

EXCESSIVE USE OF MEDICAL CARE OR

RATIONAL PATIENT BEHAVIOUR?

A STUDY OF A LARGE HOSPITAL EMERGENCY DEPARTMENT

by
Gudjon Magnusson

Department of Social Medicine, Karolinska institutet,
Huddinge University Hospital, Huddinge, Sweden.

*"The reasons patients come to
doctors have to do with much
more than disease in the
narrow sense"*

*Eisenberg L.:
Research and Medical Practice:
Their Interaction, 1976.*

TO SIGRÚN,
ARNAR, HALLDÓR and HEIDAR

This thesis is based on the following papers, referred to in the text by their Roman numerals:

- I. Magnusson, G.: Utilization of a hospital emergency department in Stockholm. The effects of age, sex and marital status. Scandinavian Journal of Social Medicine, accepted for publication.
- II. Magnusson, G. and Aurelius, G.: Illness behaviour and nationality: A study of hospital care utilization by immigrants and natives in a Stockholm district. Social Science & Medicine, accepted for publication.
- III. Magnusson, G.: The role of proximity in the use of hospital emergency department. Sociology of Health and Illness, accepted for publication.
- IV. Magnusson, G.: The hospital emergency department as the primary source of medical care. Scandinavian Journal of Social Medicine, accepted for publication.
- V. Magnusson, G.: Association between health status, social factors and level of emergency department use. Medical Care, in review.

CONTENTS

INTRODUCTION	3
An international trend	3
Why has the utilization increased?	4
Swedish studies	5
The hospital emergency department as a research object	6
Utilization of hospital emergency departments in Stockholm	6
Objectives	7
SUMMARIES OF PAPERS	8
GENERAL DISCUSSION	14
The hospital emergency departments play a very central role	14
Research strategies	15
A major source of medical care	16
Separate medical records	17
Alcoholism and psycho-social problems	18
Improved information basis	18
Use of register data	19
Strengthen primary care services	20
Concluding remarks	21
ACKNOWLEDGEMENTS	22
REFERENCES	24
PAPERS I-V	

INTRODUCTION

An international trend

The last two decades, greatly increased utilization of hospital emergency departments has been reported in studies from USA (18, 29, 39, 50, 54, 55, 58, 59), Canada (5, 6, 25, 48, 56), Great Britain (23, 36, 62), Australia (12) and New Zealand (14, 40). In USA the total number of hospital emergency visits has doubled each decade since the 1940's (35) and is there considered an important indicator of health care crisis (22, 43).

The organization of 24-hour emergency services in the Nordic countries has been compared and discussed in Nordisk Medicin (64). In large urban areas in Finland and Sweden the hospital emergency departments constitute the major source of 24-hour services while more emphasis is put on home visits by general practitioners and duty doctors in the other Nordic countries.

In Sweden, Hallberg showed in 1966 that the total number of visits to the hospital emergency department in Gothenburg had increased by 77 per cent between 1959 and 1965 (19). When the study was repeated some years later hospital emergency department visits in Gothenburg had also increased between 1965 and 1970, now with 50 per cent (3).

The great majority of studies of hospital emergency department utilization were published in USA. The first studies (29, 58) document a rapid rise in number of visits and discuss the implications for the hospital emergency services.

Subsequent studies analyse the increased flow of patients more closely, describe the volume of visits for different hours of the day, different weekdays and months (18, 21, 24, 54, 59). Other aspects which have been frequently studied are the demographic characteristics of the patients (18, 38, 50, 54, 57), their presenting complaints, diagnoses and assessment of urgency (24, 27, 34, 38, 45, 46, 47). Few studies have also examined crossutiliz-

ation of the hospital emergency department and other hospital clinics (50, 53, 54).

A broader perspective of why people use hospital emergency departments has been obtained by patient interviews/questionnaires (16, 38, 44, 46, 47) or household interview surveys (28, 50).

The attitudes of staffs in hospital emergency departments to different patient categories have been studied by observational techniques (26, 33). Only very few studies have specifically looked at the quality of care or outcome (11, 17, 30, 60).

Why has the utilization of hospital emergency departments increased?

Most studies put forward explanations of the increased volume of visits to hospital emergency departments (6, 23, 27, 39, 49, 50, 55). The most common reasons suggested in these studies are:

- 1) The public now has higher expectations about their health (lower symptom tolerance?) which gives rise to increased demands for medical care. These demands are increasingly channelled to hospital emergency departments because these services are the "loci minoris resistentiae" in health care delivery.
- 2) General practitioners and private physicians now work shorter hours and are also less accessible because of appointment systems.
- 3) It is often more convenient for the patient to go directly to the hospital instead of waiting for an appointment to a general practitioner, private physician or a hospital outpatient clinic.
- 4) Recent advancements in medicine call for the support of highly developed technology for diagnosis and treatment. Doctors therefore increasingly refer patients to hospital emergency departments for diagnostic workup and treatment.

- 5) Greater population mobility, especially in urban areas means more people who have not got any regular source of medical care.

Although most studies come to the conclusion that the major reason for increased use of hospital emergency departments is lack of alternative sources of medical care which are equally available and accessible there have been very few intervention studies (22, 35, 43, 52). In Boston, opening a new health center, led to a significant decrease in hospital emergency visits for pediatric problems (22), but had only a marginal effect on adult visiting rates (35, 43). It has, however, been pointed out that the length of the observation time in such studies needs to be quite long because people only slowly change their pattern of use (4).

Swedish studies

Previous studies of hospital emergency departments in Sweden are few. Two studies from Gothenburg have already been mentioned (3, 19). In studies of hospital emergency departments in Stockholm during the 1960's and early 1970's the emphasis was on the role of alcohol. These studies showed that between 10 and 25 per cent of the patients had blood alcohol concentrations of more than 0.5 per cent (2, 7, 8, 9). Swedish media (television, radio and newspapers) have also occasionally in recent years discussed the situation in hospital emergency departments, focusing on problems with alcohol intoxicated patients and long waiting hours (61, 66). Stålhammar et al 1978 (51), found in a study of patients who visited the emergency department at the Tierp Health Center that patients and doctors assessed the urgency of the visits quite differently.

Brohult 1974 (10), in discussing the increased strain on the department of internal medicine at the South Hospital in Stockholm, came to the conclusion that the enormous volume increase (300 per cent increase in hospital emergency visits in 10 years) was a threat to the quality of care and described the situation as a

crisis. He suggested that the social character of the hospital catchment area and not only population size and age distribution should be more closely considered when resources were allocated to different hospitals.

The hospital emergency department as a research object

The hospital emergency department is a very interesting field for health services research for two main reasons. Firstly, because there is growing evidence that hospital emergency departments give a fairly accurate albeit a slightly amplified picture of the major weakness of the health care system. Secondly, because the hospital emergency department is a major bridge between primary and hospital care, and at least in Stockholm a clearing house for between 80 to 90 per cent of all hospital admissions and the majority of all referrals to the hospital outpatient clinics. The hospital emergency department is therefore a good setting for the different types of health services research, an opportunity very rarely used.

Utilization of hospital emergency departments in Stockholm

Utilization of hospital emergency departments per 1 000 population (visiting rates) in Stockholm County (1.5 million inhabitants 1976) increased by 30 per cent between 1973 and 1977 (32). Since 1974, the southwestern (SW) district (265 000 inhabitants 1976), one of Stockholm County's five health care districts, has had the highest visiting rates - since 1975 40 per cent above average for all five districts (31). In the SW-district, a large university hospital, the Huddinge Hospital, was opened in 1972. Three years later its emergency department received annually 40 000 more visits than it had been planned for (20). In an exploratory study in 1976, patients who visited the Huddinge Hospital Emergency Department were interviewed. Only 62 per cent of the visits were considered to be acute and 52 per cent went directly to the hospital emergency department without any attempt first to obtain

medical care elsewhere (1). This study provided useful information but also provoked many new questions.

Although this may seem trivial, it should be underlined that compared with the standard measure of hospital emergency department utilization, monthly and annual number of visits, the number of individual patients and their frequencies of visits is a more useful indicator of the extent to which a hospital emergency department is used by the community and of its role in health care delivery.

Are higher visiting rates in the Huddinge Hospital Emergency Department a reflection of a different age/sex composition and a higher proportion of immigrants in the population? To answer these questions and other similar questions concerning the present role of the hospital emergency department in health care delivery, an epidemiological approach is needed, encompassing not only the users but the whole population in the hospital catchment area. As Fink puts it: "Studies of medical care utilization must in the final analysis be related to the total population having access to a health care system and not only to the users of the system alone" (15). Davidsson also came to a similar conclusion when he 1978 reviewed the American literature on hospital emergency department studies: "It has failed to yield a coherent view of why the volume of use has increased, however, because most of it has focused on users of one or more ER:s (emergency rooms), ignoring the non-users, and has provided insufficient details about the local context in which the ER operates" (13).

Objectives

In the present thesis, the scope of the study has been limited to the following objectives:

- 1) How the population in a hospital catchment area uses the hospital emergency department and how age, sex and marital status influences the utilization.

- 2) Why immigrants more often use hospital emergency departments compared with Swedes.
- 3) How the proximity of different areas to the hospital influences visiting rates to the hospital emergency department.
- 4) How the population in one health center catchment area balances its use between a hospital emergency department and district general practitioners.
- 5) The association between health status, social factors and level of use of hospital emergency department.

The study is an inquiry into the use of one particular hospital emergency department in one particular city at a particular point of time but can hopefully also be used to devise concepts and methods of more general application for health care planning, clinical practice and patient management.

SUMMARIES OF PAPERS

The study is based on a sample of the population in the primary catchment area of the Huddinge Hospital. The sample which contained all persons born on the 5th, 15th and 25th day of the month who in 1976 had their registered residence within the hospital catchment area (The Skärholmen parish, Huddinge Commune and Botkyrka Commune, except for the Salem parish) comprised altogether 17 004 people (study population). The methods used to select the study population are described in paper I.

The material used for different papers, has been either the whole study population (I-III), a geographically defined subsample (IV) or a subsample defined by the frequency of visits to the Huddinge Hospital emergency department (V). A schematic overview of how the papers relate to one another and the sources of information used in the papers is presented in figure 1.

SOURCES OF INFORMATION FOR THE PRESENT THESIS

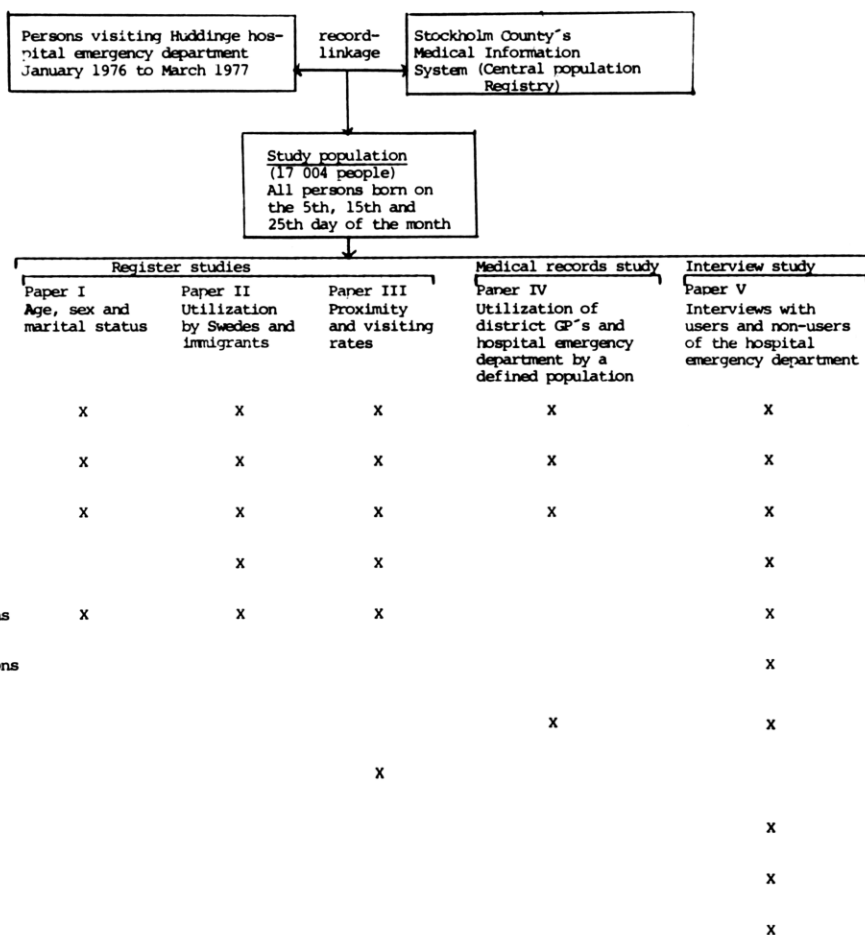


Figure 1

Paper I

Utilization of hospital emergency departments in Stockholm County increased by 30 per cent between 1973 and 1977. In 1976 visiting rates were highest in the southwestern district, one of the county's five health districts, 40 per cent above average. A university hospital with a large emergency department, the Huddinge Hospital, was opened in this district in 1972. The demographic profile of the catchment area for the Huddinge Hospital differs in several respects from the average for Stockholm County. The objectives of the study were to evaluate the influence of age, sex and marital status on the utilization of the emergency department.

The material for the study was obtained partly by registering all persons born on the 5th, 15th and 25th day of the month who visited the emergency department between January 1976 and March 1977 and partly by record linkage to the Stockholm County's Medical Information System. The study population was a representative sample of the population living within the hospital catchment area, altogether 17 004 people.

The results showed that 4 927 people or 29 per cent of the population visited the hospital emergency department during the 15 months of observation. The total number of visits was 9 632 or 566 visits per 1 000 population.

The following groups were significantly overrepresented:

- women age 15-34
- children to unmarried parents
- divorced and widowed men and women
- disability pensioners

Different age/sex composition in the catchment area compared with

Stockholm County could only explain 4 per cent of the 40 per cent higher visiting rates in the SW-area.

Paper II

Immigrants in Sweden have the same rights as natives to benefit from the National Insurance System and to medical care. Previous studies have shown that immigrants more often use hospital emergency departments compared with Swedes. The objectives of the study were to compare the utilization of emergency department, hospital outpatient clinics and inpatient care by Swedes and immigrants and by Swedes and two immigrant groups, Finns and Mediterraneans (immigrants from Greece, Turkey and Yugoslavia). The study population comprised altogether 17 004 people, approximately 10 per cent of the primary catchment area population of the Huddinge Hospital. Sources of information included register data (Stockholm County's Medical Information System) and data collected about use of the Huddinge Hospital Emergency Department.

Compared with Swedes, immigrants more often used the emergency department but less often hospital outpatient clinics. The total utilization (adding use of both facilities) was, however, almost exactly the same.

Illness behaviour was generally more similar for Swedes and Finns than for Swedes and Mediterraneans. Compared with Swedes by far the highest utilization of hospital care was noted for Mediterranean women, 70 per cent higher visiting rate to the hospital emergency department and 63 per cent higher hospital admission rate.

It is concluded that some of the differences in illness behaviour found in the study may be explained by institutional and language barriers rather than cultural factors.

Paper III

Utilization of hospital emergency departments has been shown to

be strongly correlated to the geographical distance from the hospital. If we assume that higher utilization of hospital emergency departments also results in more admissions, more visits to hospital outpatient clinics and more use of technical hospital facilities, proximity to the hospital site has a major influence on how the most expensive part of medical care, the hospital, is used.

The objectives were to study, for a representative sample of the population in a hospital catchment area, the relationship between travelling distance and the use of the hospital emergency department and between the use of emergency department and visits to the hospital outpatient clinics and inpatient admissions, respectively. The hospital catchment area was divided into 20 subareas with altogether 14 227 people. For interarea comparisons the utilization per 100 inhabitants in each area was used. Our measure of the travelling distance from each area to the Huddinge Hospital was the travelling time in minutes by public transportation.

The results indicate that visiting rates are strongly correlated with travelling distance to the hospital with up to four times higher visiting rates in the areas closer to the hospital compared with the areas farther away from it. Furthermore there is a strong correlation between heavy use of the hospital emergency department and high utilization of hospital outpatient clinics and inpatient care.

Paper IV

A previous study based on the annual statistical returns compiled and published by Stockholm County's Public Health Board showed that in the County's southwestern (SW) district there were during 1975 more visits per 1 000 population to hospital emergency departments than to district general practitioners.

The objectives of the study were to compare the utilization of a hospital emergency department and district general practitioners

by a defined population during 15 months and to estimate how many visits to the hospital emergency department can be considered general practitioner-type cases.

The study population was a representative sample of the population in the catchment area of one health center, altogether 1 032 people.

Data was obtained from the medical records and from the Stockholm County's Medical Information System. 15 per cent of the sample population visited district general practitioners while 30 per cent visited the hospital emergency department. General practitioner-type cases in the hospital emergency department were estimated between 39 and 64 per cent. Of the total number of visits to the hospital emergency department, 1.4 per cent were very urgent, 54.7 per cent urgent and 39.3 per cent were considered non-urgent. Only 17 per cent of the visits to the hospital emergency department were for injuries. The ratio between visits leading to referrals to hospital outpatient clinics and to district general practitioners was 3:1.

4 per cent of the sample population made three or more visits to the hospital emergency department during 15 months but none to district general practitioners. They accounted for 32 per cent of the total number of visits to the hospital emergency department.

Paper V

Hospital emergency departments play an extended role in health care delivery, particularly in many urban areas. Increased utilization of these departments is, however, frequently interpreted as unjustified demands.

The objectives of the study were to investigate the associations between health status, social factors and the level of use of a hospital emergency department and to study how well the level of use of the hospital emergency department reflected the level of

use of other hospital care, social services and sickness benefits.

The study comprised 161 persons, a representative sample of users and non-users from the hospital catchment area population.

Data was collected by personal interviews and from the offices for the national sickness insurance and the social welfare.

Of heavy users (≥ 4 visits to the hospital emergency department during 15 months) 32 per cent assessed their own health as poor/ neither good nor poor/and 47 per cent said that their health was poorer than that of other people of the same age. For moderate users (1-3 visits) the corresponding findings were 11 and 16 per cent and for non-users (zero visits) 2 and 5 per cent. Heavy users also much more often had serious social problems; 25 per cent denoted alcoholism; 12 per cent were unemployed and 37 per cent had received social welfare benefits during the past 12 months. 84 per cent of heavy users denoted one or more chronic illness, handicap or disability compared with 47 per cent of moderate users and 29 per cent of non-users.

It is estimated that alcoholism accounted for approximately 16 per cent of the total number of visits to the hospital emergency department.

The results showed a fairly consistent pattern with strong associations between heavy use of the emergency department, poor health status and social problems. The level of use of the hospital emergency department was also found to correspond with the level of use of other hospital care, social services and sickness benefit.

GENERAL DISCUSSION

The hospital emergency departments play a very central role

The main conclusion to be drawn from this study is that the hospital emergency department acts in a pivotal position in the

health care delivery system. Health authorities have failed to recognize the importance of the increased use of hospital emergency departments for the provision of medical care and have been more concerned about the need for reinforcement of staff. One reason is that the information basis on which to decide how to handle the problems has been weak and superficial. It is of very limited help to know only the monthly or annual volume of visits to hospital emergency departments if we want to understand why the utilization of hospital emergency departments has increased so much and in order to change this trend.

The role of hospital emergency departments has over the years gradually been extended, especially in large urban areas. The problems of these departments stem mainly from their widely different functions (65). The main functions can be described as dealing with accidents, handling medical emergencies, functioning as a general practitioner and treating patients suffering from alcoholism and drug dependence, who may be aggressive or difficult to manage. Those who work in these departments usually find only the first two functions adequate which may easily lead to conflicts with patients who attend for other reasons (26, 33, 44, 47).

The hospital emergency department is in a sense a thermometer of how well the health care delivery system generally responds to people's needs. A health care system with a high threshold of entry (either because of shortage of manpower or other barriers) puts more strain on open access services like the hospital emergency departments.

Research strategies

Hospital emergency departments, their use, misuse and abuse can be investigated by using different research strategies. Strategies involving methodology from health services research is, however, particularly suitable because of the great complexity of the problems involved, strong ideologies, competing perspectives and

contending interests. It is an advantage therefore to look at the hospital emergency department from a number of different perspectives and not only from the perspective of a single medical speciality or hospital emergency department. Another advantage is the multidisciplinary approach used in health services research. Health services research is, however, a young branch of community medicine and has not as yet achieved the same level of scientific proficiency as many other fields of medical research.

A major source of medical care

The study showed that the hospital emergency department is a major source of medical care for the population in the Huddinge Hospital catchment area, especially for those who live in the near vicinity of the hospital (I, III).

During 15 months 29 per cent (25 per cent during one year) of the population made at least one visit to the hospital emergency department (range 22-46 per cent for different subareas). Less than one fifth of the visits were for injuries and between two and three fifths could easily be taken care of by general practitioners (IV).

Visiting rates were found to be remarkably similar for different ages. The different age/sex composition of the Huddinge Hospital catchment area compared with Stockholm County explained only a very small part of the 40 per cent higher visiting rates in the Huddinge Hospital Emergency Department (I).

In agreement with two previous studies (1, 63), we found that compared with Swedes, immigrants more often visit the hospital emergency department. On the other hand immigrants were found to make less often use of hospital outpatient clinics (II). The results indicate that in terms of the volume of visits a very large part is general practitioner-type visits (IV). Obviously one of the major drawbacks in using the hospital emergency department as the primary source of medical care is the lack of

continuity of care (V). The hospital emergency department does not have doctors who exclusively work with hospital emergency care. Instead, each medical speciality assigns its junior doctors to day time work in the hospital emergency department for one or two weeks at a time on a rotatory basis. Duty work, nights and weekends, is also performed by the junior doctors on a rotatory basis. Many doctors also work only for very short periods (6 months or less) in each medical speciality as part of their specialist training. Because of the large turnover of doctors the nursing staff has repeatedly called for more standardization of routines for treatment of injuries and emergencies.

Separate medical records

The medical record system, with separate medical records for each medical speciality, has already been mentioned (I, V). Because the same medical record is used for inpatient admissions, hospital outpatient visits and hospital emergency visits these are often not to be found when patients come to the hospital emergency department. An important purpose of the medical record to convey information between different doctors - so badly needed in a system with high doctor turnover - is therefore often not fulfilled. The risk of not finding the medical record is of course greatest for heavy users who frequently draw up on all hospital resources and whose medical records can therefore be extremely difficult to locate, an experience we have repeatedly had during the study.

Another important aspect of the medical record system is that a more holistic view of the patient and his different health problems is blurred, because the different medical specialities keep their own medical records. This also frequently leads to unnecessary repeating of examinations and inefficient medical care.

Alcoholism and psycho-social problems

The design of the study was not specifically directed towards penetration of the problem with patients suffering from alcoholism or drug dependence. That alcoholism is a major problem in the hospital emergency department is shown by the fact that no less than 25 per cent of those who were heavy users denoted alcoholism and that approximately 16 per cent of the total number of visits to the hospital emergency department during the 15 months' observation were made by patients with alcohol problems. If screening for alcoholism is possible as recently suggested (37) then the hospital emergency department is definitely one of the more interesting medical care facilities for such a screening. There is scope therefore for studies of whether some sort of screening for alcoholism is feasible in the hospital emergency department and of better management of patients with either overt or suspected alcohol problems.

The study has shown that psycho-social problems are prevalent among patients in the Huddinge Hospital Emergency Department (V). A hospital emergency department is a mirror of the population it serves. The type of patients and their presenting complaints may therefore be different from one hospital emergency department to another. Other studies have shown (33, 44, 47) that hospital emergency departments only infrequently identify psycho-social problems as the main reasons for contacts and even if identified, psycho-social problems are very seldom acted upon by hospital emergency departments (IV, V). Further studies are needed to test different alternatives for better management of patients with primarily psycho-social problems but a strong case can be made to employ full-time medical social workers in hospital emergency departments.

Improved information basis

Considering that the hospital emergency department is the major clearing house for entry into the most expensive part of the

health services, the hospital care and that it is almost the only part of the health services which cannot be controlled or regulated neither as regards the total volume nor type of use, it is surprising how little information we have today about these departments, both in terms of routine information and special studies.

The key to better understanding and appropriate actions is better information, e.g. to introduce computerized registration of hospital emergency visits in much the same way as now is done with hospital outpatient visits. Roberts et al (41) have shown that computerized registration of emergency visits can be used not only as a feedback to those who work in the hospital emergency department improving organization and patient management, but also to identify appropriate targets for accident prevention. In a pilot study 1975 (42), it was tested whether the information contained in the Stockholm County's Medical Information System could be of any use to doctors working in the Huddinge Hospital Emergency Department for patient management. The conclusion was that the computerized information was of some use in 20-40 per cent of the visits. The main problem was considered to be the general lay-out and presentation of the data which made it difficult for the doctors to use the available information efficiently.

Use of register data

The material for the present study derives to a large extent from different registers. Contrary to what is commonly believed the use of register data is usually a very painstaking exercise. The registered data does not always fit the requirements for the study and compromises have to be made. Inconsistences in the data have to be thoroughly checked but still some of these initially escape one's attention and are first identified when the study findings are interpreted. Many inconsistencies are of course never identified. Register data for research purposes is not so readily available as one may think. Firstly, the availability is restricted by law. Use of computerized registers with data

about identifiable individuals must be authorised by the Swedish Data Inspection Board. Secondly, the cost is high, both for programming and data processing. Thirdly, it usually takes quite a long time to get requested data in the appropriate form suited for the planned study.

Some of the variables in the Medical Information System are clearly not of sufficient quality to justify their use for strict research purposes. The reason may be that updating only occurs infrequently (occupation), that there are major delays in registration (diagnosis for outpatient visits) or that the routines for registration are unclear (critical medical data).

Another problem is the often very long delay (over 6 months) in the computer registration of outpatient visits and hospital inpatient admissions. One of the justifications for a computerized medical information system is its use for research purposes. Research use of register data also improves the quality of the registered information. It should therefore be in the interests of both health authorities and universities to stimulate more use of register data for research purposes.

Strengthen primary care services

Since 1978 it seems as if visiting rates in hospital emergency departments in Stockholm have come to a halt but these departments still carry the main burden of all acute consultations. Present efforts to strengthen the primary care services, it is hoped, will eventually alleviate hospital emergency departments of at least a part of the present work load. It is, however, as yet too early to say what the overall effect will be and much depends on the willingness and capacity of the primary care services to accept the responsibility for people's need for medical care even outside normal working hours. Some health centers have introduced telephone advice services where nurses give advice for acute medical problems.

A study of health center based telephone advice services is now (March 1980) in progress in the SW-district. One of the aspects of that study concerns just whether telephone advice services have any effect on how many go to hospital emergency departments.

The opportunity should also be seized now when experiments with family physicians ("husläkare") are under way to specifically look at the possible effects on the utilization of hospital emergency departments.

For the time being it is hard to find any alternative sources of medical care to which the public should be urged to go, that would have any major impact on the present utilization of the Huddinge Hospital Emergency Department. It would be valuable, however, to study public attitudes to the present organization of 24-hour services, how much the public knows about availability and access to different medical care facilities and how accurate this information is, for example as regards waiting times for appointments to district general practitioners and private physicians.

The present organization of work in large hospital emergency departments also needs to be studied more closely.

Concluding remarks

The present study has covered only some aspects of the utilization of hospital emergency departments and more studies are needed to further increase our body of knowledge. The study has focused on the utilization of one hospital emergency department by the members of the surrounding community and illustrates the diversified role of the hospital emergency department in that community. Many of the conclusions from the study should, however, be equally applicable to other urban areas with a comparable overall organization of medical care. Some of the advantages of epidemiological methods for studies of this kind have been emphasized and these methods should be further developed in future studies.

ACKNOWLEDGEMENTS

My sincere thanks are due to all those who have worked at the Department of Social Medicine, Huddinge Hospital between 1976 and 1980 for their willingness to assist in every way and generous tolerance.

I wish to express my deep gratitude to Erik Allander for his never failing interest, inspiration and his unique abilities to balance constructive criticism with encouragements during the course of this work.

I would also like to express gratitude to:

Gunnar Ringmarck and Rainer Helms for skillful programming and computer processing;

Göran Aurelius for co-authorship;

Ulla König for all her work during the preparatory stages of the study and with collection of data;

Agneta Vigborg for valuable assistance with extracting information from medical records and for enlightening discussions;

Anders Ahlbom for generous statistical and epidemiological advice;

Helen Hansagi for generous assistance with compilation of results from the interviews;

Töres Theorell for reading and commenting the final manuscript;

Inger Lindberg Navier, Claes Liliegren and Kerstin Bonn for assistance with interviews;

Karin Lundström for indispensable secretarial assistance;

Yvonne Nilsson for efficiently typing the final manuscript;

Björn Järvheden for statistical advice and programming;

Sture Sjölund for enthusiasm about my work and much appreciated support;

Peter Allebeck for coding of diagnoses and Lars Alfredsson for computer programming;

Pauline Friis for coding the interviews;

Tommy Hellström, Christina Götje and Elsie Karsbrink for drawing illustrations and Sten Karsbrink for preparing the photographs;

The Swedish Medical Research Council and Stockholm County's Public Health Board Planning Division (Head Ulf Zetterblad) for financial support;

The Medical Information Division (Head Hans Peterson) of the Stockholm County Public Health Board, offices for the national sickness insurance and social welfare in the Huddinge Hospital catchment area and the National Bureau of Statistics for giving access to data.

REFERENCES

1. Allander E, König U, Landell N-E, Magnusson G, Vågerö D, Teglund B: Akutmottagningen - den nye husläkaren? Läkartidningen 74: 1392-1396, 1977.
2. Allgulander C, Lundman T, Myrhed M: Alkoholpåverkan i ett medicinskt och kirurgiskt akutklientel. Läkartidningen 68: 5308-5314, 1971.
3. Almersjö O, Westin J: Behovet av akutsjukvård i Göteborg. Läkartidningen 69: 45-56, 1972.
4. Alpert JJ, Kosa J, Haggerty RJ, Robertson LS, Heagarty MC: Attitudes and Satisfactions of Low-Income Families Receiving Comprehensive Pediatric Care. Am J Public Health 60: 499-506, 1970.
5. Bain S, Johnson S: Use and Abuse of Hospital Emergency Departments. Canadian Family Physician, 17 : 33-36, 1971.
6. Baltzan MA: The new role of the hospital emergency department. Can Med Assoc J 106: 249-256, 1972.
7. Bjerver K, Goldberg L, Rydberg U: Alkoholens roll i ett olycksfallsmaterial på en kirurgisk akutmottagning. Läkartidningen 68: 3295-3300, 1971.
8. Borg S, Thunell S, Åkerman A: Förekomst av alkohol och psykofarmaka hos patienter med olycksfallsskador på en kirurgisk akutmottagning. Nord Psykiatr Tidsskr 30: 113-120, 1976.
9. Borg S, Thunell S, Åkerman A, Allgulander C: Förekomst av alkohol och psykofarmaka hos patienter med icke olycksfallsbetingade sjukdomstillstånd vid en kirurgisk akutmottagning. Nord Psykiatr Tidsskr 31: 113-117, 1977.
10. Brohult J: Kris inom den internmedicinska akutsjukvården. Läkartidningen 71: 4929-4930, 1974.
11. Brook RH, Stevenson RL: Effectiveness of Patient Care in an Emergency Room. N Engl J Med 283: 904-907, 1970.
12. Catchlove BR: Summary of discussions Group A - Accident and emergency services. World Hospitals 15: 219-220, 1979.
13. Davidson SM: Understanding the Growth of Emergency Department Utilization. Med Care 16: 122-132, 1978.
14. Dixon CM, Emery GM, Spears GFS: Casualty department utilization survey. New Zealand Medical Journal 71: 272-279, 1970.

15. Fink R: The Measurement of Medical Care Utilization.
In: Conceptual Issues in the Analysis of Medical Care
Utilization & Behaviour. Greenlick MR (Ed).
U S Department of Health, Education and Welfare.
Public Health Service 5, 1970.
16. Gibson G: Some Empirical Methods to Evaluate Appropriate-
ness of Emergency Department Utilization.
J Trauma 18: 94-102, 1978.
17. Gibson G, Maiman LA, Chase AM: Walk-out patients in the
hospital emergency department. JACEP 7: 47-50, 1978.
18. Glass R, Friedman D: Trends in the Demand for Emergency
Room Services: The Mount Sinai Hospital.
Mt Sinai J Med NY 44: 560-565, 1977.
19. Hallberg L: Sjukvårdsbehovets förändringar i Göteborg.
Läkartidningen 63: 1477-1487, 1966.
20. Hallenborg U: Huddinge sjukhus Generalplan 1965, del I,
114. AB Ätåtryck/ Per Edberg, 1965.
21. Hilker TL: Nonemergency visits to a pediatric emergency
department. JACEP 7: 3-8, 1978.
22. Hochheiser LI, Woodward K, Charney E: Effect of the Neigh-
borhood Health Center on the use of Pediatric Emergency
Departments in Rochester, New York. N Engl J Med 285: 148-
152, 1971.
23. Holohan AM, Newell DJ, Walker JH: Practitioners, patients
and the accident department. The Hospital and Health
Services Review 71: 80-84, 1975.
24. Huntley HC: Emergency Department Visits - A Statewide
Survey. JACEP 6: 296-299, 1977.
25. Ingram DR, Clarke DR, Murdie RA: Distance and the Decision
to visit an Emergency Department. Soc Sci Med 12: 55-62,
1978.
26. Jeffery R: Normal rubbish: deviant patients in casualty
departments. Sociology of Health and Illness 1: 90-107,
1979.
27. Kelman HR, Lane DS: Use of the Hospital Emergency Room In
Relation to Use of Private Physicians. Am J Public Health
66: 891-894, 1976.
28. Kleiman MB: Emergency room use and access to alternative
sources of care. Sociology of Health and Illness 1: 318-
330, 1979.

29. Kluge DN, Wegryn RL, Lemley BR: The Expanding Emergency Department. JAMA 191: 97-101, 1965.
30. McNamara JJ, Greene M: An Evaluation of Emergency Room Services During the New York City House Officer Strike. Am J Public Health 66: 135-138, 1976.
31. Magnusson G: Primärvård och akutbesök. Läkartidningen 75: 3077-3081, 1978.
32. Magnusson G: The use and abuse of accident and emergency departments - the Stockholm experience. World Hospitals 15: 170-172, 1979.
33. Mannon JM: Defining and Treating "Problem Patients" in a Hospital Emergency Room. Med Care 14: 1004-1013, 1976.
34. Mattox KL: Public Entry Into Emergency Medical Services Systems. JACEP 5: 128-131, 1976.
35. Moore GT, Bernstein R, Bonanno RA: Effect of a Neighborhood Health Center on Hospital Emergency Room Use. Med Care 10: 240-247, 1972.
36. Morgan W, Walker JH, Holohan AM, Russell IT: Casual attenders. A Socio-medical study of patients attending accident and emergency departments in the Newcastle upon Tyne area. The Hospital and Health Services Review 10: 189-194, 1974.
37. Morse RM, Hurt RD: Screening for alcoholism. JAMA 242: 2688-2690, 1979.
38. Pearson DA, Bernacki EJ, Meigs JW: An Emergency Medical Care Facility: Program Characteristics and Patient Attributes. JACEP 5: 174-179, 1976.
39. Prybil L, Clark R, Rudolf LE: Utilization of Virginia's Hospital Emergency Departments. Virginia Medical Journal, 104: 181-183, 1977.
40. Richards JG, White GR: Accident and Emergency Services at Auckland Hospital. New Zealand Medical Journal 85: 272-274, 1977.
41. Roberts JM, Farrar JA, Harvey PW: The Use of a Computer System in the study of the Attendance Profile in a District Hospital Casualty Department. Comput Biol Med 7: 291-299, 1977.
42. Rodenstedt K, Vågerö D: Kan dataterminalsystemet hjälpa läkaren vid HS-akutmottagning? Några resultat baserade på läkarbedömningar under vecka 15, 1975. Report, Social-medicinska institutionen, Huddinge sjukhus, 1975.

43. Roghman KJ, Goldberg HJV: Effect of Rochester Neighborhood Health Center on Hospital Dental Emergencies. Med Care 12: 251-259, 1974.
44. Satin DG: Help!:Life Stresses and Psycho-Social Problems in the Hospital Emergency Unit. Social Psychiatry 7: 119-126, 1972.
45. Satin DG: Help!:Prevalence and Disposition of Psycho-Social Problems in the Hospital Emergency Unit. Social Psychiatry 6: 105-113, 1971.
46. Satin DG, Duhl FJ: Help!:The Hospital Emergency Unit as Community Physician. Med Care 10: 248-260, 1972.
47. Satin DG: Help!:The Hospital Emergency Unit Patient and His Presenting Picture. Med Care 11: 328-337, 1973.
48. Steinmetz N, Hoey JR: Hospital Emergency Room Utilization in Montreal before and after Medicare. Med Care 16: 133-139, 1978.
49. Stratman WC: A Study of Consumer Attitudes About Health Care: The Delivery of Ambulatory Services. Med Care 13: 537-548, 1975.
50. Stratman WC, Ullman R: A Study of Consumer Attitudes About Health Care: The Role of the Emergency Room. Med Care 13: 1033-1043, 1975.
51. Stålhammar J, Berfenstam R, Korpela M, Smedby B: Akuta besök i primärvården - en studie vid hälsocentralen, Tierp. Socialmedicinsk tidskrift 55: 429-434, 1978.
52. Ullman R, Block JA, Boatright NC, Stratman WC: Impact of a Primary Care Group Practice on Emergency Room Utilization at a Community Hospital. Med Care 16: 723-729, 1978.
53. Ullman R, Block JA, Rozzi MV, Stratman WC: Study Provides Data for Planning Hospital-Based Primary Care. Hospitals, J A H A 49: 75-80, 1975.
54. Ullman R, Block JA, Stratman WC: An Emergency Room's Patients: Their Characteristics and Utilization of Hospital Services. Med Care 13: 1011-1020, 1975.
55. Vaughan HF, Gamester E: Why Patients use Hospital Emergency Departments. Hospitals, J A H A 40: 59-62, 1966.
56. Vayda E, Gent M, Paisley L: An Emergency Department Triage Model Based on Presenting Complaints. Can J Public Health 64: 246-253, 1973.

57. Walker LL: Inpatient and Emergency Department Utilization: The Effect of Distance, Social Class, Age, Sex and Marital Status. JACEP 5: 105-110, 1976.
58. Webb SB, Thompson JD, Whitt IB: Statewide Trends in Emergency Department Utilization. Inquiry 14: 402-408, 1977.
59. Wilner D: The Role of the Emergency Department in the Delivery of Rural Primary Care. J Maine Med Assoc 68: 401-408, 1977.
60. Wingert WA, Chan LS, Stewart K, Lawrence L, Portnoy B: A Study of the Quality of Prescriptions Issued In a Busy Pediatric Emergency Room. Public Health Rep 90: 402-408, 1975.
61. Arbetarbladet: Ett besök på Akuten, 7 april, 1978.
62. British Medical Journal: What are accident and emergency departments for? Br Med J 2: 837-839, 1979.
63. National Central Bureau of Statistics: Living Conditions. Health and Medical Care Utilization 1975. Report no 11. Official Statistics of Sweden. National Central Bureau of Statistics, Stockholm, 1978.
64. Nordisk Medicin 92: 293-322, 1977.
65. Royal Commission on the National Health Service: Accident and emergency services, pp 128-129. H M S O, London, 1979.
66. Söderposten: Bättre gå till distriktsläkaren. Det kan ta 8 timmar på akuten! 12 december, 1979.