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Hamburg Center  
for Health Economics

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*Interdisciplinary Research  
for Efficiency and Quality in  
Health Care*



The Hamburg Center for Health Economics (HCHE) aims to find evidence-based solutions to the current and future challenges facing the health sector in Germany and beyond.

We pride ourselves in the interdisciplinary nature of our teams. The economists and health professionals at the HCHE draw upon broad methodological expertise to meet the highest standards in research while providing robust analysis to support decision makers and health policy development.

Founded in 2011, the HCHE now has over 70 researchers and is already one of the largest centers for health economic research in Europe.

A handwritten signature in blue ink, consisting of a stylized 'J.' followed by a cursive name.

*Prof. Dr. Jonas Schreyögg  
Scientific Director  
Hamburg Center for Health Economics*

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## *Research for a better health system*

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The health system in Germany, like in many western countries, is facing the twin challenges of an ageing population with multiple long-term conditions and a growing demand for health services. New models of care are needed, as are innovative ways to diagnose, prevent and treat disease. Since health and wealth are inextricably linked, health economics has established itself as a new discipline alongside medical research. Health economics is not only recognised in the fields of economics and medicine as a crucial area of enquiry. It also plays a key role in the decisions taken by health policy makers and managers of organisations that provide health care.

As a joint research center of Universität Hamburg and the University Medical Center Hamburg-Eppendorf (UKE), the HCHE combines economic expertise with excellence in medicine. Interdisciplinarity is one of HCHE's founding principles. Combining the fields of economics and medicine, and always striving to understand each other's disciplines, working practices and methods, is the best path to ground-breaking research, as well as new insights and discoveries.



## *Forward-thinking higher education*

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The health care market is complex, and future managers must acquire highly specialised knowledge and methodological skills. Since 2013 the HCHE offers its own master's programme in Health Economics & Health Care Management, providing future leaders in the health sector with this expertise. Our staff offer a range of courses allowing students to familiarise themselves with the main issues facing the health system and how its various parts fit and work together. For their bachelor's or master's thesis, students have the opportunity to work on a range of interesting and challenging topics. Our many contacts in Germany and abroad can give a boost to students seeking internships or starting a career in the health care sector.

### *Postgraduate programme*

Close collaboration between economics and medicine also guarantees the high quality of our postgraduate programme. We are dedicated to excellent supervision for our PhD students.

### *HCHE alumni*

Our alumni network is yet another way we encourage exchange between research and practice, even after graduation.

### *Master's programme*

Health Economics & Health Care Management

30 students each year • for graduates with a bachelor's degree in economics, health economics or related studies  
• a wide range of topics and the opportunity to specialise



# Hamburg

## Knowledge transfer

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Research in health economics is not only widely recognised in economics and medicine. It also plays an increasingly important role in decisions on health policy. This is why we are keen for our research findings to be published in leading international journals and find their way into everyday health care practice. We also encourage dialogue between academics, politicians, physicians, health insurers, professional associations,

health sector managers and other professionals. Our HCHE Research Results live series, for example, sees over one hundred health care practitioners and policy makers come together regularly in Hamburg to exchange ideas and new insights.

To facilitate the transfer of knowledge worldwide, we also organise large national and international conferences such as the 11th European Conference of Health Economics (EuHEA) in 2016 or the 10th Annual Meeting of the German Association for Health Economics (dggö) in 2018.

### *Selection of topics covered by HCHE Research Results live*

Quality in hospitals (2014)

AMNOG: Expectations, results, effects (2015)

Long-term care and quality of life in nursing homes (2017)



### Faculty of Business Administration

Chair of Health Care Management  
Prof. Dr. Jonas Schreyögg (Scientific Director)

Assistant Professor for Health Care Management  
Prof. Dr. Eva-Maria Oppel

Chair of Health Care Management  
Prof. Dr. Tom Stargardt

Chair of Statistics  
Prof. Dr. Martin Spindler

Chair of Risk Management and Insurance  
Prof. Dr. Petra Steinorth

### Faculty of Business, Economics and Social Sciences

Chair of Health Economics and Social Policy  
Prof. Dr. Mathias Kifmann

Chair of Economics, esp. Microeconometrics  
Prof. Thomas Siedler (PhD)

Assistant Professor for Economics, esp. Econometrics  
Prof. Dr. Jan Marcus

### Faculty of Medicine

Director, Department of Health Economics and Health Services Research  
Prof. Dr. Hans-Helmut König (UKE)

Director, Department of Health Services Research (IVDP)  
Prof. Dr. Matthias Augustin (UKE)

Head of Quality of Life and Patient Benefit Research, IVDP  
PD Dr. phil. Christine Blome (UKE)

## Key research areas

Interdisciplinary collaboration is the cornerstone of HCHE's approach to finding solutions for the current and future challenges facing health systems. Ensuring that the German and other health systems can be sustained from generation to generation is one of our main objectives. Our research focuses on the following six areas:



Population health



Big data  
and digital health



Health care financing



Economic evaluations



Hospitals and physicians



Pharmaceutical markets



## *Population health*

Population health refers to the health of a community as opposed to that of an individual. In addition to physical health, this research focuses on the psychological, social and preventive aspects of disease. Important conditions include obesity, addiction and depression.



### *Research project*

#### *Social implications of high-risk health behaviour*

Smoking, excessive alcohol consumption and unhealthy eating – high-risk lifestyles have a strong impact on individuals but also on society as a whole. Policy-makers have responded in various ways, including laws whose effects have been evaluated by the HCHE.

#### *Ban on smoking in bars and restaurants in Germany*

Reduction in hospital admissions:

- due to cardiovascular disease by 160 each day
- due to asthma by 40 each day

#### *Banning late-night alcohol sales in Baden-Württemberg*

Alcohol-related hospitalisations:

- down 7% among adolescents and young adults
- no effect in age groups older than these



## *Big data & digital health*

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As digitisation increases so too does the number of large and novel health care datasets, raising new and exciting research questions. This area of research focuses on refining and developing new methods for analysing such datasets and applying these to health economic questions. We have ongoing research projects looking, for example, at how best to estimate treatment effects or heterogeneity in demand for health care services using machine learning techniques.

### *Classifying urgent and non-urgent cases in hospitals using machine learning*

Overcrowded emergency rooms, an increasing number of inpatient admissions and struggling hospitals – can the pressure be eased by distinguishing between cases that are urgent and those that are not? Categorising cases in this way might lead to better management and planning of care. As part of the most comprehensive categorisation of such cases in Germany to date, this research project assigned urgency values to each relevant diagnosis in the International Classification of Diseases (ICD). The results were astonishing: hospitals showed the highest growth in activity for cases that were neither unequivocal emergencies nor clear-cut elective procedures. Predictable treatment and very urgent cases – i.e., activity at either end of the urgency spectrum – showed the lowest rates of growth.

*Research project*



## Health care financing

Financing health care is a frequent focus of political and social debate. This field of research involves questions of efficiency but also of fairness. It also addresses how demographic change and advances in medical technology affect the long-term stability of health systems. For our research, we draw upon methods from the fields of insurance and risk management, as well as public finance.

### *Average-cost pricing and dynamic selection incentives in the hospital sector*

This study examines dynamic incentives for selecting patients among hospitals paid using the diagnosis-related group (DRG) system. We found that price dynamics depend on the extent of hospital altruism and the relationship between the severity of patients' conditions and the benefit they receive from treatment. Both upward and downward price movements over time are possible. In a steady state, DRG prices are unlikely to give optimal incentives to treat patients. Depending on the level of hospital altruism, too few or too many patients are treated. When patients' benefit increases with severity, then DRG pricing may give hospitals distorted incentives to treat patients with low-severity conditions instead of patients with high-severity conditions.

Published in: Health Economics (2017); 26(12): 1566-1582

Research project





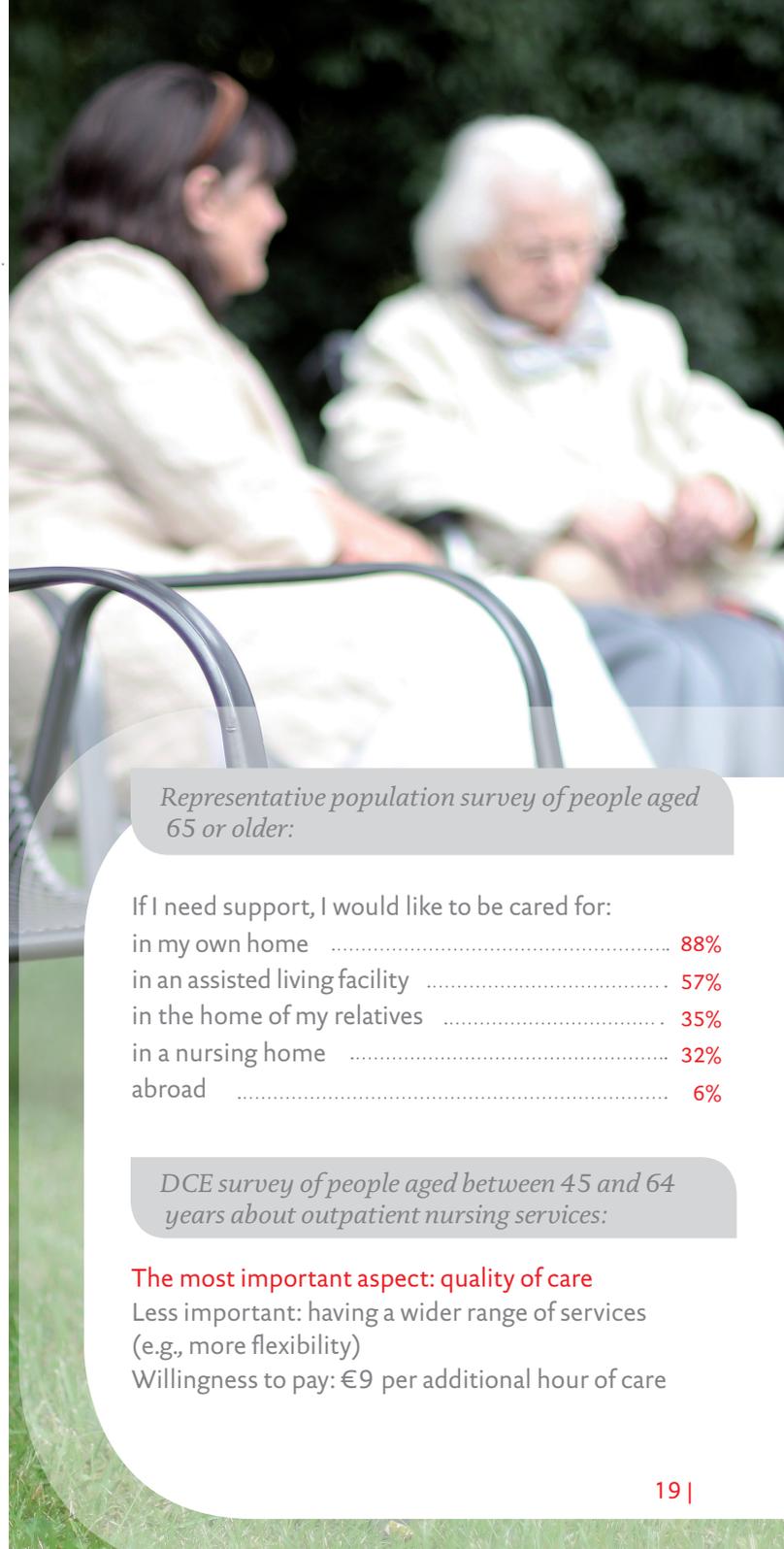
## Economic evaluations

In this research area, we analyse the costs and effects of health services to help decision-makers better allocate resources in health systems. Economic evaluations draw upon methods from clinical studies, simulations and approaches from cost accounting, research on quality of life, and other processes for measuring preferences.

### Research project

#### Population preferences for long-term care

As a result of demographic change, a growing number of people are expected to require long-term care in the future. Accordingly, we can expect the importance of professional nursing care to increase substantially as well. To date, there has been very little information on what kind of long-term care the population in Germany prefers. To address this gap, we developed a discrete choice experiment (DCE) in a multistage process and surveyed a representative sample of the population. Our hope is that the findings will contribute to a preference-based and fair allocation of the resources in the statutory system of long-term care insurance.



#### Representative population survey of people aged 65 or older:

If I need support, I would like to be cared for:	
in my own home .....	88%
in an assisted living facility .....	57%
in the home of my relatives .....	35%
in a nursing home .....	32%
abroad .....	6%

#### DCE survey of people aged between 45 and 64 years about outpatient nursing services:

**The most important aspect: quality of care**  
 Less important: having a wider range of services  
 (e.g., more flexibility)  
 Willingness to pay: €9 per additional hour of care



## *Hospitals and physicians*

Hospitals and physicians are key figures at the heart of health care provision and contribute crucially to the productivity of any health system. We undertake research on measuring performance and assessing incentive and payment systems for physicians to support allocating limited financial resources as efficiently as possible. In addition, we evaluate strategic management approaches in terms of their effectiveness. For example, we have

studied hospital privatisation, the development of provider networks, or specialisation in efficiency and quality of care – providing valuable evidence and analysis for policy makers. Numerous HCHE studies fall within this research area:

- 1** *Relationship between nurse staffing levels and nursing-sensitive outcomes in German hospitals in unit-level analysis*
- 2** *Impact of demographics on the number of hospital admissions*
- 3** *Substituting emergency services: primary care versus hospital care*





## *Pharmaceutical markets*

Expenditure on pharmaceuticals accounts for a substantial proportion of spending in the health sector and is regularly at the center of public attention in Germany.

A central question in this area of research is the relationship between policy decisions and market behaviour – in other words, how policies affect the behaviour of companies, care providers, the population and their health, as well as spending on health care.

In particular, the introduction of the German Pharmaceutical Market Reorganisation Act (AMNOG) in 2011 generated numerous new research questions. For instance, recent research has examined the findings by the Federal Joint Committee (G-BA) and resultant market adjustments, also at the international level.



### *Research project*

#### *Patented pharmaceuticals under the microscope*

Following the enactment of AMNOG, the pharmaceutical industry has seen a dramatic change in the environment for the market entry of patented pharmaceuticals. Within three months of market entry, manufacturers have to submit a dossier to the G-BA proving the medical and additional benefits compared to standard therapy. Depending on the outcome of the benefit analysis, the pharmaceutical industry can subsequently enter into price negotiations with the National Association of Statutory Health Insurance Funds or is subject to further regulation. How does AMNOG affect the market penetration of pharmaceuticals (diffusion/adaptation)? What influence do stakeholders have on the decision-making process? Are the decisions taken by the G-BA in line with those taken by other international HTA institutions? How are the results of the benefit analysis linked to the outcome of negotiations (discount on the manufacturer's price)?





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Federal Ministry  
of Education  
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Hamburg Center for Health Economics  
Universität Hamburg  
Esplanade 36  
20354 Hamburg - Germany

[info@hche.de](mailto:info@hche.de)  
[www.hche.de/en](http://www.hche.de/en)

