Special Article

How we solved the overcrowding problem in our emergency department

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Overcrowding in emergency departments presents serious problems to both patients and hospital staff. At Scarborough (Ontario) General Hospital this problem was becoming potentially dangerous until a hospital committee instituted a series of changes that dramatically improved the situation. A geriatrician was appointed to assess and care for the increasing number of elderly and chronic care patients. The beds in various services were reallocated, and more beds were given to the medical service. Surgeons agreed to perform more surgery on an outpatient basis, and the Short-Stay and Ambulatory Procedures units were expanded to handle more procedures. In addition, the implementation of a physician-managed admission system ensured the appropriate admission of patients. The entire system is monitored, and the committee meets regularly to deal with any problems.

L'encombrement des salles d'urgences présente de sérieux inconvénients pour les malades et le personnel. Lorsque la situation a paru sur le point de devenir dangereuse au Scarborough General Hospital, en Ontario, on a pu la désamorcer dramatiquement grâce à un ensemble de mesures prises par un comité. On a nommé un gériatre chargé de l'examen et du traitement des malades âgés et chroniques en nombre croissant. On a changé l'affectation des lits, dont un plus grand nombre appartient maintenant au service de médecine. On a persuadé les chirurgiens de faire plus d'opérations en externe, à la faveur de l'agrandissement des sections de court séjour et de traitement ambulatoire. De plus, on a confié à des médecins la gestion des admissions, ce qui a permis de rationaliser l'entrée des malades. Le tout est surveillé par le comité, qui se réunit souvent afin de régler toute difficulté.

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Overcrowding is a well-documented and well-publicized daily occurrence in many hospital emergency departments. When acute care beds become filled patients often stay in the emergency department until beds become available. The resulting overcrowding puts excessive strain on the nursing and medical staff as well as on the physical facilities. The potential for disaster is frequent in this often chaotic situation.

At our hospital we faced this problem for several years. However, we recently implemented a series of changes that seem to have eliminated the overcrowding.

Background

Scarborough General Hospital is a 768-bed facility serving a population of 500 000 in a Toronto suburb. We see 80 000 patients a year in the emergency department, and another 15 000 attend our clinics.

Over the past 3 years there has been an increase in the number of patients admitted to the hospital through the emergency department; by September 1988 the figure had reached 69%. Because the hospital maintains a 90% to 95% bed occupancy rate admitted patients often could not be sent to the wards. Thus, many patients requiring acute care stayed in the emergency department for up to 48 hours, and it was not unusual to have 20 to 30 patients waiting 12 to 24 hours for a bed.

The result was a severely overburdened emergency facility. The nursing staff became demoralized and resented working under these conditions; they felt that they were no longer doing emergency nursing, the job for which they had been hired. The administration was frequently inundated with complaints from patients and relatives. The physicians were unable to see the "emergency" patients promptly because many of the beds allocated to the emergency department were occupied by admitted patients. In addition, the nurses were often too busy attending to the admitted patients to be able to help the physicians with the emergency patients.

Fear grew that the situation was bordering on

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disaster. A committee comprising members of the medical, surgical and administrative staff was appointed by the Medical Advisory Committee to draft a comprehensive policy in an attempt to eliminate the problems. It was the mandate of the committee to work within the hospital budget.

We believed that we were using our beds efficiently, and we could demonstrate that our patients' average length of stay was shorter than that at any other hospital in our peer group. However, it was unrealistic to think that the government would supply additional funding, even though we could prove that we seriously lacked the facilities to meet the community's need for beds.

The obvious solution to the overcrowding — to admit all emergency patients and cancel all admissions for elective surgery — was not feasible or fair to the patients scheduled for elective surgery. Since as many as 30 such patients could be admitted on some days, there would be a large number of cancellations daily.

The administrative staff attempted to maintain a reasonable balance between keeping patients in the emergency department and cancelling elective surgery. Patients in the emergency department who required surgery were given the first available beds even if it meant cancelling admissions for elective surgery, whereas medical patients were frequently kept in the department. Fortunately, with the exception of obstetric patients, all emergency patients tend to be admitted to hospital through the emergency department.

In October 1987, after 8 months of meetings, the committee created a policy. The results have been dramatic. The committee meets regularly to correct problems, review the statistics and develop new ideas.

Changes instituted

Geriatric unit

One of the main problems contributing to the overcrowding in the emergency department was the large number of geriatric and chronic care patients awaiting discharge to a chronic care facility. In March 1987, 102 patients had been waiting up to 2 years for placement.

As part of the new system a geriatric unit with 10 beds was created. A full-time certified geriatrician was appointed, and a team comprising a clinical nurse, a dietitian, an occupational therapist, a social worker and a physiotherapist began assessing our large geriatric population. All the staff on the team had been part of the existing hospital staff.

It is difficult to measure the impact of this team. However, the number of placement problems has decreased to 50. The team has been instrumental in rehabilitating some of the chronic care patients so that they require less intense care and thereby expediting their discharge to nursing homes. There is no doubt that the smaller number of chronic care patients and the improved flow of these patients to facilities providing long-term care have contributed substantially to the success of the new system.

Bed reallocation

Our acute care beds have traditionally been allocated according to specialty, each specialty being assigned a fixed number of beds in a specific location. Most of the patients in the emergency department who were awaiting admission had medical problems and needed to be moved to a medical floor.

We reviewed the distribution of beds and reassigned two beds from the gynecologic service and eight from the surgical service to the medical service. We enlarged the Short-Stay Unit (SSU) and the Ambulatory Procedures Unit (APU) to handle more day surgery cases.

Staff from the surgical specialties compiled lists of procedures that could be done in the SSU and the APU provided there were no medical contraindications. By moving certain inpatients to those units the surgeons were able to maintain their case load, even with the smaller number of beds, without cancelling any elective operations. In fact, the number of admissions for elective surgery has increased.

The Department of Medicine has been able to use the additional 10 beds and, although it was first thought that this number might be insufficient, there is now often a surplus of beds, and many more patients are being admitted electively to the medical service.

SSU and APU

A nursing unit adjacent to the operating rooms was set aside as a 13-bed SSU. Patients are admitted the day of surgery and discharged before 9 am the next morning. Elective blood transfusions, amrinone infusions and some forms of chemotherapy are also performed in the SSU. We have recently expanded the SSU program to admit patients who require a 2-night stay. Preoperative assessment, including history-taking, physical examination, medical and anesthetic consultation, and laboratory and radiologic investigations, is completed and the results are entered into the patient's record before admission. This procedure has created more work for the surgeons' offices, but it has expedited and facilitated admissions for elective surgery.

The APU was enlarged to handle an increasing surgical load as well as elective medical procedures such as colonoscopy and endoscopy. New reception and preparation areas were created to free up the recovery room, where there had been a

bottleneck that slowed the flow of patients through the unit.

The SSU and APU are self-contained, both having a reception/waiting area as well as nursing and clerical staff. The units are closed on weekends to ensure that the SSU beds remain available for Monday's admitted patients. In addition, an in-hospital laboratory set up so that all necessary tests can be done before admission is functioning well.

Physician-managed admission system (PMAS)

The PMAS is an integral part of the new system. Essentially, all admissions for a given day are controlled by the on-call physicians. Each service decides how to manage its beds. The physician on call for a particular service is designated as the monitor for that service and is responsible for ensuring an adequate number of discharges to allow for emergency admissions, responding to calls from other services to borrow beds and reviewing how the service's beds are being used.

Each morning the physician receives a computer printout identifying his or her inpatients, their date of admission and their expected date of discharge. The physician can get an up-to-date report of the overall bed use from a printer in the emergency department.

If there are no beds for a particular service the admitting physician can contact the monitor of another service between 7:30 am and 11 pm to borrow a bed; after 11 pm the admitting physician must find a bed on his or her service. A borrowed bed must be returned within 24 hours. On the rare occasion when there are absolutely no beds the patient must be transferred to another facility.

At the time of admission each patient is given an expected date of discharge. If a service is short of beds the monitor can ask a physician who has a patient on the discharge list to expedite the discharge if possible.

Physicians are encouraged to make rounds in the morning and to write their discharge orders early in the day. As well, the nursing and housekeeping staff prepare the rooms as soon as the patients have left to speed up the transfer of patients from the emergency department.

The Medical Advisory Committee has formed a PMAS committee, chaired by a physician, that meets every 6 to 8 weeks to review the new policies and the day-to-day operation of the system. The ultimate success of the system rests in the hands of the assistant executive director of medical services (C.C.), who oversees the operation of all the procedures.

Table I — Total number of admissions through the emergency department

Type of admission	No. of admissions: Oct. 1986 to Mar. 1987	Oct. 1987 to Mar. 1988	% change
Elective	3 773	3 645	−3.4
Emergency	8 064	8 416	+4.4
Total	11 837	12 061	+1.9

Table II — Admissions through the emergency department, by specialty

Specialty	No. of admissions: Oct. 1986 to Mar. 1987	Oct. 1987 to Mar. 1988	% change
Medicine	2797	3009	+7.6
Surgery*	1814	1677	−3.1
Obstetrics/ gynecology	1759	1966	+11.8
Pediatrics	1255	1239	−1.3
Psychiatry	435	449	+3.2
Total	8060	8340	+4.4

*Includes general surgery, orthopedics, plastic surgery, urology, dentistry, otorhinolaryngology and ophthalmology.

Results

The statistics show that the new system is working. Data from the PMAS, which went into effect in October 1987, are regularly analysed and reviewed by the PMAS committee.

We wondered if the improvement was due to a decrease in the number of admissions (Table I). However, between October 1987 and March 1988 the total number of admissions was 1.9% higher and the number of admissions through the emergency department 4.4% higher than those in the same period the previous year.

We also reviewed the number of visits to the emergency department. We felt that with several walk-in clinics in the area and the recent opening of a new hospital our daily volume might decrease. Indeed, the volume in the department decreased by 2.9% despite the 4.4% increase in the number of admissions. Thus, although some of the walk-in patients were being seen elsewhere, the volume of seriously ill patients has continued to increase.

There were more emergency admissions to the medical service than to any other service (Table II), and the volume continues to grow.

On the basis of the number of patient days of care for each service, we determined that beds could be taken from the surgical service and given to the Department of Medicine. Although the surgeons argued that these beds would soon be filled and that the backup would again occur in the emergency department, this has not happened with the new system. In fact, we rarely have more than five patients waiting more than 12 hours in the emergency department for admission. Before the institution of the PMAS we often had 20 to 30 patients waiting for admission, and on one occasion we had 43. The surgeons also feared that

because they had fewer beds elective surgery would be either cancelled or postponed. However, there are now virtually no cancellations (Table III). To overcome these concerns the SSU and the APU were enlarged, and surgeons were encouraged to perform as many procedures as possible in these units (Table IV).

The improvement in the status of our emergency department and the increased amount of usable space have resulted in a significant decrease in the number of times we close the department to patients arriving by ambulance. This closure used to be common and often caused animosity between our hospital and the Department of Ambulance Services of metropolitan Toronto as well as other hospitals in the area. Now the only time we close the department to such patients is when there are no beds available in the intensive care or chronic care unit.

Discussion

An overcrowded emergency department puts both patients and staff in a precarious situation. Because it was impossible to obtain government funding to improve facilities and staffing we sought alternative solutions. Initially our proposed system was met with almost universal opposition and scepticism; however, the critics did not offer any solutions to our problems, and we asked them to at least try the new system.

The system does appear to be working. The morale at the hospital has improved, and the medical and nursing staff are no longer burdened with the constant pressure of an overcrowded emergency department. We saved $150 000 in 1988 because we did not have to hire additional nurses to cope with the patient overflow.

The compliance of the medical staff has increased, although there are still a few sceptical physicians who insist that administrators should be responsible for finding beds for patients. This is an erroneous premise and is one of the focal points of the PMAS. Only a physician can determine the need to admit a patient; similarly, it is the physician's duty to discharge patients to free up beds. Physicians who do not adhere to the new policies will be reported to the chief of their service and may have to appear before the Medical Advisory Committee.

We have encountered one problem in the system that may be insoluble. On several occasions the hospital has had no empty beds. Patients presenting to the emergency department who were later admitted remained in the department until the next day, when beds became available. Theoretically these patients should have been transferred to another facility. However, when any hospital is full so are the other hospitals in the area. The teaching hospitals are reluctant to accept transfers from the periphery unless the patient has an unusual problem. More important, such transfers are extremely time consuming; our consultant first has to talk to the resident, who subsequently has to approve the transfer with his or her staff physician. We have also found that most of the patients in this situation prefer to stay in the emergency department rather than be transferred to a hospital far away.

We are unaware of other attempts to deal with the overcrowding problem; a MEDLINE search did not find any articles dealing specifically with this subject. However, overcrowding is probably unique to the Canadian medical system; US hospitals, at least, seem to have an ample supply of beds and even a surplus in some areas.

We still view the new changes with cautious optimism. The admissions are reviewed daily, and one of us (C.C.) oversees the entire system. The PMAS committee meets regularly and reports any changes or new policies to the Medical Advisory Committee.

Because the system works well at our hospital we encourage other institutions to try it. For success the system must be carefully planned and properly presented to the medical staff before being implemented. As well, it must be customized to fit each hospital's circumstances.

Special thanks go to Dr. David Naiberg, who, as PMAS committee chairman, was instrumental in the success of the new system. ■

Table III — Cancellations of elective surgery due to shortages of beds

	No. of cancellations	
Month	1986–87	1987–88*
April	5	18
May	1	12
June	2	5
July	13	1
August	22	4
September	3	14
October	17	13
November	33	13
December	20	1
January	41	4
February	6	2
March	10	0
Total	173	87

*The physician-managed admission system was introduced in October 1987.

Table IV — Number of patients seen in the Short-Stay and Ambulatory Procedures units

	No. of admissions		
Unit	Oct. 1986 to Mar. 1987	Oct. 1987 to Mar. 1988	% change
Short-Stay	495	1076	+117.4
Ambulatory Procedures	9527	9931	+4.0

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