

# Quality and Productivity: Proven Case Study

## Integrated 24-hour children and young people's asthma service: reducing unnecessary hospital attendance

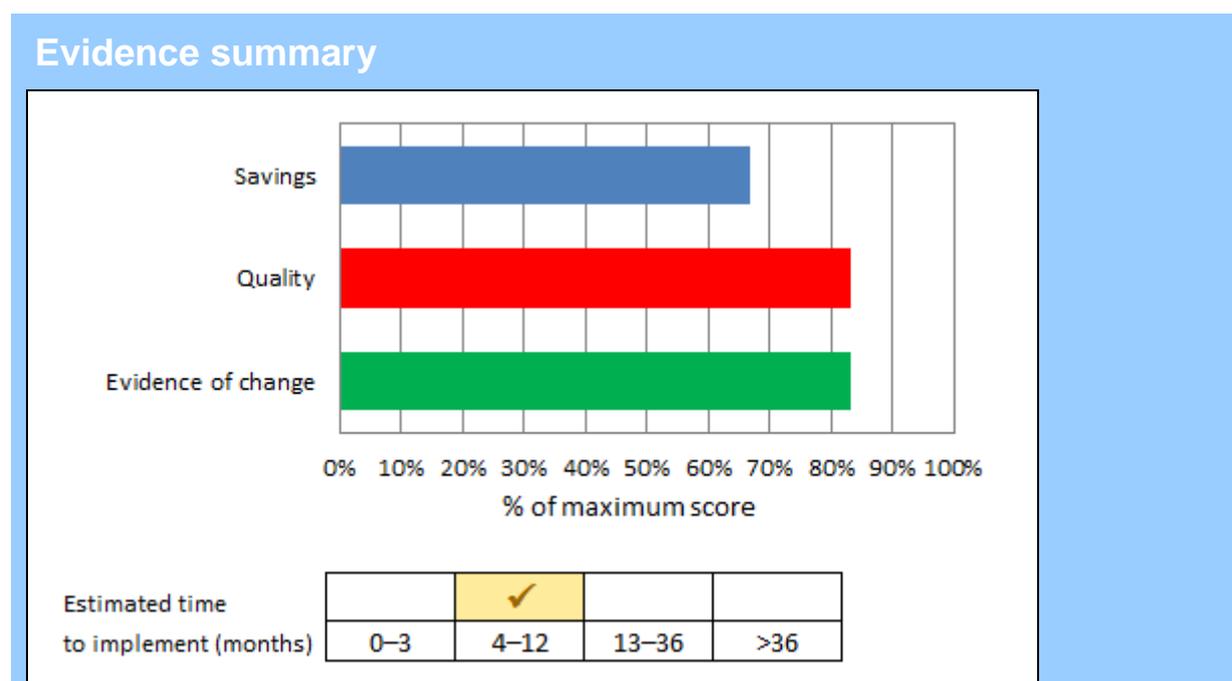
Provided by: South Essex Partnership Trust

Publication type: Quality and productivity example

### Sharing QIPP practice: What are 'Proven Quality and Productivity' case studies?

The QIPP collection provides users with practical case studies that address the quality and productivity challenge in health and social care. All examples submitted are evaluated by NICE. This evaluation is based on the degree to which the initiative meets the QIPP criteria: savings, quality, evidence and implementability. The first 3 criteria are given a score, which are then combined to give an overall score. The overall score is used to identify case studies that are designated as 'recommended'. The assessment of the degree to which this particular case study meets the criteria is represented in the summary graphic below.

Proven quality and productivity examples are case studies that show evidence of implementation and can demonstrate efficiency savings and improvements in quality.



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## Updates

Published QIPP case studies are reviewed annually. One year after the case study has been published on the NICE Evidence website, the submitter of the case study is contacted to ask if there is further information pertinent to the case study, and the case study updated as required. Any changes to this case study are outlined in the table below.

Case study section	Update
Details of initiative	The description has been expanded to include more details of the service provided by the on-call nurse.
Savings	Updated figures have been provided along with a more detailed breakdown of recurrent costs and savings. The start-up costs including a laptop and emergency bags have now been included.
Quality	The numbers of referrals and hospital attendees have been updated. Improvements to patient safety have now been factored in, with additional detail on protocols and management plans.
Evidence	The supporting evidence section has been updated to include the NICE Quality Standard for asthma. The numbers of patients that have attended accident and emergency have been updated. Details of where the initiative has been implemented and the degree to which benefits matched assumptions, have been updated.
Implementation	More details of how the service was established have been provided, with add details of implementation after the pilot completion.

## Details of initiative

<b>Purpose</b>	To create an innovative round-the-clock home nursing service to reduce unnecessary hospital attendance for urgent asthma treatment for children and young people in South Essex Partnership Trust.
<b>Description (including scope)</b>	<p>The service seeks to reduce unnecessary hospital attendance for urgent asthma treatment by providing personalised, 24-hour access to home nursing support for children and young people with asthma from birth to 16 years. The service was formed in response to increasing demand for urgent asthma treatment. It integrated the existing 9am-5pm paediatric asthma/allergy service into the 24-hour community children's nursing team to provide a 24-hour service.</p> <p>The 24-hour service allows patients to contact the on-call nurse. The nurse follows triage algorithms to determine if the condition can be managed by the patient with advice, if a visit from the nurse is required, or if an emergency ambulance if necessary. The service is protocol-driven and emphasises patient safety. Adherence to protocols is monitored and there have been no 'near misses'.</p> <p>Setting up the service involved training the community children's nurses in assessing and treating asthma conditions, and producing a set of highly detailed algorithms and flow charts that the nurses must follow. These are linked to a Patient Group Direction (PGD), which permits nurses to supply and administer medication.</p> <p>Each intervention incorporates education for the patient and their parents/carer and families about self-managing asthma.</p> <p>An additional paediatric community nurse was appointed to help meet the overall extra workload.</p>
<b>Topic</b>	Children, acute/urgent care, long-term conditions, right care, safer care.
<b>Other information</b>	NICE has published guidance on developing PGD (NICE 2013a)

## Savings delivered

<b>Amount of savings delivered</b>	Savings are £20,747 on the £39,847 of annual funding invested in the service. The additional funding pays for a band 6 paediatric asthma specialist nurse to join the existing community children's nursing team.
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Description	
Cost of acute contract if service had not been implemented	£73,041
Cost of acute contract during 2011–2012 following implementation	£12,447
<b>Gross saving on acute contract</b>	<b>£60,594</b>
Investment required to achieve these savings	£39,847
<b>Net annual saving on acute contract</b>	<b>£20,747</b>

## Type of saving

Cash savings are derived from reductions in accident and emergency (A&E) attendances and hospital admissions. They are made from reductions in payments made by the primary care organisation to the provider.

## Any costs required to achieve the savings

This initiative requires the primary care organisation or Community Trust to invest in an additional whole time equivalent band 6 paediatric nurse, which is a recurrent cost included in the net saving above. The primary care organisation may also incur extra contract activity costs from patients receiving advice or treatment in a community setting which previously would have been in A&E/as an in-patient, but this will be at a lower tariff.

Other additional set-up costs are a laptop and 2 emergency bags with oxygen, consumables and drugs.

Agreeing the service redesign, developing treatment algorithms and recruiting a nurse require an investment of time from a multidisciplinary project team during the set-up phase.

The cost of the extra equipment and the time invested in project management was equivalent to between 6 months' and 1 year's savings.

## Programme budget

Problems of the respiratory system.

## Supporting evidence

For this specified level of activity the cost to the primary care organisation payable via contract would have been about £73,000. With the implementation of the service, A&E attendances were reduced to 17% (34 patients out of 200 enrolled on the service) and hospital admissions were reduced to 8% (16 patients out of 200 enrolled on the service), which resulted in a decreased cost of acute contract (£12,447) for that period.

A&E admissions and hospital attendance figures were recorded via the community computer system (System One). The service also kept a manual database in Microsoft Excel to record the activity. Both data records were reconciled at the end of each 12-month period.

## Quality outcomes delivered

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### Impact on quality of care or population health

Before the 24 hour home nursing service was established 45% of the 200 children and young people registered had attended A&E at least once in the previous year. Since the service was established the proportion of those attending A&E has reduced significantly, as many patients are able to manage their symptoms at home with the help of telephone advice and an on-call nurse.

The most recent results show that during 2011–2012:

- 17% (34) attended A&E, compared with 45% (90) before implementation. This is very similar to the results from 2009-2010 and 2010-2011.
- 14% (28) were discharged from the outreach service as a result of fewer asthma exacerbations and increased parental confidence to manage their child's condition. This is an increase compared to 2010-2011 when 7% were discharged.

Protocols were revised following the update of the joint - British Thoracic Society (BTS) - Scottish Intercollegiate Guidelines Network (SIGN) Guidelines on the management of asthma (BTS-SIGN 2012). This ensures the delivery of safe, effective personalised services. Protocols and PGD have been reviewed annually by both a consultant paediatrician in secondary care and a community pharmacist. The protocols support early treatment and monitoring of children in their own homes, helping to prevent the need for hospital attendance.

At initial assessment a self-management plan is discussed and agreed between the patient/parent and nurse. This is recommended in the NICE quality standard QS25 for asthma (NICE 2013). The plan is reviewed following an acute attack and at the child's annual review. Asthma UK self-management plans are used. Each patient contact provides the opportunity for education about asthma management and avoidance of subsequent exacerbations.

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### Impact on patients, people who use services and/or population safety

Patient safety is improved to a slight extent due to 24-hour access to specialist advice and assistance. The delivery of care has been developed collaboratively with support from a consultant paediatrician in the local acute trust and community pharmacists. Protocols and PGD have been developed to aid earlier treatment and monitoring of children in their own homes. This prevents the need for hospital attendance, saving patients time and money, in addition to the financial benefits to the health system.

Protocols for the management of asthma in patients aged under 2 years, between 2 and 5 years and 5 years and over emphasise patient safety. Adherence to protocols is monitored closely by the paediatric asthma/allergy specialist nurse. No 'near misses' have taken place.

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## Impact on patients, people who use services, carers, public and/or population experience

The service helps patients to avoid hospital admission by self-management of their symptoms, or with assistance from a specialist on-call nurse who is available 24 hours a day. The initiative is very popular with parents as indicated by feedback from the service users' questionnaire 2011–2012:

- 100% of responding parents or carers were happy with the care their child received.
- 100% of respondents were satisfied with the knowledge the paediatric community nurse had about their child's condition.
- 100% of respondents felt confident to care for their child's asthma when the nurse left their home.
- 100% of respondents felt they were treated with dignity and respect at all times.

## Supporting evidence

A&E admissions and hospital attendance figures were recorded via the community computer system (System One). The service also kept a manual database in Microsoft Excel to record the activity. Both data records were reconciled at the end of each 12-month period.

Service user satisfaction data was gathered from a survey of all those registered with the service. The response rate and actual numbers for the most recent survey have not been provided.

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## Evidence of effectiveness

### Evidence base for case study

Standard 6 of the outcomes strategy for chronic obstructive pulmonary disease and asthma (Department of Health 2011) states that people with asthma should receive ongoing support to self-manage and reduce the risk of unscheduled care.

The NICE quality standard QS25 for asthma (NICE 2013) supports individual action plans, particularly for people with moderate to severe asthma whose condition is managed in secondary care, or those who have had a recent acute exacerbation resulting in admission to hospital.

Findings from national data (Asthma UK 2004) supported the need for the initiative. Additionally, a local patient satisfaction survey (South East Essex Community Healthcare NHS Trust 2010) highlighted the need for patients and families to have access to advice and support during acute asthma episodes.

### Evidence of deliverables from implementation

As stated under 'Quality outcomes delivered', the service allows more children with asthma to be managed at home rather than in hospital. Following implementation 17% (34) of patients attended A&E (5% admitted to children's ward) compared with 45% (90) attending A&E (30% admitted) before the initiative was implemented.

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	Of the 200 patients that were initially admitted to the asthma outreach service, 14% (28) have been discharged as a result of fewer asthma exacerbations and increased parental confidence to manage their child's condition. This has allowed more children to be included in the service.
<b>Where implemented</b>	South Essex Partnership Trust.
<b>Degree to which the actual benefits matched assumptions</b>	The results from implementation are similar to the pilot scheme described in the 2011 proposed version of this case study, where 21 out of 190 patients (11%) attended A&E during a 6-month period.
<b>If initiative has been replicated how frequently/widely has it been replicated</b>	So far the initiative has only been implemented at South Essex Partnership Trust, following the successful pilot at the same site.
<b>Supporting evidence</b>	Service data provided by the submitter.

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## Details of implementation

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<b>Implementation details</b>	<p>A project group including the paediatric community nursing manager, community pharmacist, paediatrician and project lead was formed. The benefits of moving from a 9am-5pm asthma service to a 24-hour service were discussed with the board of the primary care organisation and the local acute hospital. Agreement was reached over the service redesign which included integrating the existing paediatric asthma/allergy service with the 24 hour community children's nursing team.</p> <p>Progress with implementation was monitored through the business development committee. The majority of the work was undertaken by the project manager, supported by the service manager. All aspects of the work were discussed at the project group meetings with the community pharmacist, acute paediatrician and paediatric community nurse manager, with support from the business management and finance teams.</p> <p>Detailed algorithms linked to a PGD were developed, allowing nurses to supply and administer medicines. An additional paediatric nurse was recruited in order to manage the extra workload of moving to a 24-hour service.</p> <p>Initially 190 patients were recruited from the existing caseload of the asthma/allergy clinical nurse specialist; the number of patients has since increased to 200. Target groups were children and young people whose asthma was difficult to manage and who typically sought A&amp;E hospital treatment.</p> <p>Patients were offered the chance to join the service after an exploratory home visit, which included recording baseline clinical</p>
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observations by the paediatric community nurse. As the initiative progressed, some patients were able to leave the service and self-manage, which allowed other patients to join the service.

Key features of the integrated service were a single point of access and a 24-hour service. Patients or their parents were given a dedicated pager number to call for urgent advice and treatment of acute asthma episodes. Following a set protocol, the duty nurse assessed the need for telephone triage, a home visit or an emergency ambulance.

Each call results in 2 follow-up visits (at 24 hours and 2 weeks). These visits involve reassessing the child's condition and providing information and training to try and prevent future exacerbations. Written information is provided for the patient/carer/parent, which includes an individualised self-management plan in line with the SIGN-BTS guideline. Information produced by Asthma UK is also provided.

<b>Time taken to implement</b>	Implementation is achievable within 1 year.
<b>Ease of implementation</b>	Affects multiple organisations, requiring the cooperation of the community and acute trust. An asthma nurse specialist must be part of the Paediatric Community Nursing team, recruiting if not already available.
<b>Level of support and commitment</b>	Likely to achieve buy-in from key influencers. Cooperation for the service redesign is required from key stakeholders such as the trust board of the primary care organisation and local acute hospital. A project team needs to be formed, ideally comprising a paediatric community nurse manager, community pharmacist, acute care paediatrician and a project lead.
<b>Barriers to implementation</b>	Although it was not an issue for this project, a barrier may be communication between community and acute trusts who need to work together to develop the protocols and agreed practices.
<b>Risks</b>	<p>After considering the risks associated with this initiative, the following mitigating actions were implemented:</p> <ul style="list-style-type: none"><li>• Before the service started the paediatric community nurses undertook competency-based training, which has been updated annually.</li><li>• To ensure patient safety, protocols were designed for the nurses to follow when assessing and treating children and young people. The use of these is tracked and monitored and case discussions are held with the nurses. The protocols are reviewed annually and updated when required by the asthma/allergy specialist nurse, a paediatrician and a community pharmacist.</li><li>• All documentation relating to the initiative, including the</li></ul>

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training schedule and competencies and the patient assessment and treatment protocols are agreed by the integrated clinical effectiveness committee.

- The PGD were ratified by the drugs and therapeutics committee. All patient assessment and treatment documentation is evidence-based, from the BTS-SIGN guidelines on the management of asthma (BTS-SIGN 2012). Additionally all protocols and PGD were peer-assessed by the clinical effectiveness group.
- The specialist asthma/allergy nurse is available via mobile phone for the nurses to contact if advice is needed. However, because the protocols have proved to be clear to follow and because case discussion is encouraged, it is mainly nurses who are new to the service who telephone the specialist nurse for advice.
- Risk assessments of the locality where patients reside are made to ensure nurse safety when visiting out of hours. Nurses all carry 'lone worker devices': a communication device that allows the nurse to alert a call centre if they get into difficulty/danger during a visit.

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**Supporting evidence** No further information provided.

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## Further evidence

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**Dependencies** Community and acute trusts need to work together to develop the protocols and agreed practices.

A paediatric community team is needed for this service to connect to. Ideally a 24-hour service is required, but this is not essential. Supervision/support from a respiratory nurse (acute or community) is beneficial.

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## Contacts and resources

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**Contacts and resources** If you require any further information please email: [gipp@nice.org.uk](mailto:gipp@nice.org.uk) and we will forward your enquiry and contact details to the provider of this case study. Please quote QIPP reference 10/0059 in your email.

Asthma UK (2004) Emergency asthma care pack. For further details about how this was used locally to aid the initiative contact the project lead, Alison Davis (Paediatric Asthma/Allergy Specialist Nurse), who would be pleased to offer advice directly. Email: [Alison.2.davis@sept.nhs.uk](mailto:Alison.2.davis@sept.nhs.uk)

British Thoracic Society and the Scottish Intercollegiate Guidelines Network (2008, revised May 2011 and January 2012).

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[British guideline on the management of asthma](#)

Coyne I, Conlon J (2007) [Children's and young people's views of hospitalization: 'It's a scary place'](#). *Journal of Children's and Young People's Nursing* 1(1): 16–21

National Institute for Health and Care Excellence (2013a) [GPG2 Patient group directions](#)

National Institute for Health and Care Excellence (2013b) [QS25 Quality standard for asthma](#)

South East Essex Community Healthcare NHS Trust (2010) Out of hospital children and young people asthma service, end of year report August 2009–2010

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