Burden of myasthenia gravis: health care utilization and societal costs in Norway

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Disclosures

- The study is funded by UCB pharma
- I am employed at Oslo Economics AS and have performed projects financed by UCB and several other public and private organizations

Studies on the economic burden of MG are scarce

Study motivation

- Understanding burden of disease is important to improve quality of care and to evaluate possible measures for better patient outcomes
- With the introduction of new treatment options, information on health care utilization and costs is needed for cost-effectiveness assessments

Study objective

- To estimate the societal burden of MG in Norway overall and according to cost categories
- To describe the prevalence of MG in Norway

Estimating the cost of illness

Drummond et. al (2015) defines three types of costs in health economics (1):

Direct health care costs

Resource use that can be completely attributed to the disease in question (2)

Indirect costs

The production losses related to absence of work due to morbidity, mortality or treatment (3)

Intangible costs

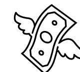
The foregone benefits that has no direct impact on consumption of resources, such as pain and suffering (4)

(1) Drummond et. al, Oxford university press (2015). (2) Kirch W, editor. Encyclopedia of Public Health (2008). (3) Jo C, Clinical and molecular hepatology (2014). (4) Telser et. al, InterPharmaPh Polynomics Web Interpharma (2011)

Economic costs and expenditures

Economic costs

Use of resources measured as the opportunity cost, i.e., the value of the best alternative that is foregone when another alternative is chosen (1,2)



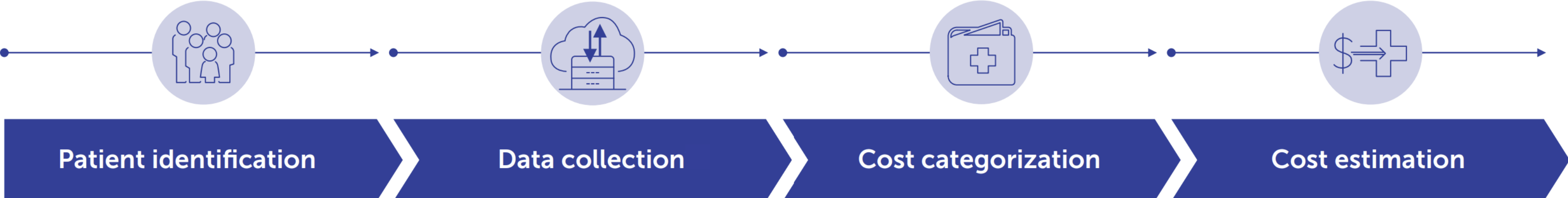
Expenditures and transfers

Expenditures are the amount of money that is spent, measured as the monetary outlay for producing or acquiring a certain item or good (1)

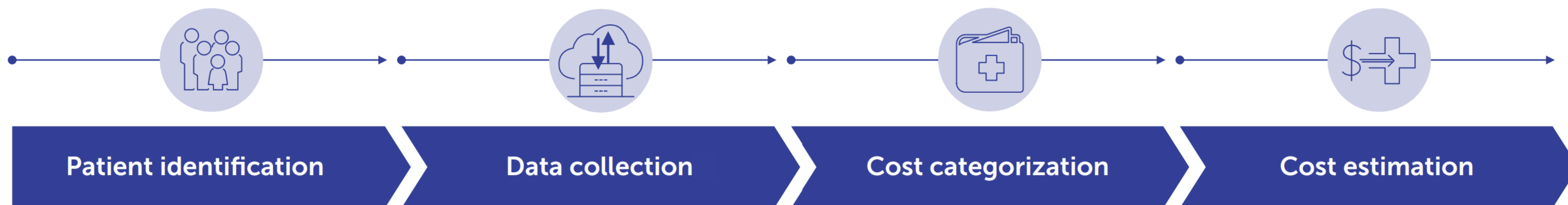
Transfer of resources is not an economic cost, but a shift of control of the use of resources (3)

(1) Drummond et. al, Oxford university press (2015). (2) Samuelson & Nordhaus, McGraw-Hill Education (2009). (3) Hodgson & Meiners, The Milbank Memorial Fund Quarterly Health and Society (1982).

Study design



Study design



All patients who met one of the following inclusion criteria:

- At least three MG-related contacts with hospital or primary care (ICD-10 code G70.0), or
- At least three MG-specific drug* prescriptions

*Pyridostigmine (ATC code: N07AA02) is the only drug with only MG as an indication used in Norway.

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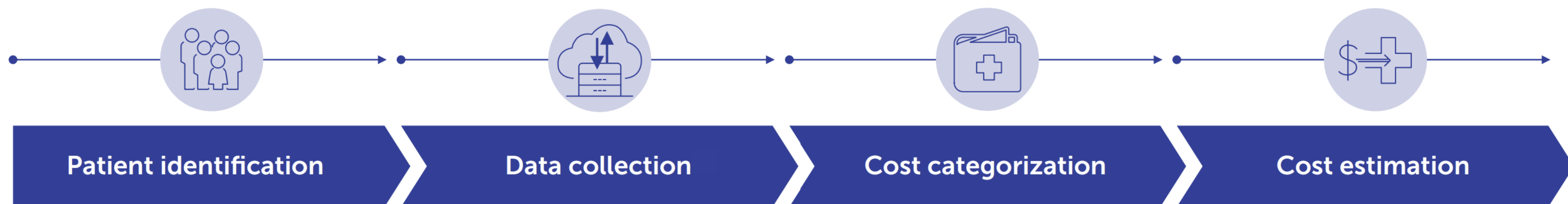

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Individual patient-level data

1. Primary care registry, 2008–2020 (N=214)
2. Prescription database, 2008–2020 (N=1960)

Aggregated data

3. Patient registry, 2020 (N=666)
4. Welfare administration, 2020 (N=114)
5. Cause of death registry, 1996–2019 (N=227)

N = unique patients.

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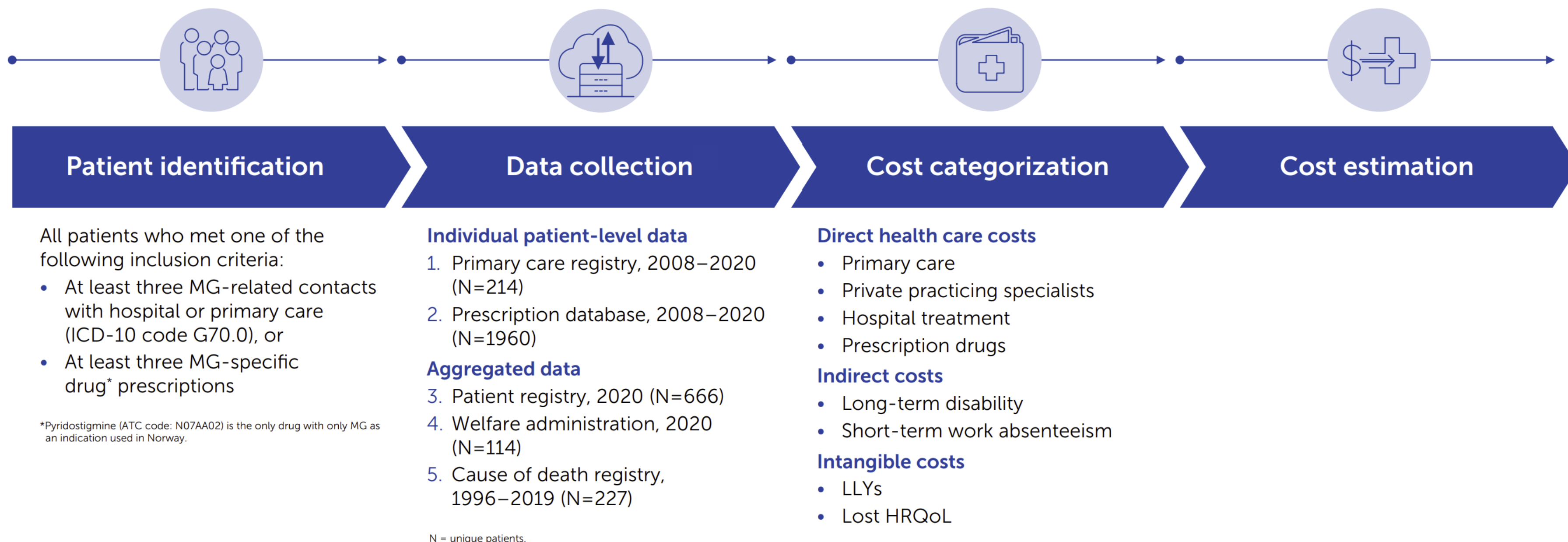
Study design



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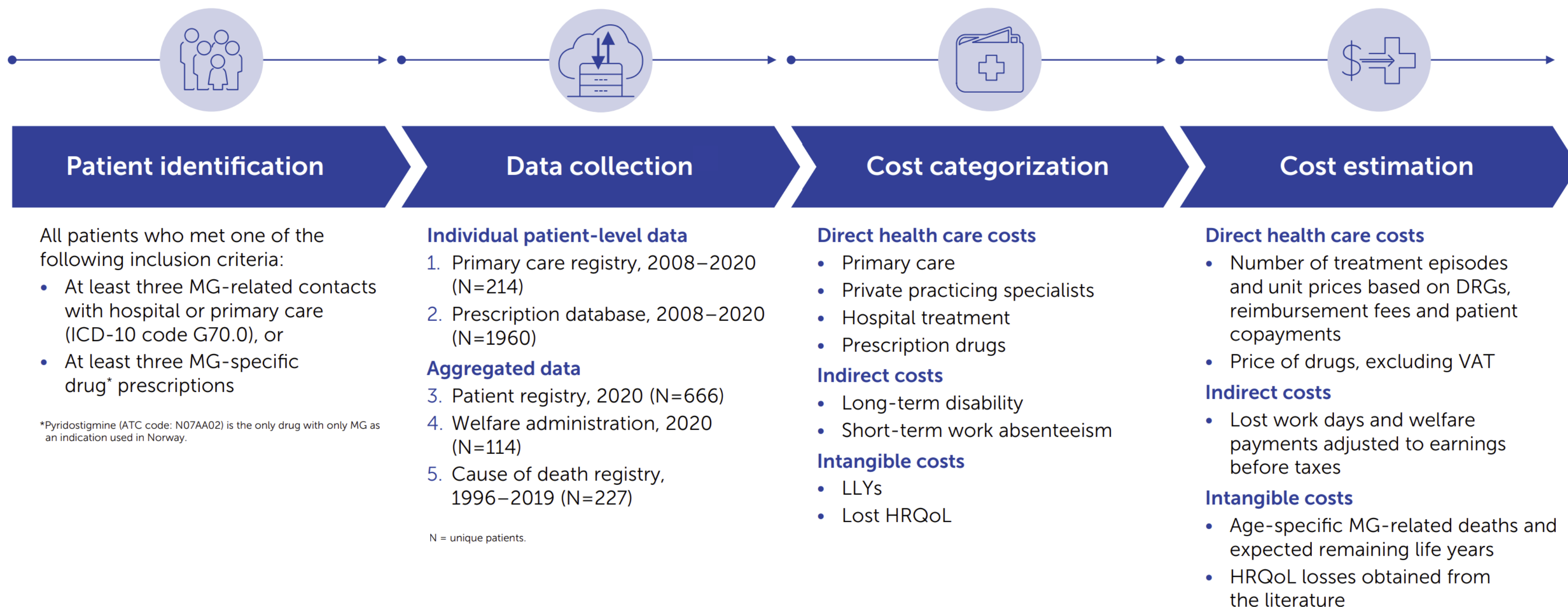


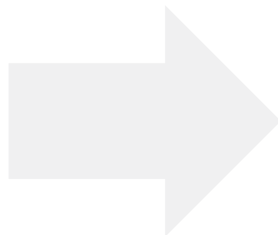
Abbreviations: LLY = Lost life years, HRQoL = Health related quality of life, DRG = Diagnosis-related group

Prevalence of myasthenia gravis in Norway

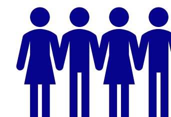
Estimates of MG prevalence using data from the Norwegian Prescription Database

Inclusion criteria

Patients with at least three MG reimbursement codes (ICD-10 G70.0) or three MG-specific drug prescriptions[1] were classified as MG-patients



Prevalence (2020)



1107 patients (21 per 100 000)

Would translate to:

- 1 200 patients in Denmark
- 2 130 patients in Sweden

[1] Pyridostigmine (ATC-code: N07AA02)

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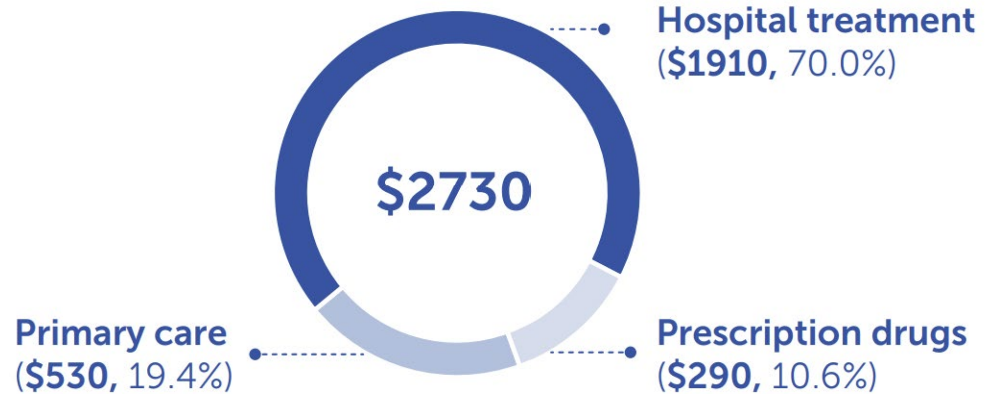
Direct health care costs related to MG

Mean no. of visits in 2020 (per patient)

Primary care: 5.8

Hospitals: 1.9



cost per patient/year (2020)

Production losses related to MG

Costs included
- Disability
- Temporary work absenteeism
- Sickness leave

Costs not included
- Informal care
- Patient time costs
- Presenteeism (reduced productivity)

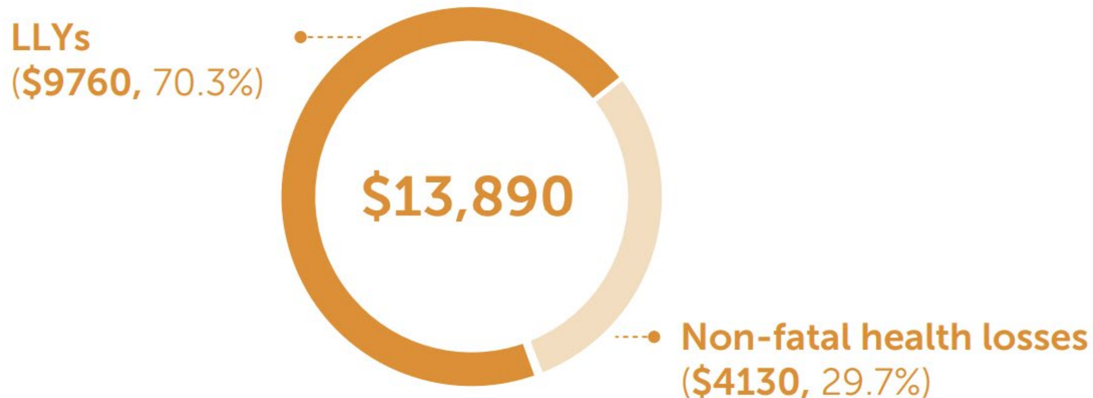
cost per patient/year (2020)

Value of lost quality of life and lost life years

Intangible costs: Lost quality adjusted life years (QALYs)

Lost QALYs can arise from either lost life years, lost health-related quality of life, or both

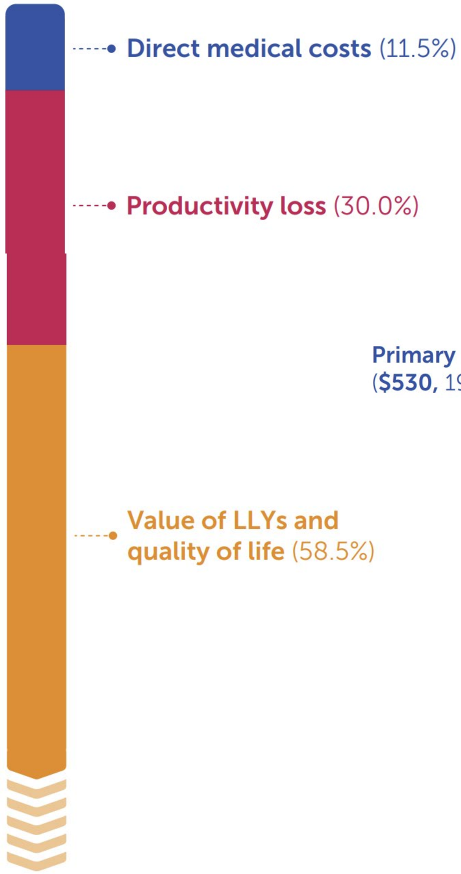
The value can be monetized using national guidelines for valuation of QALYs

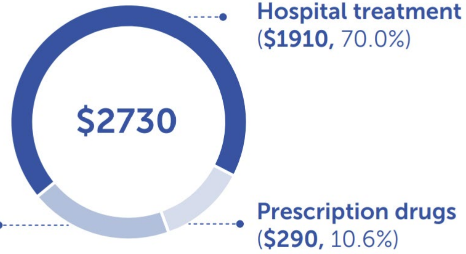


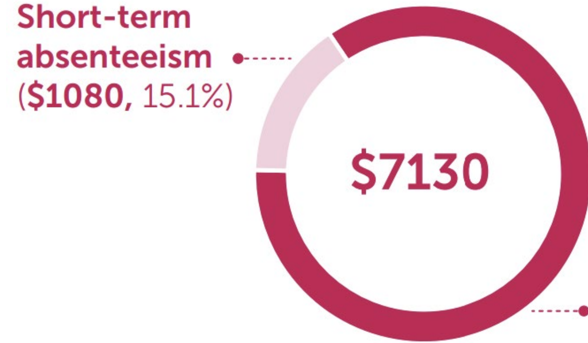
cost per patient/year (2020)

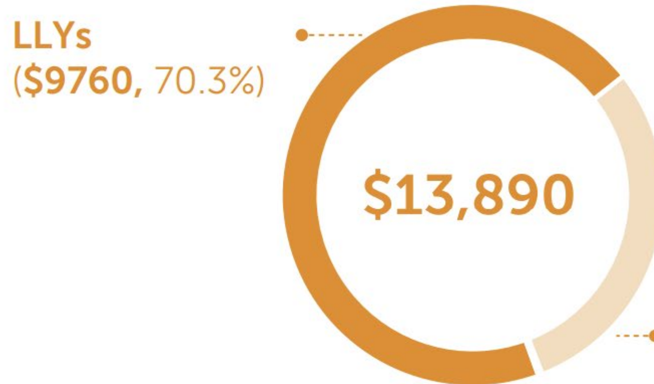
Abbreviations: LLY = Lost life years

Overview of societal costs of MG (cost per patient/year)









Abbreviations: LLY = Lost life years

MG represents a considerable burden to patients and society

Not least in terms of LLYs, lost quality of life and lost productivity

Information on the broader societal cost of MG can

- Assist policy makers in budgeting and planning
- Serve as a useful component of economic evaluations
- Provide knowledge for comparative analyses across countries and health care systems

Key limitations and future research

Limitations

- Due to the processing time at the registries, linking the individual data sources and comparing costs with a control group without MG was not feasible.
- MG related mortality was based on death certificates with suboptimal validity because autopsy is rarely done in Norway.
- Several important societal costs were not considered in the study, including informal care costs, lost productivity, patient time and travel costs.

Future research

- Describe hospital treatment and costs using individual patient level data
- Investigate drug use among MG-patients to showcase impact on health-related quality of life

Thank you!

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