



## INSTITUTE OF HEALTH AND CARE SCIENCES

# Curriculum Vitae – Hanna Gyllensten

### Degree of Doctor:

2014, PhD (Medicine), University of Gothenburg

Thesis title: Economic impact of drug-related morbidity in Sweden

Supervisors: Ass Prof Anders Carlsten (main), Prof Clas Rehnberg, PhD Anna Jönsson

The thesis is available at: <http://hdl.handle.net/2077/35203>

### Higher education qualifications:

2004, Master of Science in Pharmacy, Registered pharmacist (Apotekarlegitimation)

### Present positions:

Senior lecturer, Institute of Health and Care Sciences, University of Gothenburg since 2017 (31/7)

Postdoc, Division of Insurance Medicine at Karolinska Institutet since 2015 (1/1)

### Previous positions:

Postdoc, GPCC - University of Gothenburg Centre for Person-centred Care, Institute of Health and Care Sciences, University of Gothenburg	2015-2017
PhD student at the University of Gothenburg	2013-2014
Doctoral student at the Nordic school of public health NHV	2008-2014
Registered pharmacists in community pharmacy	2004-2006
Clinical pharmacist in hospital	2006-2008
Program coordinator of the Pharmacy programme, University of Gothenburg	2006-2008

### Peer-reviewed original articles:

- Gyllensten H, Jönsson AK, Hakkarainen KM, Svensson S, Hägg H, Rehnberg C. Comparing Methods for Estimating Direct Costs of Adverse Drug Events. *Value Health*. 2017. doi: <http://dx.doi.org/10.1016/j.jval.2017.06.007> [Epub ahead of print]
- Gyllensten H, Wiberg M, Alexanderson K, Norlund A, Friberg E, Hillert J, Ernstsson O, Tinghög P. Costs of illness of multiple sclerosis in Sweden: a population-based register study of people of working age. *Eur J Health Econ*. 2017 May 9. doi: 10.1007/s10198-017-0894-6. [Epub ahead of print]
- Gyllensten H, Wiberg M, Alexanderson K, Friberg E, Hillert J, Tinghög P. Comparing costs of illness of multiple sclerosis in three different years: A population-based study. *Mult Scler*. 2017 Mar 1:1352458517702549.
- Natanaelsson J, Hakkarainen KM, Hägg S, Andersson Sundell K, Petzold M, Rehnberg C, Jönsson AK, Gyllensten H. Direct and indirect costs for adverse drug events identified in medical records across care levels, and their distribution among payers. *Res Social Adm Pharm*. 2016 Nov 19. pii: S1551-7411(16)30237-6. doi: 10.1016/j.sapharm.2016.11.008. [Epub ahead of print].

5. Kavaliunas A, Manouchehrinia A, Danylaite Karrenbauer V, Gyllensten H, Glaser A, Alexanderson K, Hillert J. Income in Multiple Sclerosis Patients with Different Disease Phenotypes. *PLoS One*. 2017 Jan 12;12(1):e0169460.
6. Gyllensten H, Wiberg M, Alexanderson K, Hillert J, Tinghög P. How does work disability of patients with MS develop before and after diagnosis? A nationwide cohort study with a reference group. *BMJ Open* 2016 Nov 17;6(11):e012731.
7. Fors A, Gyllensten H, Swedberg K, Ekman I. Effectiveness of person-centred care after acute coronary syndrome in relation to educational level: Subgroup analysis of a two-armed randomised controlled trial. *Int J Cardiol*. 2016 Jul 5;221:957-962.
8. Kavaliunas A, Wiberg M, Tinghög P, Glaser A, Gyllensten H, Alexanderson K, Hillert J. Earnings and Financial Compensation from Social Security Systems Correlate Strongly with Disability for Multiple Sclerosis Patients. *PLoS One*. 2015 Dec 22;10(12):e0145435.
9. Hedna K, Hakkarainen KM, Gyllensten H, Jönsson AK, Petzold M, Hägg S. Potentially inappropriate prescribing and adverse drug reactions in the elderly: a population-based study. *Eur J Clin Pharmacol*. 2015 Dec;71(12):1525-33.
10. Hedna K, Hakkarainen KM, Gyllensten H, Jönsson AK, Andersson Sundell K, Petzold M, Hägg S. Adherence to Antihypertensive Therapy and Elevated Blood Pressure: Should We Consider the Use of Multiple Medications? *PLoS One*. 2015 Sep 11;10(9):e0137451.
11. Gyllensten H, Hakkarainen KM, Hägg S, Carlsten A, Petzold M, Rehnberg C, Jönsson AK. Economic impact of adverse drug events--a retrospective population-based cohort study of 4970 adults. *PLoS One*. 2014 Mar 17;9(3):e92061.
12. Hakkarainen KM, Gyllensten H, Jönsson AK, Andersson Sundell K, Petzold M, Hägg S. Prevalence, nature and potential preventability of adverse drug events - a population-based medical record study of 4970 adults. *Br J Clin Pharmacol*. 2014 Jul;78(1):170-83.
13. Gyllensten H, Rehnberg C, Jönsson AK, Petzold M, Carlsten A, Andersson Sundell K. Cost of illness of patient-reported adverse drug events: a population-based cross-sectional survey. *BMJ Open*. 2013 Jun 20;3(6).
14. Gyllensten H, Hakkarainen KM, Jönsson AK, Andersson Sundell K, Hägg S, Rehnberg C, Carlsten A. Modelling drug-related morbidity in Sweden using an expert panel of pharmacists'. *Int J Clin Pharm*. 2012 Aug;34(4):538-46.
15. Hakkarainen KM, Alström D, Hägg S, Carlsten A, Gyllensten H. Modelling drug-related morbidity in Sweden using an expert panel of physicians. *Eur J Clin Pharmacol*. 2012 Sep;68(9):1309-19.

#### **Research review articles**

1. Ernstsson O, Gyllensten H, Alexanderson K, Tinghög P, Friberg E, Norlund A. Cost of Illness of Multiple Sclerosis - A Systematic Review. *PLoS One*. 2016 Jul 13;11(7):e0159129.
2. Gyllensten H, Jönsson AK, Rehnberg C, Carlsten A. How are the costs of drug-related morbidity measured?: a systematic literature review. *Drug Saf*. 2012 Mar 1;35(3):207-19.

#### **Abstracts accepted for publication at conferences:**

1. Gyllensten H, Kavaliunas A, Hillert J, Alexanderson K, Tinghög P, Friberg E. Costs of illness progression for different multiple sclerosis phenotypes. 20th European congress of the International Society for Pharmacoeconomic and Outcomes Research (ISPOR) 2017, Glasgow, Scotland, 2017.

2. Gyllensten H, Hakkarainen KM, Rehnberg C, Natanaelsson J, Andersson Sundell K, Petzold M, Svensson S, Hägg S, Jönsson AK. Direct and indirect costs of adverse drug events. 10th EPH Conference 2017, Stockholm, Sweden, 2017.
3. Gyllensten H, Koinberg I, Carlström E, Olsson L-E, Hansson Olofsson, E. Economic analysis of a person-centered care intervention in head and neck oncology. 10th EPH Conference 2017, Stockholm, Sweden, 2017.
4. Gyllensten H, Friberg E, Kavaliunas A, Hillert J, Alexanderson K, Tinghög P. Costs and disability among multiple sclerosis patients: A Swedish register-based study. 10th EPH Conference 2017, Stockholm, Sweden, 2017.
5. Gyllensten H. Costs of illness of multiple sclerosis (MS) in Sweden: What can we learn from national registers? Sjätte nationella hälsoekonomiska konferensen, Svensk Hälsoekonomisk Förening (SHEA), Linköping, 2017.
6. Wallström S, Gyllensten H, Ulin K, Ekman I. Healthcare utilization and costs after takotsubo syndrome. International Forum on Quality and Safety in Health Care, London, UK, 2017.
7. Gyllensten H, Wiberg M, Alexanderson K, Friberg E, Hillert J, Tinghög P. Comparing indirect costs of multiple sclerosis in three different years: A population-based study. 9th EPH Conference 2016, Vienna, Austria, 2016.
8. Kavaliunas A, Danylaite Karrenbauer V, Gyllensten H, Manouchehrinia A, Glaser A, Alexanderson K, Hillert J. Income and cognitive impairment among multiple sclerosis patients. 32st Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), London, UK, 2016.
9. Kavaliunas A, Manouchehrinia A, Danylaite Karrenbauer V, Gyllensten H, Glaser A, Alexanderson K, Hillert J. Income among multiple sclerosis patients with different disease phenotypes. 32st Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), London, UK, 2016.
10. Gyllensten H, Haby K, Berg M, Premberg Å, Hansson Olofsson E. Cost-effectiveness of the behavioral antenatal care intervention programme Mighty Mums. European Obesity Summit, Gothenburg, Sweden, 2016.
11. Gyllensten H. How to measure the economic impact of drug-related morbidity. International Forum on Quality and Safety in Health Care, Gothenburg, Sweden, 2016.
12. Gyllensten H, Wiberg M, Tinghög P, Norlund A, Friberg E, Ernstsson O, Alexanderson K. Costs of illness of multiple sclerosis in Sweden – A population-based register study. 18th European congress of the International Society for Pharmacoeconomic and Outcomes Research (ISPOR), Milan, Italy, 2015.
13. Gyllensten H. Economic impact of drug-related morbidity in Sweden. 18th European congress of the International Society for Pharmacoeconomic and Outcomes Research (ISPOR), Milan, Italy, 2015.
14. Gyllensten H, Wiberg M, Tinghög P, Norlund A, Friberg E, Ernstsson O, Alexanderson K. Costs of illness of multiple sclerosis in Sweden - a population-based register study. 31st Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), Barcelona, Spain, 2015.
15. Hakkarainen KM, Gyllensten H, Svensson S, Andersson Sundell K, Jönsson AK, Petzold M, Hägg S: Health-related and sociodemographic characteristics of the general population with adverse drug events – a retrospective medical record study of 4970 adults across care settings. World Congress of Pharmacy and Pharmaceutical Sciences, Düsseldorf, Germany, 2015.

16. Hedna K, Hakkarainen KM, Gyllensten H, Jönsson AK, Petzold M, Hägg S. Potentially inappropriate prescribing and the risk of adverse drug reactions in the elderly Swedish population. International Society of Pharmacovigilance (ISOP) meeting, Prague, Czech Republic, 2015.
17. Hedna K, Hakkarainen KM, Gyllensten H, Andersson Sundell K, Jönsson AK, Petzold M, Hägg S. Non-adherence to antihypertensive treatment and elevated blood pressure in clinical practice – Considering the refill of multiple medications. European Society for Patient Adherence, Compliance and Persistence (ESPaComp) meeting, Lausanne, Switzerland, 2014.
18. Hedna K, Hakkarainen KM, Gyllensten H, Andersson Sundell K, Jönsson AK, Petzold M, Hägg S. Barriers to refill adherence to antihypertensive medications and blood pressure control in clinical practice. EuroDURG Meeting, Groningen, The Netherlands, 2014.
19. Hedna K, Hakkarainen KM, Gyllensten H, Andersson Sundell K, Petzold M, Hägg S: Barriers to adherence to antihypertensive medications in clinical practice – A population-based study. World Congress of Pharmacy and Pharmaceutical Sciences, Bangkok, Thailand, 2014.
20. Gyllensten H, Rehnberg C, Jönsson AK, Petzold M, Carlsten A, Andersson Sundell K. Economic impact of patient-reported Adverse Drug Events – A population-based survey. 15th European congress of the International Society for Pharmacoeconomic and Outcomes Research (ISPOR), Berlin, Germany, 2012.
21. Gyllensten H, Hakkarainen KM, Jönsson AK, Andersson Sundell K, Hägg S, Rehnberg C, Carlsten A. Drug-related morbidity – modelling the Cost-of-Illness in Sweden using pharmacists' opinion. 14th European congress of the International Society for Pharmacoeconomic and Outcomes Research (ISPOR), Madrid, Spain, 2011. (ISPOR Best Student Poster Research Presentations Award)
22. Gyllensten H, Jönsson AK, Rehnberg C, Carlsten A. How can the economic impact of drug-related morbidity be measured? A systematic literature review. 26th International Conference on Pharmacoepidemiology and Therapeutic Risk Management (ICPE), Brighton, UK, 2010.
23. Gyllensten H, Rehnberg C, Jönsson AK, Petzold M, Carlsten A, Andersson Sundell K. Samhällskostnaden för egenrapporterad läkemedelsrelaterad sjuklighet – en befolkningsenkät. Andra nationella hälsoekonomiska konferensen, Svensk Hälsoekonomisk Förening (SHEA), Linköping, 2013.
24. Hakkarainen KM, Gyllensten H, Andersson Sundell K, Jönsson AK, Petzold M, Hägg S: Prevalence, nature and preventability of adverse drug events – A population-based medical record study of 4970 adults. Annual FinPharma Doctoral Program Meeting on Drug Safety, Helsinki, Finland, 2013.
25. Gyllensten H, Hakkarainen KM, Jönsson AK, Andersson Sundell K, Hägg S, Rehnberg C, Carlsten A: Läkemedelsrelaterad sjuklighet uppskattas som vanlig, ofta förebyggbar, och kostnadskrävande. Nationella patientsäkerhetskonferensen, Stockholm, Sweden, 2011.
26. Gyllensten H, Hakkarainen KM, Jönsson AK, Andersson Sundell K, Hägg S, Rehnberg C, Carlsten A. Läkemedelsrelaterad sjuklighet uppskattas som vanlig, ofta förebyggbar, och kostnadskrävande. Första nationella hälsoekonomiska konferensen, Svensk Hälsoekonomisk Förening (SHEA), Gothenburg, 2011.

#### **Other publications and reports:**

1. Gyllensten H, Norlund A, Alexanderson K. Beräkningar av kostnader för hälso- och sjukvårdens koordinering i sjukskrivnings- och rehabiliteringsprocessen. Rapport från Sektionen för försäkringsmedicin, Institutionen för klinisk neurovetenskap, november 2015.

2. Stålsby Lundborg C, Gyllensten H, Hedna K, Hakkarainen KM, Lesén E, Andersson Sundell K. Pharmacoepidemiology at Nordic School of Public Health NHV: Examples from 1999 to 2014. *Scand J Public Health*. 2015 Aug;43(16 Suppl):73-80.
3. Gyllensten H, Steen Carlsson K. Nya läkemedel och läkemedelsrelaterad sjuklighet: Analysmöjligheter i svenska registerdata. Rapport från SNS (Studieförbundet Näringsliv och Samhälle) forskningsprogram Värdet av nya läkemedel, september 2013.