somit auch von öffentlichem Interesse ist.

Methodik und Daten:

Mithilfe der Statistik-Software STATA wurde eine umfangreiche deskriptive Analyse, eine Korrelationsanalyse sowie eine Regressionsanalyse durchgeführt. Als Datengrundlage für die Analyse der regionalen Variation in der österreichischen Gesundheitsversorgung wurden Abrechnungsdaten aller Träger des Hauptverbandes der österreichischen Sozialversicherungsträger herangezogen. Dabei werden der monetär quantifizierte Wert aller mit der Sozialversicherung abgerechneten Leistungen sowie die damit einhergehende Anzahl der PatientInnen betrachtet. Die Zahlen liegen, gesondert nach Altersgruppen und Geschlecht, für die Jahre 2014-2017 auf Bezirksebene für folgende Bereiche, Fachgruppen und Positionen vor: intramuraler Bereich, extramuraler Bereich, ärztliche Hilfe im niedergelassenen Bereich; Fachgebiet Allgemeinmedizin („hausärztliche Hilfe“), allgemeine FachärztInnen („fachärztliche Hilfe“), sonstige FachärztInnen („sonstige fachärztliche Hilfe“), Fachgebiet Zahnheilkunde („zahnärztliche Hilfe“); und Heilbehelfe und Hilfsmittel sowie Medikamente. Im Fokus der Analyse

stehen die Ausgaben der Sozialversicherung („Kosten“) pro PatientIn für das Jahr 2016, stratifiziert nach Alter und Geschlecht, um die Vergleichbarkeit auf Bezirksebene zu gewährleisten.

Ergebnisse:

In der österreichischen Gesundheitsversorgung variieren die Kosten pro PatientIn zwischen den einzelnen Bezirken. Je nach Versorgungssektor bzw. Leistungsposition fällt diese regionale Variation stärker oder schwächer aus, besonders hoch ist sie im Bereich der sonstigen fachärztlichen Hilfe, zu denen die Fachgebiete Radiologie, Physikalische Medizin, Laboratorien und Pathologie zählen. Bei der Darstellung der Variation auf Bezirksebene fällt auf, dass es in den Versorgungssektoren „extramuraler Bereich“, „fachärztliche Hilfe“, „zahnärztliche Hilfe“ und „Arzneimittel“ ein Ost-West-Gefälle gibt, im Bereich der sonstigen fachärztlichen Hilfe hingegen sind im Westen Österreichs die Kosten pro PatientIn höher als im Osten. Darüber hinaus sind spiegelbildähnliche Muster zwischen einzelnen Versorgungssektoren erkennbar, insbesondere zwischen dem haus- und fachärztlichen Bereich bzw. dem intramuralen und niedergelassenen Bereich („ärztliche Hilfe“). Dieser Umstand weist auf einen inversen Zusammenhang zwischen den unterschiedlichen Leistungsbereichen hin, welcher auch durch eine Analyse bestätigt wurde und gemeinhin als „Substitutionseffekt“ bezeichnet wird.

Title: Comparing the effectiveness of home care services in Austria, England and Finland

Authors: Birgit Trukeschitz[1], Assma Hajji[1], Judith Kieninger[1], Juliette Malley[2], Ismo Linnosma[3,4], Julien Forder[5]

[1] WU Vienna University of Economics and Business – Research Institute for Economics of Aging

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[4] Department of Health and Social Management, University of Eastern Finland, Finland

[5] Personal Social Services Research Unit (PSSRU), University of Kent, Kent, UK

Abstract:

Main issue and relevance:

Faced with an increasing share of older people, European countries have responded with a range of long-term care policy changes. In order to measure the effectiveness of these interventions, we need to understand how LTC interventions influence service users' lives in different policy settings. In this study, we compare the effects of long-term care (LTC) services on quality of life (QoL) of service users in England, Finland and Austria. In particular, we investigate the role of personal and environment characteristics on LTC-related QoL gains and compare influence factors across the three countries.

Data:

The data were collected in 2012 (England) and 2016-17 (Austria and Finland) via computer-assisted personal interviews. The questionnaires included the ASCOT (Adult Social Care Outcomes Toolkit) instrument for assessing long-term care related quality of life (LTC-QoL) states and gains as well as questions on long-term service users' care situation, their needs and limitations, informal support and social contact, other personal and environment-related variables and process quality indicators. The analysis sample comprised a total of 811 persons (370 in Austria, 264 in Finland and 177 in England). Analysis

Using regression analysis, we aimed to explain variation in LTC-QoL gains across and within countries. ASCOT gains, reflecting the difference in LTC-QoL between the current situation (with LTC services) and a hypothetical situation without any services, were used as the dependent variable. Service user socio-demographics, needs indicators, variables related to social support and environment (such as availability of informal care) and characteristics of the care services were used as explanatory and control variables. Country-specific effects were represented in the model via interaction terms.

Results:

While some factors – such as needs indicators, I/ADL limitations, care intensity and process quality – affected service users' quality of life similarly across the three countries, we have also found evidence for country-specific effects. All other things held equal, service users without informal carers and those living alone benefited more in Finland, but not in England or Austria. On the other hand, frequent social contact seemed to benefit service users in England and Austria, but not in Finland.

Title: Smart Ageing – does a smart fitness program for older people help to increase physical activity in older adults?

Authors: Siegfried Eisenberg[1], Marlene Blüher[1], Ulrike Schneider[1], Birgit Trukeschitz[1]

[1] WU Vienna University of Economics and Business – Research Institute for Economics of Aging

Abstract:

Background:

Information and Communication Technologies (ICT) are perceived as promising solutions to facilitate service processes in healthcare, to assist people with limitations and to support prevention of chronical conditions. Sedentary lifestyles contribute to increase or accelerate age-related diseases and frailty. Moreover, physical activity is known for its health benefits in numerous ways, but is rather low for people over 65 years. ICT offers the possibility to communicate the importance of physical activity and to provide fitness exercises and suggestions for outdoor activities to older adults.

In a collaborative project a smart fitness program for older people was developed that comprised fitness exercises, cycling and hiking recommendations and e-learning courses on health, fitness and nutrition. The technical components included a fitness app to be run on both a tablet and on a TV-screen and an activity tracker paired with the tablet app.

The aim of this paper is to investigate the impact of the smart fitness program on the amount of physical activities of young pensioners. Furthermore, the effects on physical abilities and satisfaction with physical abilities are examined.

Methods:

The social pension insurance agency in Austria (Pensionsversicherungsanstalt) sent out study invitations to randomly selected people who have been receiving old-age pension for 3 to 6 years. People who replied and declared their willingness to participate were randomly allocated into an intervention and control group. Thus, we conducted a randomised controlled trial with 123 participants in the intervention group and 138 participants in the control group. Both groups had three appointments with a fitness coach to discuss their physical activity level, but only the intervention group received the smart fitness program.

Data were collected by an online survey at three different points in time (before the program started, after the first coach appointment, at the end of the trial) over a period of six months. The treatment effects were estimated with Differences-in-Differences equation structure using hierarchical models with clustered standard errors.

Results:

The smart fitness program increased the probability of doing fitness exercises at home significantly by 25 percentage points. The amount of outdoor activities did not change. Furthermore, participants in the treatment group were more satisfied with their physical abilities comprising strength, endurance, balance, agility and fitness stated to have improved their physical abilities. The probability of reporting an improvement in physical abilities increased by 35 percentage points.

Discussion:

The smart fitness program was effective in terms of increasing indoor training of people in their early years of retirement and may thus contribute to healthy ageing. Due to our sampling strategy external validity is limited to people who are already interested in physical activities before the start of the intervention. Nonetheless, a fitness app tailored to the needs of older adults might be a preventive measure to promote an active lifestyle. Additionally, a fitness app can be easily allocated to a broad range of people at the same time at a low level of costs. Nonetheless, further research is needed to examine, whether those kinds of interventions are cost-effective.

Title: Geriatric medical care in Vienna in the context of demographic change

Authors: Ulrike Famira-Mühlberger[1], Matthias Firgo[1], Gerhard Streicher[1]

[1] Österreichisches Wirtschaftsforschungsinstitut (WIFO)

Abstract:

In the coming decades, Austria will be confronted with a significant change in the demographic structure towards a higher proportion of older people. This poses challenges in many areas of society and the economy. Particularly in the health care sector, the aging of the population is accompanied by an increasing need for medical care. The expected increase in demand for doctors is offset by a comparatively unfavourable demography of doctors. Our study quantifies for Vienna the current and future extent of geriatric services of resident physicians and in hospitals and estimates the future demand for medical services based on today's medical service provision for different age groups of the population, which were surveyed by means of questionnaires among the Viennese medical profession.

The results of the survey are combined with projections on the demographic development of the population (to determine the need for medical services) and the population of doctors and medical graduates (to determine the supply of medical services) in order to identify future gaps in medical care. As the results show, the development of the supply of physicians and the demand for physicians by 2050 creates a significant gap: According to these projections, total demand will increase by about one third by 2050, while supply will increase by only one sixth even under optimistic assumptions. The smallest gap is expected to be for resident specialists.

The data on the distribution of medical time expenditure among geriatric patients of different age groups determined by the survey shows - as can be expected - an increase in medical time expenditure for geriatric patients in older age groups. The extrapolation based on the population forecast by Statistik Austria also suggests a significant increase in the time spent by doctors on geriatric patients. While 22.1% of the time spent by doctors in hospitals today is spent by the over-85 age group, this proportion is expected to increase to 27.4% by 2030 and to 34.1% by 2050. Similar developments can be seen among resident general practitioners and specialists, although the latter are starting from a significantly lower starting level.

Title: How accessible are health care services for refugees? Evidence from a cross-sectional survey in Austria

Authors: Judith Kohlenberger[1], Bernhard Rengs[2], Isabella Buber-Ennser[2]

[1] Institute for Social Policy, Vienna University of Economics and Business

[2] Vienna Institute of Demography, Austrian Academy of Sciences

Abstract:

In the wake of the 'summer of migration' in 2015, about one million individuals sought asylum in Europe. Most of them applied for asylum in Germany, fewer but nevertheless substantial numbers in Austria, where about 156,000 asylum applications were filed between 2015 and 2017. From that time span, roughly 58,500 individuals were officially granted asylum. Most of them originated from Syria, Iraq and Afghanistan, which accounted for 80% of granted asylum applications. While economic burdens for the host society, implications for the labor market and the welfare system are still controversially discussed at political and societal levels, decision makers have paid far less attention to refugees' health needs before, during and after the forced migration experience. Understanding refugees' health needs and access barriers to national health services is key for improving their health, one of the most fundamental resources for individuals to fulfill their potential and a key factor for refugees' successful integration into the society, culture and labor market of the receiving country. Furthermore, cost savings can be substantial if health needs are adequately addressed and timely primary health care is provided.

The proposed paper will provide evidence on (1) refugees' subjective well-being, (2) their access and most frequently encountered barriers to health care utilization and (3) their perception of and satisfaction with the quality of health care provision in Austria, one of the countries most heavily affected by the European 'refugee crisis.' It is based on primary data from the Refugee Health and Integration Survey (ReHIS), a cross-sectional survey of roughly five hundred Syrian, Iraqi and Afghan refugees, and the Austrian Health Interview Survey (ATHIS), which provides representative data on the physical and mental health of the Austria resident population, including migrants.

Results indicate that refugees' self-rated health falls below the resident population's, in particular for female and Afghan refugees. Whereas respondents state overall high satisfaction with the Austrian health system, two in ten male and four in ten female refugees report unmet health needs. Most frequently cited barriers include scheduling conflicts, long waiting lists, lack of knowledge about doctors, and language issues. Although treatment costs were not frequently considered as barriers, consultation of specialist medical services frequently associated with co-payment by patients, in particular dental care, are significantly less often consulted by refugees than by Austrians. Refugees reported comparably high utilization of hospital services, with daycare treatment more common than inpatient stays.

We recommend to improve refugees' access to health care in Austria by a) improving the information flow about available treatment, in particular specialists, b) fostering dental health care for refugees, and c) addressing language barriers by providing (web-based) interpretation services. Understanding and adequately addressing refugees' specific health needs is key to combating inequalities in health, supporting integration into society, and reducing costs for secondary and tertiary care.

Title: Continuity of primary care of nursing home residents and (avoidable) health system usage. Evidence from Austria

Authors: Lukas Rainer[1], Andrea Schmidt[1], Martin Zuba[1]

[1] Austrian Public Health Institute (Gesundheit Österreich GmbH)

Abstract:

Introduction:

Due to population ageing, all European countries face the challenge to organise adequate healthcare provision to their elderly population. Continuity of care and sufficient access to primary care has been reported as crucial factor in coordinating older peoples' healthcare needs. Hospital emergency room visits and hospitalisations, e.g. for ACSC, have been identified as consequences of shortcomings in primary care; particularly so for nursing home (NH) residents.

Due to the fragmentation of constitutional responsibilities bet, it is difficult to coordinate service provision between ween the health care and long-term sectors. In addition to that, fragmentation has led to incompatibility in administrative datasets which prevents assessment of the current situation and resulting challenges in the provision of primary care for NH residents in Austria.

Research questions:

What is the utilisation of general practitioners of NH residents in Austria? Can we identify links between long term care policy, integration of primary care, GP utilisation, and (avoidable) hospital usage?

Methods:

This paper aims to overcome the issue of incompatibility in relevant data sources by identifying NH residents a new cross-sectoral database on healthcare utilisation in Austria (XDok). People aged 85 and above who change place of residence from a municipality without NH to a municipality with NH are assumed be NH residents. We further draw upon data on NH collected by the Austrian ministry of social affairs. This dataset includes a statement on integration with physicians and allied health professionals.

The consistent patient identifier allows us to analyse utilisation patterns of NH residents for various health service providers and to compare outcomes such as avoidable hospitalisations among residents in different types of NH (as defined by their statement on primary care integration), or in comparison to non-institutionalised elderly people.

Preliminary results:

We collected data on 918 NH in 612 distinct municipalities. 2122 municipalities have no NH. There is considerable variation in primary care integration. 606 NH report free choice of physicians. 12 NH report daily availability of physicians, 20 NH have physicians employed or at the premises.

At the age of 85 and above, odds of people moving from municipalities without NH to municipalities with NH increase by the factor of 3. This NH proxy is associated with an increase in uptake of hospital outpatient departments (+60%), hospital inpatient stays (+76%) and resident providers (+76%). Further data analysis on health provider utilisation is ongoing.

Discussion/Limitations:

Causal effects of NH primary care integration or NH residency cannot be identified due to a potential endogeneity, i.e. NH residents with higher healthcare needs opting to move to better-suited NH. Therefore, higher uptake of health care services cannot be causally attributed to NH characteristics.

Nevertheless, patterns of primary care provision can serve to indicate differences in typical patient pathways and allow for identification of best practice examples in primary care provision for NH residents. Additionally, (avoidable) health care utilisation, e.g. ACSC admissions, can be monetarised using appropriate unit costs.

Title: Climate, health and population: climate change and differential vulnerabilities in the metropolitan area of Vienna

Authors: Roman Hoffmann[1], Erich Striessnig, Raya Muttarak, Anna Renner

[1] Wittgenstein Centre for Demography and Global Human Capital

Abstract:

As a consequence of climate change, extreme weather events, such as heat waves, cold spells, heavy rainfalls and droughts, are expected to become more frequent and more intense in the future. Also, Austria is increasingly affected by changing climatic conditions, particularly with respect to thermal hazards. While Vienna experienced on average 8.9 heat days (i.e. days with a maximum temperature ≥ 30°) in the 1960s and 70s, this number rose to 25.4 heat days in the period since 2010. The exposure to such extreme heat conditions can have severe consequences for human health leading to exhaustion, dehydration, hyperthermia, heat strokes, and cardiovascular problems. This study analyzes the impact of changing environmental conditions on population health in the metropolitan area of Vienna. A particular focus is placed on the effects of thermal hazards, which are predicted to become more severe, especially in fast-growing cities like Vienna. The study has two main objectives: First, we analyze the influences of temperature extremes, i.e. heat waves and cold spells, on morbidity and mortality, using historical data on hospitalizations and medical treatments. Second, building on the findings from the first part, we project future climate and population dynamics and estimate the expected health burden for the metropolitan area of Vienna. As further novel contribution, we do not only take social factors as drivers of differential health vulnerabilities into account, but also structural aspects of the built environment, such as urban density or the availability of green spaces, which can help mitigate the harmful effects of weather extremes. The expected insights from the study are of high relevance both for academic research and policy makers and have multiple implications for urban planning and public health.

Title: How much can biosimilars contribute to savings in the German health systems?

Authors: Peter Schneider[1*], Sabine Vogler[1], Lukas Rainer[1], Martin Zuba[1]

[1] WHO Collaborating Centre for Pharmaceutical Pricing and Reimbursement Policies, Pharmacoeconomics Department, Gesundheit Österreich GmbH, Austria

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Abstract:

Background:

A biosimilar is biological medicine that has been developed to be similar to existing biological medicine (i.e. reference product) and is usually marketed following the patent expiry of the reference medicine. In contrast to the reference product the development and authorisation process of a biosimilar is connected with lower costs and therefore biosimilars can usually be marketed at lower prices. Thus, public payers have high expectations that biosimilars can contribute to alleviate stressed public budgets for medicines as biological medicines account for around37% of total pharmaceutical expenditures. Albeit designed for generic medicines there exist several pharmaceutical policies to increase the uptake of biosimilar medicines.

The aim of this study is to analyse the effects of two policies, that aim to promote the uptake of biosimilars, on public expenditures using the example of Germany.

Methods:

Two scenarios were developed for pharmaceutical specialities with existing biosimilars: (1) Biosimilars are required to be priced 30% below the reference product ('price link'), and (2) Biosimilars are included in a reference price system (RPS), in which similar medicines are clustered and a common reimbursement price is paid for all medicines in the cluster. Savings effects for the year 2019 are based on the volume information of 2018 while prices of December 2018 were assumed to be fixed. Price information for the pharmaceutical specialities of six different active ingredients (adalimumab, etanercept, infliximab, pegfilgrastim, rituximab, trastuzumab) were obtained through the Pharmaceutical Price Information (PPI) service located at the Austrian National Public Health Institute. The respective volume information for the German market was provided by the National Association of Statutory Health Insurance Funds.

Results:

The application of a biosimilar price link ('scenario 1') would amount to savings of 107.2 million euro, which translates into a reduction of 4.8% compared to expenditures in the baseline case, and the inclusion of biosimilars in a reference price system ('scenario 2') could reduce public expenditures by 401.5 Mio. Euro (18.1%). The main

reason why the figures in scenario 1 are lower than in scenario 2 is the application of the price link solely to biosimilars. If the price link were extended to a price reduction for originators of 15%, the savings would further increase to 347.9 million euro (15.6%).

Conclusion:

Both policies would result in savings for public payers. A major difference between the two policies are their implications for private expenditures on medicines. While in the scenario with the price link policy pharmaceutical spending is entirely born by the public payer, spending under a RPS is shared between public and private, as the difference between the reference price and the retail price has to be paid out-of-pocket by patients.

The calculations of cost saving potential do not consider any dynamics in the market (e.g. shift in the structural composition of prescription) and therefore constitute a conservative estimation. Thus, the implementation of either policy in the German system may result in higher savings than estimated.

Title: Agreement of treatment effects in randomised vs. non-randomised studies: preliminary findings from a meta-epidemiological study

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Abstract:

N.a.

Title: Der Stellenwert gesundheitsökonomischer Evaluationen in Refundierungsprozessen im österreichischen Gesundheitssystem

Authors: Ingrid Zechmeister-Koss[1], Michal Stanak[1], Sarah Wolf[1]

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Abstract:

Einleitung:

Demographische und technologische Veränderungen, sowie die Preispolitik der pharmazeutischen und Medizintechnikindustrie stellen das österreichische Gesundheitssystem, wie viele andere, vor die Herausforderung, den Zugang zu wirksamen Leistungen für alle aufrecht zu erhalten. Angesichts begrenzter Ressourcen sind Fragen einer effizienten Verwendung der Mittel unumgänglich. Wissenschaftliche Methoden, die eine effiziente Allokation unterstützen, sind u.a. gesundheitsökonomische Evaluationen. Der Beitrag untersucht, in welcher Form Evidenz aus gesundheitsökonomischen Evaluationen in den österreichischen Entscheidungsprozessen eine Rolle spielt und welche Herausforderungen für deren systematische Anwendung vorliegen können.

Material und Methoden:

Es erfolgte eine Handsuche nach internationalen Studien aus ‚westlichen Gesundheitssystemen' ab dem Jahr 1995, die empirische Daten zu den Herausforderungen einer Verwendung gesundheitsökonomischer Studien in Refundierungsprozessen präsentieren. Die Informationen wurden systematisch extrahiert und qualitativ geclustert. Die Beschreibung der österreichischen Prozesse zu Refundierungsentscheidungen und der Rolle der gesundheitsökonomischen Evaluationen basiert auf publizierten Informationen zu Systemcharakteristika, rechtlichen Dokumenten und ExpertInneninformation. Die zuvor identifizierten internationalen Herausforderungen bei der Anwendung gesundheitsökonomischer Evaluationen werden abschließend vor dem österreichischen Systemhintergrund reflektiert.

Ergebnisse:

Wesentlichen Hürden bei der Berücksichtigung von gesundheitsökonomischen Evaluationen in Refundierungsentscheidungen können methodische Limitationen, die Entscheidungskultur und die jeweiligen Gesundheitssystemcharakteristika sein. Diese Herausforderungen gelten insbesondere für das österreichische Bismarck-System, in dem die gesundheitsökonomische Evaluation formal nur im Prozess der Arzneimittelerstattung für den niedergelassenen Bereich vorgesehen ist, während für andere Refundierungsprozesse keine formalen Anforderungen für die Verwendung gesundheitsökonomischer Evaluationen existieren. Evidenz aus

gesundheitsökonomischen Evaluationen wird somit lediglich punktuell in Refundierungsentscheidungen berücksichtigt.

Diskussion und Fazit:

Effizienz und Opportunitätskosten spielen derzeit bei Refundierungsentscheidungen eine untergeordnete Rolle. Eine Weiterentwicklung zu mehr expliziter Berücksichtigung derartiger Entscheidungskriterien könnte durch einschlägige Aus- und Weiterbildung, Standardisierung anzuwendender Methoden, transparente Präsentation von Ergebnissen, sowie durch eine verbindliche und detaillierte methodische Richtlinie für Hersteller gelingen. Zur Verbesserung von Akzeptanz und Nutzen der Evaluationsmethoden ist ein gemeinsamer Prozess mit methodischen ExpertInnen und Entscheidungsträgern zur Definition der methodischen Anforderungen für Österreich zu empfehlen.

Title: Integrating large health shocks into life-cycle models: an application to cancer*

Authors: Michael Freiberger[1], Michael Kuhn[1], Stefan Wrzaczek[1]

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Abstract:

The majority of models describing health investments over the life-cycle take an ex-ante stance, with individuals being able to foresee the development of their health perfectly. However, health shocks with significant impacts (severe life-threatening diseases, accidents, chronic diseases) should not be averaged into a mean value, as they have the potential to put the entire life-course on a different trajectory. In this paper we introduce a dynamic optimal control framework incorporating a stochastic health shock with individuals allocating their resources to consumption and different kinds of health investments over their life-cycle. We distinguish between general health care and shock specific prevention, acute and chronic care. This setup enables us e.g. to analyse how the shock risk shapes the individual behaviour with respect to the different types of health expenditures and how medical shocks change the trajectories of consumption and savings. Newly developed transformation techniques allow us to investigate the optimal decisions made in anticipation of a potential health shock and the optimal reaction to all possible shock scenarios. We are able to obtain analytic expressions for the consumption and health investment profiles before and after the shock and identify the driving forces for the decisions. Furthermore, we extend the value of life concept to include other aspects of individual health, such as prevention and morbidity. Finally, we illustrate our findings by calculating the numerical solution for an individual facing a potential cancer diagnosis. We calibrate our model to the data of individuals in the US in the year 2011 and are able to replicate the age-profiles for general health expenditure and survival both before and after a cancer diagnosis. In addition, we match the expected data for cancer treatment costs and cancer-specific mortality for different age groups depending on time since the diagnosis. The analytical findings allow us to assign explicit numerical values to the different channels, through which health affects the age profiles of the decision variables. Furthermore, we are able to evaluate the newly established extensions to the value of life numerically and analyse their various impact channels by virtue of our theoretical derivations.

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Title: Wirksamkeit einer internetbasierten Selbsthilfeintervention zur Reduktion von problematischem Alkoholkonsum und Depressionssymptomen: Erste Ergebnisse einer dreiarmigen, randomisiert kontrollierten Studie.

Authors: D. Malischnig[1], C. Baumgartner[2], M. Blankers[3], D.D. Ebert[4], M.P. Schaub[2]

[1] Institute for Addiction Prevention, Office of Addiction and Drug Prevention Vienna, Austria

[2] Swiss Research Institute for Public Health and Addiction at Zurich University, Zurich, Switzerland

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[4] Friedrich-Alexander-Universität, Erlangen-Nürnberg, Germany

Abstract:

Einleitung:

Probleme mit Alkohol und Depression treten in der Allgemeinbevölkerung häufig zusammen auf. Für diesen Zweck wurde die Schweizer internetbasierte Selbsthilfeintervention www.takecareofyou.ch für Österreich adaptiert und ab Mai 2019 vom Institut für Suchtprävention der Sucht- und Drogenkoordination Wien unter der Domain www.alkcoach.at angeboten. Die Überarbeitung für Österreich wurde vom Dachverband der österreichischen Sozialversicherung finanziert. Das Online-Selbsthilfe Programm wird in einer dreiarmigen, multizentrischen, randomisiert kontrollierten Studie (RCT) auf Effektivität getestet.

Methoden:

Das Onlineprogramm besteht aus 8 Modulen zur Reduktion von Alkoholkonsum und Depressionssymptomen. Die Inhalte basieren auf den Grundsätzen der motivierenden Gesprächsführung und der kognitiven Verhaltenstherapie. Die Daten zum Programm werden zu Beginn sowie drei und sechs Monate nach der Randomisierung erhoben. Das primäre Ergebnis ist die Anzahl der Standardgetränke der letzten 7 Tage. Die vorliegenden Daten der teilnehmenden Länder werden nach dem Intention-to-Treat-Prinzip unter Verwendung von (generalisierten) linearen gemischten Modellen analysiert und präsentiert.

Ergebnisse:

Es werden die ersten vorliegenden Daten von 478 Teilnehmern aus der Schweiz, Deutschland und Österreich, die sich für die Studie angemeldet haben, vorgestellt. Es zeigt bereits die Auswertung des ersten Follow-Ups nach drei Monaten, dass es sowohl zu einer Reduktion der Konsumtage als auch der Anzahl der Standardgetränken kommt, im Vergleich zur Warteleiste. Weitere Auswertungen sind noch ausstehend.

Schlussfolgerungen:

Ein internetbasiertes Selbsthilfeprogramm zur Verringerung von Alkoholmissbrauch und Depressionssymptomen wurde entwickelt und wird in einer RCT evaluiert. Aus heutiger Sicht stellt das Online-Programm eine kosteneffektive Möglichkeit dar Personen aus der Allgemeinbevölkerung zu erreichen, die keine traditionellen Behandlungsangebote aufsuchen.

Title: The patient at the centre: evidence from 17 European integrated care programmes for persons with complex needs

Authors: Thomas Czypionka[1], Markus Kraus[1], Miriam Reiss[1]

[1] Institut für Höhere Studien – Institute for Advanced Studies (IHS)

Abstract:

Background:

As the prevalence of multi-morbidity increases in ageing societies, health and social care systems face the challenge of providing adequate care to persons with complex needs. Approaches that integrate care across sectors and disciplines have been increasingly developed and implemented in European countries in order to tackle this challenge. The aim of the study is to identify success factors and crucial elements in the process of integrated care delivery for persons with complex needs as seen from the practical perspective of the involved stakeholders (patients, partners, professionals, payers, policy makers).

Methods:

17 integrated care programmes for persons with complex needs in 8 European countries were investigated using thick description based on semi-structured interviews and document analysis. In total, 233 face-to-face interviews were conducted with stakeholders of the programmes between March and September 2016. Meta-analysis of the individual thick description reports was performed with a focus on the process of care delivery.

Results: Four themes that emerged from the overarching analysis are discussed: (1) a holistic view of the patient, considering both mental health and the social situation in addition to physical health, (2) continuity of care in the form of single contact points, alignment of services and good relationships between patients and professionals, (3) relationships between professionals built on trust and facilitated by continuous communication, and (4) patient involvement in goal-setting and decision-making, allowing patients to adapt to reorganised service delivery.

Conclusions:

We were able to identify several key aspects for a well-functioning integrated care process for complex patients and how these are put into actual practice. Our research sets itself apart from the existing literature by specifically focussing on the growing share of the population with complex care needs and by providing an analysis of actual processes and interpersonal relationships that shape integrated care in practice, incorporating evidence from a variety of programmes in several countries.

Title: Socioeconomic potential of technical assistance systems – costs and benefits of an AAL system in health monitoring

Authors: Birgit Aigner-Walder[1], Albert Luger[1], Robert Ofner[1]

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Abstract:

Technical assistance systems have a high potential in terms of increased autonomy of elderly people and a reduction of associated age-related costs, especially against the background of current demographic developments. This scientific contribution analyses the socio-economic potential of an Active & Assisted Living (AAL) system in the field of health monitoring by applying a cost-utility analysis (CUA) and a cost-benefit analysis (CBA).

Within the framework of the pilot region Smart VitAALity - Carinthian pilot region for Smart Living technologies in the field of health and social participation, technical equipment for health monitoring was installed in more than 100 households in 2018. The households, located in the urban triangle of Klagenfurt - Villach - Ferlach, were equipped with devices for vital parameter measurements (blood pressure, weight, blood glucose level), a smart watch as well as a tablet for recording health data. Telemonitoring functioned via a medical care centre and 24/7 emergency call centre; this service was intended to provide support in cases of emergency and to promote the independence and self-confidence of the participating elderly persons. A control group (> 100 households) getting conventional treatment was recruited for comparison, and subsequently to determine any significant differences before and after the field-testing.

The cost and benefit parameters were selected with regard to effects for potential primary and tertiary stakeholders, i.e. the end-users of the technical assistance systems (e.g. elderly people, informal caregivers) as well as the financiers (e.g. social insurance agencies). Both, the intervention group and the control group were surveyed before and after the field-testing with regard to the usage of healthrelated services (e.g. number of medical consultations, utilization of professional care) and quality of life. The EQ-5D-5L questionnaire as well as the visual analogue scale (EQ VAS) of the EuroQoL Group (1990) were used as standardized measurement methods for assessing the quality of life.

The costs of the AAL system amount to € 105 per month and end user (technical equipment incl. services). After the field-testing of twelve months, no significant differences in the quality of life (EQ-5D5L) or in the usage of health-related services between the intervention and control group were found. However, a significant deterioration of the self-reported health status (EQ VAS) as well as in two dimensions of EQ-5D-5L (mobility, usual activities) within the control group, indirectly indicate the potential effectiveness of this technical assistance system for a self-

determined life. This observation leads to the assumption that at least indirectly positive effects can be derived from this AAL system.

The results of this comprehensive empirical investigation are in congruence with previous analyses, which deal with the economic efficiency of technical assistance and telemonitoring systems for elderly people. In these analyses, beneficial effects on the quality of life have been reported. Due to the lack of significant differences with regard to the use of health-related services, the evaluation of costs and savings for the cost-benefit analysis proves to be unsuccessful. For future pilot regions a more homogeneous group of test persons with specific risk factors appears to be of interest.

Keywords:

AAL, technical assistance system, health monitoring, cost-benefit analysis, cost-utility analysis, quality of life

Title: Regional differences in diabetes across Europe – regression and causal forest analyses

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Abstract:

Objective:

We examine regional differences in the prevalence and incidence of diabetes in Europe (West, East and South), and relate them to variations in socio-economic conditions (age, gender and level of education), comorbidities (hypertension and high blood cholesterol), the body mass index, health behaviour (diet and lifestyle) and diabetes management.

Methods:

We use panel data from waves 4 and 7 of the Survey of Health, Ageing and Retirement in Europe (SHARE), conducted in 2011 and 2017. First, we estimate multivariate regressions, where the key outcome variables are: prevalence of diabetes; transition to diabetes; and indicators of health behaviour such as weight loss due to diet. Second, we train causal random forests (Wager and Athey 2018, JASA; Athey et al. 2019, Ann Stat) to estimate the heterogeneous effect of the risk factors on the regional differences of diabetes incidence.

Results:

We find that the transition odds to diabetes is 2.3 times higher in Southern- and 2.7 times higher in Eastern-Europe than in Western-Europe, which decreases to 2.0-2.1 after controlling for the explanatory variables. Based on the causal forest approach, the adjusted East-West difference is essentially zero for the lowest risk groups (tertiary education, no hypertension, no overweight) and increases substantially with these risk factors. Meanwhile, effect heterogeneity is much less pronounced in the South-West dimension. Finally, we observe regional differences in the change in health behaviour (weight loss due to diet and number of doctor visits) around the time of diabetes diagnosis.

Conclusion:

The results shed light on the origins of the marked cross-country differences in diabetes across Europe.

Author: Austrian Health Economics Association (ATHEA)

Title: Book of Abstracts, Fifth ATHEA Conference for Health Economics „Improving efficiency in healthcare systems“

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