Healthy London Partnership Children and Young People's Programme
Alternative Models of Care for Children and Young People's Report

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Findings from 3020 attendances by children and young people at Emergency Departments and potential for using alternative models of care for their management

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Contents

Executive Summary

The development of new out of hospital models of care for children and young people (CYP) offers potential opportunities to improve quality and reduce Emergency Department (ED) attendances by CYP. Little data is available for commissioners and providers to inform planning of new models. It remains unclear what proportion of CYP and which conditions could be managed in new models, and what the workforce needs and costs or benefits or such models might be.

Healthy London Partnership (HLP) CYP Programme undertook a project aimed at quantifying the potential for new models of care to reduce attendances by CYP at EDs in London.

We carried out prospective data collection on 3020 CYP aged 0 -17.9 years across 6 EDs in London from 1000h to 2200h over 2 weeks in winter 2016. Data were objectively collected by experienced clinicians on clinical needs, investigation and management undertaken and whether the child could be managed in proposed out of hospital models. These data were used to identify which children could have been safely and appropriately managed outside hospital.

Nine models were identified for study. The first were 3 community models treating illness but not injury

1: Nurse-led acute illness team for CYP

2: Nurse-led walk-in centre for illness in CYP

3: Multi-speciality community provider for CYP

The second group were enhanced primary care models i.e. enhancement of paediatric expertise

4: Enhanced GP practice

5: GP confederation CYP service

The third group were comprehensive models

6: Community Walk-in centre for CYP

7: Primary and Acute Care Systems (PACS) Acute Health Centre for CYP

For comparison we also assessed two current primary care models

8: Community Pharmacy

9: Current GP Practice

The results demonstrated that the proportions of CYP presenting to ED that could be appropriately managed within each new model. This ranged from 14.1% for a nurse-led acute Illness team to 75.5% for a PACS service. 9.5% of CYP presentations could have been managed in current Community Pharmacy and 22.3% in current GP practices. Enhancement of current general practices with paediatric expertise could have managed 28.4%, whilst a coordinated GP confederation CYP service could have managed 44.6%.

We also collected financial data on each attendance and are currently identifying workforce needs for each model. This will allow us to provide data for commissioners and providers on the potential benefits of each model for reduction in ED attendances by CYP.

Introduction

Purpose

Healthy London Partnership formed in April 2015. It has been working across health and social care, and with the Greater London Authority, Public Health England, NHS England, London's councils, the 32 Clinical Commissioning Groups, and Health Education England. We have united to amplify the efforts of a growing community of people and organisations that believe it is possible to achieve a healthier, more livable global city by 2020. Healthy London Partnership is focused on a number of transformation programmes, one of which is the Children and Young People's (CYP) Programme. Our vision is for an integrated system for health and care services, which promotes health and well-being and can be easily navigated by children, their families and health professionals to achieve the best outcomes.

Audience

This document is aimed at commissioners interested in developing new models to deliver out of hospital (OOH) health care services for CYP. The document describes the audit that was carried out across six EDs in London during a two week period in February/March 2016. Clinicians reviewed 3020 children and young people attendances from 1000h to 2200h and whether the CYP could be managed in one of the proposed OOH models. The report is designed to help commissioners evaluate whether an OOH model would work in their area and which one could work best.

Strategic context

This document is part of a portfolio of out of hospital care products developed by the HLP CYP Programme team to drive improvements in quality.

- Compendium: New models of care for acutely unwell children and young people
- London's out of hospital standards for children and young people [i] - this is a set of robust standards bringing together information and national guidance to support clinical vision and future strategies for the delivery of health care in settings outside of hospital. These relate to the needs of children and young people who are acutely unwell, have an exacerbation of a long term condition or who have complex/continuing needs, and whose care can be provided safely outside of hospital. The purpose of the document is to support commissioners and providers of children's out of hospital health services with what the expected minimum standards of care are for community children's/out of hospital services.
- Opportunities for pharmacy to support out of hospital care (in development)
- New models of care

Themes

This suite of documents will help organisations to develop place-based models of care treating the children and young people in the most appropriate location for their needs.

In order to differentiate between the models they have been categorised by their overarching aim.

Background

Multiple documents (*Five Year Forward View*, *Transforming Primary Care in London: A Strategic Commissioning* Framework, *CYP Case for Change*), have been produced which describe significant transformation in the way that primary care and acute non-hospital services are delivered for CYP across

the capital. These documents combine to set out a vision for new models of care and service delivery. They describe fundamental changes to the range, consistency and quality of services available to all patients, with a drive to care for them in a non-hospital setting.

In response to many of these recommendations, there has been widespread development of OOH models of care for adults. However, progress in developing models of care for CYP is lagging behind and no CYP-specific care models were successful in gaining Vanguard status in 2015. Although some innovative CYP-focused pilot models exist across the country, many feel that there is a lack of sufficient information, particularly regarding the financial and workforce implications, to support more widespread implementation of acute models of care for CYP. This project aimed to provide commissioners and providers of services in London with more up-to-date financial information about new models of care for CYP.

Current Challenges in London

Emergency Department (ED) and acute activity levels are high and rising:

- A quarter of Londoners are CYP aged under 18 and this population is rising across London
- CYP currently account for more than a quarter of acute activity in EDs and GP surgeries
- The attendance rate of CYP at EDs is rising – by as much as 42% each decade [(1)]
- Admission rates to hospital are rising – between 1999 and 2010 there was a 28% general increase from with a doubling of very short-stay admissions (< 24 hours) for common febrile illnesses[(2)] in CYP

Quality of Care:

- Many CYP/families experience difficulties in accessing and navigating acute services
- There can be variation and fragmentation across the system
- Workforce (recruitment and retention of healthcare staff, and an ageing workforce in primary care)
- There is variation in the levels of CYP-specific skills amongst healthcare professionals, with the recognition of the acutely unwell child being a particular challenge – The Confidential Enquiry into Maternal and Child Health report of 2008 showed that 26% of child deaths were due to an 'identifiable failure in the child's direct care' and attributed many errors by staff to inadequate paediatric training or supervision

Potential Benefits

Models of healthcare for CYP that shift care to out of hospital settings could have the following benefits:

- Delivery of safe, effective care close to/within the patient's home
- Less disruption to the patient and family
- Improved patient/family experience of healthcare
- Reduction in the number of unnecessary ED attendances
- Reduction in the number of unnecessary hospital admissions

1 Alternative/New Models of Care

In a separate area of work, we undertook a review of services implementing out of hospital models of care for acutely unwell children across the UK and identified over 30 active services. Case studies of these services were published in *Compendium –new models of care for acutely unwell children and young people*.

Services were categorized into themes according to their objectives. The themes outlined below are the themes that were explored in this study.

A	**Models that primarily prevent acute presentation to the ED and/or admission to hospital**
Example	Salford Children's Community Partnership, which places Acute Paediatric Nurse Practitioners (APNPs) in the primary care setting to see CYP with acute illness and injury
B	**Models that primarily reduce length of stay in hospital**
Example	Whittington Hospital @ Home which delivers a nurse-led acute Paediatric service delivered to families in their home, supported by the local hospital's acute paediatric team
C	**Models that aim to prevent both Emergency Department attendance/ admission to hospital AND reduce length of stay in hospital**
Example	C.O.A.S.T NHS Solent Trust, a nurse-led team that can receive referrals from both primary and secondary care for home visits for children and young people
D	**Models that primarily manage non-acute illness, but have a direct impact on acute activity**
Example	Connecting care for children in North West London which has three key components (specialist outreach, with specialists from the hospital working alongside primary care professionals; open access, with GPs having access to specialist advice via an email and telephone hotline; and patient and public engagement, built around practice champions who are working with the team to co-design services).

For this study we were interested only in those models which are aimed to prevent ED attendances i.e. themes A and C, plus to some extent model D.

Illness versus injury

When examining new out of hospital models, it is important to separate services for acutely unwell CYP from those that also / instead focus on injuries. The main integrated care initiatives for CYP focus on illness rather than injury, as:

i) febrile illnesses are the main drivers of ED presentations in younger children and
ii) alternative models are often based upon broadening the skills of nurses or other clinicians with illness rather than with injury.

Up to 70% of CYP presenting to ED with medical problems have one of the following six conditions:

1. Breathing difficulty (20%)
2. Febrile illness (14%)

3. Diarrhoea +/- vomiting (14%)
4. Abdominal pain (7%)
5. Seizure (6%)
6. Rash (9%)

This relatively limited set of common illness presentation has allowed the development of new models based upon new workforce roles (e.g. advanced paediatric nurse practitioners (APNPs)) managing a limited set of common conditions using strict management algorithms.

2 The Study

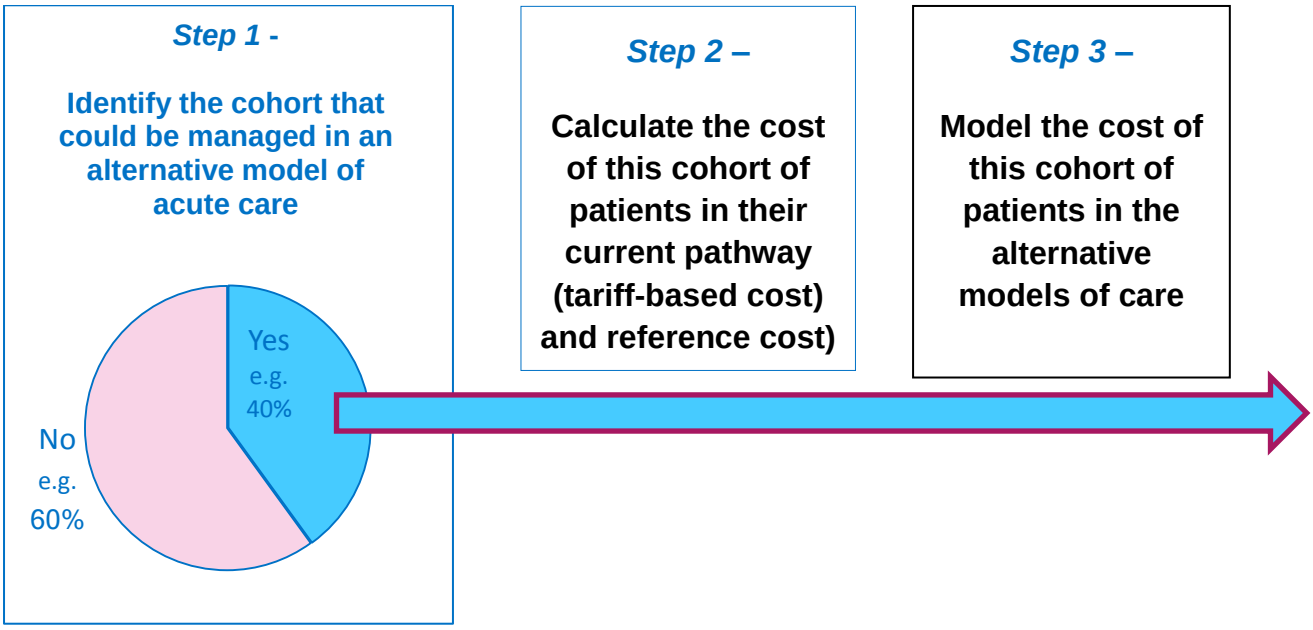
Aim of the study

This project was aimed at quantifying the potential for new models of care to reduce attendances by CYP at EDs in London, in order to provide commissioners and providers of services with clinical and financial information about the potential benefits of new models of care.

The study aimed to answer the two following questions:

1. What proportion of CYP presenting to London EDs could be appropriately treated in new out of hospital models, thus avoiding ED presentation?
2. Which groups of CYP and which conditions could be appropriately treated in new out of hospital models, thus avoiding ED presentation?

We proposed the following 3 step process to enable understanding of potential financial impact of the new models of care for CYP:



From the Compendium of new models of care, 7 key models were identified for the study, outlined below

	Model & site	Descriptor	Site	Observation facilities?	Health education opportunities
Enhanced illness assessment and management models					
1	Within general practice: Nurse-led Acute Illness Team for CYP	Advanced Paediatric Nurse Practitioner (APNP) appointment-only service, using algorithms to manage a limited set of common illnesses.	GP practice	No	Limited
2	In community: Walk-in Centre for Illness in CYP	Walk-in centre with APNPs using algorithms to manage a limited set of common illnesses (> than Model 1)	Community centre	Yes <6hrs	Limited
3	Multi-specialty Community (MCS) Provider for CYP	MCS providing appointment-only service focused on illness, including GPs and daily paediatric input (telephone or face to face). Broad range of illnesses treated.	GP practice	No	Limited
Enhanced general practice models					
4	Enhanced GP practice	GP practice with extended hours, walk-in opportunities & regular visits/contact with paediatrician (available within 48hrs)	GP practice	No	Yes
5	GP confederation CYP service	APNPs and GPs working within GP confederation so can see minor injuries plus illness, appointment only, extended hours, & regular visits/contact with paediatrician (available within 48hrs)	GP practice	No	Yes
Comprehensive assessment and management models					
6	Community: Walk-in Centre for Illness & Injury in CYP	APNPs in walk-in centre using algorithms to manage illness and injuries	Community Centre	Yes <6hrs	Limited
7	Hospital: Primary and Acute Care System (PACS) Acute Health Centre for CYP	PACS (Primary & Acute Care System) model with GPs, APNPs on hospital site with rapid access to paediatric and other specialists	GP practice on Hospital site	Yes <6hrs	Yes

In addition for comparative purposes we also assessed two current primary care models, i.e. 8: Community Pharmacy and 9: current General Practice.

3 Findings from the study

Data were prospectively collected on 3020 CYP attending 6 London EDs during peak hours (1000h to 2200h) in peak season (Feb/March). This was used to identify what proportion of ED attendances could potentially be appropriately managed in a range of out of hospital models of care (Table 1).

	Table 1	Descriptor	Site	Observation facilities?	Health education opportunities	Total	Range across the 6 ED sites
Enhanced Illness assessment and management models							
1	Within general practice: Nurse-led Acute Illness Team for CYP	Advanced Paediatric Nurse Practitioner (APNP) appointment-only service, using algorithms to manage a limited set of common illnesses (based on Salford model).	GP practice	No	Limited	14.1%	(8.3-20.5)
2	In community: Walk-in Centre for Illness in CYP	Walk-in centre with APNPs using algorithms to manage a limited set of common illnesses (broader than Model 1)	Community centre	Yes <6hrs	Limited	28.4%	(14.9-49.7)
3	Multi-speciality Community Provider for CYP	MCS providing appointment-only service focused on illness, including GPs and daily paediatric input (telephone or face to face). Broad range of illnesses treated.	GP practice	No	Limited	25.7%	(19.5-26.9)
Enhanced general practice models							
6	Enhanced GP practice	GP practice with extended hours, walk-in opportunities & regular visits/contact with paediatrician (available within 48hrs)	GP practice	No	Yes	28.4%	(16.7-44.5)
7	GP confederation CYP service	APNPs and GPs working within GP confederation so can see minor injuries plus illness, appointment only, extended hours, & regular visits/contact with paediatrician (available within 48hrs)	GP practice	No	Yes	44.6%	(34.5-55.9)
Comprehensive assessment and management models							
4	Community: Walk-in Centre for Illness & Injury in CYP	APNPs in walk-in centre using algorithms to manage illness and injuries	Community Centre	Yes <6hrs	Limited	64.3%	(57.5-70.7)
5	Hospital: PACS Acute Health Centre for CYP	PACS (Primary & Acute Care System) model with GPs, APNPs on hospital site with rapid access to paediatric and other specialists	GP practice on Hospital site	Yes <6hrs	Yes	75.5%	(68.4-80.1)
Comparators: current primary care models							
	Community Pharmacy	Standard current community pharmacy	Community	No	Yes	9.5%	(0.8-27.6)
	Current GP Practice	Standard current GP practice	GP Practice	No	Limited	21.1%	(15.2-28.2)

Trust financial information on the same group of patients was used to identify average costs per patient to CCGs for those potentially manageable outside hospital. (See Table 2)

Table 2 Financial Data

Model	Number of eligible patients	Eligible patients as a proportion of total (%)	Total Costs (£)	Average cost per patient (£)
Model: enhanced illness and assessment				
Acute illness team for CYP	381	14%	37,359	98
Walk in Centre for Illness in CYP	732	28%	84,843	116
Multi-Specialty Community Provider for CYP	706	27%	75,481	107
Model: Comprehensive and assessment management models				
Walk in centre for Illness and Injury for CYP	1692	64%	192,927	114
PACS Acute Health Centre for CYP	1988	75%	236,230	119
Model: Enhanced General Practice Models				
Enhanced GP practice	747	28%	80,940	108
GP federation service for CYP	1180	45%	121,470	103

Note: financial data are not available for the comparator models (Community Pharmacy, standard General Practice)

Clinicians reported that around 50% of ED presentations could potentially have been avoided with better health promotion and/or greater family confidence in self-management. This is consistent with previous findings; a systematic review concluded that 20-24% of ED presentations were inappropriate;[3] a national study in England in 2011/12 found that inappropriate ED presentations were highest amongst young children and teenagers and young adults[4]. Another systematic review found that low health literacy is associated with higher risk of ED presentation.[5]

Certain models had the potential to manage large proportions of CYP outside hospital. (see Table 2) Whilst an enhanced GP practice could potentially manage around one-quarter of patients, an enhanced CYP service across a GP confederation could potentially manage nearly half (45%) of current ED presentations of CYP. More comprehensive services, e.g. a community walk in centre managing illness and injury or a PACS model for CYP, could potentially manage 65-75% of current ED presentations. Models for managing illness alone could potentially manage smaller proportions of ED presentations. There was marked variation across the sites for some of the models, particularly illness-only models. These may relate to local variations in non-use of primary care for febrile children, with higher use in deprived communities.[6]

Data on current models existing in primary care were provided for comparison. We estimated that nearly 10% of ED presentations could be appropriately managed in Community Pharmacies and that around one-fifth were appropriately managed in current 'unenhanced' General Practice.

These data were designed to be useful to CCGs and other commissioners as well as to providers in planning and commissioning new alternatives to hospital care to reduce ED presentations and improve quality of care for CYP.

Strengths and limitations

Data were collected prospectively using senior paediatric trainees working as super-numerary on each shift entering data in real time. All patients presenting during peak times were included with data on patient need, investigations and management. The proportions of illnesses were similar to those seen in other published studies of ED presentations.[1]

The data has identifiable limitations. Data were only collected after 1000h, so we could not fully assess models with earlier opening hours. Few patients present at this time and as the proportions presenting between 0800h and 1000h are likely to be similar to those presenting later, this is unlikely to have an effect on the data. Patient identifiable data including gender and ethnicity and deprivation could not be collected. Data on reattendances within 2 weeks could not be collected. This is unlikely to be an issue - reattendance is not directly relevant to the aims of this study and unplanned reattendance rates within 7 days are < 5%.[7]

Estimates are made of those CYP who are potentially appropriately managed in each model. Patients/parents will make choices about where they attend that are unrelated to whether a child is appropriately managed in different scenarios. As we did not directly collect data from patients, we have no data on why parents/young person may have chosen to attend ED rather than attend primary care.

Next steps

This report will be revised in mid-2017 with the addition of further data on the workforce appropriate to manage each new model, together with costs of this workforce, to provide commissioners and providers with additional data to support planning of out of hospital models of care in London

Appendix 1: Glossary

Acronym	Description
APNP	Advanced paediatric nurse practitioner
BG	Blood glucose
CAMHS	Child and adolescent mental health services
CCGs	Clinical Commissioning Groups
CCN	Children's Community Nursing
CYP	Children and young people
ED	Emergency department
ENT	Ear Nose and Throat
GP	General Practitioner
HLP	Healthy London Partnership
HRG	Healthcare resource group
IV	Intravenous
Ix	Investigations
LP	Lumbar Puncture
LTC	Long Term Condition
MCS	Multi-Specialty Community Provider
NG	Nasogastric
NRES	National research ethics system
NW	North West
OOH	Out of hospital
OPD	Outpatients department
PACS	Primary and Acute Care System
PAU	Paediatric Assessment Unit
PNP	Paediatric nurse practitioner
RLH	Royal London Hospital
Rx	Prescriptions
ST4	Speciality trainee 4
UCL	University College London

Appendix 2 – Acknowledgements and thanks

This report has been developed through the HLP CYP Acute model of care Clinical Advisory Group. We would particularly like to express our appreciation to the following members:

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Louise Morton - Dean for Healthcare Professions, Health Education England

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Sarah Shade, Paediatric Matron, Kingston Hospital NHS Trust

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