

# **Research Seminar in Health Sciences**

## **Autumn Semester 2018**

**Health Sciences and Health Policy**  
**Prof. Dr. Stefan Boes**  
**Prof. Dr. Gisela Michel**

## Research Seminar in Health Sciences

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# Social participation patterns of older adults and associations with health and well-being: Evidence from panel data in Switzerland

Kathryn Dawson-Townsend, University of Lucerne

Monday, 1 October 2018

<b>Speaker</b>	Kathryn Dawson-Townsend is a PhD student in health economics and is in the research group of Prof Dr Stefan Boes at the Department of Health Sciences and Health Policy at the University of Lucerne. Her research area is focused on the relationship between social capital (specifically social participation) and health/well-being outcomes.
<b>Date and time</b>	Monday, 1 October 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	<p>Switzerland is experiencing demographic ageing, whereby the proportion of children and young people is declining and the proportion of older people is increasing. Older people are at risk for social isolation and loneliness as a result of the normal ageing process. Social participation has been suggested as both a prevention and a remedy to social isolation and loneliness. Information about the social participation patterns of older adults is limited, and several studies emphasize a positive relationship between social participation and health and well-being outcomes.</p> <p>The purpose of this analysis is two-fold: first, to describe the different patterns of social participation among older adults in Switzerland and second, to investigate the associations of these patterns with health and well-being outcomes using the Swiss Household Panel dataset. While pooled OLS regressions show a positive association between social participation and health and well-being outcomes, fixed effects regressions (which control for time-constant individual effects) show that most of these effects are related to self-selection. Future research should focus on understanding the heterogeneity in social participation, parsing out preferences, barriers and facilitators.</p>

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# **What is pediatric psycho-oncological care?**

**Barbara Gantner, Children`s Hospital of Lucerne**

**Monday, 8 October 2018**

<b>Speaker</b>	Barbara Gantner is a psychotherapist and a psycho-oncologist at the Children`s Hospital of Lucerne.
<b>Date and time</b>	Monday, 8 October 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	Every year, around 300 children and adolescents in Switzerland are diagnosed with cancer. Besides the medical treatment, the psycho-oncological care constitutes an integral part of the treatment concept. The patient and his or her family are supported from the first day of diagnosis and for as long as the patient receives therapy and follow-up care in the hospital, or in some cases, until the death of the child. The psycho-oncological care includes resource activation, support before, during and after painful medical interventions, crisis intervention, and psychotherapeutic measures, if needed. The aim of this speech is to give an insight into the pediatric psycho-oncological care.

*This talk will be held in German.*

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# Physician's Sequential Diagnostic Testing and Treatment Choice

**Prof. Mathias Kifmann, University of Hamburg**

**Monday, 22 October 2018**

<b>Speaker</b>	Mathias Kifmann is Professor of Economics at the Department of Socioeconomics at the University of Hamburg. He studied economics at the University of Munich and at the London School of Economics. In 1996, he graduated from the University of Munich. At the University of Konstanz, he completed his doctorate in 2001 and finished his habilitation in 2005. From March 2006 to December 2010, he was Professor of Economics at the University of Augsburg. His research and teaching focuses on health economics and the economics of the welfare state. Together with Friedrich Breyer and Peter Zweifel he has written the textbook <i>Health Economics</i> . He is editor of the <i>Journal of Health Economics</i> and belongs to the founding members of the German Health Economics Association.
<b>Date and time</b>	Monday, 22 October 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	This paper determines contracts which implement optimal sequential diagnosis and treatment choice in the presence of asymmetric information. In a first-best analysis, we show that it can be optimal to apply an imperfect test first and to use an expensive subsequent test only conditional on the outcome of the first test. A second-best analysis considers that the physician's effort for the first test is not observable. We find that a mixed payment scheme consisting of a capitation fee as well as bonus payments for successful treatment and using the expensive test only selectively provides optimal incentives for the physician.

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# The importance of market conditions when paying physicians a fee for service

**Prof. Dorte Gyrd-Hansen, University of Southern Denmark**

**Monday, 29 October 2018**

<b>Speaker</b>	Dorte Gyrd-Hansen is Professor of Health Economics at the Department of Public Health at the University of Southern Denmark. She is also the director of the Danish Centre for Health Economics (DaCHE). DaCHE applies economic theory and methods to issues related to health and the provision of health care services. She is leading various research projects on incentives and behavioral motivations in health economics, founded in behavioral economics and microeconomics and rigorous application of econometric methods. Her research uses registry data, natural experiments, laboratory experiments and surveys to answer policy relevant research questions.
<b>Date and time</b>	Monday, 29 October 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	<p><u>Background:</u> In many health care systems physicians are paid a fee per service they provide. This payment form is popular because it gives physicians a direct financial incentive to exert effort into health care. However, several studies find that this payment scheme may lead to supplier-induced demand (SID), defined as over-serving of patients beyond their need of care. These studies find evidence of SID in markets where there is high-competition for patients, as resource-abundant physicians have an incentive to increase profit by inducing demand. However, in many health care systems competition is low, implying that physicians are resource constrained, i.e. the delivery of services to one patient group incurs opportunity costs to other patients. Although physicians are unable to induce overall demand for care, SID may still occur, as physicians can increase profits by allocating care from low-profit patients to high-profit patients. The literature has yet to investigate the prevalence of SID in markets with resource-constrained physicians.</p> <p><u>Objective:</u> This experiment adds to the literature by testing physicians' response to fee-for-service under both market conditions (resource abundance and resource constraint), thereby verifying whether the presence of patient opportunity costs protects against SID. We also test whether physicians' altruism is a further protective factor against SID,</p>

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by observing whether physicians are less prone to SID when patients' suffer a health loss from being over-served.

Methods and data: We use a controlled and fully-incentivised laboratory experiment with 39 medical students. The participants are asked to decide on the number of services they wish to provide to patients who are in different need of care, who either experience no-health loss or a health loss from being over-served, and whose treatment generates either a high or low profit margin. The participants face two different market conditions: 1) resource abundance, where they can fulfil a patient's need of care and 2) resource constraint, where the cost of fulfilling a patient's need of care is reduced benefits to other patients.

Results: On average, physicians supply a larger number of health care services to a patient when receiving a high-fee compared to a low-fee. This result holds both when physicians are resource abundant and resource constrained. However, on average physicians do not profit maximise, signifying that altruism also plays a significant role in physicians' treatment decisions. In cases where physicians are resource abundant, we find that the increased number of services leads to an over-serving of patients; particularly, when over-serving does not lead to a decline in patients' health and patients are in low need of care. When resources are constrained we observe less over-serving of patients; particularly, we find a reduction in the provision of services, which are detrimental to patients' health.

Conclusion: The literature has shown that patients are over-served under fee-for-service payment schemes. This study shows that the extent to which over-serving takes place is highly context specific. In the presence of patient opportunity costs and/or when over-serving harms patients, we observe highly reduced prevalence of SID.

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# Genetics and Health Insurance: How Genes and Insurance Status Affect Smoking Decisions after Health Shocks

**Prof. Pietro Biroli, University of Zurich**

**Monday, 5 November 2018**

<b>Speaker</b>	Pietro Biroli is an Assistant Professor of Economics at the University of Zurich and an Affiliated Professor at the UBS Center of Economics in Society. He received his PhD from the University of Chicago in 2015. His research focuses on the early origins and life cycle evolution of health and human capital. He explores the importance of genetics, family investment, and early childhood interventions in explaining health and economic inequality. With his work he aims to understand the mechanisms through which effective policy interventions and optimal choices of investment can help mitigate innate inequalities and promote health and human capital development.
<b>Date and time</b>	Monday, 5 November 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	<p><b>Importance:</b> Smoking is the leading preventable cause of death in the United States. Experiencing an adverse health shock can serve as an impetus for cessation. Whether this translates into actual behavior change depends on both the insurance status at the time of the shock as well as genetic predisposition for smoking.</p> <p><b>Objective:</b> To understand how the smoking response to a health shock varies depending on health insurance (financial risk) and genetic predisposition for smoking (genetic risk).</p> <p><b>Design, setting, and participants:</b> Longitudinal study of 3,757 adults in the nationally representative Health and Retirement study (HRS) who are between 60 and 70 years old, born between 1923 and 1953, observed between 1992 and 2015. Ordinary least squares regression was used to estimate the effect of health shocks for different levels of financial risk exposure and different genetic groups. The differential timing of health shocks before or after the age-based Medicare eligibility threshold for previously uninsured individuals was leveraged to estimate the causal effect of health insurance on behavior change in different genetic groups.</p> <p><b>Exposures:</b> Experiencing a cardiovascular health shock (heart attack, coronary heart disease, angina, congestive heart failure, other heart</p>

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problems, stroke, or transient ischemic attack), being uninsured prior to becoming eligible for Medicare at age 65, and a measure for high or low genetic risk for smoking based on a polygenic risk score (PGS) for regular smoking.

Main outcomes and measures: Current smoking status.

Results: For low-genetic-risk individuals ( $n = 1,883$ ; 887 were female; 513 were baseline smokers), having a health shock while being uninsured decreased the probability of smoking by 32 percentage points (95% CI, -0.58 to -0.06). The effect of the same shock experienced after age 65 was a 7 percentage point increase in the smoking probability (95% CI, 0.03 to 0.12), showing that Medicare eligibility fully neutralized the beneficial effect of the shock on smoking behavior (difference: 40 percentage points, 95% CI, 0.13 to 0.67). For high-genetic-risk individuals ( $n = 1,874$ ; 964 were female; 528 were baseline smokers), having a health shock did not significantly affect the probability of smoking, independent of the timing (effect when uninsured: -1 percentage point, 95% CI, -0.31 to 0.28; effect when eligible for Medicare: -12 percentage points, 95% CI, -0.32 to 0.09; difference: -11 percentage points, 95% CI, -0.46 to 0.25). The difference in the effect of Medicare eligibility on the smoking response to a health shock between the 2 genetic groups was 50 percentage points (95% CI, -0.94 to -0.06).

Conclusions and relevance: Through covering (some of) the financial costs of illness, Medicare eligibility decreased the probability of smoking cessation after a health shock in individuals with a low genetic predisposition for smoking. This adverse side effect of Medicare eligibility was not observable in those with a high genetic predisposition for smoking, where the health shock had no visible effect on the smoking probability regardless of the financial risk. This suggests that biological constraints can overpower both health-related and financial incentives for smoking cessation, and that genetic heterogeneity is a factor that should be considered when evaluating the effectiveness of health insurance policies.

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# **Health Insurance Literacy and Health Plan Choice: An Extension of Expected Utility The- ory**

**Yanmei Liu, University of Lucerne**

**Monday, 26 November 2018**

<b>Speaker</b>	Yanmei Liu is a PhD student in Health Economics in the Department of Health Sciences and Health Policy, University of Lucerne.
<b>Date and time</b>	Monday, 1 October 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	The von Neumann-Morgenstern theory of expected utility maximization is a standard approach to analyze choice behavior under uncertainty in economics. Based on this approach, different models have been developed for health insurance choices under uncertainty, accounting for specific aspects of different health insurance systems. Our research extends the existing models of health insurance choices to integrate health (insurance) literacy. From this model, we derive predictions how the complexity of health systems and possibly associated heterogeneity in health insurance literacy affects individual health plan choices. Disposable income is introduced to characterize individuals' expectations by the choice among alternative insurance options, under the assumption that individuals are risk averse and maximize the expected utility given their personal beliefs in risk.

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# Rehabilitation in patients with pulmonary hypertension: new modalities

Stéphanie Sixer, University Hospital Zurich

Monday, 3 December 2018

<b>Speaker</b>	Stéphanie Sixer is a physiotherapist and a PhD student in Health Sciences at the University of Lucerne. She is currently working at the University Hospital in Zurich in the field of pulmonology. The research focus is therefore on patients with pneumological diseases, rehabilitation, physical activity and high altitude.
<b>Date and time</b>	Monday, 3 December 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	Pulmonary rehabilitation, including exercise training and education, is a well-established treatment modality in many chronic lung diseases. Rehabilitation has been shown to ameliorate important, patient centred outcome measures, such as exercise capacity, quality of life, reduced hospitalizations and exacerbation of the underlying diseases. In patients with pulmonary hypertension (PH), a relatively rare and potentially fatal pulmonary vascular disease, patients were discouraged from performing exercise over decades in fear of right heart decompensation, syncope and marked hypoxemia. Thus, pulmonary rehabilitation was not recommended for PH-patients. In recent years, a few randomized controlled trials have shown that a cautious rehabilitation program is of benefit in PH-patients. We have therefore recently established such a program in Switzerland. A question that arose during implementation of such a rehabilitation program was whether supplemental oxygen during exercise training would enhance the effect of rehabilitation in PH patients with exercise-induced oxygen desaturation.

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# Does sleep affect weight gain? Assessing subjective and objective sleep characteristics in a population-based cohort

**Dr. Nadine Häusler, University Hospital Lausanne**

**Monday, 10 December 2018**

<b>Speaker</b>	Nadine Häusler obtained a PhD in Epidemiology and Biostatistics at the University of Zurich and currently works as a clinical researcher at the University Hospital Lausanne. She investigates how sleep affects cardiovascular disease in a middle-aged population-based cohort.
<b>Date and time</b>	Monday, 10 December 2018, 14:00 – 15:00h
<b>Room</b>	Room HS 11, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne
<b>Content</b>	Overweight and obesity are risk factors for cardiovascular disease. In the lay media, short sleep duration is usually linked to overweight and obesity. However, mixed results regarding the effect of short and long sleep duration on weight gain exist. Few other sleep characteristics, including obstructive sleep apnoea and sleep fragmentation, have been linked to weight gain. We prospectively investigated the effect of a range of sleep characteristics measured by questionnaire and polysomnography on weight gain in a population-based, middle-aged cohort. As only a share of the cohort underwent full polysomnography, we constructed two samples; a sample, in which we analyzed the effect of subjective sleep characteristics on 5 kg weight gain and another sample, in which we investigated the effect of objectively measured sleep characteristics on weight gain over 5 years. The presentation will focus on data collection and analyses. Results will be presented and discussed.