

Paediatric Admissions at a Tertiary Hospital in Kuala Lumpur - A Case for a Short-Stay Ward

L A Chong, MRCPCH, W S Lee, MRCP, A Y T Goh, MRCP

Department of Paediatrics, University of Malaya Medical Center, 50603 Kuala Lumpur

Summary

The profile of admissions staying less than 24 hours admitted to the paediatric wards of University Malaya Medical Center, Kuala Lumpur, over a period of six weeks was reviewed to ascertain the need of a short-stay ward. Ninety-three (22%) of the 428 admissions admitted during the study period were discharged within 24 hours, 56 (60%) were discharged within 12 hours. Major categories of admissions were: elective investigative procedures (43%), and emergency admissions (44%). Reasons for emergency admissions: infections 42%, minor trauma/cerebral concussion 25% and febrile/afebrile seizures 11%. Only 20% required percutaneous oximetry monitoring and 2% required observations more frequently than 2 hourly. There may be a case for a short stay ward in a big paediatric unit in Malaysia.

Key Words: Short-stay ward, Paediatric admissions

Introduction

Most acute childhood illnesses that required hospital admission are brief in nature and can usually be managed at home with appropriate advice¹. In instances when hospital admission are necessary, it is the current trend for brief stay and early discharge to minimise family disruption and separation anxiety as well as economic benefits². There is a trend for day surgery and observational wards at the emergency department in many hospitals around the world^{3,5}. The effectiveness of an observation unit to provide an alternative treatment site for patients without adverse outcomes has been advocated by several authors^{1, 5,7}. Significant cost savings has been

shown in admission to short-stay wards (SSW) as compared to hospital admissions^{1, 5, 8-10}.

The paediatric services available at University of Malaya Medical Center (UMMC), Kuala Lumpur include a primary care clinic, specialist outpatient clinics which serve as a referral center for the many primary care and paediatric clinics around Kuala Lumpur and the neighbouring states. UMMC has one common emergency unit for both adults and paediatric patients. Presently there is a day-care unit for paediatric oncology patients, but no observation or short stay wards for other paediatric medical or surgical patients. All patients requiring any day procedures or investigations are admitted to the wards. At

This article was accepted: 24 September 2002

Corresponding Author: WS Lee, Department of Paediatrics, University of Malaya Medical Center, 50603 Kuala Lumpur

UMMC, a short-stay ward (SSW) for patients with minor illnesses and minor procedures may be useful. This can also be utilized by children with thalassaemia receiving regular blood transfusions. In this pilot study we aimed to determine the profile of acute and elective patients admitted to children's wards of UMMC and the need for a SSW.

Materials and Methods

UMMC, Kuala Lumpur is one of the four public tertiary referral centres in Kuala Lumpur. Paediatric admissions comprise about 14% of all in-patient admissions to UMMC each year with annual increases. In 1998, there were 5555 paediatric admissions and has increased to 7206 in 2001, representing an increase of 30% over the 3 years^{11, 12}.

This is a descriptive study over a six-week period from 5th July 2001 to 15th August 2001 of all acute and elective paediatric admissions to UMMC. Children with a major chronic illness requiring frequent admissions (e.g. oncology, chronic surgical illness) were excluded from the study. Admissions discharged within 24 hours were identified and studied.

Socio-demographic data (age, sex, area of residence), diagnosis at discharge, types and frequency of observation (vital signs, percutaneous oximetry), investigations (full blood count, urine microscopy, chest radiographs) and treatment provided (intravenous therapy, oral therapy) were collected by one investigator with a standard formularised data sheet. All data entry and analysis were carried out using SPSS for Windows, version 10.0.

Results

There were 428 acute and elective admissions during the six-week study period (Table I and II). Fifty-seven percent of the patients were younger

than two years of age. The male to female ratio was 1.8:1. Thirty-one percent resided in Kuala Lumpur and 84% resided within the boundaries of Kuala Lumpur and Selangor, the neighbouring state of Kuala Lumpur.

Ninety-three patients (22%) were discharged within 24 hours after admission. Of these 56 (60%) were discharged within 12 hours of admission. The median time of discharge was at 14:00 hours and 83% of patients were discharged by 18:00 hours (Figures 1 and 2). Sixty-two percent of patients were discharged between 8:00 hours and 14:00 hours. The mean duration of stay was 12 hours.

Two categories of short-stay patients were identified (Table I). Firstly, a total of 41% short stay admissions were children admitted for elective procedures or surgery. A significant of these was children with thalassaemia major who required blood transfusions. Presently a total of 78 children with thalassaemia major who required regular blood transfusions are registered with Department of Paediatrics, UMMC.

The second category was patients who required emergency admissions for acute medical and surgical care (Table II). The most common diagnoses of acute admissions were of infections, followed by trauma/cerebral concussion and febrile/afebrile seizures.

These short stay patients did not require frequent observations. Eighty percent required no oximetry monitoring and only 2% required observations more frequently than 2 hourly initially. Thirty-five percent of children had blood investigations, 12% had urine microscopy and 16% had a chest radiograph. A great majority (93%) received no intravenous medications and 29% required intravenous fluids. 23% were prescribed paracetamol, 16% received oral antibiotics and 3% were prescribed oral rehydrating salt solution. No readmissions after discharge were noted.

Table I: Profile of 93 patients discharged within 24 hours after admission to Paediatric Wards, University of Malaya Medical Center, Kuala Lumpur.

	Numbers (%)
Age groups	
<6 months	12 (13)
6 months - 2 years	39 (42)
3 years - 4 years	18 (19)
>5 years	24 (26)
Residence	
Kuala Lumpur	31 (33)
Surrounding state	53 (57)
Other	9 (10)
Route of admission	
Accident and Emergency	37 (40)
Primary care clinics	7 (7)
Specialty clinics/elective procedures	44 (47)
Other	5 (5)
Reasons/diagnosis on admission	
Elective procedure/surgery	40 (43)
Emergency	42 (45)
Infections	23 (24)
Minor trauma/Cerebral concussion	13 (14)
Febrile seizure/epilepsy	6 (6)
Miscellaneous	11 (12)

Table II: Resource utilization of patients discharged within 24 hours after admission to the Paediatric Wards, University of Malaya Medical Center, Kuala Lumpur.

	Numbers (%)
Observations	
>2 hourly	91 (98%)
Oximetry monitoring	18 (19%)
Blood pressure monitoring	56 (60%)
Investigations	
Blood counts	33 (35%)
Urine microscopy	11 (12%)
Chest radiograph	15 (16%)
Management	
Intravenous fluids	27 (29%)
Intravenous antibiotics	7 (7%)
Oral antibiotics	15 (16%)
Paracetamol	21 (23%)
Oral rehydrating solution	3 (3%)
Length of stay	
≤6 hours	28 (30%)
7-12 hours	28 (30%)
13-18 hours	14 (15%)
19-24 hours	23 (25%)

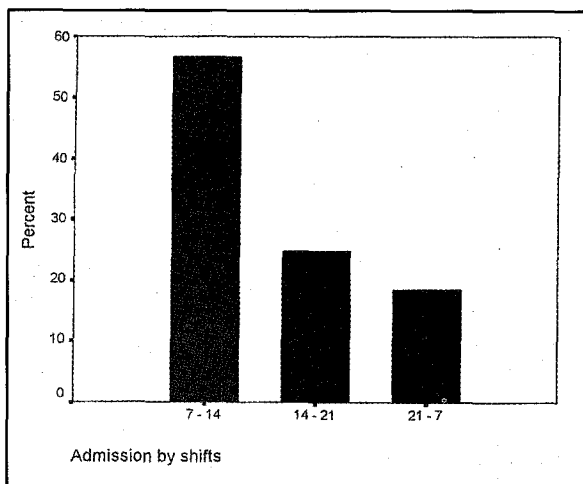


Fig 1. Admission by working shifts in patients discharged within 24 hours after admission

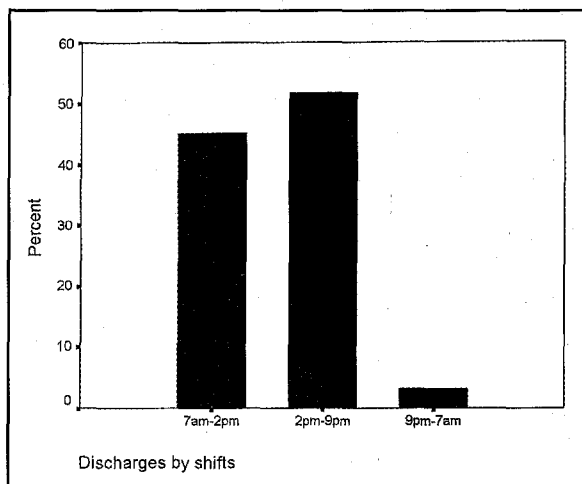


Fig 2. Time of discharges by working shifts in patients discharged within 24 hours after admission

Discussion

In many developed countries, the focus on health care has been on the need for efficient bed management to better cope with high patient turnover. There is increasing pressure for cheaper but safe alternative to hospital admissions. Many of the admissions to hospital wards can be served by provision of a day-care unit¹. Children who required certain radiological investigation, blood transfusion or elective surgery can then avoid hospital admission.

However, there remains a group of children who required acute but brief hospital care that cannot be provided in day-care setting. SSW affiliated to an emergency unit for paediatric patients may provide an alternative to admissions¹. Thus in-patient wards are less burdened with patients that stay for short periods. There may also be unnecessary delays in discharges when in-patients are reviewed twice a day only.

In this pilot study on the profile of paediatric admissions to UMMC, Kuala Lumpur, 22% of acute and elective admissions are discharged

within 24 hours with a majority of them discharged within 12 hours. These patients were mainly admitted for observation and only a minority of them requiring frequent observation and investigations. When treatment was prescribed a majority required oral treatment, which could be administered at home.

In this study, 62% of patients who subsequently were discharged within 24 hours after admission were discharged within the first six hours of the usual working day. Decision for discharge is usually made after the review in the morning. Continuous observation and frequent assessment at the SSW can lead to brief stay and early discharge.

However further study is necessary to evaluate the cost effectiveness of such a SSW. Parents' satisfaction and the selection criteria of which patients can safely be admitted to SSW are important issues that warrant further consideration.

In conclusion, 22% of all acute and elective paediatric admissions at UMMC were discharged

within 24 hours. A majority of these patients were admitted for observation with little intervention. There is a clear need for the provision of a SSW

for acute and elective admissions to avoid unnecessary admissions to paediatric wards.

References

1. Browne GJ. A short stay or 23-hour ward in a general and academic children's hospital: are they effective? *Pediatr Emerg Care* 2000; 16: 223-9.
2. Hill AM. Trends in paediatric medical admissions. *BMJ* 1989; 298: 1479-83.
3. MacFaul R, Werneke U. Recent trends in hospital use by children in England. *Arch Dis Child* 2001; 85: 203-7.
4. Kreger BE, Restuccia JD. Assessing the need to hospitalize children: Pediatric Appropriateness Evaluation Protocol. *Pediatrics* 1989; 84: 242-47.
5. Numa A, Oberklaid F. Can short hospital admissions be avoided? A review of admissions of less than 24 hours' duration in a paediatric teaching hospital. *Med J Aust* 1991; 155: 395-98.
6. Scribano PV, Wiley JF, Platt K. Use of an observation unit by a pediatric emergency department for common pediatric illness. *Pediatr Emerg Care* 2001; 17: 321-3.
7. McConnochie KM, Callahan CM, Connors GP, et al. Estimating risk associated with care in alternative settings: Deterioration among children hospitalized. *Arch Pediatr Adolesc Med* 1998; 152: 651-58.
8. Beverley DW, Ball RJ, Smith RA, et al. Planning for the future: The experience of implementing a children's day assessment unit in a district general hospital. *Arch Dis Child* 1997; 77: 287-93.
9. Beattie TF, Moir PA. Paediatric accident & emergency short-stay ward: a 1-year audit. *Arch Emerg Med* 1993 Sep; 10: 181-6
10. Lamireau T, Llanas B, Favon M. A short stay observation unit improves care in the paediatric emergency care setting. *Arch Dis Child*. 2000 Oct; 83: 371.
11. Hospital Statistics 1998, University Malaya Medical Center. University of Malaya, Kuala Lumpur, Malaysia.
12. Hospital Statistics 2001, University Malaya Medical Center. University of Malaya, Kuala Lumpur, Malaysia.