



The establishment of a new nationwide Swedish registry

From the thalidomide catastrophe to the establishment of the individually based prescription register

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The thalidomide (Neurosedyn) catastrophe 1961

- **Led to**
- Letter of warning from Astra 2 December 1961
- Withdrawal of thalidomide from the market 12 December 1961
- Cessation of registration 20 December 1961
- 1964 Establishment of the Swedish malformation register
- 1965 Establishment of the Swedish adverse drug reaction register

Adverse reactions and medicines dominating the reporting of ADRs 1965 - 1968

- Oral contraceptives, liver damage and thromboembolism
- Analgesics, sulphonamides and blood dyscrasias
- Sulphonamides and skin reactions



Experience from the first year of adverse reaction reporting

Läkartidningen 1967 vol 63, suppl II, 47 - 50

- The evaluation of cause-effect relationship:
Polypharmacy, Rechallenge unethical
- When and how to publish
- Underreporting
- **The lack of drug utilization data**



Drug utilization data in the 1960-ies

- Sales data presented in economical terms but also
- No. of packages sold
- No. of tablets sold

Sweden unskilled in epidemiology

At the same time Sweden was found to be a Mecca for epidemiological studies because:

- every citizen had and still has an identity number denoting year, month and date of birth, sex and a four digit check number;
- the existence of patient registries which make the tracing of medical records and finding of patients relatively easy

Unskilled in epidemiology but we were invited to play with the “big boys and girls”

- Venous thromboembolic disease and ABO blood type, a cooperative study
- Hershel Jick, Dennis Slone, Barbro Westerholm, William H.W. Inman, Martin P. Vessey, Samuel Shapiro, George P. Lewis, Jane Worcester
The Lancet, March 15, 1969, 539 – 541
- Result: an excess of A:s and a deficit of O:s among the thromboembolic women

Classification of drugs- unit of comparison

- Pharmacoepidemiology – the need of comparable data on the use of drugs
- WHO (1970) and the Nordic Committee on Drugs (1976 – 1980)
took initiatives to improve the use of sales data, the development of DDD

The birth of the individual prescription register in the county of Jämtland

Clinical experience from a pilot study
1968 (Östersund)

Ingemar Bergström, Arne Carmstad, Cars-
Eric Elwin, per-Axel Heedman, Bo
Källström, Barbro Westerholm, Folke
Wiman

Läkartidningen Vol 67, Suppl III, 1970, 38
– 45

Continued with 1/7 of the Jämtland
population in the register

Use of adverse drug reaction reports, the patient registers, the Jämtland prescription register and sales data when evaluating risks of some medicines

Drug-Induced Blood dyscrasias in Sweden

L.E. Böttiger, B.Westerholm

British Medical Journal 11 August 1973, 339 – 343

Estimated risks of cytopenia caused by drugs reported to the Swedish Adverse Drug Monitoring Centre

Trombocytopenia – oral diuretics	1:47,000
Aplastic anaemia – butazones, chloramphenicol	1:19 000
Haemolytic anaemia – methyldopa	1:18 000
Agranulocytosis – dipyrrone	1:10 000

Jämtland register – advantages – shortcomings- aspects (Boethius 1977)

- Prescriptions can have been written but not used
- Representativeness
- Drug pattern – extensive consumption, chronic treatment
- Post-graduate training material
- Studies of late effects of drugs
- Integrity aspects (n 502, 8% negative, 70% positive)

The stony path from the Jämtland prescription register to the nationwide Swedish prescription register (1)

- 1976: the National Corporation of Swedish pharmacies started to publish use of medicines on the national and county levels: prescription statistics based on a 1:25 sample, incidence and prevalence figures from Jämtland and the diagnoses/prescription study
- These figures were used to estimate the incidence of adverse reactions, the incidence and prevalence of use of drugs in society, the cost of drugs for different patient groups, the effect of information and warnings about drugs.

The stony path continued (2)

- 1978 03 29 Ministry of health meeting about computer storage of prescriptions in order to reduce the risk of drug abuse (they meant adverse reactions) (Troedsson)
- 1978 05 11 IT-based registration of prescriptions to reduce the risk of adverse drug reactions
- 1978 08 29, 1979 09 21, Proposals from the Department of Drugs how to establish a computer-based individual prescription register
- (linkage possibilities e.g. with the cancer registry)
- 1980 support from statisticians/epidemiologists but consumers have to be informed, not all medicines are consumed, important resource for research

- The Swedish Society of Medicine critical
- Moderates and liberals critical
- 1986 the Metropolit research project destroyed further steps forward

The stony path continued (3)

- The 1997 drug reform – the responsibility for the cost of drugs was transferred from the National Corporation of Pharmacies to the county councils.
- To make transfer of data possible a new individual prescription register should be established which should be used in the economical transactions. It should also be used by used senior consultants in health care and the National Board of Health to make medical follow-up, evaluation, quality assurance and epidemiological research and statistical reports possible.

Soon problems arose – the demand to obtain consent from the individual patients to use the data.

Despite the Parliament decision the system was not used.

The stony path continued (4)

- A new investigation started (Leif Ekberg)
- 2002 Hearing with organisations for retired people, patient- and handicap-organisations
- 2003 proposal of an individual national prescription register
- 2005 Parliament decision



The register now in use

From “therapeutic auditing” (open comparisons) to clinical/epidemiological research

Conclusion

We are better off to-day with the registers we have than 50 years ago

- If we had had the malformation registers, adverse drug reaction registers, national patient data bases and individual prescription registers we have to-day in 1959 we estimate we would have discovered the thalidomide catastrophe a year and a half earlier.
- Contact could have been made with the women who had bought thalidomide on prescription and we could have helped them for what was to come at a much earlier stage and prevent further intake of the drug.
- Far less than 10 000 children in the world would have been harmed by "Only a small white sleeping pill"