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## 15 PhD positions in the EU Horizon 2020 Marie Skłodowska-Curie Project: MSCA-ETN-IQCE

Applications are invited for 15 PhD positions to be funded by the Marie-Sklodowska-Curie Innovative Training Network “IQCE – Improving Quality of Care in Europe” within the Horizon 2020 Programme of the European Commission. IQCE is a consortium of high profile universities, research institutions and companies located in Belgium, Denmark, Germany, Netherlands, Italy, Portugal and UK.

Please send your applications to [application@iqce.eu](mailto:application@iqce.eu).

### Short programme description

The aim of the “IQCE” programme is to improve the quality and performance of European health care systems. Each PhD thesis will focus on one of six dimensions of health care quality as defined by the World Health Organization (WHO): effectiveness; safety; efficiency; access; equitability; and acceptability. As the PhD programme is very international, it will provide plenty opportunities for traveling and cultural exchange. Please find more detailed information at [www.iqce.eu](http://www.iqce.eu).

### Hosts for PhDs

University of Hamburg, Bocconi University, Erasmus University Rotterdam, Universidade Nova de Lisboa, University of Southern Denmark, University of York, St. Jude Medical

### Non-academic partners

Department of Health England, National Health Care institute, European Health Economics Association, German Association of University Hospitals, National Health Service Italy, National Health Service Portugal, Lundbeck, Techniker Krankenkasse, The Danish Association of Regions, Odense University Hospital, Valenti Centre for Health Economics, World Health Organization

### Number of positions available

15 PhD positions

### Career Stage

Early Stage Researcher, i.e., Postgraduate with 0-4 years of academic experience

### Research Fields

Economics – Health Economics – Business Administration

### Benefits and salary

The successful candidates will receive an attractive salary in accordance with the MSCA regulations for early stage researchers. The exact salary will be confirmed upon appointment



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and is dependent on the country correction factor (to allow for the difference in cost of living in different EU Member States). The salary includes a living allowance, a mobility allowance and a family allowance (if married). The guaranteed PhD funding is for 36 months (i.e. EC funding, additional funding is possible, depending on local Supervisor). In addition to their individual scientific projects, all fellows will benefit from continuing education, which includes internships and secondments, a variety of training modules as well as transferable skills courses and active participation in workshops and conferences.

### PhD programme & Secondments

The IQCE programme provides a structured PhD programme offered by the participating universities. In total, PhDs will attend 10 courses in addition to several soft skill courses as well as joint research workshops and conferences. Besides, PhDs will have the opportunity to complete academic and non-academic secondments. Academic secondments to partner universities are intended to foster a closer exchange of ideas among PhDs. Non-academic secondments with relevant public or private sector partners will facilitate the policy relevance of research topics and exchanges between research and practice (please see [www.iqce.eu](http://www.iqce.eu) for details).

### Eligibility criteria

- **Recognized master's degree** in economics, health economics, business administration or other related subjects. To be eligible for admission to the programme students must have a high-quality master's degree or an equivalent academic degree from an internationally recognized university. In exceptional circumstances, students may be accepted if they are expected to finish their qualifying postgraduate studies within the first 4 months of the programme which is in principle set to July 1st, 2017.
- **Early-stage researchers** are those who, at the time of employment by the host university, are in the first four years (or full-time equivalent) of their research careers. This is measured from the date they obtained a degree which formally entitled them to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the research training is provided, irrespective of whether or not a doctorate was envisaged.
- **Conditions of international mobility of researchers:** Researchers are required to undertake transnational mobility (i.e. move from one country to another) when taking up the appointment. At the time of employment by the host university, researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of their host university for more than 12 months in total during the last 3 years. Short stays, such as holidays, are not taken into account.
- **English language:** Applicants must demonstrate that their ability to understand and express themselves in both written and oral English is sufficiently advanced for them to fully benefit from the network training. Recognized English language certificates (TOEFL, IELTS) must be submitted along with the application.



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### **Recruitment Procedure**

Candidates apply electronically for one to maximum three positions and indicate their preference. Candidates provide all requested information including a detailed CV, Bachelor's and Master's transcripts, and proof of sufficient English language skills. The deadline for the application is **20<sup>th</sup> of March 2017**. The IQCE Recruitment Committee selects and invites candidates for interviews which will take place at the universities the candidates have applied for. The selected candidates may have to provide a 15 minute presentation and are examined by the local Recruitment Committees. The **starting date** for the selected **PhD's** is planned for the **1<sup>st</sup> of July 2017**. However, the exact starting date is determined by the local recruitment committees.

Please send your applications to [application@iqce.eu](mailto:application@iqce.eu).

Please state three preferences, i.e., indicate the three PhD topics (see further below) you have most interest in.



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## The 15 available PhD positions:

### **PHD 1 Improving quality of care by increasing adherence to treatment**

Because treatment requires the patient to be a co-producer of a health service, the efficiency of a treatment is often compromised when the patient is non-adherent to the rules imposed upon him or her by physicians. It is thus the aim of the project to analyse (a) the link between adherence and outcomes as well as (b) the effectiveness of process innovation that target adherence in selected indications. Using administrative data to compare persistence/medication possession ratios, the PHD intends to choose multiple indication areas to analyze interventions that affect adherence. This may include the evaluation of activities that manage adherence in patients (e.g., managed care programmes) or simple changes in mode of administration (e.g., fixed dose versus loose dose combination or twice-monthly versus daily administration of the same drug). Gender-specific aspects of adherence will be considered too.

The research aims to provide evidence on how the mode of administration impacts adherence in different cultural settings within EU countries and/or across different indication areas/patient subgroups. In addition, the results will help to quantify the benefit of adherence programmes in improving effectiveness in relation to their cost.

Host: Hamburg Center for Health Economics (HCHE) (Germany)

Lead Supervisor: Prof. Dr. Tom Stargardt ([Tom.Stargardt@wiso.uni-hamburg.de](mailto:Tom.Stargardt@wiso.uni-hamburg.de))

### **PHD 2 Identifying and improving quality of care and patient safety in hospitals**

Improving quality of care and reducing harm to patients are important priorities in any health care system. Advancing these priorities requires the identification of variations in practice and incentives to transform practice. Focussing on the hospital sector, the thesis will examine the patient-level using administrative data. Across several indications, the fellow will analyse variation in practice among hospitals and clinical teams using panel data and multilevel models. In doing so, the fellow will also control for governmental or other initiatives in the past that have targeted quality of care. To measure quality of care, an array of indicators will be used. The indicators will first be analysed isolated and then in combination.

The thesis will identify indicators that provide strong signals of quality and safety. It will also identify hospitals where improvements need to be made.

Host: Centre for Health Economics York (CHE) (United Kingdom)

Lead Supervisor: Prof. Martin Chalkley ([martin.chalkley@york.ac.uk](mailto:martin.chalkley@york.ac.uk))



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### **PHD 3 Improving quality of care by managing availability of blood and blood products**

The availability of blood and blood products is crucial for the provision of high quality hospital services. With increasingly short turnover times, the availability of blood and blood products heavily depends on voluntary donations. On the one hand, comparably short durability limits storage capabilities while regular events such as holiday seasons significantly reduce supply. In addition, unplanned epidemic-like events may boost demand at any time. Given the scarcity of research on how to manage donation of blood and blood products by incentivising donors, it is the aim of this project to analyse administrative databases retrospectively in order to identify (a) how to incentivise donors best and thus (b) how to steer supply of donations effectively in order to avert shortages. The results will help to ensure a high quality of hospital treatment by identifying reaction of the population to incentives and thus allow steering donor supply to address demand for blood and blood products. This approach will help decision-makers in hospitals and health policy makers to design donor engagement strategies. It will also help to understand cultural difference when comparisons across countries are made.

Host: Hamburg Center for Health Economics (HCHE) (Germany)

Lead Supervisor: Prof. Dr. Tom Stargardt ([Tom.Stargardt@wiso.uni-hamburg.de](mailto:Tom.Stargardt@wiso.uni-hamburg.de))

### **PHD 4 Exploiting administrative databases to improve evidence**

The identification of interventions that maximises quality of care requires sound evidence. However, current effectiveness and cost-effectiveness studies often present serious external validity problems, as they are often conducted in settings not reflecting real-life conditions. Large data sets from administering and monitoring healthcare organisations have been made available for research purposes supporting investigation of entire populations in everyday settings. Therefore, the project aims to link different datasets available in Italian regions and create a unique dataset at the patient level. This type of data will allow development of methods for optimal exploitation of administrative data to measure (cost)-effectiveness in the example of cardiovascular or cancer interventions. The PHD will further explore the feasibility of applying novel econometric approaches, e.g. synthetic control groups, with that data. The expected results shall to identify the potentials and limits of administrative datasets to investigate the quality of care in healthcare interventions. The expected results identify the potentials and limits of administrative datasets to investigate the quality of care in healthcare interventions. Secondly, development and application of new methods is explored and provide evidence on (cost)-effectiveness of selected major interventions.

Host: Centre for Research on Health and Social Care Management (CERGAS) (Italy)

Lead Supervisor: Prof. Giovanni Fattore ([giovanni.fattore@unibocconi.it](mailto:giovanni.fattore@unibocconi.it))



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### **PHD 5 Do Pay-for Performance and public reporting impact quality of care?**

Both economic and non-economic incentives may be used to influence physician behaviour. Pay-for-performance for quality indicators such as the English Quality of Outcome framework (QoF) is one means of influencing behaviour. Other incentivising schemes include pay-for-compliance schemes introduced in the Emilia-Romagna region in Italy and the Danish quality improvement programme. The research question addressed in this PhD project is the effect of paying physicians compared to that of lower-powered incentives schemes such as feedback and public reporting. Special focus will be placed on incentive schemes in primary care targeted prevention of hospitalisations for chronically ill patients. The specific expected results of this project are to quantify the impact of different incentives schemes as well as past changes in remunerations for quality improving activities in primary care. The project will thereby contribute to facilitate setting incentives for providers that maximise the quality of care.

Host: Centre for Health Economic Research (COHERE) (Denmark)

Lead Supervisor: Prof. Kim Rose Olsen ([krolsen@sam.sdu.dk](mailto:krolsen@sam.sdu.dk))

### **PHD 6 Competition and quality of care in primary care**

Over the past several years, the number of patients presenting with multiple co-morbidities has increased. Primary care professionals thus face increasingly complex decisions between treatment and/or referral when maximising quality of care. Therefore, these professionals have an increased need for close connections to networks of specialised care. In addition, payment systems that set incentives may or may not work as intended. It is the aim of the project to understand the economic incentives of competition between primary care providers in the context of highly co-morbid patients requiring referrals to secondary care. First, a positive analysis of existing payment systems and competition mechanisms will be conducted. In a second step, the project will take a normative view on the design of primary care systems.

Host: Nova School of Business and Economics (NOVA) (Portugal)

Lead Supervisor: Prof. Pedro Pita Barros ([ppbarros@novasbe.pt](mailto:ppbarros@novasbe.pt))

### **PHD 7 Price and hospital care and its impact on quality of care**

Hospital reimbursement systems are based on the idea of Yardstick competition and thus are usually characterised by annual or bi-annual price changes. The literature shows that hospitals may respond to price changes in several ways. However, no study to date has investigated the impact of price changes on quality of care. Research question: Do hospitals alter quality of care in response to financial incentives? The PHD will receive access to a large dataset that adds three attractive features to the present literature: (i) it covers all hospitals and all their inpatient services in Germany over 8 years (130 million patient records from 1,700 hospitals), (ii) reimbursement rates change substantially both at the hospital and at the procedure level annually, and (iii) date and time stamps for procedures performed and possibilities for merging with other data sets support development of promising measures



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for process quality and outcomes. Therefore, the data allows great flexibility in definition of prices and outcomes. The project will demonstrate the relevance of price changes for outcomes in hospitals. If it turns out that hospitals adapt their quality of care according to price variation, this practice will have important policy implications for the price regulation of hospitals.

Host: Hamburg Center for Health Economics (HCHE) (Germany)

Lead Supervisor: Prof. Dr. Jonas Schreyögg ([Jonas.Schreyoegg@wiso.uni-hamburg.de](mailto:Jonas.Schreyoegg@wiso.uni-hamburg.de))

### **PHD 8 Improving efficiency of care by use of medical technology**

Quality of care is also directly related to the use of innovative medical technology. To assess whether the uptake, i.e. diffusion, of new technology will contribute to increase efficiency of care, European claims data will be analysed in the area of heart diseases. Although fractional flow reserve (FFR) is a reasonably known technology that determines whether the use of stents is beneficial for patients or not, its use differs very much across EU health care systems. It is thus the first aim of the dissertation to analyse how financial incentives impact the diffusion of medical technology using the example of FFR. Second, when potential hurdles for diffusion can be addressed, a technology needs to show that it is effective in increasing quality of care. Using the example of Cardiomems (Implantable Sensor for Patient Monitoring), a new technology that measures the pulmonary artery (PA) pressure and thereby allows Patient Monitoring and therapy adjustments for Heart Failure Patients, the dissertation will focus on analysing the impact of Cardiomems on hospitalisation and mortality trying to determine whether RCT results from a US setting also transfer into real-world effectiveness in EU health care system. The project will show how to demonstrate whether new technology improves quality of care in a real-world setting and how to overcome hurdles for the diffusion of innovative medical technology

Host: St. Jude Medical (Belgium)

Lead Supervisor: Jannis Radeleff ([jradeleff@sjm.com](mailto:jradeleff@sjm.com))

### **PHD 9 The effect of hospital volume on quality of care**

The National Health Service in England experienced a large increase in resources over the period 2000-2010. This increase has led to a large increase in hospital volume throughout the country across different conditions and surgical procedures. The thesis will test whether the higher volumes have improved health outcomes, e.g., mortality rates and re-admission rates, due to learning-effects or economies-of-scale. If this hypothesis holds differences in access to hospitals with high or low volumes across England would result into differences in outcomes. The fellow will work with administrative data from NHS Hospital Episodes Statistics. An interventional study design with a treatment group (large increase in volume) and a control group (small or no increase in volume) will be used to control for the potentially non-linear effect of technology improvements over time. If the learning-by-doing



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hypothesis is correct, we should expect to find improvements in quality of care for small hospitals (treatment group) in particular where volume is traditionally low, and no effect for large hospitals (acting as control group). This would have important policy implications in order to provide equal access to high volume hospitals.

Host: Centre for Health Economics York (CHE) (United Kingdom)

Lead Supervisor: Prof. Luigi Siciliani ([luigi.siciliani@york.ac.uk](mailto:luigi.siciliani@york.ac.uk))

### **PHD 10 Comparing quality of care across healthcare systems**

One possible way to increase quality of care is to induce competition in quality within health care markets. This approach requires, however, that the quality information provided is understandable by all patients and actors of health care facilitating equal access to care. The objective of this PhD project is to aggregate different quality measures into an index that enhances information uptake by patients, payers and providers. A quality index could display information for one medical specialty, e.g. neurology, by integrating the most common conditions and their outcomes. First, data from German sickness funds will be used to develop this index for different specialties. Second, this index will be extended by integrating laboratory data provided by the German Association of University Hospitals for all German university hospitals to improve risk adjustment. As soon as the aggregated index is observed to be robust, this approach will be extended to data from other countries made available through other beneficiaries. The developed quality index will increase transparency for patients, payers and providers facilitating equal access to care. It may also support competition on quality. Extension to other countries will support international comparisons of quality of care across health care systems performed providing the basis for decisions made by international organisations.

Host: Hamburg Center for Health Economics (HCHE) (Germany)

Lead Supervisor: Prof. Dr. Jonas Schreyögg ([Jonas.Schreyoegg@wiso.uni-hamburg.de](mailto:Jonas.Schreyoegg@wiso.uni-hamburg.de))

### **PHD 11 Does inequity in access to secondary care impact quality of care**

The general practitioners (GPs) – patient interaction is an important mechanism by which inequalities in access to secondary health care services arise to the detriment of overall quality in health care. The findings of socioeconomic inequalities in referrals from GPs to specialist care in Denmark, led to the question whether the variation in referral patterns across socio-economic groups results in differences in health outcomes also considering gender differences. A secondary aim is to investigate underlying reasons for variations in referral rates. The PHD will analyse the causal relationship between early referral to a specialist and risk of death, focussing on specific diseases for which early referral is critical (e.g., cancer). The project is highly policy relevant as it investigates whether the structural organisation of the Danish health care system generates inequity in health and life expectancy and seeks to precisely identify problem areas that may be targeted by policy interventions.





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Host: Centre for Health Economic Research (COHERE) (Denmark)

Lead Supervisor: Prof. Dorte Gyrd-Hansen ([dgh@sam.sdu.dk](mailto:dgh@sam.sdu.dk))

#### **PHD 12 Societal value of health and well-being gains**

The monetary value of health and wellbeing gains remains understudied. We will develop and use methods, explicitly aimed to produce societal monetary values of health and well-being gains. Therefore, we aim to develop a framework for measuring quality of care in monetary terms. Such values also include equity considerations. There may be differences in weighting gains for men vs. women, elderly versus young or severely versus mildly ill beneficiaries. The developed methods may be used in future studies, and results may inform decision makers throughout Europe.

Host: Institute of Health Policy & Management (IBMG) (The Netherlands)

Lead Supervisor: Prof. Job van Exel ([vanexel@bmg.eur.nl](mailto:vanexel@bmg.eur.nl))

#### **PHD 13 Economic shocks, subjective well-being and adaption**

Social and economic resources shape the health of populations and individuals. Taken seriously, this empirical truth raises the concern that economic shocks, such as unemployment, income drop or economic uncertainty, could translate into health shocks. It is the aim of this PhD project to shed light on the links between economic shocks and health outcomes, i.e., quality of care. In this way, the fellow intends to disentangle the mechanisms by which social and economic changes at the macro level transfer into individual psychosocial, physical health and well-being. In particular, the main focus of the analysis will be on the relation between subjective well-being (SWB), quality of life and health outcomes. By considering SWB as a measure of the impact of economic shocks on individuals and households, the project will quantify the extent to which SWB measures may provide a reliable understanding of the psychological and physical implications of the economic hurdles. Considering SWB as a psychological adaptation process by which people become used to negative circumstances, results will help understand coping mechanisms through which individuals better absorb shocks and their potential impact on health outcomes and behavior.

Host: Centre for Research on Health and Social Care (CERGAS) (Italy)

Lead Supervisor: Prof. Giovanni Fattore ([giovanni.fattore@unibocconi.it](mailto:giovanni.fattore@unibocconi.it))

#### **PHD 14 Impact of economic crisis on health, quality of care and demand**

The aim of this project is to assess the impact of the current economic crisis on health, quality of care and demand for health care. The PHD will use geographic variations across regions in the impact of the economic crisis to identify the effects of economic variables such as GDP and employment on population health and the quality of and demand for hospital care. To do so, the fellow will combine data from the Portuguese National Health Service with regional databases. Three different areas of disease will be addressed: mental health, stroke and cerebrovascular diseases. The results will reveal whether the economic crises as



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well as austerity measures have impacted quality of care indicators such as mortality and episodes of mental health problems. These results will be important for the design of future policy measures.

Host: Nova School of Business and Economics (NOVA) (Portugal)

Lead Supervisor: Prof. Pedro Pita Barros ([ppbarros@novasbe.pt](mailto:ppbarros@novasbe.pt))

### **PHD 15 The formation of reference points in decision-making**

The behavioral economic literature shows that reference points are highly relevant in human decision making, also in the health domain. However, little is known about the nature and formation of reference points and their influence on decision making. This project will provide further insight into the formation and influence of reference points in the health domain. Therefore, it is our aim to investigate the formation and influence of reference points in the health domain in individual decision making. To do so, several experiments will be performed, in which reference points associated with different health (care) decision-making contexts, such as health state valuations and choices regarding lifestyle, will be investigated. The developed methods may be used for decision-making in all healthcare systems throughout Europe.

Host: Institute of Health Policy & Management (IBMG) (The Netherlands)

Lead Supervisor: Prof. Werner Brouwer ([brouwer@bmg.eur.nl](mailto:brouwer@bmg.eur.nl))

### **General contact information**

#### **Address for applications:**

[application@iqce.eu](mailto:application@iqce.eu)

#### **In case of general questions please contact:**

Elena A. Phillips (IQCE Managing Director), e-mail: [elena.phillips@iqce.eu](mailto:elena.phillips@iqce.eu)

#### **In case questions to a specific PhD topic please contact the lead supervisor:**

Prof. Pedro Pita Barros, e-mail: [ppbarros@novasbe.pt](mailto:ppbarros@novasbe.pt)

Prof. Werner Brouwer, e-mail: [brouwer@bmg.eur.nl](mailto:brouwer@bmg.eur.nl)

Prof. Martin Chalkley, e-mail: [martin.chalkley@york.ac.uk](mailto:martin.chalkley@york.ac.uk)

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**Key dates:**

- 20-03-2017: Deadline for on-line application for PHD positions
- 01-07-2017: Initiation of PHD research work

**Keywords**

Microeconomics; Macroeconomics; Healthcare Systems; Quality Measurement; Risk Adjustment Methods; Management Efficiency; Access and Equitability of Health Care; Health Policy

For **Germany (HCHE / University of Hamburg)**, the following additional rules apply:

- The PhD funding is for a full-time employment of 36 months.
- The fixed-term nature of this contract is based upon Section 2 of the Academic Fixed-Term Labor Contract Act (Wissenschaftszeitvertragsgesetz, WissZeitVG). The term is fixed to three years.
- The University aims to increase the number of women in research and teaching and explicitly encourages qualified women to apply. Equally qualified female applicants will receive preference in accordance with the Hamburg Equality Act (Hamburgisches Gleichstellungsgesetz, HmbGleiG).
- Severely disabled applicants will receive preference over equally qualified non-disabled applicants.