

The first eighteen months of a paediatric ambulatory and community service

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Abstract

Hospital admission is distressing and traumatic for children as they are separated from their families and home. Internationally, and in Australia, alternative models of health care are being developed to meet the needs of children and their families. We describe the first eighteen months of the establishment of a paediatric ambulatory and community service in a district health service in New South Wales. Key outcomes include: increased referral to the service from acute hospital and primary care services; parental satisfaction and saved hospital bed-days. Lessons learnt in the setting up of this service include the need for proactive engagement of consumers and stakeholders; clear definition of roles and responsibilities; and measurable and reasonable performance indicators.

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HOSPITAL ADMISSION IS DISTRESSING and traumatic for children as they are separated from their families and home.¹ There is substantial evidence supporting the use of non-inpatient hospital services for the provision of care to sick children and adults at home or in their local environment.^{2–8} One such model of service has specialist paediatric nurses who support the

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What is known about the topic?

Changes in childhood morbidity (with infectious diseases becoming less prevalent), and concern about the impact of hospitalisation on children and families, have led to increasing attention to the development of alternative service models that might provide care more effectively in the home and in community settings.

What does this paper add?

This paper records the experiences of a team that established a community-based service in metropolitan Sydney, noting the effort required to change referral patterns, the importance of maintaining continuity with the primary care provider, and savings in hospital bed-days.

What are the implications?

It is feasible to move some of the care for children that is currently provided in hospital wards and outpatient clinics to a community setting. The availability of home nursing services is an important element.

sick child and their family by providing clinical review in the home and working in partnership with the child's parents, general practitioner or paediatrician.^{2–5} The home visits increase opportunities for reinforcement of important health messages, involvement of parents in decision making and the identification of other health issues in the home.

Paediatric services need to respond to the increasingly chronic and complex nature of paediatric conditions including developmental, psychosocial and behavioural problems. The Review of Victorian Paediatric Services⁶ highlights the need for integrated multidisciplinary ambulatory and community services that provide coordinated health care close to home. Families should be active in the decision-making process and decisions should be made within an ecological framework that includes the child, their family, school and community.

The Victorian review recommends the development of paediatric provider networks.⁶ This has begun in New South Wales through the establishment of networks of tertiary and local paediatric services. These networks aim to enhance the effectiveness and appropriateness of paediatric services, improve coordination between providers, and promote the continuum of care through supporting the development of ambulatory and community paediatric services.⁹ The questions that have arisen for the network are: how do you set up such a service, what are the challenges and what do you measure in terms of outcomes? In this case study, we endeavour to shed some light on these matters by sharing our experiences in establishing an ambulatory and community paediatric service and some preliminary outcomes after the first 18 months.

Objectives of the service

Widespread consultation with key stakeholders (the emergency department, paediatricians, paediatric ward, community health services, health planners, the Area executive and the paediatric network) and consumers (a focus group of parents of children with acute and chronic conditions) was undertaken in developing the following objectives for the service:

- To work in partnership with the acute hospital-based service, including the Emergency Department and inpatient paediatric ward;
- To work in partnership with primary and community health care providers, including general practitioners;
- Provision of community outreach through home visits for children with acute and chronic illnesses;
- Provision of community paediatric outpatient services for children with developmental, behavioural and psychosocial issues;
- To monitor the quality of these ambulatory and community paediatric initiatives; and
- To develop professional education and research activities in ambulatory and community paediatrics.

Setting

The Western Zone of Sydney South West Area Health Service provides health care to an increasingly multicultural community of relative socio-economic disadvantage in South Western Sydney. The projected growth in the paediatric population is from 39 476 in 2001 to 42 461 in 2011. Hospital-based acute services for this paediatric population include a tertiary level general emergency department and a 25 bed inpatient paediatric ward for medical and surgical admissions. There are about 11 000 paediatric presentations per year and 3000 admissions per year. Prior to the establishment of this service, community health services included: Child and Family Nursing Services, which provide well baby checks and postnatal home visits; allied health; nurse audiology; paediatric dentistry, and a very limited community paediatric nursing service.

Participants

The Paediatric Ambulatory and Community Service was established in August 2002 through additional funding provided to the existing community health services by the New South Wales Health Department via the Area Health Service (AHS) and the tertiary/local child health networks. It is made up of a multidisciplinary team, which reflects the commitment by the Health Service to follow the recommended ambulatory and community paediatric model, comprising a paediatrician, registrar, community paediatric clinical nurse consultant, community paediatric registered nurses, speech pathologist, occupational therapist, physiotherapist, social worker and administrative staff. The paediatrician acts as team leader.

The service is available to any child and their family in the health service's boundaries aged 0–16 years (and 16–18 years if still going to school). The key clinical elements of the service are:

- community outreach for children with an acute or chronic illness (eg, asthma, gastroenteritis, conditions requiring stoma care/nasogastric feeds/home oxygen);

- community paediatric outreach clinics for children with developmental and behavioural problems.

Health promotion, teaching and research activities are seen as part of the service's core business. These provide a preventive, population health focus, which balances its clinical role.

Methods

Partnership with the acute hospital-based service

The Paediatric Ambulatory and Community Service promotes itself through regular in-service sessions in the emergency department, inpatient paediatric ward and the two tertiary children's hospitals in the Sydney area. Some current and past examples of collaborative exercises include: 3-monthly tertiary/local child health network meetings; presentations to tertiary and local hospital grand rounds; undertaking ward rounds in the emergency department and inpatient paediatric ward to work with staff to identify potential referrals for the service; and providing feedback on the outcome of children who have been referred. Teaching sessions on a wide range of paediatric topics, including case review and other quality initiatives, are also provided to emergency department staff.

Partnership with primary health care providers and other community-based services

Extensive consultation with primary care providers such as general practitioners has been a core part of setting up the service. Active promotion has been undertaken with community health, non-government services, parents, GPs, local government, schools and the private paediatricians in the area. Throughout the child's care with the service, their GP and/or paediatrician remains the primary medical officer in charge.

In May 2003, a working party with the local Division of General Practitioners was established to develop a strategy for shared care and communication with GPs. Key initiatives have been:

- promotion of the service through the Division's monthly newsletter;
- joint promotional visits to GP surgeries;
- communication with GPs through fax and/or phone call regarding shared patients; and
- the use of case conferencing and care plans for children with chronic and complex conditions.

Community outreach

Specialist paediatric nurses provide community outreach through home visits. Current hours of operation are limited to 8.30 am to 5 pm, Monday to Friday. The range of treatments provided by the service covers:

- "Hospital in the Home" activities, such as home intravenous therapy;
- post acute care, such as the review of children with acute illnesses; and
- chronic and complex care, such as case co-ordination for children with chronic conditions.

Home visits are done in conjunction with allied health staff and primary health nurses where appropriate. The paediatrician and registrar act as a medical support for the nursing and allied health staff for case review and liaison with hospital and community medical services. Another major role for nursing staff is telephone assessment and advice to families referred to the service. The active involvement of parents in decision making during their child's illness and family-centred case conferences/planning is integral.

Community paediatric outpatient clinics

Through collaboration with allied health and early intervention services, weekly multidisciplinary community paediatric outpatient clinics have been established. One clinic is based at a local community health centre and the other at a Mission Australia (non-government organisation) site next to a preschool and other early intervention services. Both occur in areas of significant social disadvantage. Children with a wide range of developmental and behavioural problems including developmental delay and autism are seen in these clinics. At the initial

assessment, the child and their parents see the whole team and are active in developing their care plan. In addition, the service provides staff for existing multidisciplinary services at the AHS, which include a weekly feeding clinic, child protection services and a developmental screening clinic.

Monitoring quality

The service has monthly quality assurance meetings where there is monitoring of incidents and adverse events (an adverse event is any event or circumstance that actually caused unplanned harm, suffering, loss or damage). Where appropriate, patient records are reviewed and suggestions for quality improvement are implemented in conjunction with relevant stakeholders such as the emergency department. In addition, monthly data are collated on wound infections and unplanned readmission to hospital.

Carer satisfaction surveys are also used to monitor quality. These are mailed out, are anonymous and use reply paid envelopes. Over a 6-month period from August 2003, 120 surveys were posted to carers whose children had received a nurse home visit. Forty seven were returned (39% return rate). Since the multidisciplinary clinic commenced, a total of 74 surveys have been posted to carers, and 39 have been returned (52% return rate).

Data are also collected on readmission rates for children with asthma (within 28 days); transfers of cases from the local emergency department to other services (age < 15 years); proportion of emergency department presentations that are admitted to a ward (age < 15 years); and overall length of stay.

Education and research

Highlights in our education and research program include a family weight management program, parent education sessions on common childhood illnesses including asthma, and school health promotion. Staff have also been successful in establishing, presenting and publishing research and attracting research grants.

Outcomes

Referrals for community outreach

In the first 18 months there were 930 referrals to the service for "Hospital in the Home" or post acute care; 1985 home visits were conducted and 2332 phone consultations were undertaken by nursing staff. Between the periods July to December 2002 and July to December 2003 there was an increase of 45% (119) for referrals and 13% (75) for home visits. The five most common diagnoses for children referred were asthma (29.7%), bronchiolitis (12.5%), upper respiratory tract infections (7.5%), fever (6.8%) and gastroenteritis (6%).

Partial or complete substitution for inpatient care

Thirteen children have been referred for intravenous antibiotics from the children's ward, which provided a partial substitution for inpatient care and saved 70 bed-days. In addition, 147 children were cared for at home for conditions identified as having some potential for substitution of inpatient care (home oxygen; overnight oximetry; wet dressings for eczema; wound care; and nasogastric feeds). The remainder of the children seen by the service received interventions such as asthma education, respiratory or hydration assessment, and assessment of the febrile child.

At any one time, there is an average of 15 children with chronic and complex conditions being managed by the service. These children require a range of interventions including tracheostomy care, education and support, coordination of care, home oxygen, and intragastric feeding commencement and ongoing support.

Community paediatric clinics

Since the multidisciplinary assessment clinic began it has seen 97 children with significant developmental problems (74 new patients and 23 review patients).

Quality assurance

A full set of clinical indicators has been collected for the 2003 calendar year. There have been no

adverse events. There has been one wound infection and 19 unplanned readmissions to hospital, which represents 2% of all children referred. The majority of these children had diagnoses of asthma, bronchiolitis and gastroenteritis and were appropriately referred to the service but experienced a clinical deterioration warranting readmission. The nurses sent about half of these children back to the hospital on the first home visit.

There has been a high degree of carer satisfaction with both the nursing outreach service (98% of carers rated the service "excellent" or "above average") and the multidisciplinary clinics (97% expressed satisfaction with the outcome of the clinic, and 100% felt they were able to express their concerns about their child).

Impact of service on hospital utilisation

There has been a decrease in overall length of stay from 2.19 days in 2001 to 1.72 days in 2003. There has been no change to readmission rates for asthma within 28 days, or proportion of emergency department presentations that are admitted.

Discussion

Lessons learnt

It is important not to underestimate the time and resources required to establish and then maintain a paediatric ambulatory and community service. The most time-consuming but valuable activity has been the extensive collaboration and service promotion with stakeholders, especially the emergency department, GPs and consumers. Clear definition of the service's role and responsibilities, including the question of who is medically responsible for children in the community, has been an important component. In the case of our service, the child's GP and/or private paediatrician remains the medical officer in charge. There are clear protocols on communication with the child's medical officer through discharge summaries and/or telephone contact.

Constraints

A number of constraints exist. The first is the lack of an after-hours service. This is a priority for further service development and is supported by literature that shows that children and their families tend to present to hospitals with acute illnesses after hours and on weekends due to a lack of acceptable alternatives.¹⁰ In addition, the lack of a short-stay facility in this service model has limited the "Hospital in the Home" aspect of the service. A short-stay facility would open up many more opportunities for interventions such as intravenous rehydration for gastroenteritis. Other ambulatory and community paediatric models in Australia and the UK have found short-stay units to be very effective.^{5,11}

Due to the demand for multidisciplinary developmental assessment services in our AHS there is currently a 3- to 4-month waiting time for appointments, which is not ideal. Potential remedies would be more staff time for more clinics, including the employment of a psychologist as part of the multidisciplinary team.

What are the benefits and potential harms?

Are ambulatory and community services an alternative or only an enhancement to inpatient services, or a mixture of both? Although there has been a reduction in length of stay and a saving of bed-days, the introduction of the service has not resulted in a significant change to admission rates from the emergency department or readmissions with asthma. In addition, the reduction in length of stay may be due to other factors such as a change in casemix over that time. Studies of paediatric nurse home-visiting services have found a variable impact on inpatient service utilisation with some studies showing no change in general readmission rates² and others showing a reduction for specific diagnosis related groups such as asthma.¹² Importantly, one consistent finding in the literature has been parental preference for such services,^{13,14} which is in keeping with our experience. One limitation to our survey is that it may be difficult for families who are from culturally and linguistically different backgrounds, or who are illiterate, to respond.

Do such services cause harm? Two per cent of children referred to the service were readmitted. Half of these readmissions were prompted by the first home visit. We believe that referral to the service provided a "safety net" by detecting deteriorations that can be part of the natural history of paediatric illness. It is vital that emerging paediatric ambulatory and community services are continually monitored for adverse outcomes through clear and measurable clinical indicators.^{15,16} Of note, a systematic review of randomised controlled trials is currently under way to assess the evidence for the impact of such services in terms of positive outcomes and harm.¹⁷

Despite these limitations in outcome assessment, this paediatric ambulatory and community service has begun to show benefits in terms of greater access for families to community outreach through increased referral, parental satisfaction and saved hospital bed-days. The multidisciplinary nature of the team and its proactive engagement with acute hospital and primary care services has resulted in an integrated and comprehensive model.

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Competing interests

The authors declare that they have no competing interests.

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