

Emergency department misuse and administrative interventions

CH Chung

Introduction: Notwithstanding the primary mission of managing sudden unexpected illnesses, major injuries and life-threatening conditions, emergency departments have been forced to deal with primary care and even social problems nowadays. Emergency department (ED) overcrowding is a worldwide problem. Hong Kong is not immune, although the causes may be somewhat different. Excessive and unlimited patient volume threatens quality and timely emergency care. A review of the epidemiology of local ED attendance, causes of ED overcrowding and possible solutions may guide the future direction of healthcare in Hong Kong. **Methods:** Medical literature on ED overcrowding and ED misuse were searched from the Medline, HealthSTAR and EMBASE. Relevant full text articles were retrieved through hospital library network. Local emergency medicine publications including the Hong Kong Journal of Emergency Medicine and Emergi-News were reviewed. Local statistics were obtained from the Hong Kong Government information website, Hospital Authority Executive Information System (EIS) and Hospital Authority Accident & Emergency Service data files. **Results:** There has been a steadily rising trend of ED attendance per thousand population. Causes of ED overcrowding include easy access, quality emergency care, barriers to primary care, barriers to specialist care, patient education, human right and free service. There are two approaches to the problem - decreasing the demand or increasing the funding. Usual administrative measures aim at reducing inappropriate use of ED service. These include improved community and primary care, improved specialist support, patient education, financial barriers, patient refusal and even lowering ED service standard. Another approach is augmenting the resources and productivity of emergency departments to cater for the increasing demand. **Conclusions:** There is no single effective solution that will apply in all circumstances. Broadly speaking, overcrowding is the result of inadequate funding for emergency health care services during a period of increasing demand. (*Hong Kong j.emerg.med.* 2000;7:220-230)

Keywords: Emergency department, overcrowding, misuse, administrative intervention

Introduction

Notwithstanding the primary mission of managing sudden unexpected illnesses, major injuries and life-threatening conditions, emergency departments (ED) have been forced to deal with primary care and even social problems nowadays. As a consequence, ED overcrowding has become a worldwide problem.¹⁻⁷ Hong Kong is no exception, although the causes may be somewhat different.

‘Trolley wait’¹⁻³ - admitted ED patient waiting for an inpatient bed - is not a problem in Hong Kong as the great majority of emergency physicians have direct admission rights to inpatient wards. Recent attention focuses on the inappropriate use of emergency services by the general public. However, the concept of ‘appropriate use of the ED’ is much less clear than common wisdom may suggest. Patients, clinicians, insurance payers and policy-makers cannot agree on what constitutes a true ‘emergency’. The annual ED attendance at public hospitals (data from Hospital Authority Executive Information System) has been rising steadily since 1991 - the year of establishment of the Hospital Authority. (Figure 1) Even though the population has also been increasing steadily during the same period (Hong Kong Government census statistics

Correspondence to:
Chung Chin Hung, FRCS(Glasg), FHKAM(Surgery), FHKAM
(Emergency Medicine)

North District Hospital, Accident and Emergency
Department, 9 Po Kin Road, Fanling, N.T., Hong Kong
Email: chunch@ha.org.hk

website: <<http://www.info.gov.hk>>), the rate of increase in attendance has exceeded the population growth. (Figure 2) One characteristics of the ED attendance was the high proportion of semi-urgent and non-urgent cases, which constituted more than three-quarters of the total attendance in 1999. (Figure 3) This phenomenon was supported by the low ambulance referral, which accounted for only 12% of the total attendance in 1999. (Figure 4) There were 15 Accident & Emergency (A&E) departments in Hong Kong, with annual attendance ranging from 12,000 at St. John Hospital to 247,000 at United Christian Hospital in 1999. (Figure 5) Hence, the average annual attendance of an A&E department in 1999 was around 160,000 or 440 daily. This figure was high in comparison with other countries.

Emergency Services are ‘health care services provided to evaluate and treat medical conditions of recent onset and severity that would lead a prudent layperson, possessing an average knowledge of medicine and health, to believe that urgent and/or unscheduled medical care is required’ (American College of Emergency Physicians Policy Statement, October 1998). From the professional perspective, all emergencies should be cared for in an expeditious and timely manner. Excessive patient volume in urban emergency departments threatens quality and timeliness. The presence of large numbers of non-emergency patients in emergency departments will dilute and distract the service, resulting in lowered staff vigilance, delayed attention to those in real need, prolonged pain and suffering, shortcuts in

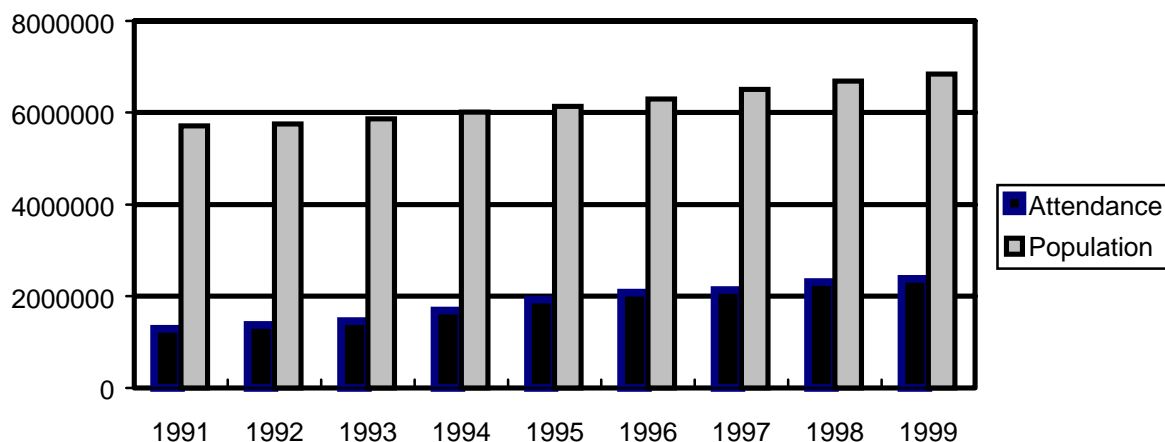


Figure 1. Annual ED attendance and population in Hong Kong.

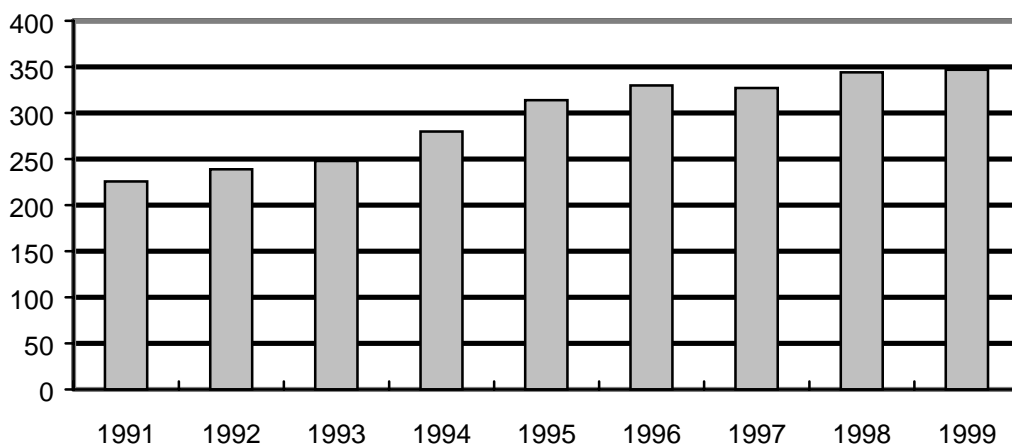


Figure 2. ED attendance per 1000 population.

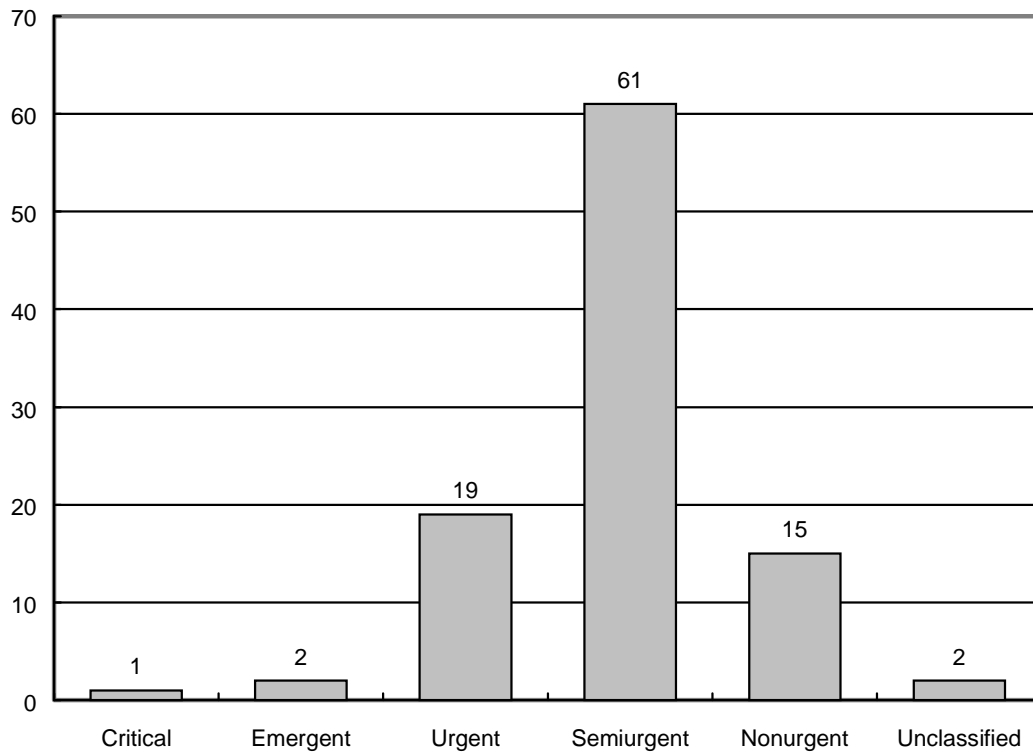


Figure 3. ED attendance by category 1999.

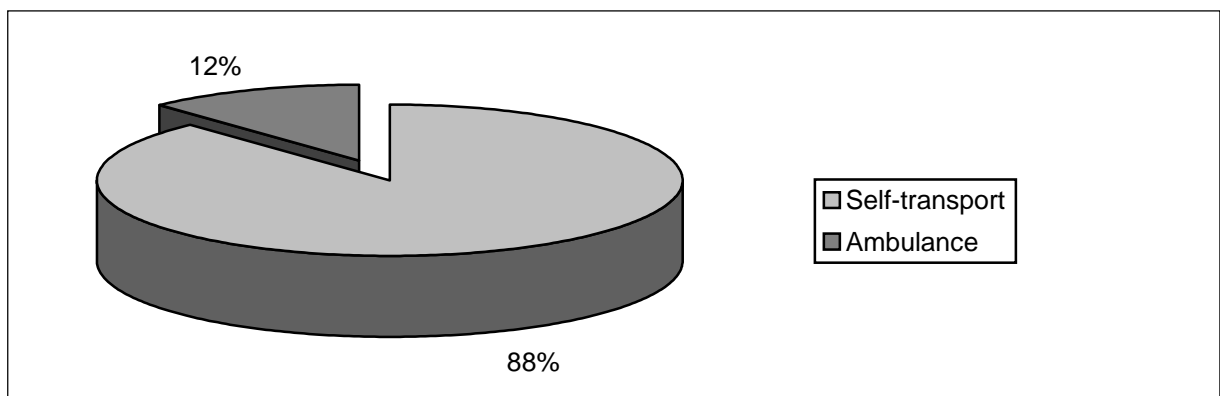


Figure 4. Attendance by ambulance 1999.

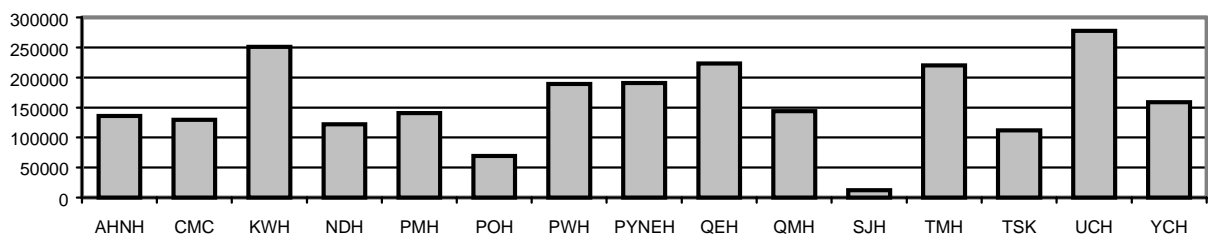


Figure 5. ED attendance by hospital 1999.

patient assessment and lowered management quality.^{3,8} Staff are under stress and more susceptible to errors. Patients become frustrated and dissatisfied. Long waits have been shown to be associated with poor patient outcome and increased hospital cost.⁹ All these contribute to increased emergency department violence, patient complaints and malpractice litigation. Moreover, staffs are deprived of training time and opportunities, generating a vicious cycle.²

Possible causes of escalating emergency department attendance

The frequent use of the ED for services more suitably rendered in a primary care setting has unfortunately remained much the same since the 1970s. There are many possible causes:¹⁰⁻¹²

A. Access, convenience¹³ and availability⁶

Emergency departments have open-door access 24-hours a day, seven days a week. Patients will not be turned away before assessment. There are full support of hospital resources such as laboratory, radiology, pharmacy, specialist clinics and inpatient wards, making 'one-stop' consultation and disposition possible and convenient. Some emergency departments in Hong Kong are situated within densely populated residential areas.¹¹ In addition, emergency departments may be the only suitable healthcare venue for the fragile and those with problems in mobility.¹⁰

B. Comfort and confidence in the quality of emergency care

Modern emergency medical service has attained high professional standard and efficiency. It has gained increasing confidence from the general public.¹¹ Some A&E departments have senior supervision 24 hours a day and 'specialist-based' emergency medical service has become the trend. Patient-centred and customer-oriented care have been emphasized and implemented in emergency departments. Emergency departments, regarded as the 'front door' or 'shopping window' of hospitals, have all been grandly renovated with marbles and paintings to improve hospital image. In addition to improved environment, sophisticated medical equipment such as

defibrillators, cardiac pacers, ultrasonography and computed tomography have become standard features in A&E departments nowadays.

C. Barriers to primary health care service

Although there is a relatively extensive 'safety net' of hospital and community-based primary care clinics, these facilities have proved insufficient to meet the demand for primary care services.⁶ Most public and private clinics will be closed in the evenings and on Sundays and public holidays. For those that open after the usual clinic hours, publicity is poor and availability not generally being aware of.¹¹ In Hong Kong, it is not the tradition for primary care physicians to provide house call service. Statistics showed that average daily attendance on Sundays and public holidays were higher than those on weekdays e.g. the average daily attendance during the Chinese New Year holidays in February was 19% higher than that for the month of January in 2000 (data on file, Hospital Authority). Moreover, the 'quota' appointment system of public general outpatient clinics results in long queues, creates inconvenience and limits availability.

However, the problem may not be as simple as it sounds. Even though ED visits are unscheduled in nature, the pattern of attendance is quite consistent with regular peaks and troughs. Surveys showed that patients came to the ED in a fairly constant stream between 8:00 am and midnight during weekdays, when public and private clinics were still available most of the time. (Figure 6)¹⁴

D. Barriers to public specialist service

Long appointment time and insufficient medication supply to last till the next appointment are not uncommon reasons for ED attendance. Rigid appointment system such as requirement for booking in person and no quota for emergency may force some patients to the emergency department. Patients may regard admission through ED attendance as a shortcut to prompt specialist care.

E. Inadequate medical knowledge or different perceptions of patients

Practice of patient demanded medicine involves

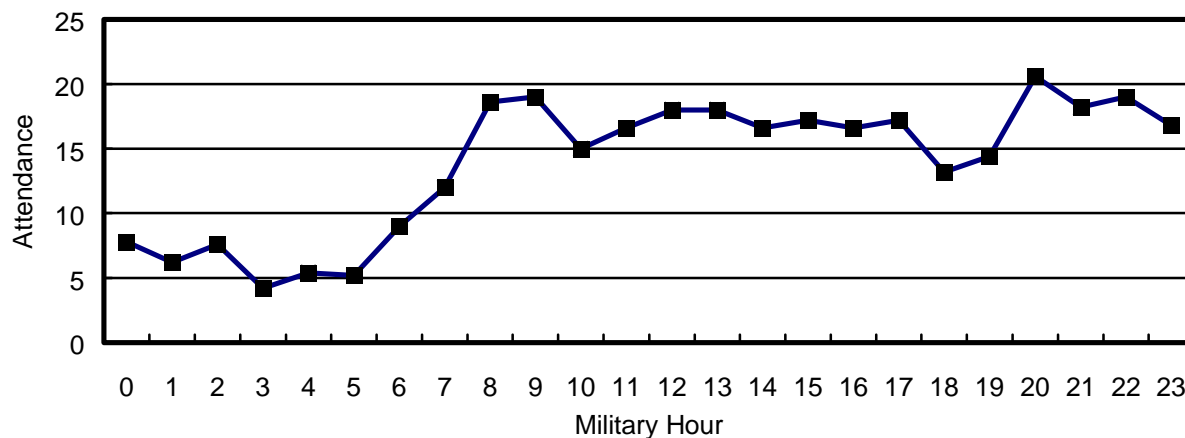


Figure 6. Average attendance by hours in weekdays North District Hospital (April 10-14).

an element of self-selection by patients. Laymen and health professionals may have different understandings to what constitute “acute” and “life threatening” health conditions. It is understandable that laymen have a tendency to use emergency service more liberally in case of doubt, for safety reasons. It was noted that there were wide variations in the way patients assessed the severity of their conditions. In a study, two-thirds of the patients attributed their ‘minor cuts’ as serious because ‘the cut looked deep’, ‘it would not stop bleeding’ or ‘it was a child’. In a similar study of ‘minor illness’, 85% of patients thought their illness to be serious because they ‘did not know what it was’ or because it was ‘not an ordinary pain’.^{11,12,15} ‘Doctor shopping’ is a common phenomenon in Hong Kong. Patients switch from doctors to doctors if symptoms do not improve rapidly. The ED is also a convenient and free service for a second medical opinion.^{12,13}

F. Rising human rights

In the 90s, the Hospital Authority has unduly promoted patient rights without a commensurate emphasis on patient responsibilities simultaneously. Patients regard emergency medical services as part of their ‘social benefit’. Their expectation is high and at times even unreasonable.

G. Free service

Although use of emergency departments for non-emergency conditions has become ubiquitous,

this pattern of utilisation is especially prominent among patients who are poor and without a regular source of primary care.⁶ Emergency department service is entirely free in Hong Kong, including consultation, investigation, treatment and medication. This may be attractive to the indigent,⁷ the uninsured and those unwilling to pay. Low-income, inner city residents tended to use emergency departments as substitutes for the family doctors they did not have.⁶ In contrast, the charge of private doctors may be quite substantial and may not be generally affordable. Emergency departments serve as safety nets for the healthcare system in Hong Kong.

Possible administrative interventions

Overcrowding is a symptom of the failure of the ED and the hospital to successfully serve their local community’s health needs.¹ There are two approaches to the problem - either increase the service or decrease the demand.¹⁶ Most of the attentions have focused on reducing unnecessary use of the ED.

A. Reducing demand

1. Preventive medicine

Simple health problems, left untreated, will become emergency cases.⁷ Often the most cost-effective approach to controlling serious illnesses and injuries is to prevent them from occurring in the first place.¹⁷ Initiatives designed to prevent

serious illnesses and injuries, such as outreaching geriatric, paediatric or psychiatric teams, seasonal reminders and vaccination programs, should be encouraged. Healthy life styles, stop smoking campaigns, helmet and seatbelt legislation, occupational health and safety, environmental control and social service are examples towards this direction.

Effective provision of primary care can prevent the progression of many illnesses to the point that they become serious or life threatening. It has been shown that patients with a regular source of care use the emergency department more appropriately.^{6,18-21} Ideally, the state should provide a basic level of 'health insurance' for all citizens.¹⁷

2. *Public educational campaigns on appropriate emergency attendance*

Clear definition of emergencies and non-emergencies with long explanatory lists and examples may be publicised in newspapers, radio, television, emergency departments, clinics and hospitals. Educational pamphlets may also be distributed at public and private health institutions, public libraries and community centres. Talks on management of minor ailments can be given in schools, colleges, work sites, community centres, emergency departments, clinics and hospitals. Members of the public should be reminded the role of emergency departments and encouraged to seek primary care service as far as possible. Media publicity, poster or light-box displays and enquiry hotlines of the addresses and opening hours of private and public primary care clinics should be implemented. Campaign messages on letter stamps have also been tried in Singapore. Public surveys may be undertaken to assess the views and needs of citizens.

Passive dissemination when used alone is unlikely to result in behaviour change.²² However, this approach may be used for raising awareness of the messages.

These campaigns should be coordinated at state level. They are time and effort consuming. Their effects have been shown to be transient and they should be repeated at frequent intervals.

3. *Increasing access to alternative primary care services*

It was shown that patients with a regular source of care used the emergency department more appropriately than did patients without a regular source of care.^{6,12} Enhancing the capacity and increasing the awareness of the primary care system can potentially reduce public ED overcrowding. It is a less costly form of care for immediate needs in comparison with ED service. It provides a regular source of continuing care for a full spectrum of acute and chronic problems.

Expanded public and private primary care service in various forms have been tried, including evening clinics, Sunday/Public Holiday clinics and 24-hour clinics. An alternative to referral to primary care clinics would be development of hospital based walk-in urgent care clinics near emergency departments for rapid treatment of low-acuity problems.⁶ Their effect in diverting patients from emergency departments has been disappointing.²³ Although directing some patients to primary care settings should theoretically reduce emergency department waiting times, these gains may be offset if shorter waits attract new patients to the emergency department.⁶ If the clinic is within the hospital, it may even attract more potential emergency department attendance.

During the long 'Re-unification' public holidays from 28 June to 2 July 1997, two additional clinics (Lek Yuen and Tuen Mun) provided morning and afternoon outpatient services. However, analysis (data on file, Hospital Authority) indicated insignificant impact on the attendance of the nearby emergency departments i.e. Prince of Wales and Tuen Mun Hospitals. (Tables 1a & 1b)

Lack of public awareness and support might be the reason for the disappointing result. Better media coverage campaign should be tried. Barriers to primary care service for those patients who use the ED for routine health care needs should be identified.

4. *Enhancing primary care services*

Better communications between emergency physicians and family physicians may facilitate

Table 1a. Prince of Wales Hospital A&E vs Lek Yuen General Outpatient Department (OPD).

	Easter holiday A&E attendance	Re-unification public holiday A&E attendance	Increase (decrease)	Re-unification public holiday OPD attendance
00:00 - 08:59	143	176	+33 or 23%	~
09:00 - 12:59	156	151	(-5 or 3%)	130
13:00 - 16:59	159	167	+8 or 5%	70
17:00 - 23:59	265	266	+1 or 0%	~
Total	723	760	+37 or 5%	200

Table 1b. Tuen Mun Hospital A&E vs Tuen Mun General Outpatient Department (OPD).

	Easter holiday A&E attendance	Re-unification public holiday A&E attendance	Increase (decrease)	Re-unification public holiday OPD attendance
00:00 - 08:59	163	165	+2 or 1%	~
09:00 - 12:59	131	141	+10 or 8%	112
13:00 - 16:59	139	150	+11 or 8%	51
17:00 - 23:59	274	277	+3 or 1%	~
Total	707	733	+26 or 4%	163

continuing care. Patient discharge summary issued by some emergency departments is a step forward. Improving the quality and standard of service in public and private primary health clinics to those comparable to emergency departments is necessary. The range of service in primary health care should be expanded, such as minor wound suturing. Services may be further improved by such measures as telephone consultation or on call roster in group practice.

5. *Enhancing specialist support*

Better specialist outpatient support may help to alleviate the pressure on emergency departments. Because of the difficulties patients encounter in scheduling timely appointments, it might be necessary for clinics to reserve appointments for emergency department referrals and to have emergency department staff assign patients a designated appointment slot rather than simply give patients a clinic telephone number to call. Hopefully, this may lower the rate of ED re-attendance.

6. *Financial barriers*

Small single standard fee for emergency department attendance has negligible or only

transient effect in lowering ED attendance. On the other hand, substantial fee increase may bar real but minor emergencies at the same time. Separate itemised charges for investigations, procedures and medications may have the undesirable effect of higher charges for genuine emergency patients, as they usually require more attention (unpublished communication, Dr. V. Anantharaman, May 2000). If bad debts are not seriously chased after, patients will learn quickly and revert to the 'usual' practice. The disciplined or the elderly may be penalised as they may defer attendance to a later and more serious stage.

A survey by the Hong Kong Society for Emergency Medicine and Surgery in August 1999²⁴ revealed that out of 405 respondents to a questionnaire, 365 (90%) members - doctors, nurses and prehospital emergency care providers - supported charging for ED service. Fifty percent supported charging below HK\$100, 34% supported charging between HK\$100-200 and 9% supported charging above HK\$200.

In contrast, a survey by the Hong Kong Medical and Healthcare Forum in January 2000¹⁶ on 1032 citizens found that 478 (46.3%) objected and 396

(38.4%) supported ED charging. Seventy-two percent preferred charging below HK\$100, 5% supported charging between HK\$100-200 and 2% supported charging above HK\$200.

7. *Re-direction of non-emergencies or patient refusal*

Another option would be to simply refuse care to patients coming to emergency departments without clinically appropriate reasons. However, without adequate primary care clinic capacity and a careful mechanism for referring patients to primary care sites, turning patients away from emergency departments with a list of primary care clinics to call means that the call for primary care is likely to remain unanswered. Moreover, the concept 'appropriate use of the ED' is much less clear than common wisdom might suggest. Physicians and nurses cannot reliably predict in advance which patients need to be seen in the ED. Limiting access to EDs without the aid of a valid and reliable definition of appropriate use can result in barriers to needed care and harm to patients' health. Nurse-assigned acuity scores correlated poorly with patients' rating of the seriousness of their problem.⁶

Strategies to reduce unnecessary ED use run the risk of inadvertently refusing care to patients truly in need of emergency attention with resultant medical, ethical and legal problems.

Turning patients away to alternate health facilities more appropriate for their clinical problems is difficult to enforce in this era of rising human rights. It may result in disputes and confrontation with disgruntled patients or relatives. Doctors may be called in for arbitration, resulting in more time consumption. It will also create bad hospital image and bad public relation. Turning the wrong patient away may have disastrous consequences. Patient refusal by hospitals still occurs in Thailand, e.g. for financial reasons. It is estimated that at least 15% of emergency patient deaths are the result of hospital refusal.²⁵

8. *Lowering service standards*

The emergency department queue itself is occasionally used intentionally to play a triage role by imposing a high 'time price' on patients

for use of the ED service.⁶ However, it had been shown that patients in different acuity categories facing long waits were equally likely to leave without being seen and that many patients who left had urgent problems that subsequently require hospitalisation.²⁶ Emergency department queues do not, therefore, appear to be a sufficiently discriminating mechanism for discouraging inappropriate use.

Other strategies include limiting investigations, procedures and medications (range and duration of supply) to the minimum basic standards to discourage utilisation. Again, this step backward is undesirable in modern ED practice.

9. *Ambulance diversion or interhospital transfer*

Although not an intervention to discourage ED misuse, ambulance diversion or interhospital transfer has been widely practised overseas as a temporising measure for ED overcrowding.^{2,3,27} With the influx of seriously ill patients arriving by ambulance stopped or transferred out, the ED is allowed time to clear the backlog. However, ambulance transport time will be prolonged and definitive care delayed, putting those urgently requiring the skills and resources available in the ED at greater risk. This practice is contradictory to the primary aim of the ED and should be discouraged.

B. Augmenting ED resources and/or productivity

1. *Enhancing ED capacity and service*

Instead of condemning the abuse of emergency service by the general public, the issue should be viewed from the patients' perspective. What are the needs of this group of 'non-emergency' patients - a cheap service, a quality service, a fast service or a combination? Why is emergency service so popular for 'non-emergencies'? Solutions should be directed to tackle the roots of the trouble and to provide comparable services to satisfy the needs of this group of 'customers'. This may even mean expanding the scope of the ED service by adding more resources and manpower to replace some of the existing primary care facilities! Innovative measures such as ED telephone advice may prevent inappropriate attendance and especially

re-attendance after initial visits, or may even prevent deterioration before ED arrival.²⁸

2. *Increasing ED efficiency and productivity*

Improving patient flow, enhancing staff efficiency and removing non-value added task result in more productivity for existing ED services. Expediting patient transfer to and discharge from inpatient beds may help ED overcrowding.^{1,3,4} Structural re-design, computerisation, automation, cascade staff duties and clinical audit are other suggested measures. Use of physician extenders such as physician assistants and nurse practitioners may be more cost-effective.

3. *Enhancing prehospital care*

'Bringing the hospital to the patient'²⁹ is still the predominant concept in Europe and the Commonwealth of Independent States, where doctors ride in ambulances. In North America and Australia, paramedics are well trained. It is not uncommon for patients to be treated and released at the scene - 'treat and street'.³⁰ This will save valuable manpower and resources for both the ambulance service and the ED. With the recent 'over-production' of doctors in Hong Kong, this may be considered as an alternative form of emergency health care.

Conclusion

Not surprisingly, there is no single effective solution that will apply in all circumstances. Generally speaking, overcrowding is the result of inadequate funding for emergency health care services during a period of increasing demand.³ "What the issue really comes down to is limited financial and human resources. The cracks in the foundation are felt first in the ED, because we never close our doors. The ED is the ultimate safety net, but now that is bulging" - Dr. Charlotte Yeh.⁷

Many patients coming to the public hospital emergency department may not require emergency services, but almost all have health care needs that deserve medical attention. Policies that deny patients ED care either explicitly, through criteria for refusing care, or implicitly, through long waiting

times or prohibitive charges, without assuring patients of access to an alternative source of care are ethically and clinically unacceptable.

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