CHE
Centre For Health Economics

# Health Economics *News*

issue 42 • November 2021
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## *Welcome to the CHE Newsletter*

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## Courses and Workshops

**Upcoming 2022 short courses: Online Courses in Decision Modelling for Health Economic Evaluation**
Foundations: May 2022
Advanced: June 2022

**More details here** www


**CHE Annual Report 2020**

Read here www

Athena SWAN Silver Award


## *Machine learning to guide health policy: case studies of health Insurance in Indonesia*

**Project Team: Noemi Kreif, Julia Hatamyar, Vishalie Shah**

**Machine learning (ML) is at the forefront of empirical research, turning information into knowledge by 'learning from data'. In recent years, economists have studied the potential to combine ML and econometrics for causal inference. In addition to inspiring a new field of economics, this has provided new insights into important research questions that concern health economists, such as how the impacts of a health policy vary across population subgroups. CHE researchers exploit ML for estimating such heterogeneity in policy impacts, by identifying individual and household characteristics that predict who benefits most from a health policy. A series of studies evaluated the impacts of the Indonesian national health insurance scheme on various outcomes, including health care utilisation, infant mortality and financial protection. We find evidence of variation in treatment effects across policy-relevant population subgroups of interest. For example, mothers who are less educated, live in rural areas, and are of lower socioeconomic quintiles, gain more from enrolment in contributory health insurance, in terms of increased health care utilisation.**

**The impact estimates are subsequently used to calculate 'optimal policy allocation rules' that determine who should be eligible to receive subsidised health insurance according to policymakers' preferences and constraints. An ongoing Medical Research Council funded project 'Tailoring health policies to improve outcomes using machine learning, causal inference and operations research methods' explores this in more depth, aiming to provide policymakers with valuable information for programme design that could target more equitable policy implementation.**

**More details can found here** www

## *Change of CHE Directorship*

**I am delighted to have become Director of CHE, but also somewhat daunted to be taking over from Maria Goddard who had been Director for 12 years and deputy for a further 10. The experience that Maria accumulated, her ability to understand and to work productively with others and her clear grasp of the needs of high-quality and policy-focussed research, have put CHE in a very strong position. It is a privilege to be leading a Centre with 87 outstanding researchers, support staff and students working across such an extensive and varied programme of research in health economics. Together with Deputy Director, Rowena Jacobs, I will work to sustain and further develop Maria's achievements of making CHE both a fun place to work and a highly successful research centre.**

**Mark Sculpher**

## *Paying for health gains*

Project team: James Gaughan, Nils Gutacker, Hugh Gravelle, Martin Chalkley (CHE), Luigi Siciliani (University of York)

Payments to healthcare providers are often based on the volume of activity provided. Such payment systems have limitations, as higher volumes are no guarantee of health improvements. Payments based on health gains have been advocated as a solution. But health outcomes are difficult to measure. Broad measures of health gains have been collected in the NHS in the form of patient reported outcome measures (PROMs) for specific surgical procedures. This study uses economic theory to inform practical implementation of pay-for-performance schemes which reward health gains using PROMS for hip and knee replacement as an illustration.


We outline various steps that the funder would have to put in place. First, the funder must identify the target health to be achieved by the provider. Second, an estimate of the costs of additional health improvements is required. Then, the bonus payment is set to reflect the difference between provider costs of additional (incremental) health improvements before and after the policy intervention. Last, the funder adjusts other elements of the payment system to ensure the provider covers the costs. We provide estimates of the bonus for hip and knee replacement under different assumptions about provider costs and the value of health improvements.

Read CHE Research Paper 183 here: www

## *Informing decision making on population and system level health policies*

Project Team: Project team: Simon Walker, Mike Drummond, Susan Griffin, Nils Gutacker, Paul Revill, Mark Sculpher (CHE), Aimée Fox (Adelphi Values), James Altunkaya (University of Oxford), Tim Colbourn (UCL)


Research studies often measure the impact on selected outcomes after a policy was implemented. These retrospective analyses often rely on a single dataset and select outcomes based on availability and statistical considerations. However, the information these studies provide may be of little use for informing decision making: the evidence is only available after a policy has been introduced, the outcomes they consider may not be relevant and they often fail to consider alternative uses of the same resources (i.e., the opportunity costs).

CHE researchers and colleagues recently looked at how evaluation of population and health system level policies could better inform decision makers. We considered the different decisions that might be informed by these studies and the need for timely evidence. There is a need to compare policy options in terms of relevant outcomes and costs to inform assessment of 'value for money'. We also identified challenges faced in evaluating these policies - for example, understanding the complex ways in which a policy impacts on the outcomes of interest. The review pointed to a broad set of multidisciplinary methods available to address these challenges.

Read full paper here: www

## News from CHE

We are delighted to congratulate **Noemi Kreif, Rita Faria** and **Pedro Saramago Goncalves** who were recently promoted.

**Claire de Oliveira** has recently joined the international editorial board of the *British Journal of Psychiatry***.** Her main role on the board includes serving as handling editor for papers that fall within the field of mental health economics.

More News about CHE can be found here www on our website.

See our website for full details of CHE staff presentations and visits. www

Latest CHE articles in 'The Conversation'

COVID-19: further lockdowns unlikely but some winter restrictions are possible.
**James Gaughan** and **Peter Sivey**

COVID: increased restrictions in the UK look inevitable as winter arrives
**Peter Sivey**

## *Need, demand, supply in health care: working definitions, and their implications for defining access*

Project Team: Anne Mason, Nils Gutacker, Panos Kasteridis, Rita Santos, Nigel Rice (CHE), Idaira Rodriguez Santana (HCD Economics)

Policy makers often want to know what demand for health care will be like in future. This helps them to plan the numbers and mix of healthcare staff, make decisions on how and where care will be delivered, and calculate future budgets.

Educated guesses (projections) about future demand can be made by taking existing data on how much health and care has been used in the past, and feeding this information into statistical models. However, this muddles up the use of health care (utilisation) with demand and need. Some healthcare that is used is not needed; and some needs for health care are unmet.

The core aim of our paper is to provide a clear set of definitions for need, demand and supply. We first looked at how others have defined these terms. We then developed a simple schematic diagram showing how need, demand and supply overlap and identified the types of care that fall into each segment. We showed that access to care can also be defined within this framework. We argue that, if someone uses health care they do not need, then this should not be counted as access – in other words, the appropriateness of care matters.

More details here: www

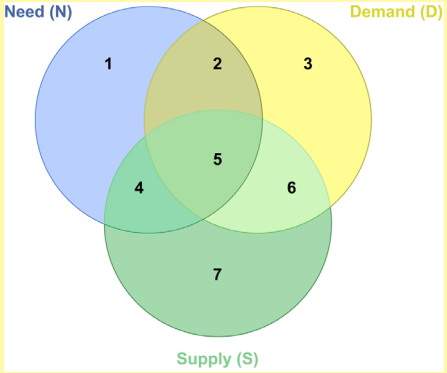


Figure 1. Venn diagram: health care need, demand and supply. Note: Similar graphical representations were used previously in the needs assessment literature (Stevens and Gabbay, Reference Stevens and Gabbay1991; Wright et al., Reference Wright, Williams and Wilkinson1998; Stevens et al., Reference Stevens, Raftery, Mant and Simpson2004) or to demonstrate the intersections of need, demand and utilisation (Hurley, Reference Hurley 2010).

## *Early health technology assessment of the wearable digital health technologies: the wearable clinic*

Project Team: Vijay Gc, Andrea Manca (CHE, York), Cynthia Iglesias (Health Sciences, York), Ibrahim Habli (Computer Science, York), Niels Peek, Matthew Sperrin, Chris Taylor, Ian Buchan, Shon Lewis, John Ainsworth, Bijan Parsia, Lamiece Hassan, Alex Casson (University of Manchester)

The ageing population and increased prevalence of chronic conditions impose an enormous burden on patients and the health care system. Self-management interventions have the potential to improve health outcomes and to ease the pressure on healthcare systems. The emerging use of digital technologies in healthcare offers a potentially effective option for delivering self-management support strategies for some individuals. Wearable digital health technologies (DHTs) can support and enhance self-management by giving individuals with chronic conditions more control over their health, safety and wellbeing. However, these technologies must be co-designed, involving patients and end-users early to ensure the promises of digital health can be realised.

The Wearable Clinic (funded by the EPSRC) aimed to create a set of software tools for wearable technology to support patients self-managing their long-term conditions. In this research, we assessed the preferences of individuals with chronic kidney disease (CKD) for using wearable DHTs which may help them manage their condition. We also performed an early health technology assessment to inform research and development decisions relating to novel wearable DHT designed to support self-management in CKD. Our work provided an indication of users' preferences towards wearable DHTs and how preferences differ between patient subgroups, providing valuable information for the further development of the wearable DHT.

Read more here www and here www

# CHE Publications July 2021 - October 2021

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## Latest CHE research papers

**184** Comparing smoking cessation to screening and brief intervention for alcohol in distributional cost effectiveness analysis to explore the sensitivity of results to socioeconomic inequalities characterised in model inputs.
Fan Yang, Colin Angus, Ana Duarte, Duncan Gillespie, Mark Sculpher, Simon Walker, Susan Griffin.

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