

## Some difficulties in comparing morbidity between countries

JEANNE MESKER and PIERRE MESKER

Medical Students, Department of General Practice, University of Nijmegen Medical School, The Netherlands

**SUMMARY.** During a two-month period in general practice we compared morbidity records from the teaching practices at Southampton, UK, and Nijmegen, The Netherlands. Although the commonest conditions—emotional disorders, upper respiratory tract infection, and musculo-skeletal disorders—were equally prevalent, obesity was five times as prevalent and hypertension and urinary tract infection were twice as prevalent in Nijmegen as in Southampton. The Dutch doctors were far more ready to prescribe oral contraception to women over 50 years old. We met many difficulties in what had appeared to be a simple project and our results may reflect important differences about doctors' attitudes to care as well as differences in morbidity.

### Introduction

**A**LTHOUGH lip service is paid to the value of a project during elective periods spent by medical students in general practice, it is difficult to complete a worthwhile study in two months. Therefore we decided to make a 'simple' comparison of primary care morbidity data held on computer in Nijmegen and Southampton.

### Aim

Our aim was to find out the most prevalent conditions in the two centres and also to compare and contrast four specified conditions: diabetes mellitus, contraception, chronic obstructive airways disease (COAD), and acne vulgaris. We thought that these conditions would present few problems of diagnostic comparability.

### Method

#### *The practices*

During the study period, the Southampton teaching practice at Aldermoor Health Centre provided care for about 7,000 patients. This care was given by four academic general practitioners, two district nurses, and a health visitor.

The Nijmegen practice consisted of about 12,000

---

**Table 1.** Diagnoses most prevalent in Nijmegen compared with Southampton. (The Aldermoor data have been recorded here using the RCGP code.)

---

	<i>Diagnoses per 1,000 registered patients per year</i>	
	Nijmegen	Southampton
Emotional disorders	184	137
Colds	146	232
Colds with fever	114	89
Musculoskeletal disorders and acute lumbago	105	100
Obesity	81	15
Acute tonsillitis	76	61
Acute bronchitis	47	49
Acute gastroenteritis	44	34
Hypertension	41	21
Acute urinary tract infection	36	15
Wax in ears	31	26
Acute otitis media	29	38
Atopic dermatitis	24	38

---

**Table 2.** Comparison of morbidity rates of hypertension, obesity, and acute urinary tract infection in Nijmegen and Southampton.

	Hypertension (patients $\geq$ 20 years old)			Acute urinary tract infection			Obesity		
	With	Without	Total	With	Without	Total	With	Without	Total
Nijmegen	41	7,497	7,538	36	11,380	11,416	81	11,335	11,416
Southampton	21	5,188	5,209	15	7,819	7,834	15	7,819	7,834
	$\chi^2 = 1.26$ df = 3 Not significant			$\chi^2 = 2.70$ df = 3 Not significant			$\chi^2 = 25.12$ df = 3 Significant $p < 0.01$		

patients registered with four doctors in single-handed practice. These practices are located in the city of Nijmegen, in a small town near Nijmegen, and in a rural village in the same area. The age-sex distribution of both populations served by the two practices is comparable.

#### The information systems

There are differences in the organization and operation of the two computer information systems. In Southampton the Clinical Information and Inquiry Computer System (CLINICS) collects and records all clinical transactions (Clark, 1977). In Nijmegen there is a system of continuous morbidity recording developed by the University Department of Family Medicine (Velden, 1977).

The disease coding systems used in the two practices are also different. At Southampton the constructive disease coding system (CDCS) is used (Clark, 1974). This system is focused entirely on problem orientated record keeping and the use of non-diagnostic terms where a specific diagnosis cannot be supported by the clinical information. The problem statements are classified and coded by a trained coding clerk.

The Nijmegen practice uses its own list of diagnostic

codes derived from the RCGP disease code (College of General Practitioners, 1963). This coding list is in a continual process of modification by the four general practitioners. Because these coding systems were not directly comparable we recoded the Southampton data using the RCGP code and this reduced some differences which were initially apparent.

#### Results

The 13 most prevalent conditions in Nijmegen are compared with those in Southampton in Table 1. There are differences in the rates for these conditions, notably for hypertension, urinary tract infection, and obesity, the last being statistically significant (Table 2). Since these are definable conditions, it is difficult to explain these discrepancies other than by different diagnostic criteria between the two practices.

To gain more insight into valid comparisons, we have analysed four disease entities which have defined diagnostic criteria.

##### 1. Diabetes

Table 3 illustrates the point prevalence of diabetes for June 1975 by each group and sex between the two

**Table 3.** Point prevalence of diabetes (known cases in June 1975).

Age	Cases per 1,000 patients			
	Women		Men	
	Southampton	Nijmegen	Southampton	Nijmegen
5-14	0	2	1	0
15-19	0	0	0	0
20-49	2	4	2	4
50-64	7	20	12	17
65+	10	82	7	48

**Table 4.** Incidence of diabetes (new cases).

Age	New cases per 1,000 patients per half year			
	Women		Men	
	Southampton	Nijmegen	Southampton	Nijmegen
5-14	0	0	0	0
15-19	0	0	0	0
20-49	0	0	0	1
50-64	1	1	1	1
65+	0	3	1	9

**Table 5.** Point prevalence of contraception (known cases in June 1975).

Age	Cases per 1,000 patients	
	Nijmegen	Southampton
15-19	60	160
20-49	252	172
50-64	37	0

practices. Table 4 indicates the incidence rate per 1,000 patients per half year. It appears, therefore, that diabetes in the elderly may be diagnosed more often in Nijmegen than in Southampton. It may be that this is correlated with the more frequent recording of obesity in the Dutch population (Table 1).

**2. Contraception**

The use of the contraceptive agents in the two countries is different, particularly in the population over 50 (Tables 5 and 6).

One reason for this is that Dutch doctors prescribe oral contraceptive drugs to alleviate menopausal symptoms. Table 7 indicates the difference in the use of the Pill in the two practices. Another reason for the lower incidence in Southampton is that these data were collected before free contraceptive care was available through British general practitioners, whereas there were far fewer separate family planning clinics in Holland.

**3. Chronic obstructive airways disease**

Table 8 shows point prevalence for age and sex groups, and Table 9 the incidence for chronic disease in the same groups. The diagnosis is more readily made in the Nijmegen practice than in the Southampton practice. This is perhaps partly explained by a survey carried out in the Nijmegen practice on the prevalence of chronic obstructive airways disease during the period covering our 1975 data (Huygen *et al.*, 1977). Two of the participating Dutch practices were involved in this survey.

**Table 6.** Incidence of contraception (new cases).

Age	New cases per 1,000 patients per half year	
	Nijmegen	Southampton
15-19	51	41
20-49	88	32
50-64	17	0

**4. Acne**

Tables 10 and 11 demonstrate point prevalence and incidence. There is a sex difference in incidence and point prevalence in both practices.

**Discussion**

When we started this project, we hoped to make a valid international comparison but soon realized that many difficulties would prevent this.

**1. Technical**

The information system at Nijmegen makes it much easier to supply data to the computer. This is done by completing a small card with the patient's number and diagnostic code. In Southampton a more comprehensive 'encounter form' is filled in for this information to be entered into the computer. When the Southampton doctors identify a new problem such as obesity, they complete an encounter form and indicate that some form of active management for this problem is required. Where no active treatment is to be started it is unlikely that an encounter form would be completed. In the same way some borderline blood pressure readings may not be translated into problem statements for hypertension. It would seem that the encounter forms at Southampton are more likely to lead to under-reporting of some conditions, while the Nijmegen system is likely to be more accurate. However, it may be that deleting a problem from the list is less likely to occur in the Nijmegen system once this condition has been stabilized or 'cured'.

**Table 7.** Differences between the two practices in use of contraceptives.

	Number of women age 15-49 (Population at risk)	Women under doctor's contraceptive care		Women on Pill (prescribed by general practitioner)	
		Number	Percentage of population at risk	Number	Percentage of population at risk
Southampton	1,763	479	27	332	18
Nijmegen	2,883	1,013	35	653	23

**Table 8.** Point prevalence of chronic obstructive airways disease (known cases in June 1975).

Age	Cases per 1,000 patients			
	Women		Men	
	Southampton	Nijmegen	Southampton	Nijmegen
5-14	0	2	0	2
15-19	0	0	0	7
20-49	1	10	2	11
50-64	24	6	44	53
65+	17	26	102	115

**Table 9.** Incidence of chronic obstructive airways disease (new cases).

Age	New cases per 1,000 patients per half year			
	Women		Men	
	Southampton	Nijmegen	Southampton	Nijmegen
5-14	0	2	2	1
15-19	0	0	0	7
20-49	0	3	0	6
50-64	0	8	0	22
65+	3	21	6	67

**Table 10** Point prevalence of acne (known cases in June 1975).

Age	Cases per 1,000 patients			
	Women		Men	
	Southampton	Nijmegen	Southampton	Nijmegen
5-14	0	0	2	0
15-19	16	18	12	9
20-49	4	1	14	2

**Table 11.** Incidence of acne (new cases).

Age	New cases per 1,000 patients per half year			
	Women		Men	
	Southampton	Nijmegen	Southampton	Nijmegen
5-14	2	0	2	0
15-19	8	0	5	9
20-49	2	2	2	1

## 2. Attitudinal

The second reason concerns doctors' attitudes. Dutch doctors are more likely to look for obesity in their patients and to label it as a 'disease', whereas there may well be more tolerance of obesity by British doctors.

## 3. Diagnostic criteria

The third reason lies in the differences between the diagnostic criteria used by doctors. One doctor may label a blood pressure reading of 160/100 mm Hg as being hypertensive, while another may consider that it is not high enough to warrant this diagnosis. This is particularly true in conditions such as hypertension and acute infection and is also likely to be true in conditions such as obesity and diabetes.

## 4. Epidemiological

A possible explanation for the discrepancies could be that there is a real difference in morbidity between the two populations as far as this is deducible from registered morbidity. This question needs further exploration in a more extensive international study.

## Conclusion

Obvious difficulties have arisen during this study, but we feel that it has been a useful research project. We have gained insight into differences which may be truly epidemiological and into the difficulties in comparing morbidity on an international basis.

## References

- Clark, E. M. (1974). Disease coding in a problem oriented general practice. *Journal of the Royal College of General Practitioners*, 24, 469-475.
- Clark, E. M. (1977). *Clinical Information and Inquiry Computer System (CLINICS)*. Proceedings International Conference Computing in Medicine. Berlin: Medcomp 77.
- College of General Practitioners Research Committee (1963). The records and statistical unit. *Journal of the College of General Practitioners*, 6, 195-224.
- Huygen, F. J. A., Eijk, J. Van, Hoogen, H. Van der *et al.*, (1977). A practice screened for CNSLD. *Huisarts en Wetenschap*, 20, 383-386, 435-437, 438-444.
- Velden, H. G. M. Van der (1977). Medical education and family medicine training. *Allgemeinmedizin International General Practice*, 2, 77-78.

## Acknowledgements

We wish to thank all the staff in the Aldermoor Health Centre whose help and hospitality made this study possible, especially Professor J. A. Forbes, Dr G. K. Freeman and his wife, and Dr Ewen M. Clark. Dr H. G. M. van der Velden of the Nijmegen Department of Family Medicine was most helpful with his advice and encouragement.