

# Emergency Care Crisis Avoided in a Rural Community

ARTHUR R. JACOBS, MD, and CHRISTINE L. THURBER, AB

**T**HE medical staff of a 60-bed hospital in a small community of New York State voted in March 1971 that as of July 1, unless they received some assistance, they would no longer provide emergency services to persons who are not their patients. This decision was prompted by the increasing use of the emergency department by persons with non-urgent conditions. The physicians were overworked, and it was difficult for them to meet the needs around the clock in the emergency department as well as in their private practices. Additionally, many of the physicians lived considerable distances from the hospital.

A federally subsidized community health center, located next to the hospital, was providing care only a few hours a day a few days a week. At other times, the center's patients were seen by private practitioners in the hospital's emergency department or in the practitioners' offices.

Surgeons who are called to the emergency de-

partment usually collect fees from third-party payers. Many persons with nonsurgical problems, however, have no insurance and are unable to pay for emergency care. Therefore internists and general practitioners give much free care in the department.

The decision to curtail emergency services would have resulted in a serious crisis for any potential emergency patients who did not have private physicians and would have affected the future status of the only hospital in the area. The Codes, Rules and Regulations of the State of New York (1) state that an acute care hospital "... having less than 40,000 emergency department visits annually shall devise a schedule to provide prompt medical attention for all emergency patients as needs may dictate. A roster of "on-service" coverage by members of the medical staff shall be maintained." Thus, the physicians' decision potentially could have had the effect of closing the hospital.

Consequently, the hospital staff asked the advice of the staff of the Rochester Regional Medical Program. Although the original focus of the regional medical programs was on the care of heart, cancer, and stroke patients, recently they have become concerned with the organization and delivery of health services (2).

Personnel from the regional medical program

---

*At the time this paper was written, both authors were with the Rochester Regional Medical Program. Dr. Jacobs is now assistant professor, Department of Community Medicine, Dartmouth Medical School, Hanover, N.H. Tearsheet requests to Miss Christine L. Thurber, Rochester Regional Medical Program, 260 Crittenden Blvd., Rochester, N.Y. 14620.*

conducted a study to analyze the utilization of the emergency department in order to determine whether any patterns could be uncovered which might lead to a partial solution to the impending crisis. The investigators described the variation in emergency department rates over time and the types of medical conditions of the patients.

The investigators' recommendations to the hospital staff were that the staff consider hiring one or more specially trained nurses or training currently employed emergency duty nurses to independently treat minor conditions, which constitute a great number of the emergency department visits. They also recommended that the private practitioners, hospital director, and clinic administrators discuss the problems of the emergency department and other kinds of community health care to attempt resolutions and cooperative arrangements.

These recommendations were based on the quantitative data gathered and on discussions with persons in the community. As a result of the recommendations, the physicians did not carry out their vote; instead, they voted to try to resolve some of the problems that led to their March ultimatum.

### Community Background

The hospital is in a 607-square-mile rural county, which is situated on a lake. There are three other acute-care hospitals in the county. The county population is rapidly increasing, as shown by the following U.S. census figures: 1950, 57,323; 1960, 67,989; and 1970, 79,404. The population of the township in which the hospital is located was 6,587 in 1960 and 8,754 in 1970—a 32.9 percent rise.

The region annually employs 3,000 to 4,000 migrant farmworkers in summer and fall. These migrants have substandard housing and health services because of their transient status, low income, and deficient education. The nonwhite population, largely migrant and seasonal workers, increased from 134 persons in 1940 to 2,533 in 1970. (Migrant workers generally live in the community during the harvest season, July–November, while seasonal workers are employed seasonally but live in the community year round.) In the opinion of the regional planning representatives, the following vital statistics of this county are particularly distressing when compared with those of the United States and the remainder of the State (excluding New York City).

<i>Vital statistics</i>	<i>United States</i>	<i>Per cent of State<sup>1</sup></i>	<i>County</i>
<i>Infant mortality per 1,000 live births (3a):</i>			
Total.....		20.7	26.5
Less than 28 days.....	16.0		17.2
28 days to 11 months.....	4.7		9.3
<i>Death rate per 100,000 population (3b):</i>			
Diabetes mellitus.....	17.7	16.9	22.0
Central nervous system, vascular	102.0	96.0	118.2
Diseases of the heart.....	364.5	410.9	443.8
General arteriosclerosis.....	19.0	18.4	23.4
Pneumonia.....	28.0	31.9	55.0
All accidents.....	57.2	44.5	79.7
Ulcer of stomach and duodenum	5.0	6.2	9.6

<sup>1</sup> Excluding New York City.

The problems in this county are poverty, unemployment, housing, and medical care needs. The county department of social services gives some type of assistance to 7,000 to 8,000 people.

The Federal Government, interested in the health status of the migrant workers, offered grant monies to the community to establish a community health center. The center was organized to provide care especially for persons who do not have a private physician. The Federal funds provide the financial base for renting office space and paying physicians for an evening clinic and for well-child care during the day, year round.

At present the clinic is being operated 4 evenings a week from 6:30 to 9:30. Pediatric, medical, and obstetrical services are provided by residents and attending physicians from a nearby medical center, who are interested in new forms of delivery of care for the poor and in supplementing their regular salaries; physicians who live and practice in the community do not work at the clinic. The clinic staff provides a full range of preventive services including health education, nutrition counseling, prenatal care, well-child care, and immunizations.

Transportation to the clinic, a multiple screening program, and family planning services are planned for the future. A nurse practitioner has been hired, but no satisfactory physicians for full-time positions have been found despite intensive recruitment. The clinic administration hopes to develop a prepayment system for the community. Advocates of the clinic hope that the facility will become a comprehensive community medical center which will provide care to any person in the county who seeks it. The center is directed by a board of trustees and a full-time administrative director.

During the hours when the clinic is not open, persons who would normally use the clinic must

go to the emergency department of the community hospital or to the offices of their private physicians. Clinic physicians from outside the community are paid from grant monies for migrants who receive services at the clinic, but local private practitioners are not reimbursed from the clinic grant monies when the same migrants receive care in the emergency room or the practitioners' offices. The health center records are not made available to private physicians who see patients in the emergency room. These two reasons may further explain the physicians' agitation.

### Providers of Care

The hospital studied is the only one in the northern part of the county, and there are no nursing homes in this area. The county board of supervisors employs six public health nurses for this section of the county.

The hospital is relatively new, and it has an excellent physical plant. It has 60 beds, 52 for medical-surgical patients and 8 for obstetrical patients. During 1969 there were 1,579 admissions; the average length of stay was 10.2 days. Visits to the emergency department have increased in recent years as follows:

July 1, 1967–June 30, 1968.....	3,939
July 1, 1968–June 30, 1969.....	4,704
July 1, 1969–June 30, 1970.....	4,788
July 1, 1970–June 30, 1971.....	4,949

The emergency room is staffed by eight physicians who have admitting privileges at the hospital. At present the physicians rotate, each physician being on call for 24 hours, 5 days every 7 weeks and 1 weekend every 9 weeks. (Two physicians are exempted from weekday coverage because their practices are far from the hospital.)

The eight physicians consist of two internists, two general surgeons, three general practitioners, and one obstetrician-gynecologist; three are over 60 years old. Several new buildings were built to attract new physicians to the area; the most recent is a four-suite office building 50 yards from the hospital. Since no new physicians were recruited, three local physicians moved into the building, and the fourth suite was rented to the community clinic.

One physician interviewed stated that his primary responsibility was to his private patients. When he was covering the emergency room, he was not available to his private patients for emergencies. Because he lives and practices half way

between the hospital studied and another hospital, he is considering severing his affiliation with the hospital studied.

### Methods

A sample of 502 patient visits from January 1 to December 31, 1970, selected systematically from the emergency department logbook, was studied by the regional medical program personnel. The total number of visits to the emergency department during 1970 was 5,020; thus the sample represents 10 percent of the total. Information from the medical record for the visit was used, as well as that from the logbook.

### Results

Of the emergency department patients, 87.25 percent, or about 4,379, came from the county in which the hospital is located. It was not possible to determine from the address or other information on the record whether a patient was a migrant or a tourist. Therefore, the proportion of increased utilization generated by migrants and tourists in the summer and fall could not be determined.

*Monthly utilization rates.* The following figures are the monthly utilization rates of the emergency department, presented as percentages of the total number of visits each month, and the estimated daily and monthly visits.

Month	Percent of visits	Estimated number	
		Monthly	Daily
January.....	6.18	310	10.00
February.....	5.78	290	10.35
March.....	5.58	280	9.03
April.....	6.18	310	10.33
May.....	8.96	450	14.53
June.....	9.16	460	15.33
July.....	11.55	580	18.70
August.....	11.75	590	19.03
September.....	9.76	490	16.33
October.....	10.96	550	17.74
November.....	7.17	360	12.00
December.....	6.97	350	11.29

The highest demand for emergency services occurred in August, when 11.75 percent of the 1970 visits were made. The lowest demand was in March, accounting for 5.5 percent of the year's visits and less than half of the August demand. Peak demand in the summer months has been noted in other studies of emergency departments (4); however, the high rate of utilization in the early fall (September and October) is atypical. The peak summer demand may be partially due to the influx of lakeside residents and migrant work-

ers. The high rate in September and October is probably related to the large numbers of seasonal workers remaining in the area for the autumn harvests. Thus, the increased summer and fall demands have obvious implications for staffing the emergency department, since the highest demand occurs at a time when many physicians are on vacation.

*Daily utilization rates.* The distribution of visits by day of the week was as follows.

Day	Percent of visits
Monday.....	11.95
Tuesday.....	13.15
Wednesday.....	11.95
Thursday.....	13.94
Friday.....	13.15
Saturday.....	18.13
Sunday.....	17.73

As the preceding figures show, Saturdays and Sundays, when the clinic is closed and private practices may also be closed, are the busiest days in the emergency department. Utilization rate differences among the weekdays are too small for us to make reliable statements. The actual number of visits per day is seasonally variable. Some estimates can be made by using the following monthly utilization figures. For March the estimated number of visits was 280, or an average of 9.03 visits per day, whereas in August the estimate was 590 visits, or an average of 19.03 per day.

*Hourly utilization rates.* In order to schedule personnel for the emergency department, it is important to know the rate of visits by hour of the day. The hourly rates presented in the chart are aggregates over the entire year; no attempt was made to determine if these percentages vary among months or days.

The peak utilization rates appear to be 9 am to 12 noon, 1 pm to 2 pm, and 7 pm to 8 pm. Since utilization rates are important for planning, they should be collected throughout the year as actual population counts rather than obtained from samples. Actual counts show the seasonal effects on the daily and hourly rates, as well as other peculiarities that averages can mask.

*Presenting diagnoses.* The percentage of visits and the estimated number of visits for 1970, according to the types of conditions seen, were as follows. (The categorization of the conditions, directed by a physician, depended on the availability of information on the visit record.)

Conditions	Visits	
	Percent	Estimated number, 1970
Minor burns, abrasions, contusions, cuts.....	35.36	1,770
Major burns, abrasions, contusions, cuts.....	10.56	530
Fractures.....	9.96	500
Upper respiratory.....	5.78	290
Lower respiratory.....	3.78	190
Minor dermatologic.....	4.58	230
Major dermatologic.....	1.39	70
Psychiatric.....	1.80	90
Poisoning.....	.60	30
Other.....	26.19	1,320

Burns, abrasions, contusions, and cuts accounted for 45.92 percent of the emergency department's volume. Skin flaps, amputations, wounds requiring subcuticular sutures, and contusions of body structures were classified as major conditions; these accounted for 10.56 percent of the visits, whereas 35.36 percent of the visits were for minor burns, abrasions, contusions, and cuts. Fractures accounted for 9.96 percent of the visits, an average of more than one casting per day. The "minor" conditions were assumed to be those that could be treated by a physician's assistant, nurse practitioner, MEDEX, specially trained nurse, or associate.

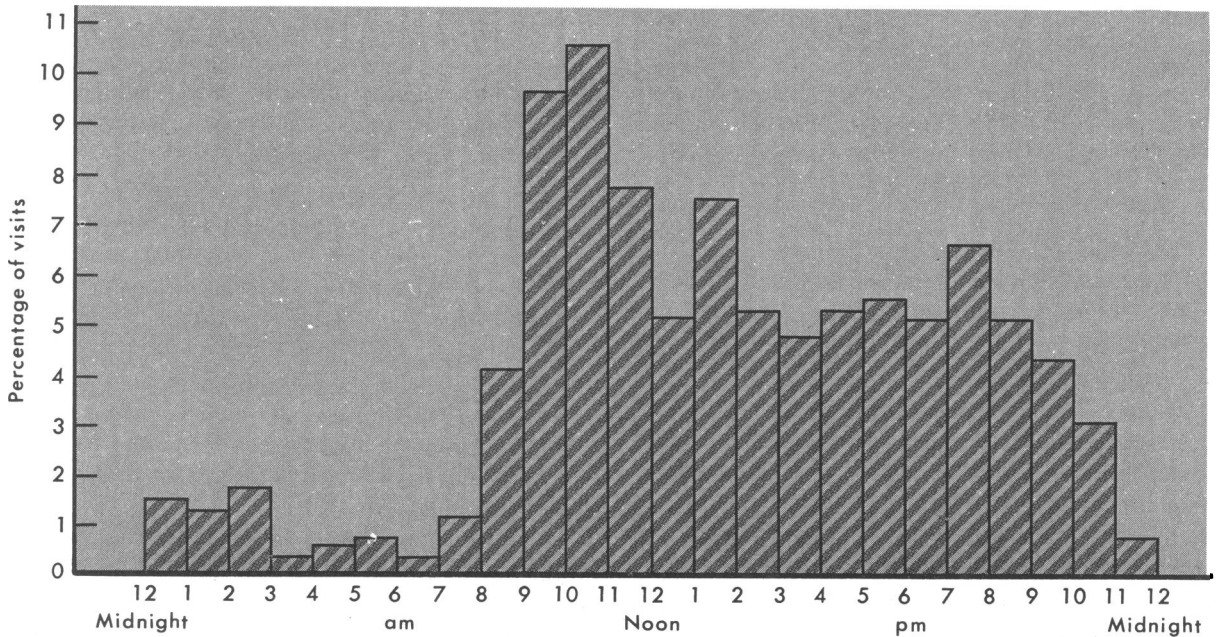
Respiratory infections were classified as upper or lower. Upper respiratory conditions were those that could be treated by a physician's assistant or similar specially trained personnel; patients with these infections occasionally required prescriptions for antibiotics. Lower respiratory infections included pneumonia, bronchitis, and asthma.

Dermatological conditions were classified as major if prescription medication was needed or a difficult differential diagnosis was made. Minor dermatological conditions were those that could be treated by a physician's assistant or other specially trained personnel.

Only 0.6 percent of the visits were for poisoning. None of the patients were dead on arrival. The rate of admission of emergency patients to inpatient status was 9.56 percent; a similar rate was noted in another study of emergency departments (5).

*Treatment procedures.* Potentially lifesaving procedures such as defibrillation, respiratory assistance, and administration of oxygen were used in only 0.90 percent of the emergency department visits, as shown in the following tabulation. However, it is possible that such procedures were used frequently in the hospital for the patients admitted directly to inpatient status.

## Hourly utilization rates in the emergency department



Treatment	Percent of visits
Dressing.....	28.49
Cleansing.....	24.50
Suturing.....	16.14
Advice.....	14.74
Braces or crutches.....	5.18
Surgery (other than suturing).....	4.38
Cast.....	3.59
Ace bandage.....	3.39
Removal of foreign body (eyes, ears).....	2.19
Defibrillation, oxygen, respiratory assistance.....	.90
Other.....	40.04

Patients often received several types of treatment. The 15 percent figure for patients who received only advice may indicate that their visits were nonemergency or inappropriate for an emergency department facility.

Diagnostic procedures such as chest X-rays, blood tests, cultures, urine tests, and electrocardiograms were infrequently performed. Presumably most of the patients' conditions were not complex enough to require diagnostic procedures.

Prescription medications were given in 26.10 percent of the visits and injections in 28.49 percent; 14.15 percent of the injections were of tetanus toxoid. Although medication was not given in about 57 percent of the visits, the patients may have been given prescriptions.

Twenty-two percent of the patients required "X-rays other than chest X-rays." This again indicates the high level of trauma conditions which this emergency department treats.

**Costs.** The following charges for visits do not include the physicians' fees. The standard emergency department fees are \$10 for patients who do not have private physicians and \$3-\$5 for patients who have private physicians.

Charge (dollars)	Percent of visits
None.....	6.37
3-6.....	20.51
7-12.....	36.85
13-18.....	15.13
19-24.....	5.77
25-30.....	9.16
31-36.....	1.99
37-42.....	1.59
43-48.....	1.19
49-61.....	.77
Not ascertained.....	.67

Approximately 6 percent of the patients were not charged for their visits to the emergency department; 20.51 percent were charged a total of \$3 to \$6. About 37 percent were charged a total of \$7-\$12, and 15 percent were charged \$13-\$18. Thus, about 79 percent of the patients were charged \$18 or less for their total visits.

### Discussion and Conclusion

Analysis of the events in one community may provide other communities with insights into their health delivery problems. The data collection technique discussed provides a general understanding of the emergency department utilization, but has its limitations. It was impossible to distin-

guish between a patient receiving care from the community health center or a patient with an ongoing relationship with a physician in the community. As so often happens in retrospective studies, data may not be available or not available in the proper form to implement the goals of a study. Data for patient care should be available and collected in a manner which will contribute to institutional management and community planning.

Data interpretation varies with vested community interests. Hospital interests, private fee-for-service interests, community health center interest, and community interest may be alike or different, depending upon the issue in question. Often discussion of data is possible when discussion of emotionally charged issues is impossible. Any change in a given provider of ambulatory care has a quantitative impact upon other providers in the community. Therefore, planning and evaluation must be based upon a community approach. Communication between community leaders might be improved by periodic informal meetings in which important items are discussed in a relaxed atmosphere before they come to crisis proportions. It must also be realized that what is best for one organization may not be best for another; incentives should be employed.

For example, the community clinic could contract with private physicians for care when the clinic is closed. Exchanges of manpower, funds, and information should be encouraged. Continuity of records between the community clinic and the emergency room might be achieved, followed by exchange of records with private practitioners.

The basic problem of the community described is a shortage of physicians. The ratio of primary physicians (internists, general practitioners, and pediatricians) to the population is approximately 1 to 4,675. The emergency department crisis appears to be a symptom of this problem. The solution obviously is the recruitment of new physicians. But, according to members of the community, construction of facilities for physicians and the community health clinic have thus far failed to attract permanent physicians. In the opinion of regional planning representatives, the situation is much more complicated than just overburdened physicians. The community clinic, hospital, and private practitioners are not working together to develop a system of care. (The clinic and hospital are located within 100 yards of one another.)

The community should organize to provide available, accessible care for persons who have private physicians as well as for those who do not. To say that a convenience clinic or like service should be organized does not imply that the services should necessarily be under the auspices of the clinic, the private physicians, or the hospital. There does not appear to be enough demand at present to offer walk-in services in the emergency department, community clinic, and physician's offices simultaneously, 24 hours a day. Cooperative arrangements should be developed to provide nonemergency, immediate care at one site, particularly at times of the day when demand is low. The data suggest that physician's assistants or similar personnel could perform more services, particularly in the care of minor burns, abrasions, contusions, and cuts.

Health community organization processes should be coupled with data collection and analysis. Health organizations in a given community have different objectives as to what is in the best interest of the community. There may be barriers between proprietary and voluntary institutions and between such personnel as hospital administrators, physicians, nurses, health planners, and consumers. Also, legal, quality of care, and economic considerations may create obstacles for physicians wishing to delegate to others the care of patients with minor burns, abrasions, contusions, and cuts.

Change will occur when incentives for change are offered. Change will occur in the community's health system in small increments only if cooperative arrangements are rapidly evolved.

## REFERENCES

- (1) Codes, Rules and Regulations of the State of New York, vol. 10, ch. V., 5095 (720.17) 1962.
- (2) Regional Medical Program Mission Statement. Regional Medical Programs Service, Health Services and Mental Health Administration, Rockville, Md., June 30, 1971.
- (3) New York State Department of Health: Eighty-eighth statistical report: (a) excerpt from table 29; (b) excerpt from table 33. Albany, N.Y., 1967.
- (4) Gavett, J. W.: Data from five Rochester emergency departments. Graduate School of Management, University of Rochester, Rochester, N.Y., summer 1969.
- (5) Jacobs, A., Gavett, J., Raguso, A., and Thurber, C.: The emergency room crisis and challenge: A technique for self-study and change. NY State J Med. In press.