Drug prescription in Iceland

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SUMMARY Two *ad hoc* surveys on drugs prescribed in Reykjavik during November 1972 and November 1974 were made. After the first survey a publicity campaign was launched and doctors were encouraged to change their prescribing habits; only minor changes in doctors' prescribing habits were noticed, although it is realised that this type of programme will require a longer period to prove its effectiveness. The surveys showed that benzodiazepines are more widely prescribed than chlorodiazepoxide. Doctors have been warned of the probable addictive effect of benzodiazepines (Grimsson *et al.*, 1974). Drug addicts who used to go from one surgery to another have now been identified and they can only receive drugs on prescription from their own family doctor or his deputy.

Since 1940 it has been mandatory in Iceland to keep a register of addictive drugs—such as, opium, morphine, and heroin. A decade ago amphetamines and meprobamate were added to this list.

Since February 1974 doctors in Iceland have been compelled to use a standard form for prescriptions. All prescriptions are sent by the pharmacist to the local National Health Insurance Agency for refunding and this process allows the health authorities to see all prescriptions. It is thus easy to analyse doctors' prescriptions.

So far four studies have been carried out, three of which were in Reykjavik (84 000 inhabitants).

Tables giving details of prescriptions, a complete list of registered drugs, and a classification of prescriptions according to social class have been given in earlier publications and reports (Grimsson *et al.*, 1974; Grimsson and Ólafsson, 1975a, b).

Objectives

The main objectives of this study were:

1. To collect information on doctors' prescribing habits and on drug use or abuse by the recipient.
2. To provide a tool for the health authorities so that drug prescriptions could be controlled and the use of drugs monitored.
3. To provide statistics on drug taking for the use of pharmacologists, sociologists, psychiatrists, and psychologists, etc. studying drug addiction.

Data collection system and methods

Because of costs, continuous data registration and analysis were not practicable, instead two *ad hoc* studies were carried out covering all prescriptions in Reykjavik; one was in November 1972 and the other in November 1974.

On the prescription form the following data were collected:

1. Patient's name and number
2. Doctor's code
3. Name of drug, the type of preparation and the quantity
4. Price.

The Icelandic national register was computerised in 1952 and is updated yearly. Two identification numbers are used. The main one gives the date of birth in nine digits; the first six stand for date of birth (day, month, year), the next two digits are a serial number within the day, and the last digit is a check digit. The other identification number, which is used widely by various institutions, is a name number of eight digits which is issued at the age of 12. This indicates the person's name in alphabetical order.

In these *ad hoc* studies, only the name code was used for identification because it was already in use, although it is inferior to the person number, especially in the case of prescriptions for children who are identified by the name number of one parent. The name code was used to link the prescriptions to the National Register to obtain

age, sex, and marital status. The rate of successful linkage was 93%. In future surveys the birth date number will be used.

It was considered that an effective way of controlling prescriptions would be to make doctors aware of their prescribing habits, so confidential letters were written to some of the practitioners at the end of the study analysing their prescriptions and warning them about potential and actual abuse. In these letters the following criteria of maximum doses each month for certain drugs were used:

Pentobarbitone	} 0.1 g	×	60
Secobarbitone			
Diazepam	10 mg	×	100
Nitrazepam	5 mg	×	100
Chlordiazepoxide	10 mg	×	200
Meprobamate	400 mg	×	100
Medazepam	10 mg	×	100

Conferences were organised by the Medical Association and results discussed, and papers were published in professional journals on the subject of drugs. Prescriptions for benzodiazepines, diazepam (Valium) and antibiotics, especially semisynthetic penicillins, have received special attention. As there are only just over 200 doctors in Reykjavik we believe that this publicity has reached them.

The term defined daily dose (DDD) is used in the classification of drugs by the European Pharmaceutical Market Research Association (EPHAMRA) as extended by the Norwegian Drug Monopoly 1975. This term is a technical unit of measurement and should not be regarded as a recommended dose. Table 1 shows that if the number of defined daily doses prescribed per 1000 persons each day for hypnotics and sedatives in November 1972 is compared with the number prescribed in November 1974 there is a tendency to prescribe more of most of the drugs, particularly in the case of nitrazepam. However, there was a reduction in the use of meprobamate and barbiturates.

Table 2 shows there was an increase in prescribing tetracyclines and sulphonamides which was not balanced by a small decrease in the semisynthetic penicillins. These increases were owing to the ever

Table 1 Hypnotics and sedatives

Hypnotics and sedatives	Defined daily doses/1000 persons each day			
	November 1972		November 1974	
	No.	%	No.	%
Benzodiazepines (except nitrazepam)	50.6	82.2	50.1	87.8
Nitrazepam	24.3		35.3	
Meprobamate	3.5	3.8	2.1	2.2
Barbiturates	11.8	13.0	9.1	9.3
Others	0.9	1.0	0.7	0.7
Total	91.1	100.0	97.3	100.0

Table 2 Antibiotics and chemotherapeutics

Antibiotics and chemotherapeutics	Defined daily doses/1000 each day			
	November 1972		November 1974	
	No.	%	No.	%
Penicillin V	3.77	24.5	3.59	20.5
Semisynthetic penicillins	3.99	25.8	3.81	21.7
Tetracyclines	3.92	25.4	5.29	30.2
Sulphonamides	2.35	15.2	3.70	21.1
Chloramphenicol	0.04	0.3	0.01	0.1
Others	1.37	8.8	1.13	6.4
Total	15.44	100.0	17.53	100.0

growing number of prescriptions for the combination tablets of trimetoprim/sulphamethoxazol and for minocyclin. It should be noted that there was a minor epidemic of influenza 'A' in Reykjavik in November 1972.

Tables 3 and 4 show the pattern for psychosedatives and antidepressants. There were only small changes between the two years although the increased use of the tricyclic antidepressants was of the order of 7% a year (Grimsson and Olafsson, 1976).

Table 3 Psychosedatives

Psychosedatives	Defined daily doses/1000 persons each day			
	November 1972		November 1974	
	No.	%	No.	%
Phenothiazine-derivatives	2.4	75.0	2.6	75.0
Thioxanthene-derivatives	0.7	21.9	0.9	25.0
Butyrophenon-derivatives	0.1	3.1	0.1	2.8
Total	3.2	100.0	3.6	100.0

Table 4 Antidepressants

Antidepressants	Defined daily doses/1000 persons each day			
	November 1972		November 1974	
	No.	%	No.	%
Tricyclic anti-depressants	7.8	87.6	8.9	88.1
Monoaminoxidase inhibitors	1.1	12.4	1.2	11.9
Total	8.9	100.0	10.1	100.0

Reprints from O. Olafsson, Medicinaldirektor, Arnarhvali, Reykjavik, Iceland.

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