

The new role of the hospital emergency department

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Summary: The volume of medical services delivered within hospital emergency departments in the City of Saskatoon is increasing rapidly. These probably are not "new" medical services but rather represent a transfer of "old" services to the emergency departments from other sites where they were previously rendered. The visit to the emergency department is initiated more often by the patient than the doctor and once there the patient is treated in a relatively short period of time. The illnesses so managed do not have a diagnostic, therapeutic or prognostic uniformity but rather are characterized by their acute and totally unexpected onset. This acute and non-programmable nature of the illness makes it difficult to deliver the service in a physician's office where the appointment system prevails and efficiently deals with the great majority of his patients. Data to determine whether or not this is a desirable development have not yet been obtained but it is clear that in its present usage the emergency department must be thought of as a facility which not only provides exceptional diagnostic and therapeutic equipment but as one which also provides a treatment facility without prior appointment available at any hour of the day or night.

The hospital emergency department traditionally has been a major site of primary health care delivery in large and impoverished urban areas. In the more affluent districts of the community this care usually has been rendered in the physicians' offices or patients' homes. The reason for this difference appears to be obvious: the home and office were preferred sites while the emergency room was employed only when the patient's financial status left no alternative.

Although emergency room facilities have always been available in the city of Saskatoon, as well as elsewhere in Saskatchewan, formerly they had not been used for the delivery of primary health services. This probably was related to failure of development of the concept of the "public patient" so that all care was provided by private physicians at the usual sites of delivery. Recently it has become apparent that the traditional Saskatchewan pattern has changed, with an increasing volume of primary care being provided in the hospital emergency department. While there is evidence^{1, 2} that this phenomenon has become general in the United States and Canada, it is surprising that it should occur in Saskatchewan, a province where the financial barrier to physicians' services has been removed by a universal comprehensive prepaid government sponsored insurance plan. When this plan was first introduced in 1962, no direct charge was made but from April 1, 1968 to July 31, 1971, a nominal fee was

payable by the patient to the physician.

It is the purpose of this study to determine the magnitude of this increase in emergency room health care, to inquire into its cause and to assess its significance for the health services delivery system.

Materials and methods

Studies were conducted in Saskatoon, the second largest city in the province (1970 population, 125,598). The major economic activities are trade, education, transportation and light manufacturing. There are approximately 233 physicians, of whom about 65 are family practitioners. The remainder are specialists largely engaged in referral practice or in research and teaching at the Medical College of the University of Saskatchewan. There is one university hospital and two community hospitals with bed capacities ranging from 325 to 550. All operate emergency departments which are available to doctors and patients on a non-appointment basis. For present purposes an emergency department is distinguished from an out-patient department by the absence in the former of the need for a prior appointment. The community hospitals are of the "open" type. Family physicians' offices are widely distributed throughout the city and no citizen is more than one mile from such an office.

Data relevant to Saskatchewan as a whole were obtained from the annual reports of the Saskatchewan Medical Care Insurance Commission. The

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total emergency department visits and total inpatient discharges were obtained from each hospital in Saskatoon. Detailed studies were conducted by means of patient questionnaires in the emergency room of one of the community hospitals (St. Paul's Hospital). These were answered by all patients seen consecutively in time intervals of one week or whole number multiples of one week.

Results

1. To what degree has there been an increase in the volume of emergency room visits?

Emergency room visits in all Saskatoon hospitals increased by 63% during the study period, 1965 to 1970 (Table I). To allow for the change in population for the city during this interval the visits may be expressed as the number per capita per annum. This assumes that all patients were Saskatoon residents, an assumption that proved to be substantially correct as 90.6% of 1058 visits were by actual Saskatoon residents. Calculated on this basis, emergency room visits increased from 0.52 to 0.72 per capita per annum. Thus in Saskatoon at the present time from a family of four persons, three are emergency room patients during the course of any given year. The magnitude of these services is further illustrated by the fact that there were 90,500 emergency room discharges in Saskatoon in 1970 and only 33,135 hospital in-patient discharges.

2. Does this increase represent "new" medical services or "old" medical services transferred to a new site?

A survey of 1058 visits indicated

that virtually all (96.5%) were visits to family practitioners. The total number of family physician visits per capita population in Saskatchewan in each year of the study was calculated from data supplied in the annual reports of the Saskatchewan Medical Care Insurance Commission³⁻⁵ and are displayed in Table I. While medical services utilization is often higher in urban than in rural settings, this is probably not the case in Saskatchewan where high utilization groups such as welfare recipients and native Indians are present in significant numbers in rural areas. Hence it is reasonable to assume that the figures for the province as a whole apply to Saskatoon. This permits the calculation of family physician visits per capita in Saskatoon for services rendered in the emergency room and for services rendered elsewhere (the physicians' offices and patient's homes).

Scrutiny of the per capita visits during the study period (Table I) shows that those rendered in the emergency room tended to increase progressively while those rendered elsewhere initially tended to decline and subsequently rose slightly. This phenomenon seems more readily explicable by a shift in location of visits rather than a decrease in visits for one type of illness and a simultaneous increase in visits for another type of illness.

If the previously noted assumption (that all visits are by Saskatoon residents) is accepted, the data also permit determination of the portion of family practice which is rendered in the emergency department of the hos-

pitals. This has increased from 15.7 to 20.6% of the total of such services performed during the study (Table I, column 6).

Utilization fees payable by the patients to the physician were introduced in the early part of 1968. Charges of \$1.50 for an office visit and \$2.00 for a home or emergency room visit were authorized by the provincial government. These fees were without apparent effect on the number of emergency room services but they were correlated with a decline in other primary care services.

3. Who sends patients to the emergency room?

Patients may come to the emergency department after contacting their physician or they may come directly to the department and ask the personnel on duty to inform their physician (if they have one). A total of 2015 visits during a four-week period were analyzed to determine if the patients came of their own volition or did so on the advice of their doctor (or his nurse). The data (Table II) indicate that the majority (54.99%) came of their own volition, the remainder (45.01%) coming on the advice of their doctor. These figures are surprisingly close to the approximate 35% doctor-sent ratio noted in similar studies in Michigan⁶ and higher than the 22% doctor-referred reported in recent studies from Toronto.⁷

4. Is non-availability of the patient's doctor a factor in the increase in emergency room services?

Doctor non-availability may take one of two forms: the patient may not have a family physician, or he may not be able to contact the one he does

Table I

Year	(1) Total number emergency department visits to Saskatoon hospitals	(2) Population of the city of Saskatoon	(3) Per capita emergency department visits to Saskatoon hospitals	(4) Per capita Saskatchewan primary care visits per annum	(5) Estimated per capita Saskatoon non-emergency department primary care visits	(6) Estimated % of primary care occurring in emergency departments in Saskatoon
1965	55,500	106,021	0.52	3.23	2.71	16.2
1966	63,500	111,756	0.57	3.59	3.02	15.7
1967	72,400	117,440	0.62	3.61	2.99	17.1
1968	78,500	122,262	0.65	3.24	2.59	20.0
1969	81,100	126,706	0.65	3.28	2.63	19.5
1970	90,500	125,598	0.72	3.50	2.78	20.6

1. Supplied by the Saskatoon hospitals.

2. Supplied by the Saskatchewan Medical Care Insurance Commission.

3. Figure in column (1) divided by figure in column (2). This assumes that all visits to emergency departments were by Saskatoon residents.

4. From the annual reports of the Saskatchewan Medical Care Insurance Commission for 1967 (Tables 7, 12), 1969 (Tables 17, 19) and 1970 (Tables 12, 16).

5. Determined by subtraction of column (3) from column (4).

6. Calculated by multiplying columns 3 and 4 and expressing as a percentage.

have. The former does not appear to be an explanation for the rise in emergency room visits as only 6.75% of the patients indicated that they did not have a family physician (Table II).

It is not possible to generalize and state that 93.25% of the population had a family physician as only that portion of the population who were ill were included in the survey. However, as the illness was acute and unexpected (see below) it can be assumed that an astonishingly high percentage of the population of Saskatoon has established a medical liaison.

The second form of doctor non-availability is the inability to contact him when needed. Of the 2015 patients surveyed, 1079 (Table II) stated that they attempted to reach their doctor and 907 (84%) were successful (Table III). Considering the short period of time available to make the contact (owing to the acute nature of the illness), this figure is surprisingly high and appears to exclude this type of doctor non-availability as a factor increasing the utilization of emergency room services.

5. What kind of illness is treated in the emergency room?

Analysis of emergency room visits indicated that the nature of the illness varied widely and the reason for the

Table II
Generation of emergency department visits

	Number of visits	% of visits
Doctor or his nurse	907	45
Patient or lay person	1108	55
(a) No family doctor	136	6.75
(b) Family doctor could not be contacted	172	8.55
(c) No attempt to contact family doctor	800	39.70
Total	2015	100

Table III
Availability of family doctor

	Number of visits
Number of visits in which an attempt was made to contact family doctor before presentation in the emergency department	1079
Number of visits in which contact was made	907 (84%)
Number of visits in which family doctor could not be contacted	172 (16%)

visit did not correlate with its diagnostic, therapeutic or prognostic aspects. However, it appeared that there might be a correlation between the duration of the illness and the visit to the emergency room. A total of 1052 patients were asked how long they had suffered from their presenting complaint before they arrived in the emergency room, or if it had been present for more than two days, if it had changed in the last two days. The data clearly indicate that the illnesses were acute (Table IV). In 17.6% of the visits the illness had been present for less than one hour and in 85.4% it had been present for two days or less, or had become exacerbated within that time period.

6. What are the advantages to the patient of emergency room treatment?

There would appear to be several advantages to the patient of treatment for acute illness in the emergency room. The patient still has the choice of being treated by his own physician but he can be treated at his own time as no appointment is required. A wide range of diagnostic and therapeutic facilities are available in one place. The service is quality-controlled because it is in an accredited institution. The service is also efficient, as review of 2423 visits indicated that the median portal to portal time for a patient was 60 minutes (mean time 81 minutes) including the time required to notify the physician.

Discussion

These studies would appear to indicate that in Saskatoon, as elsewhere, the volume of medical services delivered within the emergency department is increasing rapidly. These are probably not "new" medical services but rather represent "old" services

transferred to the emergency department from other sites where they were previously rendered (either the patient's home or the doctor's office). The visit to the emergency department is initiated more often by the patient than the doctor and once there the patient is treated in a relatively short period of time. The illnesses treated do not have a diagnostic, therapeutic or prognostic uniformity but rather are characterized by their acute and totally unexpected onset.

It is the latter feature which may account for the increase in the volume of emergency room services. In Saskatoon most family physicians operate their offices on an appointment basis. This system produces efficient care of illnesses which are predictable or feature static symptoms of prolonged duration. It allows for the regular follow-up of diabetics, hypertensives, etc., counselling, periodic medical examinations and examination of persistent unchanging symptoms, in a manner which is relatively economical of the patient's and physician's time. On the other hand it is almost impossible to devise an appointment system that will accommodate illnesses of less than one or two days' duration. Attempts to fit these patients into such a schedule, (especially when such illnesses appear to account for at least 20% of the practice) will cause inconvenience to patients with both the acute non-predictable and chronic predictable illnesses.

This does not answer the question: "should this type of illness be treated in the emergency department?" The answer will depend upon the relative merits of alternate sites for provision of this therapy. These will have to be evaluated in terms of the facilities they offer, the quality of care they can supply, and their effective cost

Table IV
Duration of presenting complaint

Time	Number of visits	Cumulative number of visits
Onset less than one hour before emergency room visit	186 (17.6)*	186 (17.6)*
Onset more than one hour, less than 24 hours before emergency room visit	343 (32.7)	529 (50.3)
Onset more than 24 hours, less than 48 hours before emergency room visit	111 (10.5)	640 (60.8)
Exacerbation less than 48 hours before emergency room visit	258 (24.6)	898 (85.4)
Onset/exacerbation more than 48 hours before emergency room visit	154 (14.6)	1052 (100.0)
TOTAL	1052 (100.0)	

*Figures in brackets represent percentages.

weighted for the time of both the patient and doctor. The problem of the increasing use of the emergency room will not be solved by administrative decisions but rather will melt away when appropriate facilities for this type of care are developed.

Regardless of possible future solutions to this problem, the old concept of the emergency room as only a source of exceptional diagnostic and therapeutic facilities for the treatment of major life-threatening illnesses is no longer true in practice. While the emergency department does offer this service, it also offers another — 24 hours a day, seven days a week, 365 days a year — a treatment facility that is available without prior appointment. It is the demand for this service which appears to be responsible for the great increase in the use of the emergency room by patients and doctors.

This also suggests an explanation of why the "urban ghetto" system of medical care delivery should be reproduced in a society where there is no significant financial barrier to medical services. The emergency room in both cases is used to treat the same type of illness, the acute and unexpected.

Incidental observations made in the course of these studies would indicate: (1) that the health care delivery system is not in a static state but does change logically (even in the absence of central planning) to meet the needs of patients; (2) that a high proportion of the general public in Saskatoon has an established liaison with a family

physician; (3) that the family physician is Saskatoon is immediately available to his patient at all hours in the great majority of instances; (4) that imposition of utilization fees, even when they favour the office visit over the home and emergency department visit, have not altered trends to seek treatment for acute illness at the latter site; (5) that Saskatoon hospitals treat 2½ times as many patients in their emergency rooms as they do in their entire in-patient services.

The author would like to express his thanks for the co-operation of the members of the nursing and clerical staffs of the Emergency Department of St. Paul's Hospital in gathering the data for this study.

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Experience with MDA

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During the past two years considerable attention has been devoted by the media to MDA and related substances, and there has been much discussion of its use by young people. Scientific reports on these agents have been infrequent. We present a brief review of MDA and give an

account of our experience with its use by youthful drug takers.

MDA (3,4-methylenedioxyamphetamine), which is generally classified as a hallucinogenic or psychedelic agent, is a synthetic, substituted phenethylamine and, as such, its chemical structure is closely related to that of both naturally occurring and synthetic substances such as norepinephrine, mescaline and the amphetamines (Fig. 1).¹

Much of the confusion surrounding MDA and related substances is due to the complexity of chemical nomenclature. For example, MDA may be

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Tenuate Dospan

(diethylpropion hydrochloride N.F., continuous release tablets)

Anorexic

COMPOSITION

Tenuate Tablets: Each light blue tablet contains 25 mg. of diethylpropion hydrochloride N.F., a sympathomimetic agent.

Tenuate Dospan: Each capsule-shaped white tablet contains 75 mg. of diethylpropion hydrochloride N.F., a sympathomimetic agent combined with a special hydrophilic matrix.

ACTION

The sole clinical use of diethylpropion hydrochloride is reduction of appetite. This anorexic action has been demonstrated in laboratory animals and in numerous clinical studies.

INDICATION AND CLINICAL USE

Overweight. Diethylpropion hydrochloride is indicated as an aid to control overweight, particularly where it complicates the treatment or prognosis of cardiovascular disease, diabetes, or pregnancy. (See Warning.)

CONTRAINDICATIONS

Diethylpropion hydrochloride should not be given concurrently with monoamine oxidase inhibitors, nor should it be given to patients hypersensitive to diethylpropion hydrochloride or to emotionally unstable individuals who are known to be susceptible to drug abuse.

WARNING

Although diethylpropion hydrochloride is generally safer than the amphetamines, it should be used with great caution in severe hypertension and severe cardiovascular disease.

Although rat and human reproductive studies have not indicated adverse effects, this drug, like all medications, should not be used during the first trimester of pregnancy unless, in the opinion of the prescribing physician, the potential benefits outweigh the potential risks.

ADVERSE REACTIONS

Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence.

As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported.

Sympathomimetic cardiovascular effects reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others.

Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema.

Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported.

Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia.

A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

DOSAGE AND ADMINISTRATION

Tenuate (diethylpropion hydrochloride):

One 25 mg. tablet three times daily, one hour before meals,

and in mid-evening if desired to overcome night hunger.

Tenuate Dospan (diethylpropion hydrochloride, continuous release):

One 75 mg. tablet daily, swallowed whole, in mid-morning.

Experience with diethylpropion hydrochloride in children under 12 years of age has not been sufficient to recommend use in this age group.

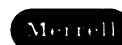
DOSAGE FORMS

Tablets 25 mg.: bottles of 100 and 1000

Dospan Tablets 75 mg.: bottles of 30 and 250

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