Learning Together: local integrated child health

A model for Paediatric and GP Registrars learning together in jointly run integrated child health clinics in a primary care setting

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Lessons learnt: joint reflection from a GP and Paediatric Registrar

“A six-year old girl had booked into the clinic with a three month history of repeated episodes of vomiting. There had been an initial gastroenteritis illness, but her symptoms had waxed and waned over time. This resulted in six visits to the GP with episodic vomiting, and bouts of severe abdo pain which prompted mum to call an ambulance on one occasion. All examinations, stool and urine cultures were normal, and there were no other alarming ‘red flag’ features to the medical history. Latterly the symptoms had been noticed to come on during school days, especially Sunday evening, and be better at weekends and school holidays. Bloods tests had been requested to investigate medical causes of vomiting and were yet to be done.

When we saw her in clinic she was a quiet, shy, worried-looking child who took some considerable time to engage with the consultation, preferring to look at mum to answer questions for her. Mum was attentive and encouraged her daughter to talk to us. The six-year old was not able to tell us what she thought was causing the pain, nor if there was anything she was worried about. Mum volunteered information about the divorce, but said that process had been occurring for the last year or so and was stable. She liked school, had friends, and there were no concerns from the teachers. Asking about her siblings was the most revealing part of the history; she was extremely close to her older brother and followed him everywhere. At which point mum mentioned that this brother had been having some difficulties at school.

He was being severely bullied, which had been witnessed by his sister who attends the same school. The bullying was so severe that he was removed from school and reintroduced after some weeks off. She had been the one who reported the bullying both to mum and the school. Upon review of the story, the abdo pain and vomiting had coincided almost exactly with this period of time. The brother had just been reintroduced back into the school, which had been a big focus for the family, and had gone well.

It was only when we were talking about the effects of this bullying episode on her and linking it with the vomiting that the six-year old smiled and engaged with the consultation. Mum was tearful; the child was visibly relieved and relaxed that the issue had been aired. It seemed to open a dialogue between mother and daughter.

In the absence of other medical features we have attributed this presentation to somatisation of emotional pain. I made a follow-up phone call with the family a few days later to see whether they had any further comments or questions and to confirm that I had cancelled their blood tests; they said they were “delighted” and that it “made sense” to all of them.”

Learning points we identified:

• Think outside the medical box: Focus on the whole child not just the medical model
• Context: trying to find out who are the important people in the child’s life, from the child’s perspective
• Talk to the child: Persist in trying to engage the child in the consultation throughout – we noted her enthusiasm when talking about her brother, and gave her the opportunity to tell her own story in her own words. It took time.
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Executive summary

What happened

Learning Together is an educational intervention: a paediatric registrar and a GP registrar see children or young people in a joint clinic based in a GP surgery, sitting in the same consultation seeing patients together. The intervention is inter-disciplinary and aims to provide participants with experiential learning. The ultimate aim is to improve outcomes for children and young people.

The project was funded by Health Education North Central and East London and hosted by UCLPartners. Learning Together clinics started in December 2013, following a first phase of recruitment in September 2013. A second recruitment wave was undertaken in January 2014 and included an extension of the project beyond the UCLPartners area into South London and North West London. Data collection covered the period from December 2013 to May 2014.

Over the six-month period:

- 848 children were seen in 145 Learning Together clinics
- 44 learning pairs made up of:
  - 37 individual paediatric ST5-8 registrars
  - 40 individual GP ST3-4 registrars
  - The majority of pairs ran a series of four or more clinics together
- 34 GP practices hosted clinics
- 12 NHS Trusts released paediatric registrars

In the evaluation:

- 608 learning logs were completed by the registrars
- 351 families took part in a survey
- 125 families took part in follow up interviews

In a pilot audit of four common childhood conditions (constipation, asthma, fever and eczema – the ‘CAFÉ’ pilot) 22 GP practices audited notes of consultations for their registrars before, after and during the Learning Together clinics.

What we found

In 99% of the 351 feedback forms completed immediately after clinics, parents said they had a good experience of care at the joint clinics which suggests that they are doing something right for children. In 87% of the 351 feedback forms parents reported increased confidence to manage their child’s health. Almost all (99%) thought that it was useful seeing a GP and specialist together and would recommend this type of clinic to friends or family. They thought the doctors worked together well (97%) and they liked the ‘one stop’ approach.
We showed that Learning Together clinics are a viable educational training model for GP ST 3-4 and paediatric ST5-8 registrars, to improve their clinical knowledge and skills and professional working relationships. It is not a simple model. It builds on the primacy of experiential learning as a method to best approach acquisition of knowledge and skills, but also to become familiar with interprofessional practice. The best way to make it work is just to start doing it. It requires development and adjusting as you go along in terms of who to book and how you work together. Many lessons were learnt during the project and we have translated them into a guide of ‘pull out’ adaptable resources that will help future implementation and roll out.

We also found out a lot about what registrars learnt in a dynamic learning experience:

- Learning themes for both GP and paediatric registrars included:
  - New knowledge
  - Clinical skills
  - Communication skills (with children and families)
- Inter-speciality learning themes:
  - Ongoing collaboration
  - Satisfaction with team working (defined narrowly as Learning Together pairs or their partner’s team)
  - Attitudes

We found that it takes a series of clinics for the ‘penny to drop’ about each other’s roles. Inter-speciality learning themes are more difficult to achieve than clinical learning, but are necessary if we want to integrate child health, improve outcomes for children and reduce unnecessary hospital admissions.

Something positive happened in the timeframe of the Learning Together project that improved the practice (measured in terms of guideline adherence and improved health outcomes) of GP registrars taking part from a baseline of 57% before to 72% during (p < 0.01) and 76% after the intervention, (p < 0.05 compared to before). This demonstrates that Learning Together can be a positive lever that changes practice.

To support local implementation we modelled resource use and health gain for children and young people:

- We consider that Learning Together would be cost neutral to the system if there are: two fewer unnecessary outpatient department referrals a month; or three fewer A&E attendances a month.
- If resources were not saved (i.e. if the clinics did not make any difference to referral or A&E attendance rates) we estimate that Learning Together would be cost effective if three more children every year with conditions such as asthma or constipation are successfully treated (regaining good health) compared with usual primary care before the joint clinics were introduced.

We believe that a combination of these goals are achievable as a result of Learning Together clinics and we are pleased to put health gain for children alongside the debate on resource use. To
illustrate the possibilities, we can show that 55% of Learning Together appointments resulted in an avoided referral or A&E visit as reported by the registrars. Also 98% of the 125 parents and carers interviewed said that they had not had an unplanned visit to hospital for the child’s condition within the one to two months since their clinic appointment because they had learnt how to manage their child’s condition more effectively. Value is complex, but we conclude that the local ‘bang’ is achievable and the system ‘buck’ small.

The UCLPartners Learning Together project generated a lot of good will and connected people to improve local education. Locally the model became infectious – registrars loved the experience and promoted it. The flexibility of the model was a key factor that enabled enthusiastic local implementation at a high and maybe unsustainable level. As a guide we recommend each trust aims to release at least one SpR 5-8 once a month for six months, to a local GP training practice, to support joint education in local integrated child health. We think the commitment to learn together is worth the results.

Next steps?

- A South London ‘extension’ is already underway at two centres and will be rolled out further over the next few months. We have had both local and national interest in the model.
- In order to improve availability of paediatric trainees, access to Learning Together and/or other community experience should be written into statements of requirements for the commissioning of higher paediatric programmes and we aim to support that.
- The National Director of Curriculum Renewal for the RCGP has expressed interest in the Learning Together project and will use its findings to inform development of the four year GP training programme – child health and mental health are key domains for improvement.
- See www.pich.org.uk – Learning Together is part of the PICH programme run by the London School of Paediatrics.

In the national context of suboptimal outcomes in child health, models that improve practice are of real value and this is a model that shows a lot of potential. The programme was largely a positive experience for participants and has been welcomed by trainers and supervisors. We know that changing doctors’ practice and implementing national guidance is difficult. We commend Learning Together to educational commissioners, local trainers and educational supervisors as a way of doing this and making a difference for children and young people locally.
1 Background

1.1 The need to improve care and services for children

“The care provided by UK children’s health services is inferior in many regards to that in comparable European countries. Although there are many examples of good practice, health services too often provide poor outcomes and are seemingly planned around the needs of organisations rather than those of children, young people, and families” (Wolfe 2011).

We need to improve the care that we provide for children. There is increasing data that child health in the UK is not as good as many of its European counterparts and we should be addressing this. For example, figures for all-cause mortality in children aged 0 – 4 years is worse in the UK than many other western European countries (Figure 1) and there are a number of other areas where there is cause for concern:

- Emergency attendances and hospital admission rates (HES data) continue to increase
- Death from asthma in children is higher in the UK than in other European countries
- A significant number of the children and young people seen within secondary care, both in emergency departments, and also in out-patients, could be seen within a primary care setting (Saxena 2009, Milne 2010)
- Children with chronic problems too often have to make do with disjointed care fitted in around acute services (Healthcare Commission 2007).

The reasons for this are multifactorial and often relate to the structures of the NHS, but one potential area for improvement is the training of child health professionals.
1.2 Current training arrangements for Paediatricians and GPs

Our current general paediatric postgraduate training curricula and programmes are focused on training paediatricians almost exclusively in and for today’s predominantly hospital-based system. Most paediatric trainees spend a maximum of six months out of hospital during their eight year run-through training programme. This time is spent in a community child health placement, which in some cases can be very specialised in neurodisability and behavioral paediatrics, rather than general community child health.

Looking more widely at the Government’s health reforms and the future direction of healthcare, in the medium and long term many general paediatricians are likely to be spending at least some of their time working within a primary care ‘out-of-hospital’ setting (RCPCH 2011). A recent survey at the London School of Paediatrics suggested that more than 50% of trainees would value more out-of-hospital training. So the direction of travel is moving away from the hospital-based care. In addition, surveys suggest that paediatric trainees lack confidence in managing long-term conditions and they would welcome more opportunities of clinic-based training or long term condition training (London School of Paediatrics data).

“Despite the high number of children coming into their surgeries, many GPs have little or no experience of paediatrics as part of their professional training. This means that, technical competence notwithstanding, many GPs lack the confidence to assess and treat children effectively, something that comes from specialist training and experience” (Kennedy 2010).

General practitioners currently have a three-year model of training. RCPCH data (RCPCH 2007) suggests that in many parts of the country only 50-60% of GPs have had any formal paediatric / child...
health training outside their GP posts. The training/exposure that trainees get during VTS GP posts can be excellent if their trainer is confident in managing children, but equally it can be less so. In a recent study 92% (n=46) of GP trainees who had done a paediatric placement felt either confident or very confident in acute asthma management in children, compared to 71% of GP trainees who had not undertaken a placement. An accepted curricular change to a four year GP programme is in hand, with particular reference to child health and mental health. For financial reasons there is no timescale yet agreed, and the findings from the Learning Together project will help build the background case for its promotion. (2)

More fundamentally, given the organisational separation between the specialist paediatrician working in secondary care and the generalist medical practitioner working in primary care, it would be of value to consider their professional relationships more carefully. Trainees in each discipline are used to working together in hospital departments, but not in the arguably more risk-laden environment of a general practice. It is reasonable to argue that by each discipline working more closely together delivery of appropriate child health care can be advanced.

Integrated child health training clinics offer a potential training solution

In 2012 we came up with a vision:

- All general paediatric trainees who complete training should have done some of their postgraduate training within a primary care setting
- All GP trainees should have had some dedicated paediatric training within a primary care setting prior to completing their GP registrar year.

1.3 Development of the Pilot Model 2012-13

Our aim was to create a series of child health training clinics within GP practices that provide training. These clinics would be jointly run by the GP registrar placed within the practice and a senior general paediatric trainee (ST5-8) visiting from the local secondary care provider. The model was that the registrars would sit in the same room seeing patients together. The clinics would be based around a series of patient appointments, but could also include ‘virtual MDTs’ (discussion about the patient without them physically being in the clinic) and other educational activities. The GP registrar would provide continuity throughout the year, and would provide the know-how to access the GP record, GP prescriptions and to request investigations.

The focus of the clinics would be around a sharing of ideas and education with learning in both directions. We also realised that there was potential that these clinics may reduce some referrals into the local secondary care provider, and hence have a positive financial impact for clinical commissioning groups looking to reduce OPD referrals. It is worth stating that these clinics would be ‘primary care run and administered’ and therefore would not be operated on a ‘Payment by Results’ (PbR) basis, as per normal referrals into secondary care.

There would also be the opportunity for the SpRs to support other child health related CPD learning for other members of the practice (GPs, practice nurses, health visitors), as well as developing their experience in taking a more preventative, public health perspective on their child health work.
Supervision and senior support for these clinics would come jointly from the GP trainer (who has responsibility for the GP registrar’s training) and the consultant paediatrician (who has responsibility for the SpR’s training). Ideally a debrief/feedback should take place shortly after each clinic (within a few days). There will also be a training agreement in place.

Governance arrangements were formalised through the School of General Practice and the School of Paediatrics.

1.4 Pre-pilot work March-July 2012

Clinics were initially set up in three sites, with slightly different models/focuses: one clinic at a Haringey practice, with one consistent paediatric registrar and GP ST3 pairing (the same two individuals doing the clinics for the whole period), one clinic in a Camden practice, with a consistent registrar and alternating GP ST3/2/return to clinical practice trainee; and one clinic in Brent, with an experienced GP ST3 who had done several years of paediatric training, and a rotating group of paediatric registrars. Individual governance arrangements were made for each site, with honorary contracts, and supervision for each trainee from their own supervisor. Patient feedback was collected and a focus group carried out with trainees’ to get their feedback and reported learning. Feedback from both patients and trainees was positive and on the back of that a larger pilot was carried out in five sites with GP ST4 trainees, who were doing a year-long Innovative Training Programme (ITP) in paediatrics. This meant they were spending half their week doing only child health related activities. As part of their year, all GP ST4s took part in a Learning Together clinic every two to four weeks with a paediatric trainee, or trainees, from the local hospital. A more formal qualitative analysis was carried out on reports of trainees’ experiences, which shaped this year’s larger pilot. It became clear that two elements were important to improve learning and impact of the clinics: a consistent pairing between the two trainees and a debrief in a practice meeting/MDT after the clinics. These were key to both personal learning and wider impact, providing clinical continuity and cascading of learning to the wider GP team.
2  UCLPartners evaluation pilot programme
In July 2013 UCLP put in a bid to HEE NCEL for money to support a much larger pilot of Learning Together clinics in North Central and East London. The aim was to establish fifty pairs, doing Learning Together clinics over a six-month period with an evaluation of learning and clinical outcomes. A description of the process follows.

2.1  Recruitment of sites

Roadshows/Stakeholder events
Contact was made with all paediatric departments and GP trainers during August 2013. All were invited to one of two roadshow/stakeholder events where the project was showcased. Unfortunately, despite more interest, only about 20 individuals attended the two events.

Direct contact with each area
Further personalised contact was then made with paediatric departments and community trusts to explain the rationale and remit of clinics. All paediatric training programme directors (TPDs) or clinical leads were identified and approached either by email or in person by members of the Learning Together project team. CM visited most paediatric sites and had meetings or discussions with members of the local team. She presented the project in consultant meetings and departmental teaching sessions.

Recruitment and project planning and development proceeded concurrently. In January a second wave of recruitment was launched. The UCLP website was used in the second wave of recruitment to allow registrars to download information and registration forms.

Once the number of available paediatric registrars in each area was determined, GPs (usually via VTS leads) were approached individually and the scheme was discussed in more detail. In most areas one member of the project team went out to a ‘VTS afternoon’ and discussed how the clinics worked. Interested GP registrars were encouraged to get agreement from their GP trainers and put themselves forward to be part of the scheme.

2.2  Matching up registrars

Once paediatric registrars and GP registrars were identified in each area, the project leads went through a process of pairing them up. GP registrars were paired with paediatric registrars who worked at (or did their on-calls at) the hospital that would usually be the referral site for that practice. Each practice also had to put forward one or two preferred days for the clinics, which were ideally on a morning when there was a lunchtime meeting that the pair could attend after the clinic and feed back about the patients seen.

The project team recommended that one GP registrar was paired with one paediatric registrar in each practice, but this model was flexed in several sites for logistical reasons (paediatric registrars moving sites and so no longer being able to participate), and the fact that often two GP registrars wanted to be involved. As a result in some sites one paediatric registrar did clinics with alternating GP registrars, or consecutively with two GP registrars. In another site, one paediatric registrar did clinics with two GP registrars at the same time (i.e. there were three in the consultation, with the GP registrars taking turns to be the lead).
2.3 Booking clinics

A member of the project team spoke to at least one of the pair or his/her trainer about how clinics work. The GP registrar had the responsibility to “advertise” the clinics amongst his/her practice team, and encourage colleagues to book patients into the clinic. In general four to six 30 minute slots were recommended for “pre-booked” patients, although several practices did shorter time slots of 20 minutes.

Advice was given about who to book in: children with difficult to manage common problems such as constipation; recurrent wheeze; children where there is a query about the need to refer to secondary care; “frequent flyers” to GP or urgent care; and those discharged from secondary care and in need of follow up. In general, GP registrars were encouraged to email paediatric registrars a few days before the clinic with the presenting complaints of the children booked in, allowing some pre-reading and thought about management (starting the learning cycle). In addition, practices were encouraged to have two 15 minute slots held for “book-on-the-day” patients. The idea was that these represent “unfiltered” primary care.

2.4 Clinic day

Trainees were encouraged to meet before the clinic and run through the list of patients, sharing knowledge, resources and ideas before seeing the patients. The project team suggested that trainees alternate who leads each consultation. In practice most trainees reported that they alternated who started the consultation, with the other “pitching in” at some point. Management plans were made jointly. Some children were followed up in the clinic, but most of those needing follow-up were followed up by the GP registrar.

2.5 Summary of steps

Pre-starting:

- Participating GP registrar advertises clinic to rest of GP staff, explains rationale, appropriate patients, format etc. and encourages referral and interest. A decision is made on the best day to hold the clinics.
- Participating GP registrar and paediatric registrar allocate clinic dates (ideally six clinics between November 2013 and March 2014).

Booking patients:

Patients booked by practice staff – triaged by the participating GP registrar.

- Six 30 minute slots
- Two 15 minute “emergency slots” booked on the day

Patients suitable for the Learning Together clinic:

- “Walk in” for the “need to be seen today” slots of the clinic
- Child with problem ‘x’ seen before in primary care, but difficult to manage, i.e. second opinion
• “Frequent flyers” to GP or urgent care
• Discharged from secondary care and in need of follow up
• Secondary care-type problems that do not need specialist input

Patients who should not be referred to the clinic:

• Children in need of specialist paediatric input e.g. diabetes/neurology
• Emergency referrals - ‘red flags’ - seen by other professionals in the practice should not be delayed by being booked into this clinic (unless they are “walk in” for a “need to be seen today” slot)

Clinic preparation

Participating GP registrar sends an email to the paediatric registrar with patients booked (presenting problems not names) one to two days before clinic to allow preparation.

Ideally, the clinic should be on a day when there is a practice meeting/education meeting at lunchtime, so that GP/paediatric registrars can feed back to wider team.

Ideally, a practice nurse/health visitor/other should also be present within consultation when appropriate e.g. nurse for asthma.

Clinic day: example

• 20-30 minute pre-clinic discussion around patients to be seen
• 9.00am-12.00pm – six booked slots
• 12.00am-12.30pm – two emergency slots
• 12.30pm-1.00pm – debrief/discussion with GP trainer/filling in learning log etc
• 1.00pm-1.30pm – feedback at practice meeting and dissemination/cascading of learning to wider GP team
• Virtual MDT: feedback/referral/advice about other GP patients
• Paediatric registrar discusses patients with paediatric supervisor
• Ongoing email/telephone contact between GP and paediatric registrar about patient management

2.6 Learning and support outside clinics

During the year we also held two learning afternoons; the first was in March 2014 and the second in June 2014. These afternoons were a way of capturing experiences to inform evaluation, but also an opportunity to encourage reflection and learning from the cases seen. In addition, we used them for people to share their experiences of what was working well and less well for them – to explore barriers and good practice, to share solutions and to enable everyone to get the most out of their clinics.

All participants had contact details of members of the project team and made (often frequent) contact with questions and queries. Further information, for example learning logs, educational agreements, etc. was available, as detailed on the UCLP website. The website was also a helpful tool and resource for discussion with other roll-on sites that were interested in up-scaling the model.
In addition to taking part in the clinics, participants were encouraged to take part in other activities: paediatric trainees were encouraged to sit in with a GP trainer’s regular clinic and attend an on-call with their GP trainee “partner”; GP trainees were encouraged to attend a general paediatric clinic in the hospital and an on-call with the paediatric registrar.
3 Evaluation strategy

3.1 Aim

The Learning Together clinics were primarily designed as an educational intervention to increase knowledge with the ultimate aim being to improve care and outcomes for children, young people and their families.

Learning Together is a complex inter-professional intervention. Its core component involves two doctors, approaching the end of their postgraduate training, learning together with extended learning in the wider team. Being a complex intervention, it was not possible to evaluate each individual component of the intervention and to identify which had the most effect on learning. The intervention was implemented into ‘real life’ NHS clinics and therefore the approach taken to the evaluation was pragmatic. It was not to define causality, but to gain an understanding as to whether joint clinics held between two trainee doctors, from different professional backgrounds, had an effect on learning overall and to provide recommendations for the design of future similar interventions.

Working hypothesis

Health outcomes and service use could be improved if senior specialist registrars in general practice and paediatrics had a better understanding and experience of the application of child health knowledge and skills in the context of general practice i.e. for both specialisms to learn to work together to provide optimal care.

The evaluation was divided into three components:

- A quantitative and qualitative analysis of self-reported data from participants, including registrars, parents and the practice team, utilising online surveys, interviews, questionnaires and a focus group to consider ‘what do people think?’ This was the main component of the evaluation pilot project
- A retrospective locally-led pilot audit of four common childhood illnesses: Constipation, Asthma, Fever and Eczema (CAFE)
- Health economics ‘what if’ models and threshold analysis, to inform the project group’s consideration of resource use. This component was not designed to give results.

The aim and methods of each of these 3 components is described below and the findings then presented for overall participation in the project, the analysis of self-reported data “What do people think?” and the CAFÉ pilot audit.

3.2 Self-reported data - ‘What do people think?’

Aim

An independent evaluator led and conducted this element of the project to help the Learning Together project team consider the potential impacts of the clinics for families and for the professionals taking part. Following a pilot stage, the brief was translated into an agreed evaluation design, which investigated the following outcomes:

- Improved knowledge and skills among professionals
• Improved recognition by GP trainees and registrars of each others’ roles
• Increased awareness of child health issues among the wider GP practice team
• Carers satisfied with the care received
• More children managed in primary care and fewer children making unscheduled hospital visits

Methods

A variety of methods were used in order to maximise stakeholder engagement and feedback including:

• An online survey of GP trainees’ and paediatric registrars’ perceived knowledge and confidence before taking part in clinics and again after four to six clinics.
• A short focus group with GP and paediatric registrars
• Telephone interviews with GP and paediatric registrars
• A feedback form for parents and carers after attending a clinic appointment completed immediately after the clinic
• Follow-up telephone interviews with parents and carers one to two months after their appointment
• Analysis of learning logs documenting the characteristics of children seen and their conditions
• Pro-forma for GP trainees to collect feedback from other team members at two practices.
• Feedback from nurses via team questionnaires and interviews
• Feedback from stakeholders at meetings to inform barriers and enablers

An online survey was conducted in November-December 2013, before the programme began and again in May 2014 towards the end of the programme. All ST3 GP trainees and ST7-9 paediatric registrars in London were invited to take part, regardless of their involvement in Learning Together clinics.

The post-consultation feedback form and follow-up telephone interviews with parents’ and carers’ were used to discover their experience of the clinics and confidence to self-manage the child’s condition. The feedback forms were completed anonymously immediately following the clinic and handed in at the practice reception. A telephone interview was conducted one or two months after attending the clinic for those who provided contact details and consent to be followed up.

It was originally planned that case logs completed before, during and after the clinics would be assessed by an independent clinician to examine whether best practice was being followed (and compared with a control group), but insufficient information was provided on case logs to allow this. Similarly WBPA were also planned for both GP and paediatric registrars to assess guidance adherence, but this was also removed from the project due to low take up in a pilot phase.

Clinicians’ views on the possible impact on referral rates for outpatient hospital care were collected using case logs where GP trainees and paediatric registrars estimated whether a clinic appointment resulted in an avoided hospital visit. In addition to this the follow-up interviews with parents and carers were used to see whether they had made an unplanned hospital visit for the child’s condition. As well as examining the outcomes of the Learning Together approach, feedback about feasibility was collected using: a focus group with GP trainees and paediatric registrars part way through the
programme; telephone interviews with GP trainees and paediatric registrars as they completed the programme; feedback from other stakeholders towards the end of the programme.

3.3 CAFE pilot audit: Aim and methods

Aim

The CAFE pilot audit focused on four common childhood illnesses: Constipation, Asthma, Fever and Eczema (CAFE). A retrospective audit of notes was conducted by GP practices who hosted Learning Together clinics, with the aim of surveying guidance adherence and patient outcomes during the period of the Learning Together educational evaluation project.

CAFE aimed to:

- Give insight into the quality of care provided to children by measuring guidance adherence in four sentinel conditions within primary care:
  - Idiopathic Constipation in under 18s
  - Asthma in under 18s
  - Febrile illness without focus in under 5s
  - Atopic Eczema in under 18s
- Pilot a methodology and a tool of binary metrics for both guidance adherence and patient outcomes in the four conditions to inform evaluation of future roll out of the joint clinics.

The CAFE pilot did not attempt to cover the pathways into hospital-based care due to the time constraints in the project.

The pilot audit was agreed in April 2014, following a pilot phase of other methods. By April it was apparent that learning outcomes were being described and the pilot audit was agreed to support interpretation of these outcomes.

Methods

A retrospective audit of patient notes (medical records) was conducted at the end of May 2014. Binary guidance adherence outcomes and binary health outcomes were developed for this pilot audit. All outcomes were evidence or consensus based and considered to be surrogates for high quality care. The use of binary metrics enabled the aggregation of outcomes across different clinical conditions and types of outcome. In practice this meant that the outcomes across all four conditions could be pooled to produce a guideline adherence score. This addressed the problem of having small population numbers for individual conditions in the joint clinics. The strength of this methodology was that it provided an overall reflection of the quality and effectiveness of care provided with sufficient numbers to achieve statistical power for the data analysis.

Child health outcomes and binary metrics were agreed by informal consensus involving a sub-group of the project team plus input from expert advisors. Of particular interest to the project were outcomes that related to the health status of the child. Questions on outcomes were addressed to the child or parent or, as with fever, determined from the notes using a well-established proxy measure:
• **Constipation health outcome:** “Are you better?” Defined as relief from symptoms, may include normal bowel habits, no pain, taking reduced laxatives without symptoms getting worse.

• **Asthma health outcome:** “Are you satisfied with your child’s breathing?” Defined by the patient or parent, for example good asthma control, able to fully participate in normal routines.

• **Fever proxy health outcome:** “Did the child return within 7 days to any setting?”

• **Eczema health outcome:** “Is your eczema under control?” Defined as minimal or no impact on quality of life, such as pain, impact on sleep, able to take part in everyday activities, psychosocial well-being.

NICE Clinical Guidelines and Quality Standards were used to define binary metrics in each condition – see Table 1 below. The NICE definition of terms was used throughout to support the metrics and the audit of notes. An audit proforma was developed and substantially revised after testing by the team in a GP site so that simple yes/no boxes could be ticked by a member of the practice management or clinical team.

Each metric was retrospectively collected for three time periods:

- **Before** the GP registrar started Learning Together clinics, in their routine practice with normal consultation slots. An opportunistic sample that could easily be identified of up to three sets of patient notes were requested and this could be any period from October 2013 up until the Learning Together intervention started for that GP registrar.

- **During** the Learning Together clinics, as joint consultations took place with longer consultation slots than usual. Data from notes of all patients seen with the sentinel conditions was requested. The joint clinics took place from December 2013 to May 2014.

- **After** the GP registrar had taken part in Learning Together clinics and was back in their usual practice with normal consultation slots. An opportunistic sample that could easily be identified of three sets of notes from any patients seen from January 2014 to May 2014 subject to the joint clinic schedule at each site.

The quality of information recorded in the patient notes was not reported or requested due to time constraints for the ‘Before’ phase. Notes were selected conveniently, usually via an electronic systems report.

All participating GP sites were invited in mid May 2014 to take part in the audit of notes. The aim was to recruit six to ten participating sites. Payment of £350 was offered to cover time to complete the data for the sentinel conditions for each GP registrar. Data was only requested on the four sentinel conditions if the registrars had seen any child or young person with the condition in their joint clinics. Phone calls or patient follow-up for the outcome data took place in the two to three week period of the audit and outside of the clinics. Anonymous data was collected by the GP registrar, trainer or another member of the GP team. A comparison group of GP registrars was invited to join in mid May 2014.

Data sheets were returned and analysed by the project team. Outcomes were aggregated by “optimal” and “suboptimal” totals. All ‘yes’ responses were categorised as optimal outcomes, with
the exception of 3.4 in fever (see table 1). The change in outcomes during and after the clinics were compared to outcomes achieved before the joint clinics using a chi-squared test for a two by two contingency table using a calculator at http://www.socscistatistics.com/tests/Default.aspx.
<table>
<thead>
<tr>
<th>Frage</th>
<th>A. Vorher – Maksimale 3 Patienten</th>
<th>B. Während – Alle Patienten gesehen</th>
<th>C. Nachher (oder Mai 14) – Maksimale 3 Patienten</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Konstipation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Ist die Note vermerkt, dass der Kind oder jung mit Konstipation das orale Macrogol als erste Liniebehandlung erhalten hat?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>1.2</td>
<td>Für ein Kind oder jung mit Laxativbehandlung für DISIMPACTION, vermerkt die Note, dass eine Auskunft über die Behandlung von einem Gesundheitsberufe in der ersten Woche der Behandlung erhalten wurde?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>1.3</td>
<td>Für ein Kind oder jung mit Laxativbehandlung für MAINTENANCE-Therapie, vermerkt die Note, dass eine Auskunft über die Behandlung von einem Gesundheitsberufe innerhalb von 6 Wochen der Behandlung erhalten wurde?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>1.4</td>
<td>Für ein Kind oder jung mit Laxativbehandlung für MAINTENANCE-Therapie, vermerkt die Note, dass eine Auskunft über die Behandlung von einem Gesundheitsberufe innerhalb von 6 Wochen der Behandlung erhalten wurde?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>1.5</td>
<td>(Verfolgen) fragen den Eltern oder Patienten: Sind Sie besser – ja oder nein?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>2</td>
<td><strong>Asthma</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Ist die Note vermerkt, dass das Kind oder jung mit Asthma ein persönliches Aktionsschema hat?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>2.2</td>
<td>Ist die Note vermerkt, dass das Kind oder jung eine strukturierte jährliche Übersicht in den letzten 12 Monaten und die Beurteilung des Asthma mit einem erkannten Tool gemacht wurde?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>2.3</td>
<td>(Verfolgen) fragen den Eltern/patienten: Sind Sie zufrieden mit dem Kind’s Breathing?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>3</td>
<td><strong>Fieber</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Ist die Note vermerkt, dass folgende Messungen gemacht wurden: Temperatur; Herzschlag; Respirationsrate; Capillarrefillzeit?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>3.2</td>
<td>Ist die Note vermerkt, dass die Gefahr eines schweren Krankheits, mit Hilfe der NICE Traffic Light Table?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>3.3</td>
<td>Wenn das Kind nach Hause geschickt wurde, vermerkt die Note, dass die Eltern Sicherheitshinweise inklusive, wann Hilfe gesucht werden sollte?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>3.4</td>
<td>Ist das Kind innerhalb von 7 Tagen zu irgendeiner Zeit zurückgekehrt?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>4</td>
<td><strong>Ekzeme</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Ist die Note vermerkt, dass die psychologische Gesundheit und Lebensqualität des Kindes, junges Person, Familie besprochen wurde?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>4.2</td>
<td>Ist die Note vermerkt, dass das Kind oder jung eine Behandlung basierend auf der berührten Schwere, unterstützt durch einen strukturierten Behandlung, unterstützt durch Bildung erhalten hat?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
<tr>
<td>4.3</td>
<td>(Verfolgen) fragen den Eltern/patienten: Ist das Kind’s Ekzem unter Kontrolle?</td>
<td>Ja</td>
<td>Nein</td>
</tr>
</tbody>
</table>
Lessons Learnt: GP Registrar

“I have enjoyed the clinics and had a really good experience, since I have not done paediatrics as part of my training up until now. I learnt a lot about the approach that the paediatric registrar takes to history taking and doing the exam. It gave me more confidence to work with children in primary care. It helped me see that not everyone has to be referred to hospital. I am more confident about handling issues in primary care now.

This is a totally different way of learning. I would usually discuss cases with my Trainer then refer, but now I know what I could do differently. I am gaining more of an insight into how to approach cases.

We have had good feedback from parents. Some are really complex cases that would be referred to hospital anyway so we are not stopping every hospital visit, but the clinics are particularly good for in-between cases where you don’t know whether to refer or not.

There have been challenges though. It has been hard to get everyone in the practice involved so it is as though it is just me as a trainee taking the lead. The multidisciplinary team meeting has not been happening after clinics. We just cannot get people to come along. No-one responds to emails when I try to arrange meetings and the other GPs referring aren’t getting any feedback about what we did because they don’t come to meetings. It also seems a bit one way with me learning a lot but the paediatric registrar is not getting a lot back.

Having quick access to a Paediatrician has been good for our practice, but we need a meeting or a way to give feedback to those who have referred in.

Sometimes clinics run over quite a bit. Even with 30-minute appointments, it is not enough time to deal with everything. The cases can be quite complex. In future we should have fewer appointments at each clinic so we can build in proper time to debrief afterwards with the Trainer and have a meeting with practice. It would be good to run clinics on the same day as a team meeting happens every week so we could go straight from the clinic into the team meeting and report back so everyone is learning. The Registrar could be there for first 15 minutes at the practice meeting. It would also be good to get the Trainer more involved from the start so they can introduce it to practice more and it would be a practice-wide thing.

Despite the challenges I think it (the Learning Together approach) is something that should definitely be made a regular part of training. Before I was not very confident but this has made me more confident. Children are a big part of general practice and for those who have not done paediatrics as part of their training this is really good for helping to differentiate the grey areas that you see every day.”
4 Results

4.1 Participation

4.1.1 Participation in the intervention: Learning Together clinics
Learning together clinics started in December 2013 following a first phase of recruitment in September 2013. A second recruitment wave was undertaken in January 2014 and included an extension of the project beyond the UCLPartners area into South London and North West London. Data collection covered the period from December 2013 to May 2014.

Over the six month period:

- 848 children were seen in 145 Learning Together clinics
- 44 learning pairs made up of
  - 37 individual paediatric ST5-8 registrars
  - 40 individual GP ST3-4 registrars
  - The majority of pairs ran a series of four or more clinics together
- 34 GP practices hosted clinics
- 12 NHS Trusts released paediatric registrars (see figure 1)
Figure 1: Trust and GP practices who took part

Learning Together Evaluation: Trusts and GP Practices
December 2013 - March 2014

Trusts
- Barnet and Chase Farm NHS Trust
- Chase Farm Hospital
- Enfield
- Barnet
- Barts Health NHS Trust
- CAMS Wellington Street Centre East Sector
- Tower Hamlets
- London University Hospital
- Newham
- Royal London Hospital
- Tower Hamlets
- Whipps Cross University Hospital
- Waltham Forest
- Barking, Havering and Redbridge University Hospitals NHS Trust
- Havering
- Homerton University Hospital NHS Foundation Trust
- Homerton University Hospital
- Hackney
- North East London NHS Foundation Trust
- Greenheath Hospital
- Redbridge
- North Middlesex Hospital NHS Trust
- North Middlesex University Hospital
- Enfield
- University College London Hospitals NHS Foundation Trust
- University College Hospital
- Camden
- Whittington NHS Trust
- St Mary’s
- Islington
- UCL Hospitals
- Whittington Hospital
- Islington
- The North West London Hospitals NHS Trust
- West Hertfordshire Health Trust
- North West London NHS Foundation Trust
- East Herts
- Watford
- St Bartholomew’s Hospital
- Camden

GP Practices
- Nationwide House Surgery
- Enfield
- Barnet
- Bacon Lane Surgery
- Barnet
- Billericay Health Centre
- Tiptree
- Basildon Green Grange Practice
- Basildon
- Clapton Street Health Centre
- Tiptree
- City Road Medical Centre
- Islington
- Cranbrook Clinic
- Newham
- Chigwell Avenue Practice
- Harlesden
- Elizabeth Avenue Group Practice
- Islington
- Elford Hall Medical Centre
- Harlow
- Elmwood Surgery
- Redbridge
- Finlay Way Surgery
- Enfield
- James Wigg Practice
- Camden
- Black Street Health Centre
- Islington
- Lawrence House Surgery
- Harlesden

GP Practices
- Lower St Marks Group Practice
- Hackney
- Utilitary Medical Practice
- Barnet
- The Mortis House Group Practice
- Haringey
- Manor House Medical Centre
- Haringey
- North East London Medical Centre
- Hackney
- Parliament Hill Medical Centre
- Camden
- Barnet
- Leytonbow Medical Practice
- Haringey
- North East London Medical Practice
- Newham
- East Green Medical Centre
- Barkingside
- Leamham Hill Group Practice
- Hackney
- Dartmouth Group Practice
- Haringey
- Leman Street Family Healthcare Centre
- Hackney
- The Spacious Practice
- Barnet
- St Andrews Medical Practice
- Barnet
- Welding Medical Centre
- Barnet

Learning Together has been rolled out in South London in 2014

Hospitals
- St George’s Healthcare NHS Trust
- St George’s Hospital
- Wandsworth
- Guy’s and St Thomas’ NHS Foundation Trust
- South London Children’s Hospital
- Lambeth

GP Practices
- Albert Street Group Practice
- Southwark
- Clapham Park Primary Health
- Lambeth
- Vila Street Medical Centre
- Southwark
4.1.2 Population of children and young people seen in the intervention

Data was collected directly from all 34 practices who participated in the intervention at the end of May 2014 and June 2014. Lists of all conditions seen in the joint clinics were returned from the practices and this information was categorised into a group of conditions by the clinical lead for the project.

In the 848 children seen in the joint clinics, over 900 individual presentations of conditions or symptoms were documented. The three most commonly seen conditions or symptoms were categorised as:

- Infection (includes e.g. upper respiratory tract infections and fever)
- Developmental (includes e.g. six-week baby checks)
- Gastrointestinal (includes constipation and abdominal pain)

How symptoms are described is likely to vary across sites. In the CAFE audit of 22 practices the numbers of children with conditions or symptoms seen in the joint clinics were returned as: Constipation 43; Asthma 14; Fever 15; Eczema 32. It appears from this subset of data that fever in particular may be described differently across sites.

Figure 2: Conditions seen in Learning Together
Lessons Learnt: Paediatric Registrar

“I have enjoyed Learning Together clinics. It is good to see what happens in the community. Both parties found it useful and it might be especially good for GPs if they have not done paediatrics before. But I do not think it was that useful from a learning point of view for me. It didn’t give me new knowledge or skills and didn’t make me more confident in my role.

I did learn how things work in primary care though, but that happened after the first one or two clinics. I didn’t need so long. It did feel like I was providing a service, which was fine and I enjoyed it, but it was definitely more about improving services and providing good care than learning anything new.

The things I found particularly useful were meetings with the whole team afterwards. It was good to share knowledge with the wider group of GPs, so not just one person benefited.

There needed to be management support in primary care to organise patient lists, provide a room, give out consent sheets and any other appointments or admin needed, so it was quite resource intensive. We were also concerned about the costs. Having two expensive doctors seeing things like six-week baby checks or routine primary care follow-ups just does not seem like a good use of time or money.

There was a lot of paperwork. I recognise this is needed because this was a pilot and we got into the swing of it. The main problem was we were not prepared for it in advance. We just thought we would turn up, we didn’t know we had to fill in forms. If we got all the information at once and had a proper induction meeting, then that would have made everything clear. I liked the learning logs though. They helped to consolidate everything. We just didn’t have time in clinics, so more time should have been allowed.

I might seem like I am being negative but I do not feel that way. I enjoyed it a lot. Being part of the primary care team was good. I felt part of the team. I learnt about referral pathways in the community and I learnt about seeing teenagers by themselves in the community because in hospital you would see them with their parents. I can see that GPs have a much closer relationship with whole family, not just the individual and episodic focus as in hospital. I didn’t learn anything clinically and I don’t feel like I am a better or more confident doctor now, but I was able to act as an interface between primary and secondary care and I think this cut referrals because we gave advice about where to go, not just to A&E. Families took this seriously because a Specialist as well as a GP was giving this advice.

Every one of our patients walked away happy. None wanted a referral to hospital for further reassurance. The verbal feedback was very positive by parents. They were happy from the outset since they were told in advance they were seeing a specialist, especially those who had already seen a GP. Parents are anxious so having reassurance from a Specialist helped. We could tell families what to look out for and when to go to hospital.

I think this should be part of regular training or regular service - not even training - because the paediatric registrar gets to work more independently. There is also lots of focus now on reducing A&E and hospital use. These clinics can help with that. It frees up time and decreases the load on A&E. It gives GPs more confidence and helps parents with reassurance and easy access. It is win-win all round.”
4.1.3 Participation in the ‘What do people think?’ evaluation

Of the 44 learning pairs across 34 practices, 23 pairs appear to have submitted information about their activities for evaluation purposes. The number of pairs who submitted may be greater than 23, but cannot be determined from the evaluation sheets, which identified sites rather than learning pairs.

Table 2: Response rates from data collection methods for the ‘What do people think?’ evaluation

<table>
<thead>
<tr>
<th>Method</th>
<th>Number invited</th>
<th>Number taking part</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online before and after survey with ST3 GP trainees and ST7-9 paediatric registrars</td>
<td>401</td>
<td>218 before, including 36 from Learning Together, 82 after, including 7 from Learning Together</td>
<td>54% before (60% for Learning Together), 20% after (12% for Learning Together)</td>
</tr>
<tr>
<td>Follow-up calls with professionals</td>
<td>60</td>
<td>15</td>
<td>25%</td>
</tr>
<tr>
<td>Case logs</td>
<td>Unknown</td>
<td>608 Learning Together from 23 pairs, 75 outside Learning Together from 22 practices and hospitals</td>
<td>-</td>
</tr>
<tr>
<td>Surveys with families immediately after clinics</td>
<td>848</td>
<td>351</td>
<td>41%</td>
</tr>
<tr>
<td>Follow-up calls with families</td>
<td>171</td>
<td>125</td>
<td>Follow-up calls stopped after 125 as data saturation reached</td>
</tr>
<tr>
<td>GP trainees facilitating discussion at practice</td>
<td>30</td>
<td>2</td>
<td>7%</td>
</tr>
</tbody>
</table>

In addition to the information collected and summarised in Table 2 above, a focus group was held with 19 participating registrars in March 2014.

4.1.4 Participation in the CAFE pilot audit

All GP sites were invited to return data for their participating registrars. The aim was to recruit six to ten participating sites and six to ten non-participating sites. Twenty-two participating sites returned data for their registrars. No GP sites were recruited to the comparison group. This was probably due to a combination of insufficient time to complete the audit and less motivation to assist in the project.

A total of 22 surveys were returned containing 778 items of data. After data cleaning, which removed data where the education intervention had not taken place for any of the CAFÉ conditions, 699 metrics remained. In other words, before and after data was removed if the GP registrar had not seen any child with the condition in their Learning Together clinic. The volume of surveys returned from participating project sites exceeded our expectation.
4.2 Results

4.2.1 Results ‘What do people think?’

Table 3: Summary of results: what do people think?

<table>
<thead>
<tr>
<th>Evaluation question</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impacts for families</strong></td>
<td></td>
</tr>
<tr>
<td>Did the parents and carers of children seen in clinics have a good experience of care?</td>
<td>Positive response - 99% of 351 surveyed, plus 125 follow-up interviews</td>
</tr>
<tr>
<td>Did parents and carers have increased confidence to manage their child’s condition?</td>
<td>Positive response - 87% of 351 surveyed, plus 125 follow-up interviews</td>
</tr>
<tr>
<td><strong>Impacts for professionals</strong></td>
<td></td>
</tr>
<tr>
<td>Did Learning Together clinics improve the self-reported knowledge and skills of GP trainees and paediatric registrars regarding child health issues?</td>
<td>No change in quantitative before and after surveys compared to control group, but interviews and focus group suggested benefits</td>
</tr>
<tr>
<td>Did Learning Together clinics improve how confident GP trainees and paediatric registrars feel about managing child health issues?</td>
<td>Interviews and focus group suggested benefits</td>
</tr>
<tr>
<td>Did Learning Together clinics improve GP trainees’ and paediatric registrars’ understanding of each others’ roles and responsibilities?</td>
<td>Positive reports in interviews and focus group, plus some non-significant positive trends in survey</td>
</tr>
<tr>
<td><strong>Impacts on the quality of care</strong></td>
<td></td>
</tr>
<tr>
<td>Did Learning Together clinics improve the extent to which GP trainees and paediatric registrars report working together?</td>
<td>Positive feedback from interviews and focus group; no significant change in before and after survey</td>
</tr>
<tr>
<td>Did Learning Together clinics improve the extent to which GP trainees and paediatric registrars provide guideline-adherent care?</td>
<td>Insufficient evidence collected</td>
</tr>
<tr>
<td><strong>Impacts on the wider system</strong></td>
<td></td>
</tr>
<tr>
<td>Did the Learning Together model raise awareness about child health issues in the wider GP practice team?</td>
<td>Insufficient evidence collected</td>
</tr>
<tr>
<td>Did Learning Together clinics have a short-term impact on referrals to hospital or unplanned hospital visits?</td>
<td>Reports from professionals’ case logs suggested a hospital visit was avoided for 55% of appointments</td>
</tr>
</tbody>
</table>

4.2.2 Limitations

Limitations of the ‘what do people think?’ evaluation were acknowledged a priori. It was planned as pilot evaluation, which includes pilot of design and methods. The approach was to plan a design which gathered information about a number of outcomes using multiple methods in order to try and get a picture of what kinds of impacts the joint Learning Together clinics may be having. Power in the statistical sense was not part of the design consideration. This decision was partly pragmatic as even if a 100% response had been achieved for every parameter the study was still likely to be underpowered given the time available. Proving that the learning model ‘worked’ or ‘did not work’ based on any single measure was not considered achievable at the outset. In addition, there are known ‘threats to validity’ that were not ‘controlled’. For example, characteristics of the learning pairs were not collected, such as prior experience or amount of training in child health.
So the importance of the before and after data collection, outside of the learning intervention, was primarily to inform future study designs.

The results of the online survey with registrars are difficult to interpret because of the limitations of the design and the very low response rates. Specifically the lack of ‘after’ responses (seven) from registrars who took part in the clinics is a limitation to the interpretation of the quantitative results.

Following an initial pilot phase ‘after’ case logs were not requested from GP registrars when they returned to usual clinics. The decision was made in March 2014 not to collect this data, based on advice from the independent evaluator, because of the low response rate for ‘before’ data collection. Similarly, logs from a comparison group were not requested. Furthermore, the interpretation of the comparative data would have been difficult because the nature of care delivered outside of the clinic e.g. by a paediatric registrar working in neonatal care is very different in relation to the type of care provided and patients seen in primary care.

4.2.3 Results of CAFE pilot audit
Results of the pilot audit are presented in Tables 4 and 5 below and are described as follows:

Data set 1 (Table 4): Inclusion criteria: Data collected before, during and after the intervention for each CAFÉ condition. All data reported for a process or health outcome included. Before and after data was removed from the data submitted by the practice, if the GP registrar had not seen any children with the sentinel condition in their Learning Together clinic.

Data set 2 (Table 5): Inclusion criteria: A full set of process and health outcome data i.e. process data only included if a patient health outcome is also reported for the consultation. This was derived post hoc from data set one.

The results show a statistically significant difference between the before and during data and between the before and after data for the aggregate outcome:

- Data set 1 (Table 4): Aggregate of all positive process and health outcomes:
  - Before 57% - before the intervention in solo GP training consultations
  - During 70% - during the joint clinic intervention (p < 0.01 compared to before)
  - After 70% - when the GP registrar returns to solo GP training consultations (p < 0.05 compared to before)

- Data set 2 (Table 5): Data groups that included an associated health outcome:
  - Before 57%
  - During 72% (p < 0.001 compared to before)
  - After 76% (p < 0.001 compared to before)
Table 4: Data set 1: All outcomes where a child with the condition had been seen in the joint clinic

<table>
<thead>
<tr>
<th>Data set for intervention</th>
<th>A Outcomes before</th>
<th>B Outcomes during</th>
<th>C Outcomes after</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Optimal</td>
<td>Sub optimal</td>
<td>Total</td>
</tr>
<tr>
<td>1. Constipation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Do the notes record that the child or young person with constipation received oral macrogols as first-line treatment?</td>
<td>14</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>1.2 For a child or young person undergoing laxative treatment for DISIMPACCTION, do the notes record they received a review of their treatment from a healthcare professional within 1 week of starting treatment.</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>1.3 For a child or young person undergoing laxative treatment for MAINTENANCE therapy, do the notes record they received a review of their treatment from a healthcare professional within 6 weeks of starting treatment.</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>1.4 Ask the parent or patient: Are you better - yes or no?</td>
<td>10</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>2 Sub total</td>
<td>36</td>
<td>26</td>
<td>62</td>
</tr>
<tr>
<td>2. Asthma</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Do the notes record that the child or young person with asthma has a written personalised action plan?</td>
<td>1</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>2.2 Do the notes record that the child or young person has had a structured annual review in the last 12 months and assessment of asthma is made using a recognised tool?</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>2.3 Ask the parent/patient: Are you satisfied with your child's breathing?</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>2 Sub total</td>
<td>18</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>3. Fever</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Do the notes record that all of the following were measured: temperature; heart rate; respiratory rate; capillary refill time?</td>
<td>15</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td>3.2 Do the notes record the risk of serious illness, using the NICE traffic light table?</td>
<td>8</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>3.3 If the child was sent home, to the notes record that the parent was given safety net information including when to seek further help</td>
<td>23</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>3.4 Did the child return within 7 days to any setting?</td>
<td>19</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>3 Sub total</td>
<td>65</td>
<td>31</td>
<td>96</td>
</tr>
<tr>
<td>4. Eczema</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Do the notes record that psychological wellbeing and quality of life of the child, young person, family is discussed?</td>
<td>7</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>4.2 Do the notes record that the child or young person is receiving treatment based on recorded severity using the stepped-care plan, supported by education?</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>4.3 Ask the parent/patient: Is your child’s eczema under control?</td>
<td>8</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>4 Sub total</td>
<td>27</td>
<td>39</td>
<td>66</td>
</tr>
<tr>
<td>Totals</td>
<td>146</td>
<td>110</td>
<td>256</td>
</tr>
</tbody>
</table>

p-value compared to A 0.0011 p-value compared to A 0.011
Table 5: Data set 2: Data groups that included a reported patient outcome

<table>
<thead>
<tr>
<th>Data set for intervention where outcome reported</th>
<th>A Outcomes before</th>
<th>B Outcomes during</th>
<th>C Outcomes after</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Optimal</td>
<td>Sub optimal</td>
<td>Total</td>
</tr>
<tr>
<td>1 Constipation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Do the notes record that the child or young person with constipation received oral macrogols as first-line treatment?</td>
<td>12</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>1.2 For a child or young person undergoing laxative treatment for DSIMPACTION, do the notes record they received a review of their treatment from a healthcare professional within 1 week of starting treatment.</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>1.3 For a child or young person undergoing laxative treatment for MAINTENANCE therapy, do the notes record they received a review of their treatment from a healthcare professional within 6 weeks of starting treatment.</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>1.4 Ask the parent or patient: Are you better - yes or no?</td>
<td>10</td>
<td>6</td>
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</tr>
<tr>
<td>2 Sub total</td>
<td>32</td>
<td>26</td>
<td>58</td>
</tr>
<tr>
<td>2 Asthma</td>
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<tr>
<td>2 Sub total</td>
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<tr>
<td>3 Fever</td>
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<td></td>
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<td>30</td>
<td>54</td>
</tr>
<tr>
<td>Totals</td>
<td>138</td>
<td>100</td>
<td>238</td>
</tr>
</tbody>
</table>

p-value compared to A: 0.0006  p-value compared to A: 0.0006
4.2.4 Limitations

The lack of a comparison group of practices who did not host Learning Together clinics makes interpretation of findings problematic. The “added value” of the Learning Together intervention cannot be fully determined since the extent to which improved outcomes could be explained by learning gained through usual training is unknown.

The practical difficulties of catching a parent who was able to take a follow-up call was a challenge for the audit. With more time more data sets would have been returned with patient outcomes.

However, we can be reasonably confident that we have avoided a Hawthorne effect in the data. The timing of the audit, at the very end of the project in May 2014, meant that the participating GP and paediatric registrars were unaware of the audit metrics and conditions at the time they took part in the educational intervention or in the period that “after” data was mainly reported. Therefore, they were unable to tailor their consultations to meet requirements of the audit. The Hawthorne effect describes how behaviour changes simply as a result of being measured or studied. That this has largely been avoided in the CAFE audit is helpful as it allows the process of the audit itself to be discounted as the change agent in the results.

Methodologically there is a black box between the input of an educational intervention and the desired outcome of improved health status for patients and this is challenging. In this complex picture traditional evaluation methods may not be adequate. The ROMLA matrices have been developed as a tool for investigating guidance adherence and clinical outcome.

The change in guidance adherence and health outcomes for children and the relationship between them is complex and has not been analysed here. This complexity includes the self-limiting nature of some childhood conditions which can mask poor, even unsafe, practice. In addition, with febrile illness without focus in a child the failure to exclude a serious illness or identify an acutely sick child is a sub-optimal but rare outcome and so is unlikely to occur during an audit. Another complexity is that no adjustment was made for the clinical relevance of the health outcomes. For example, in constipation it can take a few months to achieve a return to symptom-free health thus the timeframe for data collection in the audit is known to have been too short to see the full effect of treatment.

In summary, the relationship between process and health and outcomes is complex: sometimes optimal health outcomes are not reflected in good process outcomes; sometimes good care takes time to manifest in optimal health outcomes.

Another aim of the audit was to inform future projects. Where audit is considered in other evaluations consideration could be given to using a ‘no intervention’ comparison group from
participating practices, to avoid recruitment of a separate comparison group of non-participating GP practices. A few sites misunderstood the ‘no intervention’ criteria (see dataset 1 above for a description) and incorrectly returned data for one of the four conditions when no children with the condition had been seen in their Learning Together clinics. The registrars in the practice had therefore not had a Learning Together ‘experience’ for that condition. As a result 79 data points were returned only to be excluded from data set 1. Of this removed data in the ‘before’ group 63.23% of care was optimal and in the after group 63.33% of care was optimal. With such small numbers this data cannot be interpreted, but it shows that it would be feasible to collect comparative data from participating practices. Had it been anticipated that it would not be possible to recruit non-participating comparison sites for CAFE we would have used this approach ourselves.
5 Drawing out the lessons

5.1 Background: child health

We know we have a problem in child health:

- The care of children and young people provided is inferior in the UK compared to Europe (Wolfe 2011)
- There is consensus that significant numbers of children could be seen in primary care rather than in hospital (Saxena 2009, Milne 2010)
- Care is disjointed for many with long term conditions

5.2 Working hypothesis

Learning Together sought to address this need though paired education.

The hypothesis was that health outcomes and service use could be improved if senior specialist registrars in general practice and paediatrics had a better understanding and experience of the application of child health knowledge and skills in the context of primary care i.e. for both specialisms to learn to work together to provide optimal care.

5.3 Learning themes

Outcomes for participants were purposefully not described at the beginning of the evaluation project so that they could be self-directed by the learners and considered at the end of the project to inform a final model.

Learning - clinical knowledge and skills

In the learning logs both paediatric and GP registrars reported increased knowledge of conditions. This was identified in the qualitative analysis as a common theme:

“I never felt that confident about managing long term asthma. We looked it up together and I discussed with my Supervisor. Now I am very confident to make asthma plans!” (Paediatric Registrar)

“On a practical level, the thing that helped me learn was all the resources that the Paediatric Registrar told me about. Things I had no idea about before. Not just guidelines, but useful websites, things to give out to families, the nuts and bolts stuff.” (GP Registrar)

“Seeing how the Paediatric Registrar talked to children and got them engaged was good. I tended to just focus on the parents. Seeing how to talk to children and the types of questions to ask and the words to use was good.” (GP Registrar)

Both groups of registrars also identified future learning needs as a result of the joint clinics and this included reading guidance about specific topics and management of specific conditions to complement reflective learning. A key example is safeguarding which was highlighted as a learning need by both groups.
Confidence

Quantitative data from the online surveys suggests that Learning Together clinics were associated with a significant improvement in self-reported confidence. The qualitative data gives some insight as to why confidence may have increased: GPs reported increased confidence because of new knowledge and skills; paediatricians via more autonomy outside of the hospital setting:

“Despite the challenges I think this (the Learning Together approach) is something that should definitely be made a regular part of training. Before I wasn’t very confident but this has made me more confident. Children are a big part of general practice and for those who have not done paediatrics as part of their training this is really good for helping to differentiate the grey areas that you see every day.” (GP Registrar)

Participants also noted that changes in their confidence may have improved their communication style overall:

“There is much that I have learnt during these clinics, which may not be knowledge-based but certainly important for my professional development, including gaining confidence in clinics, leadership skills by role modelling and teaching skills, which in turn has improved my consultation style and examination since I am role-modelling/demonstrating/teaching during the clinic. It is two-way and I am learning a lot.” (Paediatric Registrar)

Confidence is difficult to interpret as it relies on self-awareness and needs considering alongside other themes such as guidance adherence.

Inter-speciality learning: working with a registrar from another speciality

A greater understanding of each others’ roles and responsibilities was reported by the registrars in case studies, in learning logs and at the workshops. Follow-up of patients via email was also commonly reported to the project team. Improved recognition by GP trainees and registrars of each others’ roles and willingness to work together was identified as a driver that appeared to result in more appropriate referrals being made and more children supported within primary care:

“I have found working on the Learning Together programme has been beneficial in ways I had not expected prior to starting clinics: I had expected that from an educational point of view I would probably have less to gain than my GP colleague, however, while preparing for clinics and in running the multidisciplinary team meeting lunchtime teaching sessions, the depth and breadth of my knowledge about conditions which are infrequently seen in acute hospital settings (e.g. food allergy, chronic eczema) has increased hugely. I have a renewed appreciation for the work of GP colleagues, and am particularly envious of the way in which they practice holistic and family centred care - one example would be when I was fairly puzzled by a rather bizarre consultation where a mother brought her child (who had been missing a lot of school with minor complaints) to the walk in emergency clinic slot with a sore throat - examination completely normal, child completely well. The mother burst in to tears during the consultation and it emerged that there were a lot of family issues going on - several family members were depressed, her daughter had anorexia, all the children had school refusal etc. The GP Trainee and I discussed the case at lunch time teaching with GPs who knew the family really well and had developed relationships over the last 20 years with...
them and their insights were really revelatory - we just do not get the chance to practice like that in A&E!” (Paediatric Registrar)

“It helps to improve relationships between primary and secondary care. Face to face communication is so much better than phone or email and you get to see first-hand how each other works and the different roles people have.” (GP registrar)

Guidance Adherence: CAFE pilot audit

Adherence to NICE guidance is recognised as a good proxy measure for high quality care that will improve patient outcomes. As detailed in Section 3.3 above, CAFE included measures about the health status of the child or young person: how concerned or satisfied the parent was with their child’s breathing; “are you better?”; “is your eczema under control?” We only have small numbers for health outcomes, but the approach to include them is an important step that promotes thinking about the child or young person’s health alongside learning.

The CAFE pilot also allows comparison of changes in practice before and after the joint clinics. The avoidance of the Hawthorne effect means the significant changes in guidance adherence are not a result of the audit. The results suggest an interesting association between improved guidance adherence and participation in Learning Together clinics, both during the intervention and for a period after the clinics when GP registrars return to usual solo ten-minute appointment slots. Something positive is happening in this timeframe that has moved practice for GP registrars within primary care from a baseline of 57% before the Learning Together clinics to 72% during (p value < 0.01) and 76% after, (p value < 0.05 compared to before) as measured by an aggregate outcome combining guidance adherence and overall child health status. This a very encouraging message for child health.

The CAFE pilot suggests that Learning Together can be a positive lever for change. The educational model shows real promise in terms of improving practice in common childhood conditions within primary care.

Summary of learning themes

Table 6 below illustrates broad learning themes. These are suggestions taken from the evaluation and cases discussed at workshops. The themes are intended to provide a useful summary for future projects. Learning was both clinical and inter-speciality.

Some educational process issues

What was immediately apparent, not unexpectedly, was the affirmation of experiential learning as a powerful education method: the value of learning from the clinical interaction and the reflective discussion that happened at the time or thereafter. GP trainees particularly referenced an improvement in clinical knowledge and skills which was shown to extend to patient care by findings from the CAFE audit. We further suggest learning can be immediate in a joint clinic and rendered more powerful by the dyadic nature of the experience.

Paediatric registrars spoke about how it often took time to settle into their new role and environment and suggested that having a series of six clinics facilitated this. They were working in a new environment and out of their ‘comfort zone’. In addition they were not used to working under
direct observation (of the GP trainee) whereas GP trainees are very used to holding joint clinics with their trainers. GP trainees are also used to videoing their consultations for later analysis and it emerged that paediatric trainees are not (perhaps, yet!):

“Overall it was a positive experience. It takes quite a while to settle in as a hospital doctor to go into GP practice. You do not have the consultant next door to ask. You need time to get used to everything.” (Paediatric Registrar)

One of the elements of generalist practice is a ‘different’ view of risk management and safety netting and it may be more difficult for a specialist to see the generalist perspective: one paediatrician reported a case where there was a discussion about a teenage girl with abdominal pain. The paediatrician wanted to immediately refer for investigations and the GP did not because the patient was otherwise well, and there were no ‘red flags’. After discussion they agreed to follow up the patient in primary care. The learning here was clearly about working in an environment without rapid access to investigation and the differing interpretations of watchful waiting and common presentations in primary care.

Some young doctors reported feeling rather competitive and wanted to read up on guidelines the night before a joint clinic. This seemed to be related to certain nervousness in advance, or a need to be seen to be ‘doing the job right’. Nonetheless, far more commonly, participants reported it being great fun working with a new colleague and a refreshing learning experience. Such sentiments should not be underestimated as being of value in the learning journey.

What Learning Together clinics demonstrated was a novel way of working which operationalised integrated care between specialities. Strictly speaking this does not fit the classical definitions of inter-professional education, but there are elements that could be so described. Our doctors were learning about one another’s working contexts, as well as roles and responsibilities (this was more described by the paediatricians than GPs).

Facilitation and supervisor support both during clinics and afterwards was reported as a key need, both from the point of view of patient safety, but also to interpret, consolidate and reflect on the learning that had taken place. On occasion, supervisors could have helped more with organisational issues such as:

“Having a better selection of cases would be better – so registrars learn for example about recent discharges. More thought needs to be put into which cases to book in and the GP Trainee shouldn’t do this all alone.” (Paediatric Registrar)

However, for the most part, the generic issues described above were reflected in commentary from GPs and paediatricians alike. Learning for paediatricians and GPs alike is driven by the content of the case mix available in clinics and there may be ways of constructing clinics that serve individual learning needs as well as addressing patients’ presenting issues.
<table>
<thead>
<tr>
<th>Theme</th>
<th>What was learnt</th>
<th>What they said</th>
<th>What prompted the learning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning for Registrars</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New knowledge</td>
<td>Resources: guidelines and websites</td>
<td>“On a practical level, the thing that helped me learn was all the resources that the paediatric registrar told me about. Things I had no idea about before. Not just guidelines, but useful websites, things to give out to families, the nuts and bolts stuff.” (GP Registrar)</td>
<td>Knowledge transferred from learning partner</td>
</tr>
<tr>
<td>New knowledge</td>
<td>Earlier identification and treatment of constipation</td>
<td>“The paediatric registrar immediately got to the point of the diagnosis, which I had been hesitant about previously. She worked out very quickly that the trouble was constipation despite the patient denying any straining at stool and, while reassuring both father and child, suggested a trial of movicol. It was useful to see how this was done.” (GP Registrar)</td>
<td>Knowledge transferred from learning partner</td>
</tr>
<tr>
<td>New knowledge</td>
<td>Asthma standards and guidelines</td>
<td>“I never felt that confident about managing long term asthma. We looked it up together and I discussed with my supervisor. Now I am very confident to make asthma plans!” (Paediatric Registrar)</td>
<td>Knowledge transferred from learning partner translated into a new skill</td>
</tr>
<tr>
<td><strong>Clinical Skills</strong></td>
<td>Feeling faecal impaction in a child</td>
<td>“The Paediatric Trainee showed me a really good way of doing toscopy in a child...I now have much more success” (GP Registrar)</td>
<td>Observation of learning partner and putting it into practice</td>
</tr>
<tr>
<td><strong>Clinical skills</strong></td>
<td>Clinical judgement</td>
<td>Children are a big part of general practice and for those who have not done paediatrics as part of their training this is really good for helping to differentiate the grey areas that you see every day.” (GP Registrar)</td>
<td>Experience of Learning Together clinics</td>
</tr>
<tr>
<td><strong>Clinical skills</strong></td>
<td>Consultation style</td>
<td>There is much that I have learnt during these clinics, which may not be knowledge-based but certainly important for my professional development including gaining confidence in clinics, leadership skills by role modelling, teaching skills which in turn has improved my consultation style and examination since I am role-modelling/demonstrating/teaching during the clinic. It is two-way and I am learning a lot.” (Paediatric Registrar)</td>
<td>Role modelling to a partner in the clinic</td>
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<tr>
<td>------------------------------</td>
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</tr>
<tr>
<td>Communication skills</td>
<td>Focusing on the child</td>
<td>&quot;Seeing how the Paediatric Registrar talked to children and got them engaged was good. I tended to just focus on the parents. Seeing how to talk to children and the types of questions to ask and the words to use was good.&quot; (GP Registrar)</td>
<td>Observation of learning partner</td>
</tr>
<tr>
<td>Communication skills</td>
<td>Tips when speaking to a parent</td>
<td>&quot;we love slippery children&quot; when treating with emollients for eczema (Paediatric Registrar)</td>
<td>Knowledge transferred from learning partner</td>
</tr>
<tr>
<td>Communication skills</td>
<td>Using ICE (ideas, concerns, expectations)</td>
<td>&quot;the GP approach of exploring parents’ concerns is firmly embedded in GP training...it was an eye-opener&quot; (Paediatric Registrar)</td>
<td>Observation of learning partner</td>
</tr>
<tr>
<td>Inter speciality learning: working with a Registrar from another speciality</td>
<td>Ongoing collaboration</td>
<td>Who to speak to</td>
<td>Learning Together clinics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;I am pleased when I see a child on the ward is from my Learning Together practice. I will usually call (the GP) up and speak to someone I know when they are discharged ...to do a verbal handover rather than relying on a discharge letter which may or may not get there” (Paediatric Registrar)</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with team working (defined narrowly as Learning Together pairs or their partners ‘home’ team)</td>
<td>How each other practice</td>
<td>&quot;It helps to improve relationships between primary and secondary care. Face to face communication is so much better than phone or email and you get to see first-hand how each other works and the different roles people have.” (GP Registrar)</td>
<td>Learning Together clinics</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Understanding one another’s working conditions and pressures</td>
<td>&quot;I have found working on the Learning Together programme has been beneficial in ways I had not expected prior to starting clinics: I had expected that from an educational point of view I would probably have less to gain than my GP colleague, however while preparing for clinics and in running the multidisciplinary team meeting lunch time teaching</td>
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<td>Attitudes</td>
<td>Understanding of each other roles</td>
<td>Learning Together clinics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“The tendency when you receive a referral in hospital is to assume that there is a diagnosis to be made that the GP has referred because there is something serious going on. From my discussion at the practice meeting and subsequently (at the joint clinic) it was clear that in primary care the approach is different and sometimes reassurance is all the family are looking for”. (Paediatric Registrar)</td>
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<tr>
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<td>Understanding of each other roles</td>
<td>Learning Together clinics</td>
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<tr>
<td></td>
<td>“I feel like I have more of a handle now on what happens in primary care. I see the pressures that my GP colleague is under, especially the time pressures and not knowing what is going to walk in. It has opened my eyes up a lot to what happens and why many things might be referred on. It also helped me see where we could work together more and provide more streamlined care.” (Paediatric Registrar)</td>
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5.4 Patient confidence and experience

In 87% of the 351 feedback forms completed immediately after the clinics, parents reported increased confidence to manage their child health. In 99% of the 351 forms parents said they had a good experience of care at the joint clinics, which suggests that they are doing something right for patients. Almost all thought that it was useful seeing a GP and specialist together and would recommend this type of clinic to friends or family.

Directly comparable patient satisfaction figures for primary care encounters for children are not available, but a recent Ipsos Mori poll (2014) of over 900,000 patients reported that 93% of those responding have overall trust and confidence in their GP, and 83% feel they are treated with care and compassion.

Feedback from the follow-up interviews mirrored that from survey forms.

Parents and carers noted that they were happy with their experience of Learning Together clinics:

“I found this helpful beyond words. I understand things more and found both doctors so professional and human.” (Mother)

“It was good and we didn’t go to hospital. The doctors were friendly and told us what to do at home.” (Child)

A key theme was reducing the time needed to go to multiple hospitals for various appointments and tests. Patients liked the ‘one stop’ approach:

“The whole thing was good. Having two doctors worked well because one knew us and the other was a special children’s doctor. It meant we didn’t have to go to A&E and was reassuring. We had to wait a bit, but much less than if we went to hospital.” (Family member)

“It was great for my child as hospital can sometimes be a bit overwhelming.” (Mother)

A small number of parents and carers said that there had been too many people in the room, such as when a supervising doctor or a nurse was present in addition to the GP trainee and paediatric registrar. This highlights the importance of gaining a balance between joint working and learning and ‘overcrowding.’

5.5 Working with the wider practice team

Information on the impact of Learning Together clinics on the wider practice team was only collected from two practices in the evaluation. As such, there was insufficient evidence to understand whether the Learning Together model raised awareness about child health issues in the wider GP practice team. However, we know from the workshops and conversations with the project team that
the recommendation to feed back after clinics to the wider practice team, both to offer clinical continuity and to share learning, was done in most places. Arranging timetables around this activity was sometimes difficult. Where it was done, this seemed to increase learning for trainees and the team as a whole and is seen as a strength of the model by GP VTS leads.

“A child under two had been seen in the Learning Together clinic with a very anxious mother. In the follow up meeting the health visitor happened to bring the same case for discussion, and having visited the home was able to bring more insight to the case. A timetable for follow up was agreed” GP trainee. The GP trainer reflected “for the first time I had to go upstairs and knock on the health visitor’s door and get their email address ....I know ... it’s embarrassing!”(GP Trainer)

In the evaluation there were mixed views about involving nurses as key partners within clinics. Although some nurses thought it would be useful to be present, others reported a lack of capacity and it not being their role. GP and paediatric registrars tended to indicate that there were already too many people in the room during clinics (especially when a GP trainer sat in). This mirrored the views of parents and carers who attended a clinic with three professionals. The overall feedback was that it may not be appropriate for a nurse to attend as well as a GP trainee and paediatric registrar – but a nurse could potentially substitute for a GP trainee to limit the number of people in the room. Those providing feedback thought that nurses could be involved as part of multidisciplinary team meetings, especially if these were more structured to allow time for discussing cases and learning.

Involving nurses in a way that is meaningful for them has not been universally straightforward. It may be that a different strategy is required for this. The Leicester\textsuperscript{15} model is a good resource and place to start to identify barriers to learning with expert facilitation.

5.6 Service outcomes

Given that the intervention is primarily an educational intervention, \textit{learning} was the primary outcome for our evaluation. However, one of the aims is to up-skill professionals, and enable working together to reduce additional visits to hospital, for example reducing the need for specialist review or for further management due to suboptimal management of conditions. As a result, the onward “journey” of the child after being seen in the learning together clinic is important.

In learning logs completed about each child seen, professionals estimated that 55% of Learning Together appointments resulted in an avoided visit to hospital, either through avoiding a referral for specialist opinions, tests or outpatient care, or avoiding a visit to the emergency department. Practices used the Learning Together clinics for different ways locally: to optimally manage patients below their referral threshold; to avoid a ‘soft’ referral; to avoid a difficult referral; and to support local learning goals. This meant the populations in the clinics varied in ways that were not necessarily related to the probability of onward referral, thus making this encouraging finding of 55% difficult to interpret.

The potential impact on number of hospital visits was supported by feedback from parents and carers in follow-up interviews one to two months after a clinic appointment. Ninety-eight percent of
125 parents and carers interviewed said that they had not had an unplanned visit to hospital for the child’s condition since their clinic appointment. They said this was because they had learnt how to manage their child’s condition more effectively, had been told about warning signs to look out for and had been given other care pathways and primary care follow-up when needed.

Individual registrars reported increased knowledge about local systems, as noted above. This may in turn lead to service changes. One paediatric registrar reported:

“I did not realise that all children from the practice I was working in routinely went to hospital A for X-rays, because X-rays could be requested electronically, but the usual path of referral was to hospital B. This makes no sense and I have discussed with management how we can address it” (Paediatric Registrar)

5.7 Health economics

In the evaluation participants commented on the increase in resource use and we know that releasing paediatric registrars was a key barrier in the early set up phase that was overcome as the reputation of the project grew. However, resource use is an important consideration for the project. Even if an intervention is believed to be doing no harm, or is as good as something else, if it is consuming more resources this can be regarded as ineffective use of resources. The resource could be better spent on something less resource intensive and as effective.

Two ‘what if’ health economic models were developed for the project. They cannot be regarded as ‘results’ or evidence. The models give a conceptual framework in which scenarios can be considered in data poor areas and allow decision makers to test their beliefs about the benefit (anticipated health gain) of an intervention alongside resource use and prompt considerations and caveats to the model to be made explicit and discussed about health outcomes and resource use. Models can also identify key drivers that usefully inform future research.

The full health economic report can be found in Appendix A.

Model 1: Resource use in the system overall

The model considered GP trainees only for simplicity and illustrates the circumstances under which Learning Together could be considered cost neutral. The number of clinics avoided also depends on whether these clinics were assumed to be replacing or in addition to usual primary care. The difference in the numbers reported below depended on the assumptions used when calculating costs. The model illustrates that Learning Together could be cost neutral to the NHS if:

- between 11 and 32 ‘GP trainee appointments’ could be avoided per month across the whole practice, or
- between 0.9 and 2.7 fewer unnecessary secondary care referrals could be avoided per month, or
- between 0.4 and 3.2 fewer unnecessary A&E attendances could be avoided per month
Interpretation of model 1

This model shows that if Learning Together could prevent a number of unnecessary GP appointments by leading to more effective early recognition and management of children in primary care, then it would not require more NHS resources to create Learning Together partnerships and could even save the NHS money. If it could prevent unnecessary use of secondary care and A&E attendance it could also be cost-saving. In reality, a consequence of the clinics could lead to a reduction in GP appointments, secondary referrals and A&E attendances saved. The team noted that this type of measure of activity was helpful in illustrating how the educational intervention can avoid resource use. GP trainees and paediatric registrars who participated in Learning Together estimated that 55% of Learning Together appointments they participated in resulted in an avoided visit to hospital. We do not know from the reported data whether the children booked into Learning Together appointments would have otherwise been referred directly to hospital, seen by another GP, or if the Learning Together appointment was an additional intervention in the patient’s clinical pathway. We therefore cannot interpret these views into resource savings. However, while we cannot assume a cost saving it illustrates how Learning Together is likely to be at least cost neutral if these views are reflective of wider practice in Learning Together clinics.

The model is also useful as a benchmark that can be tested locally, together across primary and secondary care, and used to shape patient selection alongside locally identified learning goals.

Model 2: Child health outcomes

As an alternative approach, a second model was developed and a threshold analysis was undertaken to consider the improvement in health outcomes that would be required for a monthly Learning Together clinic to be considered cost-effective under NICE decision rules for cost-effectiveness. Under an assumption of no impact on follow-up health service use and cost, (i.e. the clinics did not make any difference to referral or A&E attendance rates) the Learning Together clinics would have to lead to a health improvement of between 0.10 and 0.29 quality adjusted life years per year to be considered cost-effective. This improvement would need to be sustained as long as Learning Together clinics were in place.

What does that mean?

- This is the equivalent of at least three more children every year with conditions such as asthma or constipation being successfully treated (regaining good health) compared with usual primary care before the joint clinics were introduced
- If the health gain were over a shorter period of time than a year, say for a self-limiting rather than a long-term condition, then more children would need to be successfully treated than before Learning Together, in order for the change in primary care to be considered cost-effective
- If health service use were also to fall as a result of improvements in health following a Learning Together consultation, then the threshold health gain required for cost-effectiveness for the intervention would also fall.
Interpretation of model 2

We wish to emphasise that Learning Together is designed as an educational not a service intervention.

We do not have a year’s data on health outcomes from this pilot. However, the CAFE audit suggests that learning can be immediate and can change practice in primary care. The statistically significant change in adherence to NICE guidance is a good early indicator that changes in the health of children can be made as a result of the joint clinics. Where the gain in child health outcomes is sustained over a year then a strong case for additional investment in Learning Together could be made.

Overall, using both health economics models as a framework for our considerations has been a helpful challenge and one that enables us to commend the Learning Together approach as an educational intervention.

5.8 Feasibility of the educational model

As part of the evaluation at programme workshops and via stakeholders, information was received on barriers and enablers to inform the consideration of feasibility of the model by the clinical project lead.

The flexibility of the model enabled local implementation and this was a key success factor for roll out in primary care. Learning Together clinics were not centrally defined in terms of patient selection or outcomes and as a result all groups of stakeholders (consultants in trusts, GP trainers, parents and registrars) regarded Learning Together as a positive learning experience.

Organising clinics

The most important first step to get clinics going and ensure feasibility is to get clear buy-in from paediatric and GP leads. This can be done either bottom-up – by trainees’ interest, taking the idea to their trainers/supervisors – or more centrally – by cascading of information from others such as UCLP. A clear understanding of what the clinics entail and the commitment required is important before clinics begin. Where practices have fully understood the commitment before clinics started, the clinics seem to have worked best.

Release of the paediatric registrar was the biggest barrier to the Learning Together clinics, and the greatest difficulty to be overcome. However, most consider that planning for one or two registrars in a paediatric rota to get released for half a day once a month is achievable and are prepared to build this into hospital rotas. Having a champion in your trust to encourage/support paediatric registrar time is vital; liaising with the rota coordinator early on to plan clinic times in advance helps.

Holding clinics over a sustained period of time was important, although its impact may vary across learning outcomes. The learning of new clinical knowledge and skills appears to be immediate, as demonstrated by the audit. The understanding of one another’s roles, the local landscape and working together successfully takes more time to develop and may require external facilitation in a learning set or workshop. Those who completed more frequent clinics in shorter periods of time – one to two months – gained much less learning than those who did monthly clinics over a six-month period. As a result we encourage holding monthly clinics over a six-month period. This would mean
that potentially two registrar pairs could participate in clinics each year (with a six-month cycle for each pair).

**Clinic content**

Booking the right type of patients is an important consideration: several clinics had patients whose needs were too complex, or too many walk-in appointments. It is important to ensure that the wider practice team knows about the remit of the clinics and appropriate patient selection criteria in order to maximise learning. This is not prescriptive. Some trainees may be keen to see children with simple paediatric problems only, others may prefer some more complex cases. For example, paediatric trainees in community posts may be keen to see children and young people with behavioural problems whereas others may feel too out of their depth with this kind of problem. This is something to be established between the pair and the practice team.

The length of appointments is also key: in one or two practices, clinic slots were shorter than the suggested 20-30 minutes. Feedback from participants in this pilot and in earlier pilots does suggest that in order to really address need, reflect and learn from cases, the appointments need to be at least 20 minutes for more simple cases and 30 minutes for more complex cases. This was considered particularly important for cases where communication was central with both the parent and child, for example understanding the management of eczema.

**Maximising learning outside clinics**

The format and quality of supervision, both from the GP trainer and the paediatric supervisor, greatly influences the amount of learning that trainees derive from the clinic. Where supervision and challenge is more rigorous, trainees are forced to reflect and follow on with their learning. It was apparent from the first workshop that some registrars were confused by the lack of prescribed learning outcomes. Table 6 above on learning themes may be useful in directing learning goals.

Participants were encouraged to feed back at local practice meetings after every clinic. Sharing learning at multi-professional team meetings immediately following clinics was also seen to be beneficial both for the practice and for paediatric registrars.

The evaluation does not throw light onto the likely effect of peer or paired learning within other professions and how it would be received by nurses for example. Little data was collected in the evaluation that usefully informs this. Some suggestion has been made that barriers include lack of capacity within the workforce as a key issue.
6 Key conclusions

Key achievements of the project include:

- Establishing high patient satisfaction profiles with the educational model
- Setting up of 44 learning pairs over and beyond a large LETB geography
- Successfully examining a dyadic model of cross-discipline working
- Reaffirming the primacy of experiential learning for child health
- Working successfully in an integrated style of care
- Piloting and improving guideline adherence and improved child health
- Building an economic case for shared specialist/generalist care

Feasibility of Learning Together clinics

We commend Learning Together as a viable and novel educational intervention that has experiential learning at its core. Forty-four learning pairs were established across 12 trusts and 34 GP practices in six months, involving 145 clinics and 848 children and young people, across and outside of the UCLPartners patch.

Locally the model became infectious – registrars loved the experience and promoted it. The flexibility of the model was a key factor that enabled enthusiastic local implementation at this high level. As a guide to sustainability, we recommend each trust aims to release at least one SpR 5-8, once a month for six months to a local GP training practice, to support joint education in local integrated child health.

It is not a simple model. It builds on the primacy of experiential learning as a method to best approach acquisition of knowledge and skills, but also to become familiar with inter-professional practice. The best way to make it work is just to start doing it. It requires development and adjusting as you go along in terms of who to book and how you work together.

Learning themes

We have identified the following learning themes from the pilot and in summary they break down as follows:

- Learning themes for both GP and paediatric registrars:
  - New knowledge
  - Clinical skills
  - Communication skills (with children and families)
- Inter-speciality learning: working with a registrar from GP or paediatrics:
  - Ongoing collaboration
  - Satisfaction with team working (defined narrowly as Learning Together pairs or their partners ‘home’ team)
  - Attitudes

We found that it takes a series of clinics for the ‘penny to drop’ about each other’s roles. Inter-speciality learning is more difficult to achieve than clinical learning, but is necessary if we want to integrate child health, improve outcomes and keep children out of hospital when it is not necessary.
Learning changed practice

Learning Together significantly improved the practice of GP registrars, measured in terms of guideline adherence and overall health outcome. The findings show Learning Together can be a positive lever that changes practice.

Patient confidence and experience

Most parents reported increased confidence to manage their child’s health and almost all said they had a good experience of care at the joint clinics.

A key theme in feedback from parents was reducing the time needed to go to multiple hospitals for various appointments and tests. Patients liked the ‘one stop’ approach.

Working with the wider practice team

Feedback after clinics to the wider practice team, both to offer clinical continuity, discuss other children in the Practice, and to share learning, was carried out in most places. This seemed to increase learning for trainees and the team as a whole and is seen as a strength and requirement of the model by local GP VTS leads.

It may be that a different strategy is required for involving nurses. The Leicester model is a good resource and place to start to identify barriers to learning with expert facilitation. More work needs to be done on this aspect of the project. However it is consistent with the principles of interprofessional learning that practice nurses and health visitors, for example, could and should be incorporated into later iterations of the Learning Together model.

Service outcomes

Learning Together can make a small but positive contribution to local services. Professionals estimated that 55% of Learning Together appointments resulted in an avoided referral or A&E visit. Ninety-eight percent of the 125 parents and carers interviewed said that they had not had an unplanned visit to hospital for the child’s condition within the one to two months since their clinic appointment because they had learnt how to manage their child’s condition more effectively.

Health economics

We carried out some modelling to help inform thinking about the value of Learning Together in relation to both resource use and health gain for children and young people. We estimate that Learning Together is good value and an effective use of resources in the system:

- We consider that Learning Together would be cost neutral to the system if there are: two fewer unnecessary outpatient department referrals a month; or three fewer A&E attendances a month.
- If resources were not saved (i.e. if the clinics did not make any difference to referral or A&E attendance rates) we estimate that Learning Together would be cost effective if three more children every year with conditions such as asthma or constipation are successfully treated.
(regained good health) compared with usual primary care before the joint clinics were introduced.

Value is complex but we can imagine that these are achievable as a result of Learning Together clinics and we are pleased to put health gain for children alongside resource use in the debate on resources. The ‘bang’ is achievable and the ‘buck’ small.

Next steps

- A South London ‘extension’ of Learning Together is already underway at two centres and will be rolled out further over the next few months.
- In order to improve availability of paediatric trainees, access to Learning Together and/or other community experience should be written into statements of requirements for the commissioning of higher paediatric programmes.
- The national director of curriculum renewal for the RCGP has expressed interest in the Learning Together project and will use its findings to inform development of the four year GP training programme – child health and mental health are key domains for improvement.
- See www.pich.org.uk - Learning Together is part of the PICH programme run by the London School of Paediatrics.

Conclusion

Learning Together clinics are recommended as a viable educational training model for GP and paediatric registrars to improve their clinical knowledge and skills, and professional working relationships.

In the national context of suboptimal outcomes in child health, models that change practice are of real value and this is a model that shows a lot of potential. The programme was a positive experience for participants and has been welcomed by trainers and supervisors. We know that changing doctors’ practice and implementing high quality guidance is difficult. We commend Learning Together to educational commissioners, local trainers and educational supervisors as a way of making a difference for children locally.
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Appendix A: Economic evaluation of the Learning Together Project

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July 2014

1. Background

Learning Together (Learning Together) is a complex educational intervention delivered by GP trainees and paediatric registrars once a month in a GP practice. The objective is to improve the quality and consistency of care for common childhood conditions across a GP practice. The intervention was designed so that the impact was not only for the children seen face-to-face in the joint clinics, but also in the medium to long term, through shared professional learning across the GP practice and through shared learning with colleagues in secondary care. Therefore, the intervention was designed to have both direct and indirect impacts on health care resources and health outcomes. The purpose of the economic evaluation was to understand the potential for a Learning Together intervention to impact on health care resource use and health outcomes within the NHS. However, the indirect and longer-term costs and consequences have not been captured in the economic analysis presented here, as the indirect impacts are very difficult to measure objectively in a small study. The economic analysis presented below is therefore only a partial economic analysis of Learning Together as it only measures those aspects of the intervention that could be quantified in a meaningful way.

2. Aim

To evaluate the costs and consequences of Learning Together clinics and to consider the impact on resource use of different models of Learning Together clinics across GP practices in the same locality.

3. Methods

Economic evaluation of health care is concerned with how changes in use of health care resources impact on health outcomes compared with the next best alternative, which can be either usual GP practice or another intervention. The cost-effectiveness of an intervention compared with usual GP practice is influenced by:

   a. The difference in resources and cost of the intervention itself
   b. The change in health service use following the intervention

The difference in health outcome as a result of the intervention, such as a difference in time to recover from symptoms of ill health.
Description and cost of the intervention

Learning Together clinics are joint clinics run by a GP trainee and a paediatric registrar (see section 2). Each clinic lasts a morning or afternoon clinical session and between six and eight children attend each clinic, either through an internal referral and booking system (around three quarters of the attendances) or as walk-in appointments (a quarter of attendances). They are usually followed by a team meeting to discuss the children seen that day. Clinician time is therefore the main cost of Learning Together clinics.

Economic evaluation usually adopts a societal perspective meaning that it takes into account the value of resources to the public purse; it does not usually take into account who the payer is within the health care system. A resource such as clinician time is measured in terms of the value to the NHS (salary and employers’ on-costs) regardless of which part of the NHS pays that salary since this was a matter of local and national financing arrangements.

Three cost scenarios for Learning Together have been evaluated to reflect the different models of Learning Together clinics in the project, both between GP practices and over time within the same practice:

- In the first scenario it is assumed that the Learning Together clinics replaced referral to paediatric outpatients. The change in resource use from usual care (prior to Learning Together clinics) was therefore the presence of a GP trainee in what would otherwise have been a routine paediatric outpatient appointment in hospital, albeit in a different setting. The GP trainee’s time was included, but the paediatric registrar’s time was not, reflecting the fact that they would already have been seeing these children in a different setting prior to Learning Together. From the GP trainee perspective Learning Together clinics are effectively a second face-to-face appointment with a child who would otherwise have been referred on to the hospital.

- In the second scenario, it was assumed that Learning Together clinics were made up of children who have more complex clinical presentations, but who should still be managed in primary care. The Learning Together clinic was not a replacement for a referral to secondary care, but a follow-up GP appointment with the addition of a paediatric registrar in attendance. In this scenario, the paediatric registrar was the additional resource since the children would have been seen by a GP in a follow-up appointment, as part of usual GP practice.

- In the third scenario, Learning Together clinics represented an additional intervention in the clinical pathway that would not otherwise have taken place, that is, an intervention after an initial GP appointment and before either a follow-up appointment or a referral to secondary care. In this scenario, the cost of both the GP trainee and the paediatric registrar were included to reflect that this was an additional intervention that would not otherwise have been offered as part of usual GP practice.

Figure 1 illustrates these different models for costing the Learning Together clinics.
In reality, children are seen in Learning Together clinics for a mixture of reasons and therefore the total cost reflects a combination of these scenario costs. The consequence for cost-effectiveness of using different costs in the economic model was explored in threshold sensitivity analysis (see the Results section below).

The cost of a Learning Together clinic does not take into account the face-to-face GP appointments that are displaced because Learning Together appointments are longer than routine GP appointments. The difference is likely to either increase costs (because of the need to create more appointments elsewhere in the practice) or have an impact on health outcome (because of a delay in seeing a child in an appointment that has been displaced by Learning Together). This has not been factored into the analysis as its consequences are hard to trace without empirical data on what happened to the children booked in to see other GPs or whose appointment is delayed. However, the effects are likely to be marginal on health outcomes and costs if Learning Together clinics constitute a small part of the total GP time spent seeing children.

The Learning Together clinics also involve some GP trainer time. In many GP practices there was a scheduled lunchtime meeting after each clinic to review the cases seen that day, with the primary care team. There are also differences in time spent travelling between hospital and GP practices and a decrease in the time required for written correspondence between secondary and primary care clinicians. However, these additional costs and savings have not been included as experience varied between GP practices and no routine data were collected for the evaluation. It was not considered that these costs would be sufficiently large to change the overall results of the analysis.
The change in health service use

Activity data on follow-up care after an initial Learning Together face-to-face consultation was collected by some practices as part of the project evaluation. Although the same data were not collected for the period prior to the intervention or for eligible patients not attending Learning Together clinics, these data were used in a threshold analysis to estimate the change in health service use that would be required for Learning Together to be cost neutral.

If an intervention is cost neutral (saving resources in other parts of the health service as a result of Learning Together), it implies that it is better than usual GP practice; this is only half of any economic evaluation which should also include changes in outcomes. However, Learning Together would be cost-effective if it reduced unnecessary health care use (which would not be expected to have an impact on health outcomes if it were unnecessary). Furthermore, if Learning Together were cost neutral or cost saving, then the magnitude of change in health outcome becomes a less crucial metric in the analysis; if an intervention is shown to result in superior health outcomes compared with the status quo by any order of magnitude and can be demonstrated to be cost neutral, then it should be the preferred option for decision-makers.

A complete set of follow-up resource use data were available from one participating GP practice, where 43 children were booked to be seen in Learning Together clinics over a five-month period from January 2014 to May 2014. Data were audited on the pathways for all children following an initial face-to-face consultation. This included the number of referrals to specialist secondary care, accident and emergency attendance, follow-up primary care appointments (Nurse, Physiotherapy, GP appointment, Learning Together clinics), and the number of children for whom no follow-up visits were scheduled. This dataset was the baseline data used in the analysis. Using this data, it was possible to run a threshold analysis to determine the reduction in health service use compared with usual GP care that would be required for Learning Together clinics in primary care to be cost neutral or cost-saving for the NHS.

Data on costs were obtained from the National Schedule of Reference Costs for 2012-13 outpatient attendances dataset (Department of Health, November 2013). A weighted average cost for all specialist paediatric outpatient attendances was calculated. The cost of specialist paediatric referral was estimated from the weighted average reference cost for specialist paediatric services. None of the children in the practice audit were referred for a general paediatric outpatient assessment.

There was no NHS reference cost reported specifically for children’s A&E attendances. Therefore a general population cost was used for an A&E attendance in the model. A weighted average cost for all A&E attendances (type 1, not admitted, with investigation 1-3 and treatment 1-3) was calculated. Since these data incorporated A&E attendances that included expensive investigations and treatment which would not normally be required for children with the types of conditions that could be managed within a Learning Together clinic in a primary care setting, this is likely to be an over-estimate of the true A&E attendance cost.

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A change in health outcome

Cost neutrality is not a sufficient goal in itself for a change in health care to be preferred over the next best alternative. If there is an improvement in health outcomes resulting from an intervention, then an increase in cost from introducing that intervention may also be considered cost-effective if there is sufficient health benefit to justify its cost. Ideally, to integrate health outcome metrics into an economic analysis requires data on the time spent in a state of ill-health and in a state of good health (no symptoms) over a given time period. From this, the additional time in good health resulting from the intervention could be estimated. This health gain can be converted into a quality adjusted life year (QALY) which is used routinely in health economic models to compare the difference in cost between interventions and the difference in effectiveness as measured in QALYs (the incremental cost-effectiveness ratio, or ICER).

Assessing the health status of children over time following a Learning Together face-to-face consultation was not a main outcome of the Learning Together evaluation. However, as reported in Section 3.3, data were obtained from parents on the child’s well-being at an interval after the consultation. Data were also collected for some GP practices on a sub-group of children seen by the GP trainee before Learning Together clinics were established. This and qualitative evidence indicated that there may be an improvement in health outcome for children seen in joint Learning Together clinics.

Threshold analysis

Threshold analysis can be undertaken to evaluate the additional health gain that would be required for the Learning Together model of care to be cost-effective. Threshold analysis was undertaken to explore cost-effectiveness in the absence of data. This approach can be used to explore the threshold of cost-effectiveness under different assumptions about the quality of life impact of specific childhood conditions which is not empirically known. There is an accepted decision rule in the NHS that an intervention that leads to a gain of one healthy year for one individual as measured in QALYs is “worth” paying around £20,000 per year for

The impact of Learning Together on cost-effectiveness use was explored under different scenarios by altering the following parameters in the model:

- Health care resource use – to explore the change in referrals, A&E and GP appointments that would be required for Learning Together to be cost-neutral

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2 A QALY is a measure of health where perfect health is one and death is zero. A year of perfect health is one QALY and a year in less than perfect health is between zero and one QALYs depending on severity. The National Institute for Health and Care Excellence (NICE) uses this decision rule to guide its decisions on whether to recommend specific health care interventions and technologies. If a health care intervention can demonstrate that it leads to one additional QALY and costs less than an additional £20,000 per year compared with the next best alternative, then it is recommended for the NHS. One additional QALY might be achieved by extending perfect health by one year by preventing premature death for example, or by improving quality of life by ten percentage points for ten more people for a year (equivalent to one QALY) or for one person for ten more years (also worth one QALY).
Children’s health outcomes following a primary care face-to-face consultation - to explore the threshold at which Learning Together would be cost-effective. The baseline assumption explored in the threshold analysis was a change in health status of 10 percentage points, say from 0.7 QALYs to 0.8 QALYs or 0.8 to 0.9 QALYs over one year. The clinical interpretation of what this change would mean in a primary setting was also explored.

The results of the threshold analysis are presented in the Results section. The tables should not be interpreted as evidence of cost-effectiveness. This type of analysis is a means of exploring the impact of changes in resource use and health outcomes in the absence of suitable evidence; it does not conclude whether these impacts are more or less likely with Learning Together clinics compared with routine clinical care.

4. Results

Costs

The source of data on clinical salaries was the NHS Pay and Conditions Circular (M&D) 2/2014 for hospital, medical and dental staff. A 30% uplift in salary has been included to reflect employer on-costs. The data was not adjusted for the ratio of indirect to direct (face-to-face) contact time, which is usual practice when calculating average costs of NHS staff time (PSSRU, Unit Costs of Health and Social Care 2012-13). A detailed survey of clinical work to produce comparable data was not possible within the time frame of this project. Furthermore, since the evaluation had to consider the marginal cost to the NHS of additional hours of GP trainees’ and paediatric registrars’ time, an average cost is a less useful measure of the human resource being displaced by the intervention. Salary reflects the cost to the NHS of additional face-to-face patient contact, once all other costs (non-face to face activities such as clinical training and administration) have already been accounted and paid for from a specified budget line. The marginal cost does not take into account any difference in administrative costs (although correspondence is required for Learning Together clinics), travel time, time taken up with lunchtime meetings or any costs associated with GP trainers. All these are presumed to be common to all alternatives, although travel time to different GP practices will vary and is likely to be higher for some Learning Together clinics in practices further away from the hospital. Adopting a marginal approach to costing means that Learning Together costs reported here will be systematically lower than if an average cost were used.

Tables 1-3 report the unit costs used for the economic model. Table 1 shows the unit costs and calculation of the cost per Learning Together session for each scenario (described above). Learning Together
Table 1: Medical salaries and calculation of cost per Learning Together clinic for medical staff working in Learning Together clinics, 2013-14.

<table>
<thead>
<tr>
<th>Clinical role</th>
<th>ST</th>
<th>Basic salary</th>
<th>Salary with top-up banding addition</th>
<th>Salary plus on-costs*</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP trainee</td>
<td>3</td>
<td>£35,952</td>
<td>£53,928</td>
<td>£70,106</td>
<td>Salary derived from the NHS Pay and Conditions Circular (M&amp;D) 2/2014 for hospital, medical and dental staff</td>
</tr>
<tr>
<td>Paediatric registrar</td>
<td>7</td>
<td>£43,434</td>
<td>£65,151</td>
<td>£84,696</td>
<td>Data from discussions with Learning Together project participants and the project team</td>
</tr>
</tbody>
</table>

| Annual leave (wks)                     | 6  |                           |                                     |                       | Data from discussions with Learning Together project participants    |
| Educational training (wks)             | 4  |                           |                                     |                       | Data from discussions with Learning Together project participants    |
| Working weeks (a)                      | 42 |                           |                                     |                       | Data from discussions with Learning Together project participants    |
| Sessions per week (b)                  | 8  |                           |                                     |                       | Data from discussions with Learning Together project participants    |
| Clinical sessions per year             |    |                           |                                     |                       | Data from discussions with Learning Together project participants    |
| (either Learning Together or GP trainee alone) (a x b) |    |                           |                                     |                       | Data from discussions with Learning Together project participants    |

| Cost per GP trainee session (c) scenario 1 | £209 | Calculated as salary plus on-costs divided by the number of clinical sessions per year |
| Cost per paediatric registrar session (d) scenario 2 | £252 | Calculated as salary plus on-costs divided by the number of clinical sessions per year |
| Cost per Learning Together session (c+d) scenario 3 | £461 | Calculated as salary plus on-costs divided by the number of clinical sessions per year |

*includes 30% uplift as suggested by the project team

The marginal cost per clinical session was £209 for a GP Trainee, £252 for a GP Registrar and £461 for a Learning Together clinic, assuming this represents an additional patient consultation and does not replace a referral to secondary care or a follow-up GP appointment (Table 1). These were the costs used to calculate the costs of Learning Together clinics under the different costing assumptions shown in Figure 1.

Tables 2 and 3 report the unit costs for primary and secondary care used in the model and their sources.
### Table 2: Unit cost of follow-up primary health care intervention included in the health economic model

<table>
<thead>
<tr>
<th>Resource</th>
<th>Unit cost</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP trainee cost per patient</td>
<td>£15</td>
<td>Assuming 14 patients per usual GP session clinic and clinic costs of £206, see Table 1. This does not take into account non face-to-face patient time therefore this cost is likely to be higher in real life. No data were available to support a calculation of the ratio of direct to indirect contact for GP trainees.</td>
</tr>
<tr>
<td>Practice Nurse</td>
<td>£27</td>
<td>PSSRU Unit costs of Health and Social Care (2013) Average cost per face-to-face patient contact.</td>
</tr>
<tr>
<td>Health Visitor</td>
<td>£47</td>
<td>PSSRU Unit costs of Health and Social Care (2013) Average cost per face-to-face patient contact.</td>
</tr>
<tr>
<td>Community physiotherapist</td>
<td>£47</td>
<td>PSSRU Unit costs of Health and Social Care (2013) Average cost per face-to-face patient contact.</td>
</tr>
</tbody>
</table>

### Table 3: Unit costs of secondary specialist health care intervention included in the health economic model.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Unit cost</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist paediatric referral to secondary care</td>
<td>£176</td>
<td>Average cost of all paediatric outpatient attendances weighted by activity (proportion of total reported activity). National Schedule of Reference Costs Year: 2012-13 – All NHS trusts and NHS foundation trusts – Outpatient Attendances.</td>
</tr>
<tr>
<td>A&amp;E attendance – not admitted</td>
<td>£115</td>
<td>Weighted average of all non-admitted Accident and Emergency attendances including category 1-3 investigation and 1-3 treatment. Attendances for children and adults as no paediatric attendances were reported</td>
</tr>
</tbody>
</table>

Table 4 shows the cost of the intervention as well as the resource use and cost of follow-up health care as audited by one GP Practice. It does not present routine GP appointments in primary care with follow-up up health service use because these data were not available from the GP Practice.

In the base case scenario shown in Table 5, it was assumed that there is no difference in health service use after a Learning Together clinic, as no data were obtained for this comparison. The only difference that is assumed is that a child followed-up in a future Learning Together clinic would have otherwise been booked in for a routine GP appointment as part of usual care. The data below shows the resource use for 43 patients audited as part of the Learning Together evaluation under different assumptions about the cost of Learning Together (scenarios 1, 2 and 3).
Table 4: Cost of Learning Together clinics and associated resource use compared with GP trainees for one GP practice in the Learning Together project, 5 months (January–May 2014) under assumption of no change in follow-up resource use

<table>
<thead>
<tr>
<th>Resource use (Learning Together)</th>
<th>No. clinics in the audit</th>
<th>Children booked</th>
<th>Attend 1st consultation</th>
<th>No. referred to secondary care/private follow-up in Learning Together</th>
<th>Follow-up alone</th>
<th>Follow-up by GP trainee alone</th>
<th>Follow-up by nurse practice</th>
<th>Follow-up by physiotherapy</th>
<th>Follow-up practice not scheduled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>43</td>
<td>41</td>
<td>3</td>
<td>3</td>
<td>14</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cost under scenario 1*</td>
<td>£1,252</td>
<td></td>
<td></td>
<td>£528</td>
<td>£78</td>
<td>£365</td>
<td>£53</td>
<td>£47</td>
<td>£47</td>
<td>£2,370</td>
</tr>
<tr>
<td>Cost under scenario 2</td>
<td>£1,512</td>
<td></td>
<td></td>
<td>£528</td>
<td>£95</td>
<td>£365</td>
<td>£53</td>
<td>£47</td>
<td>£47</td>
<td>£2,647</td>
</tr>
<tr>
<td>Cost under scenario 3</td>
<td>£2,764</td>
<td></td>
<td></td>
<td>£528</td>
<td>£173</td>
<td>£365</td>
<td>£53</td>
<td>£47</td>
<td>£47</td>
<td>£3,977</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resource use (usual care)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of GP trainee alone (no Learning Together clinics)**</td>
<td>£641</td>
<td></td>
<td></td>
<td>£528</td>
<td>£253</td>
<td>£53</td>
<td>£47</td>
<td>£47</td>
<td>£47</td>
<td>£1,569</td>
</tr>
</tbody>
</table>

*Costs vary by assumptions about Learning Together clinics, see Figure 1 above  ** Attendances x GP trainee cost per patient (see Table 2)

Table 5 shows the difference in cost of primary care and follow-up resource use immediately following Learning Together or usual GP practice under the most conservative assumption of no change in care pathway following initial consultation. The difference in cost under the different scenarios, presented in Table 5, is the data that will be used in the threshold analysis to calculate the change in resource use that would be required for Learning Together to be cost neutral (Table 6).
Table 5: The difference in cost of primary care consultations including follow-up health care resource use for 43 patients audited over 5 months in one GP practice, for the 3 scenarios for Learning Together.

<table>
<thead>
<tr>
<th>Description</th>
<th>5-month Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional cost of Learning Together clinics over 5 months compared with usual GP trainee care:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 1</td>
<td>£801</td>
<td>Assuming GP trainee costs only are included in cost of Learning Together clinics</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>£1,078</td>
<td>Assuming Paediatrician costs only are included in cost of Learning Together clinics</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>£2,408</td>
<td>Assuming GP trainee and Paediatrician are included in costs of Learning Together clinics</td>
</tr>
<tr>
<td>Cost of usual GP trainee care incl. follow-up health care</td>
<td>£1,569</td>
<td>Not adjusting for indirect to direct patient contact time</td>
</tr>
</tbody>
</table>

Threshold analysis

Table 5 indicates that Learning Together clinics have higher costs upfront than routine GP appointments assuming no difference in clinical follow-up of the child. There is qualitative evidence and audit data to show that Learning Together may have a positive impact on health care resource use and health outcomes. This section explores the impact of putative changes in resource use and cost on the cost-effectiveness of the intervention. It also considers the change in health outcomes required for Learning Together to be considered cost-effective. These calculations are presented for illustrative purposes only and are not based on empirical data.

Impact of change in follow-up resource use:

In the absence of data to inform the model, the threshold analysis presented below explored the impact of a change in clinical pathway following a Learning Together clinic. Table 6 shows the change in health service use that would need to be achieved for Learning Together to be cost neutral compared with usual primary care. The cost of A&E reported in Table 3 includes relatively more expensive A&E attendances that lead to Category 3 investigation and treatment. These more intensive attendances are not likely to be “unnecessary” and therefore the cost of A&E attendance that could be avoided by a Learning Together intervention is likely to be lower than that reported in Table 6. The estimated increase in total health service cost per month for children who attend Learning Together clinics based on the assumptions set out above is around £160 and £480 per month.
Table 6: Threshold analysis showing the reduction in service use by a GP Practice required for Learning Together to be cost neutral under the three cost scenarios per month assuming a low GP cost per Trainee in the base case analysis

<table>
<thead>
<tr>
<th>Change in resource use</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly increase in Learning Together cost:*</td>
<td>£160</td>
<td>£ 216</td>
<td>£ 482</td>
</tr>
<tr>
<td>Per month reduction in GP trainee appointments across the GP practice</td>
<td>11</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Per month reduction in referrals to secondary care across the GP practice</td>
<td>0.9</td>
<td>1.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Per month reduction in A&amp;E attendance in the practice population</td>
<td>0.4</td>
<td>0.9</td>
<td>3.2</td>
</tr>
</tbody>
</table>

*based on 5-month cost differences reported in Table 5 (rounded to nearest whole number)

Impact of change in health outcomes of the child:
Table 7 shows the impact of a change in children’s health outcome under the different cost scenarios for the Learning Together project. An interpretation of what such a change would mean in practice for primary care is presented in the Table 7 below.

Table 7: Threshold analysis showing the change in health outcome required for Learning Together to be cost-effective at £20,000 per QALY, based on 5-month audit data from one GP practice.

<table>
<thead>
<tr>
<th>Description</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement in health outcomes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning Together more expensive per year by:*</td>
<td>£1,923</td>
<td>£2,587</td>
<td>£5,779</td>
</tr>
<tr>
<td>QALY threshold for cost-effectiveness</td>
<td>0.10</td>
<td>0.13</td>
<td>0.29</td>
</tr>
</tbody>
</table>

*based on 5-month cost differences reported in Table 5 (rounded to the nearest whole number)

Clinical interpretation of a change in QALYs:
The numbers reported in Table 7 are not based on empirical evidence. They indicate the change in impact on health outcomes that would need to be achieved for the additional cost of Learning Together to be worthwhile for a predefined measure of “worth”. It suggests that an additional one 0.10 to 0.29 of a QALY would need to be gained in health per year per GP Practice for one Learning Together clinic per month to be considered cost-effective. However, the QALY is an abstract measure of health outcome. The kind of “what if” scenarios presented in Table 7 is only helpful if it can be translated back to real clinical practice in a way that is meaningful to clinicians and decision-makers.

3 Assuming the NICE threshold for cost-effectiveness of £20,000 per additional QALY gained
The challenge is that the impact of a change in symptoms of common childhood conditions such as constipation, asthma and fever is difficult to quantify empirically. A change health outcome of 0.10 QALY could be interpreted as an improvement in a person’s health from experiencing “some symptoms” (but symptoms sufficiently worrisome to seek treatment) to “no symptoms”. Table 7 reports that under the most costly assumptions for Learning Together (scenario 3), a GP Practice would have to see an improvement of 0.29 QALYs in one child for a year, or an improvement of 0.10 QALYs in around three children, with the improvement lasting for at least a year for the intervention to be cost-effective. In other words, every year at least three more children who present with conditions such as asthma or chronic constipation will need to be effectively managed in primary care, than would have been the case prior to the introduction of Learning Together. This health gain could be achieved in any children presenting in primary care, either directly through face-to-face consultations in Learning Together clinics or as a result of the GPs’ enhanced knowledge, skills and experience from Learning Together applied in their management of children during routine GP appointments.

Clearly, the shorter the overall duration of health gain from an intervention, the more additional children would need to be successfully managed in primary care for Learning Together to be cost-effective compared with routine practice. Also, the more children who are successfully managed as a result of Learning Together, the lower the QALY health gain threshold required for Learning Together to be cost-effective. If Learning Together were to be only used as a short-term intervention, say six Learning Together clinics over six months, then half the QALYs would be required for it to be cost-effective (0.15 QALYs in one additional child, or one more child successfully treated). If Learning Together led to a sustained improvement of clinical care of children, then it would become increasingly more cost-effective.

5. Conclusion

Under conservative assumptions of no difference in follow-up resource use, Learning Together is a more expensive option than routine GP practice. Depending on whether these clinics replace GP appointments, replace secondary care referrals, or represent an additional face-to-face contact in the clinical pathway, the cost per Learning Together session is between £209 and £461. No comparative data were available to evaluate the difference in total cost taking into account all follow-up health service use. Over a five-month period in one GP Practice, the total cost of primary care and initial follow-up health service use for 43 patients booked into a Learning Together clinic was between £2,370 and £4,000 depending on whether these clinics were assumed to be replacing or in addition to usual primary care. That is the equivalent of around £474 to £800 additional cost per month associated with primary care and initial follow-up health care use.

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4 Studies in adults with asthma and COPD have suggested that the quality of life weighting for this condition is between 0.5-0.8 depending on the severity of the condition (Pickard, Wikle et al Use of a preference-based measure of health (EQ-5D) in COPD and asthma, 2008). Assuming that a healthy year of life in a population is worth at least 0.9 QALYs, the study suggested that an improvement or cure of symptoms in one person for a year would represent an increase in QALYs of 0.1 to 0.4 QALYs depending on the severity of the condition.
The economic evaluation considered the threshold at which Learning Together would be cost neutral (that is, if it reduced unnecessary health care use further along the clinical pathway). Cost neutrality is not an endpoint in itself, but is a useful tool when considering scenarios in which unnecessary use of health care could be avoided (for example by reducing follow-up GP appointments because the child has got better or reducing A&E attendance by children who have a self-limiting illness or by increasing parents’ confidence to manage their child’s symptoms at home). The model estimated that Learning Together would be cost neutral if there were between 11 and 32 fewer GP trainee appointments per month across the whole practice. Similarly, Learning Together would be cost neutral if there were between 0.9 and 2.7 fewer unnecessary secondary care referrals per month, or between 0.4 and 3.2 fewer unnecessary A&E attendances. The unit cost of A&E used in the model included more costly investigation and treatment which would be unlikely to be required in “unnecessary” A&E attendances; therefore the cost of A&E is likely to be lower and, consequently, the threshold for cost neutrality also lower.

A threshold analysis was also undertaken to consider the improvement in health outcome that would be required for a monthly Learning Together clinic to be considered cost-effective under NICE decision rules for cost-effectiveness. Under an assumption of no impact on follow-up health service use and cost, the Learning Together clinics would have to lead to a health improvement of between 0.10 and 0.29 quality adjusted life years per year to be considered cost-effective. This improvement would need to be sustained as long as Learning Together clinics were in place. This is the equivalent of at least three more children every year with conditions such as asthma or constipation being successfully treated, compared with usual primary care before Learning Together clinics were introduced, if Learning Together clinics were to be provided once a month for a year. If the health gain were over a shorter period of time than a year, say for a self-limiting rather than a long-term condition, then more children would need to be successfully treated, in order for the change in primary care to be cost-effective. If health service use were also to fall as a result of improvements in health following a Learning Together consultation, then the threshold health gain required for cost-effectiveness for the intervention would also fall. If Learning Together clinics were offered for a shorter period with sustained improvement in practice then the cost would be lower and threshold improvement in health required would also be lower.