

Horizon scanning & forecasting drug utilization and expenditure

Björn Wettermark
Stockholm County Council &
Karolinska Institutet, Sweden
DUHPO Dec 2011



Conflict of interest

- Employed by the regional health board in Stockholm, Sweden
- Member of national groups involved in the decision making of new therapies
- Associated to Clinical Pharmacology and Centre for Pharmacoepidemiology, Karolinska Institutet. The centre is involved in independent and contract studies

ANALYSE

Einführung neuer Arzneimittel in europäische Gesundheitssysteme*

von Björn Wettermark^{1,2}, Brian Godman^{2,3}, Cecilia Eriksson¹, Eric van Ganse⁴, Silvio Garattini³, Roberta Joppi^{3,5}, Rickard E. Malmström⁶, Ken Paterson⁷, Lars L. Gustafsson^{1,2}

Wettermark et al. *BMC Health Services Research* 2010, **10**:128
<http://www.biomedcentral.com/1472-6963/10/128>



RESEARCH ARTICLE

Open Access

Forecasting drug utilization and expenditure in a metropolitan health region

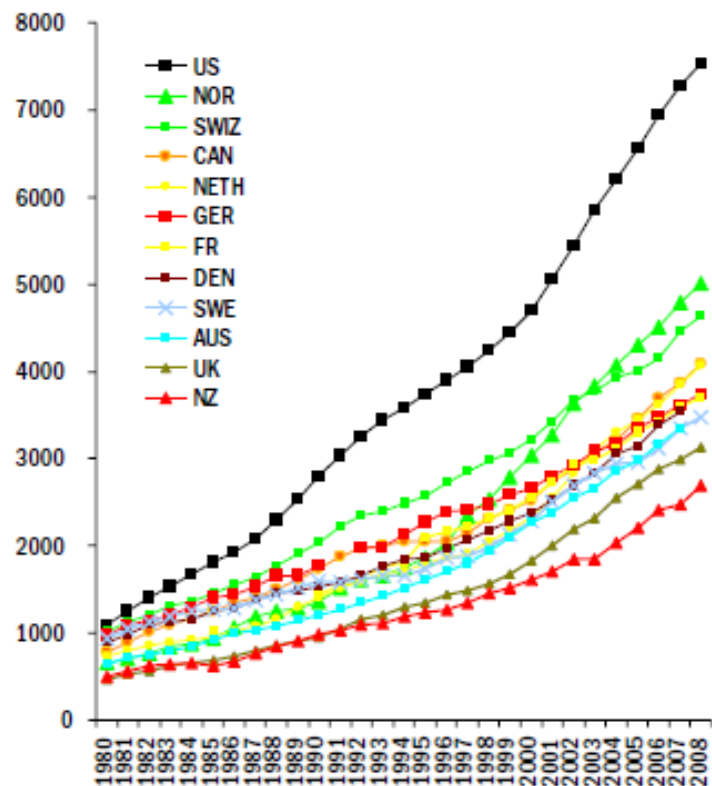
Björn Wettermark*^{1,2}, Marie E Persson¹, Nils Wilking³, Mats Kalin^{1,4}, Seher Korkmaz^{1,5}, Paul Hjemdahl⁵, Brian Godman^{2,6}, Max Petzold⁷, Lars L Gustafsson^{1,2} for the Regional Drug Expert Consortium in Stockholm County Council

Outline

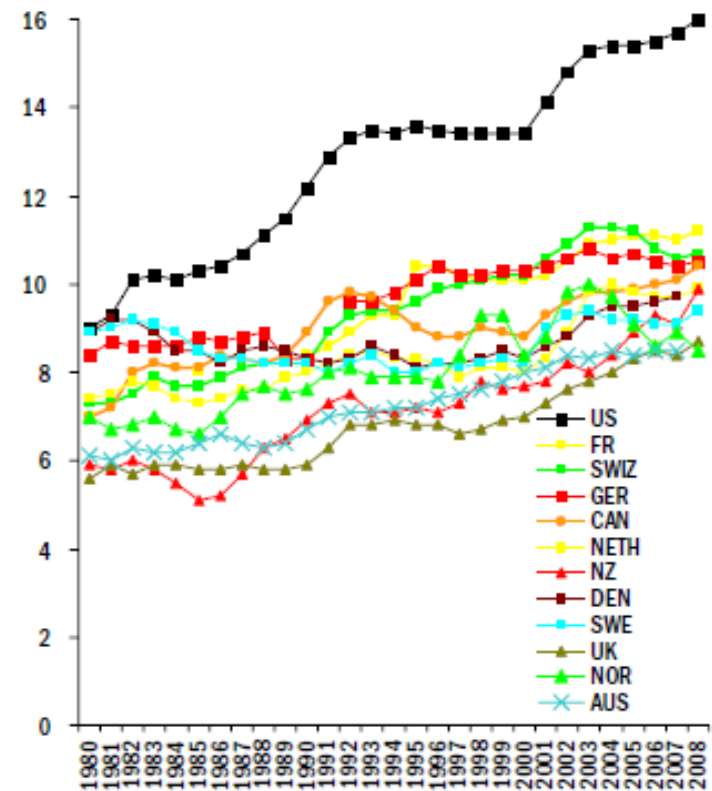
- The need for better pre-planning of the entry of new medicines
- Structured introduction of new medicines in Sweden and Europe
- Horizon scanning
- Forecasting
- How Drug Utilization research fits in

Exhibit 2. International Comparison of Spending on Health, 1980-2008

Average spending on health per capita (\$US PPP)



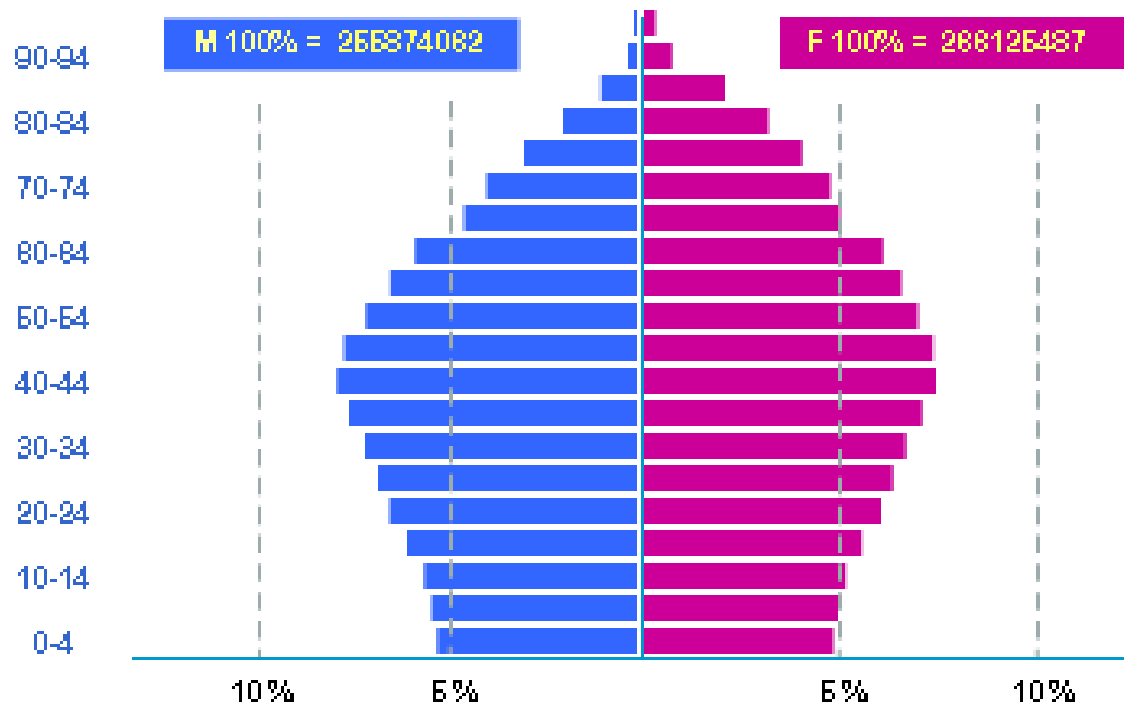
Total expenditures on health as percent of GDP



Note: PPP = purchasing power parity—an estimate of the exchange rate required to equalize the purchasing power of different currencies, given the prices of goods and services in the countries concerned.

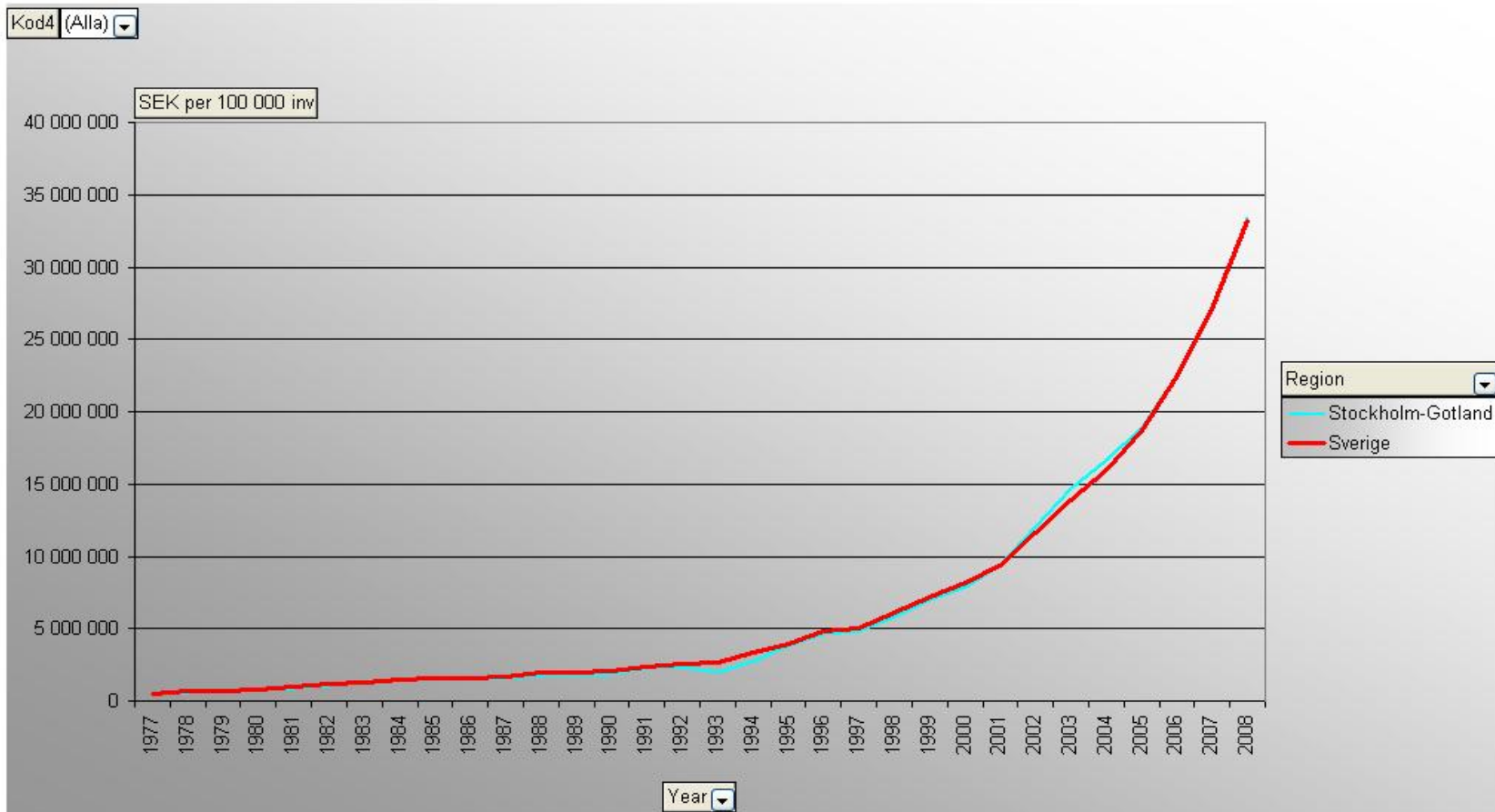
Source: OECD Health Data 2010 (Oct. 2010).

Population pyramide of Europe 2010



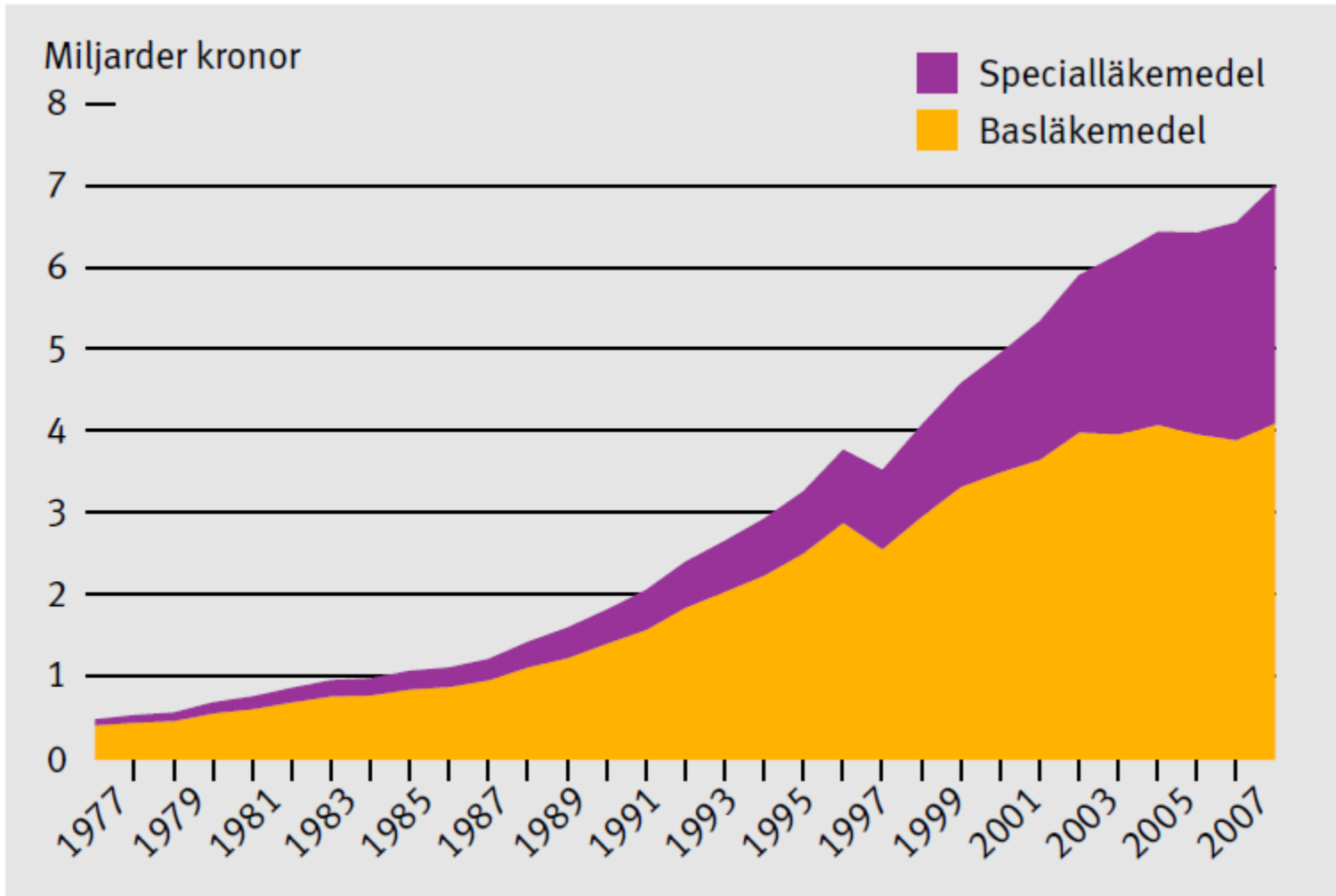
People by age and sex 2010

Expenditure on oncology drugs in Stockholm and Sweden.

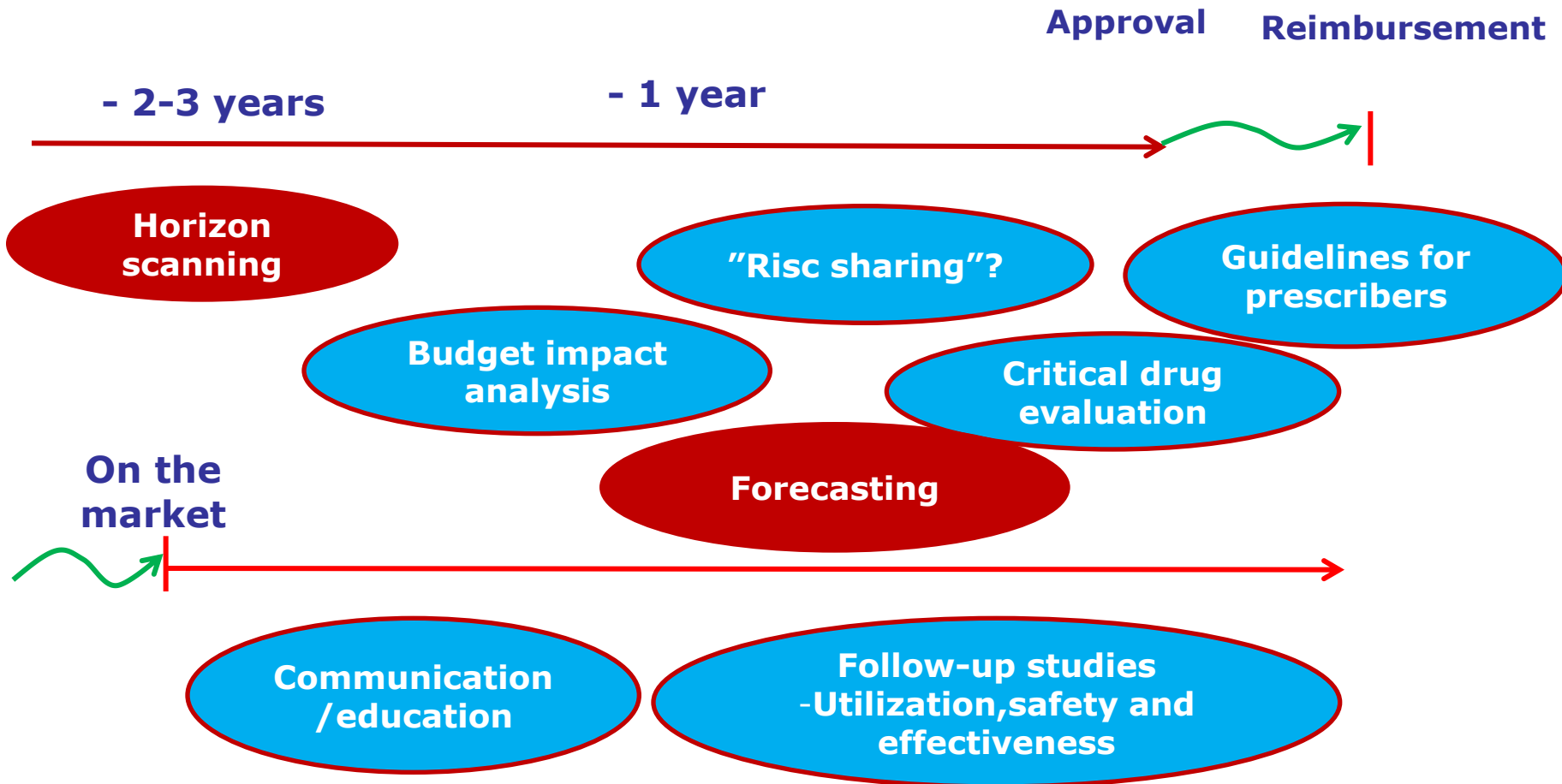


Nils Wilking

Drug expenditure in Stockholm, Sweden



Structured introduction of new medicines



Horizon scanning

The process of identifying new medicines or new uses of existing medicines that are expected to receive marketing authorisation from the Regulatory Authority in the near future and estimating their potential impact on patient care.

*Definition from dictionary,
Scottish Medicines consortium*

Horizon scanning

- Undertaken <3 years before launch
- Balancing timeliness with accuracy
- Five sequenced main components: 1) identification and filtering; 2) prioritisation of topics; 3) early assessment; 3) dissemination; 5) monitoring of the results.
- Most bodies share experience in EuroScan
- Differences in customer base, type of technology covered and data sources used.

Europäische Institutionen mit Horizon-Scanning-Systemen (HSS)

HSS	Land	National/ Regional	Dachorganisation
Horizon Scanning in Oncology*	Österreich	National	Ludwig Boltzmann Institut für Health Technology Assessment (LBI-HTA)
Early Warning*	Dänemark	National	Danish Centre for HTA (DACEHTA)
National Prescribing Centre (NPC)**	England	National	National Prescribing Centre (NPC)
National Horizon Scanning Centre (NHSC)*	England & Wales	National	University of Birmingham
Managed Uptake of Medical Methods Programme (MUMM)	Finnland	National	FinOHTA / THL
Committee for Evaluation & Diffusion of Innovative Technologies (CEDIT)	Frankreich	Regional	Committee for Evaluation & Diffusion of Innovative Technologies (CEDIT)
Haute Autorité de santé (HAS)*	Frankreich	National	Haute Autorité de santé (HAS)
Deutsches Institut für Medizinische Dokumentation und Information (DIMDI)*	Deutschland	National	German Institute for Medical Documentation and Information
Health Information & Quality Authority (HIQA)*	Irland	National	Health Information & Quality Authority (HIQA)
Centre for the Observation of Emerging Health Technologies (COTE)	Italien	National	L'Agencia nazionale per i servizi sanitari regionali (Age.na.s)

Italian Horizon Scanning Project*	Italien (Region Veneto)	Regional	Pharmaceutical Department of the Local Health Unit in Verona
Gezondheidsraad (GR)*	Niederlande	National	Health Council of the Netherlands
MedNytt*	Norwegen	National	The Norwegian Knowledge Centre for the Health Services
Scottish Medicines Consortium (SMC)**	Schottland	National	NHSScotland
SINTESIS-new technologies	Spanien (regional)	Regional	Agencia de Evaluacion de Tecnologias Sanitarias (AETS)
Observatory for Emerging Health Technologies (Observatorio de Tecnologías Emergentes)*	Spanien (Andalusien)	Regional	Agencia de Evaluación de Tecnologías Sanitarias de Andalucía (AETSA)
SorTek (Osteba)	Spanien (Baskenland)	Regional	Basque Office for Health Technology Assessment
Statens beredning för medicinsk utvärdering (SBU)*	Schweden	National	The Swedish Council on Technology Assessment in Health Care
4 county collaboration**	Schweden	National	Joint collaboration by the counties and regions of Stockholm, Skåne, West Swedish (Västra Götaland) and East Swedish (Östergötland)
Swiss Federal Office of Public Health (SFOPH)	Schweiz	National	Swiss Federal Office of Public Health (SFOPH)

Early warning report

- description of the drug
- description of the patient group (with estimated patient numbers)
- current diagnostic or treatment alternatives
- an estimated unit cost for the drug
- the current research evidence of clinical effectiveness
- details of any ongoing or related research activities
- an estimate of the clinical, service and financial impact

UNIVERSITY OF
BIRMINGHAM


National Institute for
Health Research

NHSC National HorizonTM
Scanning Centre

Desmoteplase for acute ischaemic stroke

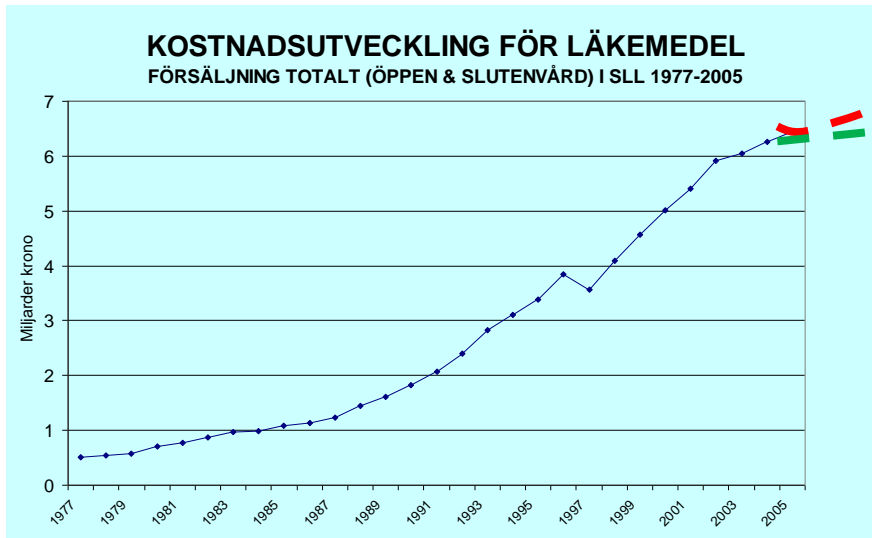
September 2011



This technology summary is based on information available at the time of research and a limited literature search. It is not intended to be a definitive statement on the safety, efficacy or effectiveness of the health technology covered and should not be used for commercial purposes.

The National Horizon Scanning Centre Research Programme is part of the
National Institute for Health Research

Forecasting drug expenditures

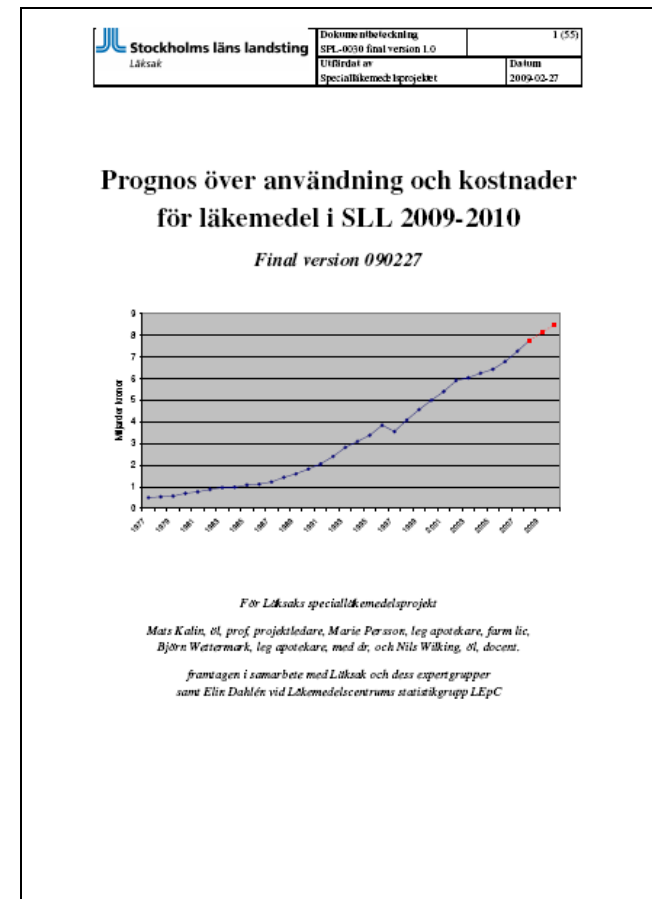


- **Alternative therapies**
- **Consensus reports & guidelines**
- **Change in drug distribution & payment**

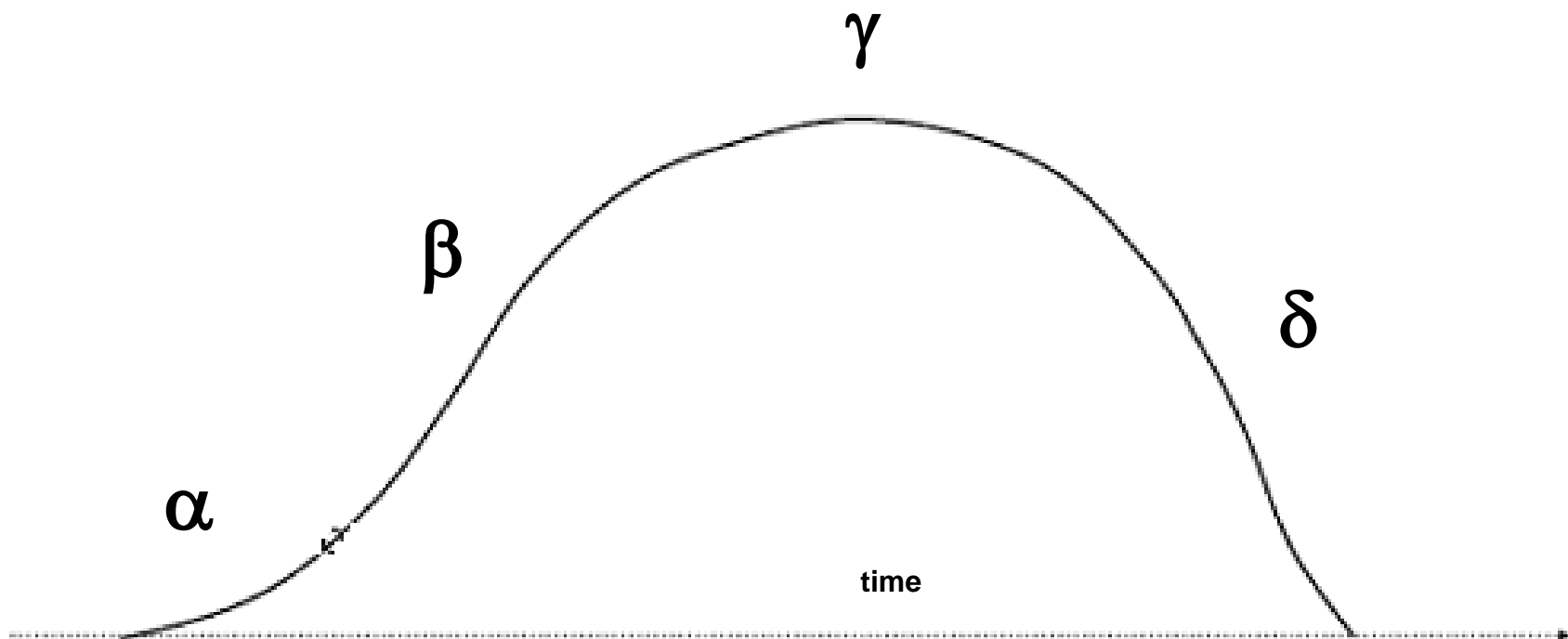
- **Ageing population**
- **Increased disease prevalence**
- **Lower target levels for treatment**
- **New drugs**
 - **Biotechnological drugs**
 - **Widening indications**
 - **Increasing patient demand**
- **Patent expirations**
- **Biosimilars**
- **OTC switches**
- **reimbursement decisions**
- **Cost-effective choices**

Annual forecasting report on expenditures the coming two years

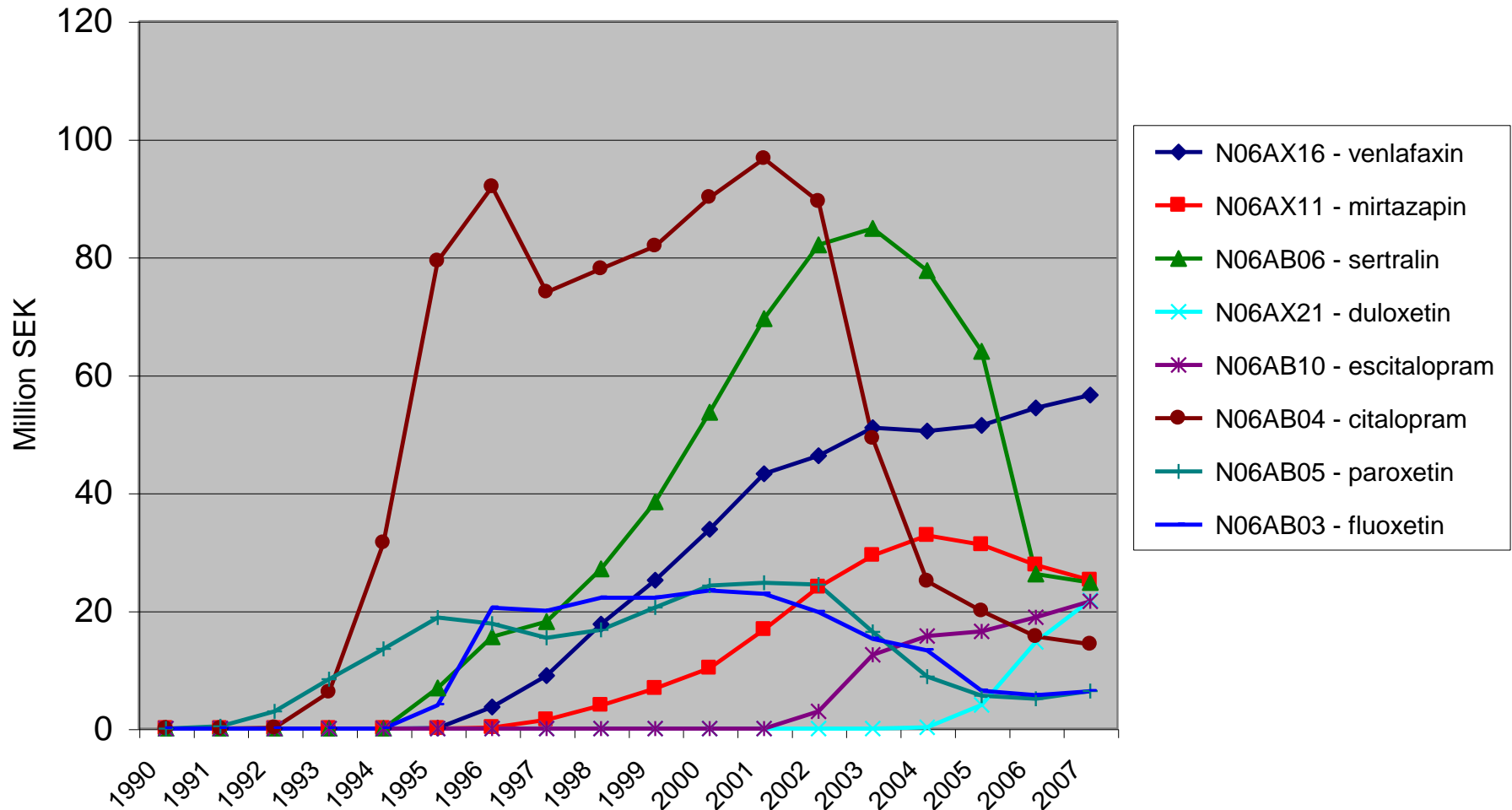
- Regression analyses** for all ATC3 groups adjusted for
- Estimated position in the life cycle for drugs already existing on the market
 - Major changes on the pharmaceutical market likely to influence price or volume
 - Identified target patient populations and calculated economical impact of new medicines



Life cycle for a pharmaceutical product

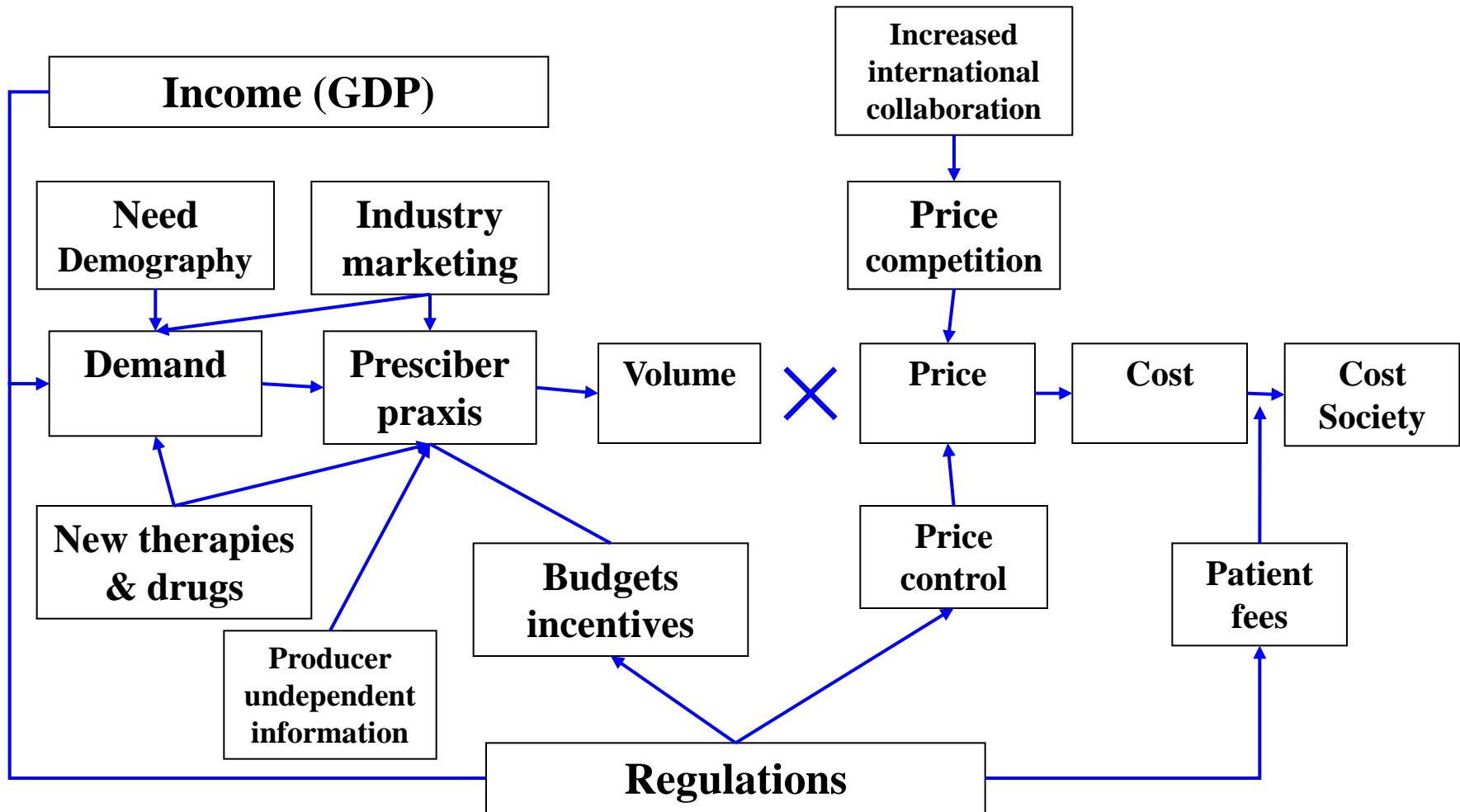


Sales of antidepressants (SSRI & SNRI) Stockholm region 1977-2007



Factors influencing drug expenditure

From Carlsson P, The Swedish Council on Technology Assessment in Health Care 1999



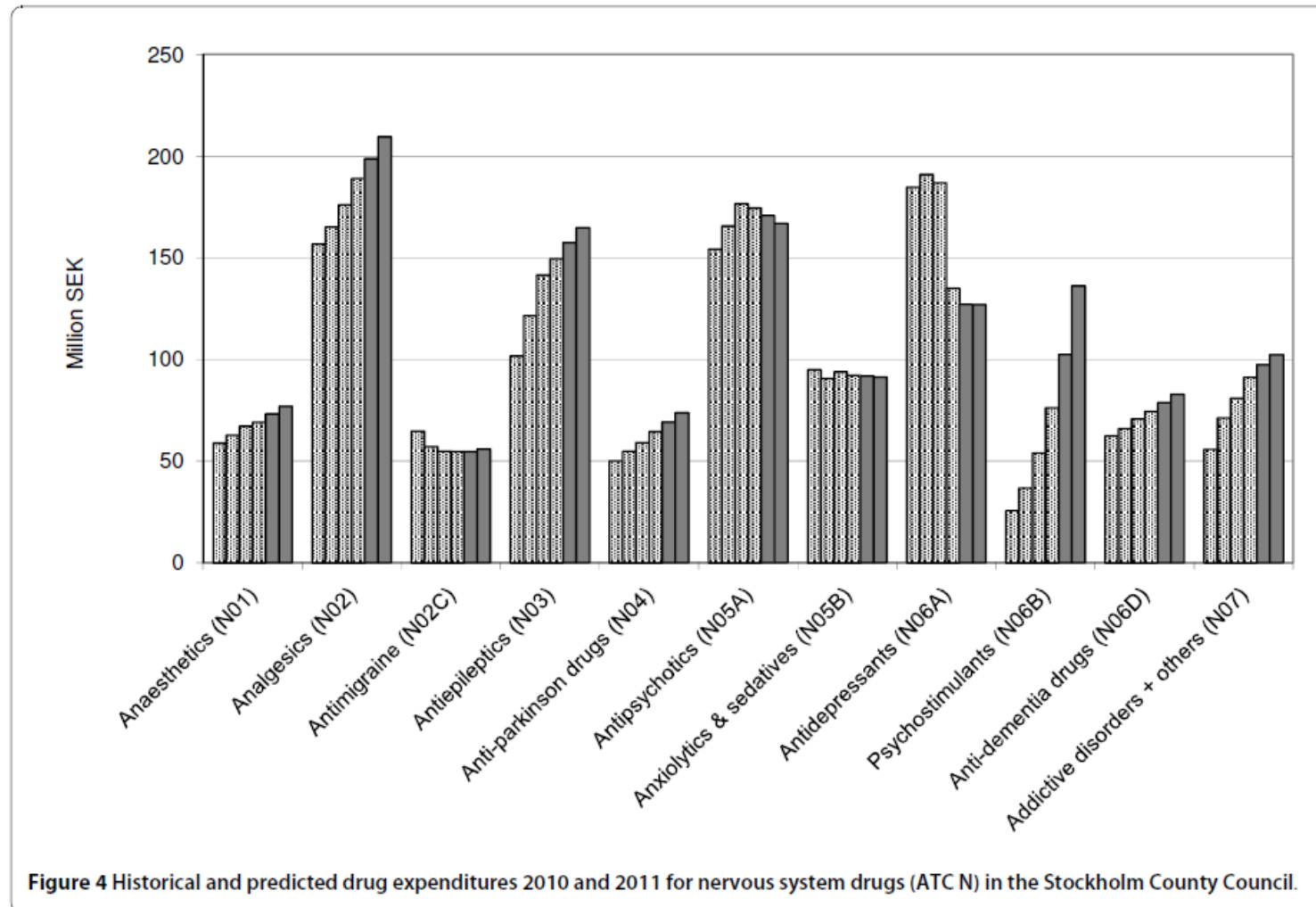
Economical impact for new medicines

- Economical impact on drug expenditure
= target population x price, adjusted for rate of diffusion
- Positive or negative impact on other expenditure

Identifying target populations

- Swedish National hospital discharge register
- Regional primary care databases
- National prescribed drug register
- Published scientific studies
- Expert consultations

Forecast 2010-2011 (ATC N)



Possibilities for forecasting may substantially differ between countries due to...

Differences in sophistication of data, e.g.,

- Patient populations & coverage
- Aggregate vs. patient identity drug dispensing data
- Measurement units of utilization and expenditure
- Granularity in time period and geography

Large scale patient identity databases on dispensed drugs gives new possibilities

- Prevalence
- Incidence
- Combinations
- Sequential therapy
- Drug as a marker of disease or risk
- Dosages
- Persistence & refill adherence
- Record linkage to other healthcare data

Some final words

“When it comes to the future, there are three kinds of people: those who let it happen, those who make it happen, and those who wonder what happened” *John M. Richardson, Jr*

“Losers live in the past. Winners learn from the past and enjoy working in the present toward the future” *Denis Waitley*

“The future belongs to those who believe in the beauty of their dreams.” *Eleanor Roosevelt*

The most strange thing with the future is that one day it will be called “the good old days” *Ernest Hemingway*