



Routine enquiry for history of
adverse childhood experiences
(ACEs) in the adult patient population
in a general practice setting:
A pathfinder study

Proof of concept – Feasibility and
Preliminary Impact Evaluation

2018

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Asking about Adverse Childhood Experiences (ACEs) among adult general practice patients

An initial exploration of the feasibility and acceptability of asking about a history of ACEs in a large multi-site GP practice in North West England. Findings explore practitioner experiences of delivery and potential impacts on patients.

The Routine ACE Enquiry Pathway^a

Eligible patient provided with information sheet and ACE questionnaire at reception

Completes questionnaire in waiting area prior to appointment

Hands questionnaire to clinician at start of appointment

Clinician discusses presenting problems then invites patient to discuss ACEs

Opportunity for further support or onward referral. Patient provided with information on local and national support services

Who delivered ACE enquiries in this study? (% of enquiries)



3 GPs
(36.4%)



2 Nurse practitioners
(42.5%)



1 Healthcare assistant
(20.6%)

- ✓ **Patients participating = 218**
- ✗ **Patients declining = 16**

Consultation type in which ACE enquiry occurred:

- General (5.1%)
- Acute physical (34.1%)
- Mental health (5.6%)
- Sexual health (11.2%)
- Investigative (10.3%)
- Chronic condition (33.2%)

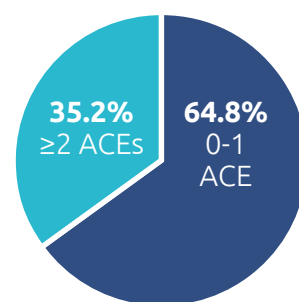
ACEs included growing up with:

- Verbal, physical, sexual abuse
- Parental separation
- Witnessing domestic violence

Or a household member experiencing:

- Mental illness
- Alcohol abuse
- Drug use
- Incarceration

In this GP practice pilot^d:



People with ≥2 ACEs^b had higher levels of health problems



2.5x

more likely to have **asthma**



3x

more likely to be living with **multiple long-term conditions^c**



3.5x

more likely to have experienced **mental health problems**



For **67%** of patients with ACEs this was the **first time** they had told a professional about them

^aRoutine Enquiry About Childhood Adversity (REACH) approach developed and delivered by Lancashire Care NHS Foundation Trust. ^bWhen compared with those with 0-1 ACE; adjusted odds ratios controlling for socio-demographic confounders. ^cPatients on the Quality Outcomes Framework register for ≥2 of the following chronic health conditions: cardiovascular disease, type II diabetes, asthma, mental health condition, atrial fibrillation, hypertension, respiratory disease, cancer, chronic kidney disease, osteoarthritis and rheumatoid arthritis. ^dN=214; 4 patients were excluded from analyses due to incomplete data.

What did patients say? (N=123)^e



94% agreed that the ACE questions were understandable and clear

86%

felt that their GP surgery was a suitable place to be asked about ACEs



84% thought it was important for health professionals to understand what happened in their childhood

70%

said their appointment was improved because the GP/nurse understood their childhood better



87% agreed that providing information to a health professional about ACEs was acceptable

Limitations:

ACE enquiry was not directly observed and fidelity to model of delivery not assessed – Low patient feedback response rate (56% of those who completed ACE enquiry provided feedback) – Reasons for decline were not recorded and the practice were unable to quantify if all eligible patients were offered ACE enquiry – The small sample size increases the risk of type II errors in analyses.

What did practitioners say? (N=9)^f



Positive impact on the **patient-practitioner relationship**; increases in **empathy**; holistic approach to understanding patients; and helping to structure support

Increased patient **understanding** of impact of early life and trauma; some indication of changes in **help seeking behaviours**

No evidence of increased **service demand** (as a result of ACE enquiry)

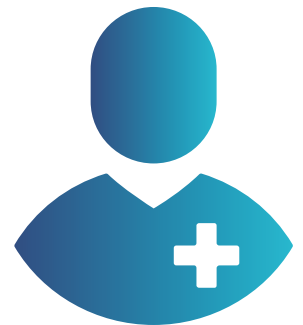
Patients generally **happy to complete**



Limited by **time pressures** and high patient demand

Lack of staff **engagement** limiting **culture change**

Difficulties **coordinating** implementation across a large multi-site practice



Conclusion:

This study provides initial support for the acceptability of ACE enquiry in general practice among both patients and practitioners. However, further research and evaluation is required before any wider implementation is considered.

^eShort anonymous patient feedback surveys completed by patients immediately following appointment and placed in secure collection boxes. Responses provided on likert scale from strongly agree to strongly disagree. Percentages given are total patients who agreed or strongly agreed for each item. ^fQualitative findings from focus group with participating practitioners.

Executive summary

Background

A growing international evidence base highlights the long-term impacts of early life experiences on health and wellbeing.

Adverse Childhood Experiences (ACEs), such as being a victim of violence or neglect, or living with a household member who abuses substances or is involved in criminal activity, are associated with negative adult outcomes such as health harming behaviours, chronic conditions, and increased health care utilisation and costs. Nevertheless, traditional medical models and approaches in general practice often fail to capture, understand or address wider health risk determinants. Enquiry into ACEs provides a potential opportunity for patients to disclose childhood trauma in a safe and supportive environment and for health practitioners to consider underlying root causes for ill health and poor wellbeing.

This report is intended as a proof of concept study for ACE enquiry in general practice and explores key findings from the evaluation of a pathfinder study for one such approach - Routine Enquiry About Childhood adversity (REACH). REACH was implemented across a large multi-site general practice in the North West of England from April to October 2017. Using qualitative and quantitative data, this report considers the feasibility and acceptability of ACE enquiry in general practice from both the patient and the practitioner perspective, and provides some initial insight into the potential impact of ACE enquiry on service delivery and patient health outcomes.



Key findings

Design and implementation

- A core internal working group from the general practice worked alongside the REACH Development Lead (RDL) from Lancashire Care NHS Foundation Trust (LCFT) to determine organisational readiness and understand how ACE enquiry may fit within existing patient pathways. Although practice-wide implementation of REACH was intended and an initial two-week trial period produced positive feedback, staff decided against full-scale implementation due to concerns about time pressures. The pathfinder continued with only a small group of clinicians who volunteered to undertake enquiries.
- Three REACH training sessions were delivered over five months and were attended by 32, 33 and 40 staff members respectively. Training evaluation forms for LCFT were completed by 34 staff members and reflected positive views on the usefulness of training and its impact on practitioner insight and confidence in asking about and responding to ACEs.
- A total of 218 ACE enquiries with adult general practice patients were delivered over the course of seven months by clinicians in different roles (GPs, nurse practitioners and healthcare assistants). Over this period, 16 patients declined to complete the ACE questionnaire. ACE enquiry was found to be feasible across a range of different pre-booked appointment types, but capacity to deliver was impacted by both internal and external pressures, resulting in large variations in number of completed enquiries by month.

The practitioner experience

- Practitioners reported that involvement in the pathfinder had positively influenced the way in which they delivered their consultations and structured support around their patients; increasing their empathy and encouraging them to take a more holistic view of patients' needs. Senior staff and the RDL commended the innovation, motivation and enthusiasm enquiring clinicians had for improving patient care.

- Whilst staff felt that it was not possible to gauge whether patients had experienced an inherent therapeutic benefit from being given the opportunity to talk about their ACEs, they did perceive positive changes in some patients' understanding of early trauma and adversity and their help seeking behaviours.
- Challenges and barriers to REACH implementation described by practitioners included: the difficulties co-ordinating process change across a large multi-site practice when only certain clinicians and appointments were eligible and wider external changes were impacting on staff capacity; lack of suitable staff engagement, which is needed to drive culture change and move away from the medical model; the pressures of high patient demand and the need to run clinics to time; and the limited flexibility in the model not allowing for patients arriving late or requiring more time to complete the ACE questionnaire. Practitioners also expressed concerns as to the lack of follow up mechanisms with patients.
- Practitioners expressed further concerns about the need for suitable financial provisions to support ACE enquiry and suggested future delivery should include a dedicated resource or 'ACE champion'. Delivering enquiries within new patient checks was suggested as a targeted model for development.

The patient experience

- Anonymous patient feedback questionnaires were completed by 123 eligible patients; a 56.4% response rate. Generally patients reported overwhelmingly positive views of the pathfinder, suggesting that the ACE questions were clear and understandable, that it was acceptable and important to provide information about childhood experiences to health professionals, and that the GP surgery is a suitable place to do so. Seventy percent of respondents suggested that the REACH process had improved their appointment and patient views were consistent among those with and without ACEs. For many patients (67.2%), enquiry in general practice offered the opportunity to disclose ACEs to a professional or statutory service for the first time.

Key findings (continued)

ACEs and patient health and wellbeing

- Overall ACE prevalence was marginally higher in this general practice patient sample than found in previous whole population surveys, with just over a third of patients experiencing two or more ACEs during the first 18 years of life. Emotional abuse was the most commonly experienced ACE, with rates of household member mental illness also greater than in previous studies. Childhood adversity was more prevalent among younger patients and those currently living in more deprived areas but did not differ by gender or ethnicity.
- A positive relationship was found between ACEs and certain lifestyle factors (smoking and unhealthy weight) and ACEs and long-term health conditions. Patients with ≥ 2 ACEs were over two and a half times more likely to suffer from asthma and almost three times more likely to have complex health needs and be living with multiple long-term conditions, compared with those with 0-1 ACE(s). Mental health had the strongest association with childhood adversity, with patients with ≥ 2 ACEs over three and a half times more likely to be experiencing current mental health problems, compared with those with 0-1 ACE(s). ACE count was also found to correlate with severity of depression and anxiety among those being treated for mental health problems.
- Although having more ACEs was not found to relate to frequency of GP attendance, a positive but not significant relationship was found between ACE count and current high medication use. Free-text searches of consultation notes found no record of prior discussion about childhood adversity or trauma among the vast majority of patients with high ACEs.

Impacts of ACE enquiry on service demand

- There was no evidence of increased service demand following ACE enquiry. Although all patients were offered the opportunity to book a further appointment to discuss their childhood history more extensively, no patient was identified as doing so. Practitioners suggested that many patients were interested in retaining the information on available support services, but again no patient expressed an explicit intention to access such provisions.
- When compared with the three months prior to REACH, 43.5% of patients with ≥ 2 ACEs actually attended the practice less in the three months following ACE enquiry, and 89.1% showed reduced medication use over the same period. However, these reductions were not limited to those with ACEs and understanding if and how they are related to ACE enquiry requires further work. Results here are based on a small sample size and cannot not be generalised to other populations at this time. There was no difference in frequency of attendance (including complete non-attendance) or medication use following ACE enquiry between ACE count categories (0-1 vs. ≥ 2).

Conclusions

This proof of concept report provides initial support for the acceptability of ACE enquiry in general practice among both patients and practitioners, who identified it as a means of improving the patient-practitioner relationship and better understanding wider determinants for health and wellbeing.

However, the general practice setting presents many inherent challenges for the routine delivery of the ACE enquiry process, with current question marks over its feasibility at scale. Even in the small sample described here, experiencing adversity in childhood can be related to greater levels of healthcare need.

With a tentative suggestion of modest reductions in service use following ACE enquiry, results support further study of routine ACE enquiry as a mechanism to improve patient experience and increase service efficiency. However, they do not as yet support roll out at scale.

Recommendations

Overall

- Further research and evaluation is required before ACE enquiry is considered for any wider implementation. Such research should examine models of enquiry that address the points below.

Further developments in ACE enquiry in primary care should consider:

- Whole-practice engagement to ensure that: ACE enquiry is embedded in robust systems all capable of supporting change; the entire patient pathway is ACE-informed; dedicated training is prioritised and is timely and accessible to all and addresses the concerns of those reluctant to engage.
- Emphasising, through training and delivery, the content and value of the discussions that follow completion of the ACE questionnaire, rather than focusing primarily on completion of the questionnaire itself.
- Fostering improved linkages with support services to allow greater understanding of patient pathways beyond the individual practice. Seeking more detailed feedback from patients following ACE enquiry (e.g. a follow up phone call) may help to better understand both the nature of the practitioner-patient exchange, but also the impacts of ACE enquiry in the immediate and longer term.

Further research should:

- Build on these tentative but encouraging findings to test approaches to ACE enquiry in other practices, addressing the process and implementation deficits identified in this evaluation.
- Further explore the feasibility and acceptability of more targeted approaches and including enquiry at different points in the patient pathway.
- Consider, by using larger and more representative sample(s), the relationship between ACEs and different attendance patterns for patients, and the potential association between routine enquiry and any subsequent reduction in attendance in primary care.
- Develop a better understanding of, and evaluate, the nature and content of discussions about ACEs between clinicians and patients; including assessing fidelity to any proposed model of delivery.
- Undertake detailed and longer term follow up with patients and understand the impact that processes like REACH may have on their health, well-being and health service utilisation

Introduction

This report summarises the key findings from a pathfinder study of routine enquiry into adversity in childhood in a general practice setting in the North West of England.

As the first known report of its kind in the UK, it is intended to explore proof of concept for enquiry with adult patients in general practice, and therefore focuses on the feasibility and acceptability of this approach from both the practitioner and patient perspective. The report may be of interest to those with responsibilities for the commissioning, design or delivery of general practice and other primary care services, or anyone with a more general interest in the prevention of and response to Adverse Childhood Experiences (ACEs).

Adverse Childhood Experiences (ACEs) are traumatic events occurring during childhood that not only put children at risk of immediate physical damage (for example, injury) but can also have considerable and potentially life-long impacts on the brain, the body, and behaviour [1]. ACEs include exposure to all forms of child abuse and neglect, as well as living in a dysfunctional home environment affected by issues such as domestic violence or mental illness (Box 1). A nationally representative household survey in England in 2013 revealed that 48% of adults (aged 18-69) have experienced at least one ACE, with 9% experiencing four or more ACEs over the course of their childhood (Box 1; [2]).

Box 1. Defining Adverse Childhood Experiences and their prevalence among adults in England

ACE		Prevalence
Child maltreatment	Verbal abuse	17.3%
	Physical abuse	14.3%
	Sexual abuse	6.2%
Childhood household included	Parental separation	22.6%
	Domestic violence	12.1%
	Mental illness	12.1%
	Alcohol abuse	9.1%
	Drug use	3.9%
	Incarceration	4.1%

Source: Bellis et al, 2014 [2]

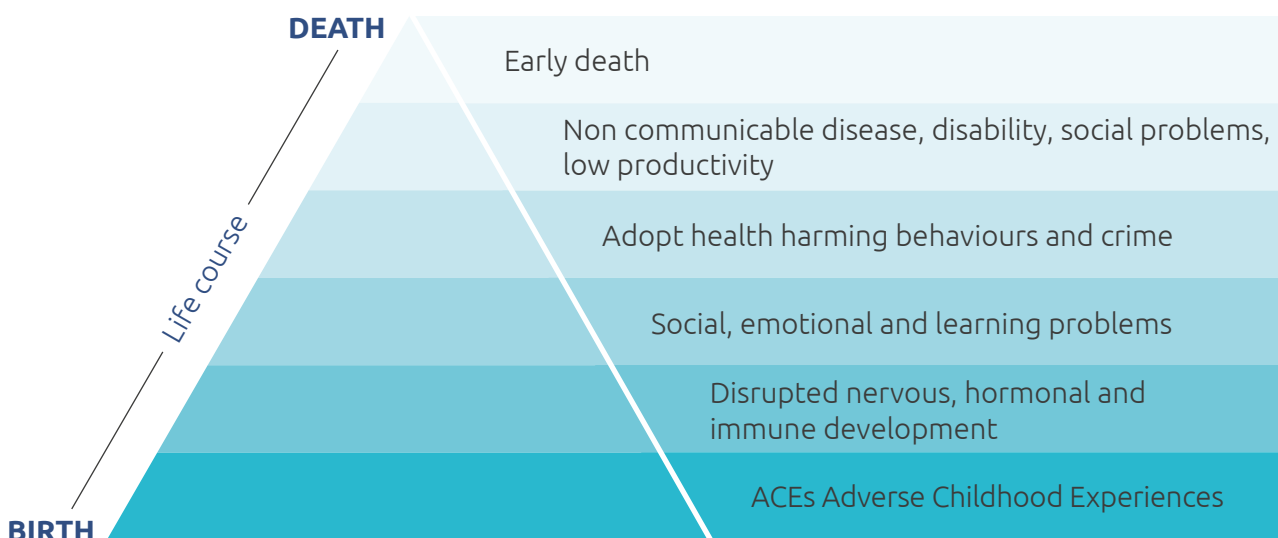
1.1 The impact of early adversity and trauma on health

Children who experience chronic stress from adversity can become 'locked' into a state of hyper-arousal, as they adapt to respond to further trauma [3]. This has been linked to fundamental changes in their neurological, immunological and hormonal development [4], and can contribute to chronic tissue inflammation and an increased allostatic load ([5]; Box 2). Individuals who have been exposed to ACEs are therefore at greater risk of poor physical and mental health in adolescence and into adulthood, both through the direct effects of adversity and stress on the body [6], and through the mediating effects that ACEs can have on the increased adoption of health-harming behaviours such as alcohol and drug use ([1]; Box 2). For example, compared with people with no ACEs, adults in England with four or more ACEs are twice as likely to be a high risk drinker, and three times more likely to smoke tobacco [2]. Further, a meta-analysis of 37 studies from across the globe found that those with a history of more ACEs were also more likely to report chronic conditions such as cancer, heart disease and respiratory disease as adults [7].

With an increased focus on health economics and the need to deliver effective and cost-effective services, evidence is also emerging linking ACEs and increased long-term health care utilisation and costs [8].

For example, abusive experiences in childhood are associated with more frequent primary care attendance in adulthood, with frequent attendees more likely to consult for problems such as chronic pain, fatigue and mental disorders [9]. A history of childhood physical and sexual abuse has been associated with significantly higher health service use for women across mental health services, hospital outpatient, emergency department, speciality care and pharmacy services [10]. Individuals who have been exposed to ACEs have also been shown to hold more negative perceptions of their own general health and vitality, suggesting they may perceive a greater need for health care intervention, irrespective of actual ill health [11]. However, the relationship between ACEs and health service use may also be affected by access issues. Recent findings from the US suggest that those with ACEs are less likely to have health insurance and to have visited a health provider for a general health check in the previous year, even when controlling for other factors such as availability of care [12]. Further, international evidence is also beginning to emerge of the impact of childhood adversity on the management of chronic health conditions in adulthood, such as non-adherence to preventative cardiovascular medication in Finnish men [13].

Box 2. Adverse Childhood Experiences: impacts across the lifecourse



Source: adapted from Felitti et al, 1998 [1]

1.2 Intervention in primary care - Asking about early adversity

Despite growing evidence of the impact of childhood adversity on later health and wellbeing, indications are that discussions on health risk determinants actually rarely take place during primary care visits [14]. Studies suggest a general lack of knowledge about ACEs among healthcare professionals [15] and primary care clinicians often report feeling unprepared to discuss trauma and its health effects [16]. Reported barriers include: lack of practitioner confidence; insufficient time for screening processes; concern about traumatising patients; and concerns over lack of resources or skills to support identified needs [17]. Criticisms of approaches that attempt to screen for ACEs suggest such actions are premature when we are yet to understand the effective interventions and responses that may support those who screen positively [18].

However, routine ACE enquiry is a potential alternative approach to screening as it may: (a) provide a form of intervention in and of itself, with positive therapeutic benefits for patients drawn from simply being given the opportunity to talk about their childhood adversity; (b) allow practitioners to understand underlying causes, rather than just symptoms, thus assisting in the identification of more appropriate support and treatment options within existing provisions [19]. Preliminary work from the US suggests that where ACE enquiry has been used in a primary health setting, high response rates have been achieved with adult patients, with no reports of increased distress as a result of the process [20] and supported by positive changes in practitioner confidence [17]. Thus, enquiring about ACEs, if feasible and acceptable to both practitioners and patients, may offer a cost effective and easily implemented way of improving outcomes for patients by enhancing the practitioner-patient dialogue and allowing practitioners to offer more informed and holistic patient-centred care. Improving patient experience and patient outcomes may also help to reduce current pressures on primary care services.

1.3 The REACH approach

One such approach to understanding and responding to patients' ACEs is Routine Enquiry About Childhood adversity (REACH). The REACH model has been developed and delivered by Lancashire Care NHS Foundation Trust (LCFT) and aims to support practitioners in changing the way that they ask about a patient or client's history and building their confidence in responding to disclosure of ACEs. This model has previously been implemented in a range of universal and targeted services, including drug and alcohol services, children's social services, domestic abuse and family support services. Whilst a small scoping study describes the previous implementation of REACH (see [21]), to date this approach has not been independently evaluated in any setting. LCFT have partnered with Beacon Primary Care (see Box 4) to conduct a pathfinder for ACE enquiry in general practice. As a leading organisation in the field of ACEs research, PHW were commissioned to examine the feasibility of this routine enquiry in a primary care setting through evaluation of this pathfinder programme.

1.4 Evaluation objectives

This evaluation had the following primary objectives:

- 1 To explore with both patients and practitioners the feasibility and acceptability of conducting enquiry for ACEs using the REACH approach within a general practice setting, including implications for patient satisfaction and service delivery and demand;
- 2 To consider potential impacts of ACE enquiry on patients such as changes to the patient-practitioner dialogue and short-term health service use;
- 3 To identify the prevalence of ACEs in this general practice adult patient sample and the association between ACEs, demographic factors (e.g. age), lifestyle factors, chronic health conditions and service utilisation.

The REACH approach to ACE enquiry was designed and delivered by Lancashire Care Foundation Trust (LCFT) in collaboration with Beacon Primary Care (see Box 4). The REACH model and the objectives of the pathfinder, as provided by LCFT, are summarised in Box 3.

Box 3. The Routine Enquiry About Childhood Adversity (REACH) Model



Pathfinder objectives for REACH:

- To raise awareness of the importance of understanding the impact of Adverse Childhood Experiences (ACEs) on patients;
- To increase understanding of how routine enquiry about adverse experiences can be implemented within the GP setting;
- To develop training in routine enquiry for the GP setting;
- To evaluate if/how becoming ACE informed and implementing routine enquiry in the primary care setting may impact on patient outcomes and service utilisation.

Practitioners will:

- Develop their confidence in enquiring about adversity and abuse;
- Develop skills in responding to disclosures;
- Have the confidence to apply their skills in providing support to patients following disclosure.

Design and delivery:

REACH model and resources developed and refined by LCFT over the course of two years

Implementation in a range of universal and targeted health, social care and third sector services and feedback from practitioners; development and review of readiness audit to support delivery

GP partner from Beacon Primary Care introduced to the REACH team at LCFT and the association between ACEs and mental and physical health; GP and colleagues interested in relevance for understanding or managing chronic conditions in primary care

Initial meeting between LCFT and Beacon Primary Care to discuss interest in collaborating to explore feasibility of asking ACE questions in general practice

Funding from NHS England for pathfinder approach in general practice; approval from Clinical Commissioning Group; PHW commissioned to evaluate

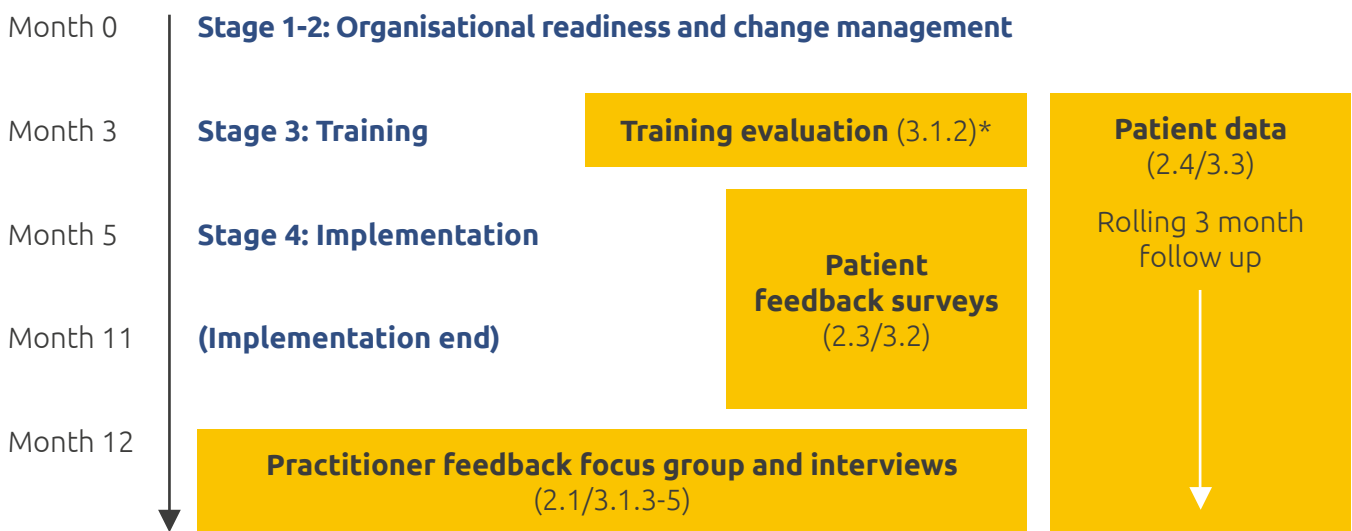
Box 4. Beacon Primary Care

- A large training practice based across four sites in West Lancashire serving approximately 16,000 patients;
- Staffed with 11.6 whole time equivalent prescribers and four healthcare assistants, all of whom rotate across the four sites;
- Operates a Talk and Treat Telephone Consultation system for both urgent and non-urgent health problems, with around 50% of patient calls dealt with over the phone;
- Provides open access blood clinics, walk-in services and a dedicated sexual health clinic;
- Nominated practice for Edge Hill University.

The REACH approach has previously been implemented across a range of different settings (e.g. mental health, domestic abuse and drug and alcohol services). However, this was the first time that such an approach was applied to general practice patients. Thus, an evaluation framework was designed by PHW using a range of quantitative and qualitative data collection methods to assess the feasibility, acceptability and initial impact of the REACH approach for patients and practitioners in this context (Figure 1; numbers in brackets refer to associated sub-sections of the methods and findings). Whilst this section describes the methods used for the evaluation, the method of implementation of the REACH pathfinder, as agreed and delivered by the practice and LCFT, is summarised in section 3 (see Figure 3). A target of 200 completed ACE enquiries was agreed between all partners, on the basis of providing an adequate sample for basic statistical analyses of patient data (section 2.4).

During the design of the evaluation framework, the lead researcher consulted with the Patient Participation Group (PPG) at Beacon Primary Care. The PPG is a self-selected group of practice patients who volunteer to provide a link between the wider patient population and the managers and practitioners. The PPG is responsible for gathering patient feedback and using this to drive and inform change. Information about the intended pathfinder evaluation was shared with the PPG and they provided feedback on the design and content of data collection materials and patient information. Concerns and suggestions from the PPG about the process for delivering REACH within the practice and the safeguarding of patients were fed back to LCFT and the core practice working group. Following their input, amended documents were sent out to the group via email for any additional comment.

Figure 1. Evaluation framework for the REACH Pathfinder



*Feedback on the training in the form of a short questionnaire was collected and analysed by the trainer (LCFT)

2.1 Practitioner and implementer feedback

Sample and procedure

Following the pathfinder implementation, a focus group was conducted with practitioners to gain their feedback on:

- The objectives and the implementation process of REACH in general practice;
- Practitioner roles and how different staff members personally engaged with the pathfinder;
- Perceived changes in practice during and following consultations;
- Initial impacts of the REACH approach on patients and staff;
- Barriers and challenges to the use of routine enquiry in the general practice setting;
- Suggestions for successful future implementation, including scale up to a whole-practice level.

Five practitioners took part in the focus group discussion: two nurse practitioners; one healthcare assistant (all of whom delivered ACE enquiry throughout the pathfinder); the practice manager and the office manager. The focus group took

place on site at the practice and was facilitated and recorded by the lead researcher. All participants provided informed consent. Semi-structured questions were used to direct the discussion, which lasted approximately 60 minutes. Further feedback and personal reflection was provided in writing by a GP partner (who also delivered ACE enquiry) and three reception staff all of whom were unable to attend the focus group in person.

A separate semi-structured interview was also conducted with the REACH Development Lead (RDL) from LCFT to explore the challenges of design and implementation and the key successes and learning points of the pathfinder from their perspective. This 90-minute interview was conducted face-to-face with the lead researcher and audio recorded for transcription.

It is important to note that clinicians were not directly observed during the pathfinder. Therefore any insight into the actual implementation of ACE enquiry, the nature of discussions with patients and fidelity to the REACH model and process (see section 3; Figure 3) comes from practitioner feedback and one item of anonymous patient feedback (see 2.3) only.¹

¹Question: I think my appointment with the GP/nurse/healthcare assistant was improved because they understood my childhood better. Response options: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree.

Data analysis

Transcripts from the focus group and interview and the written responses from the GP and reception staff were analysed manually for coding and thematic analysis. Particular attention was paid to instances where practitioners were in disagreement and views were compared and contrasted with patient feedback (see section 2.3).

2.2 Patient feedback questionnaires

Sample and procedure

All patients that completed the ACE enquiry tool and engaged with a health practitioner in the REACH approach were invited to provide anonymous feedback in the form of a short questionnaire. Small postcards containing a set of statements with likert-scale responses (strongly agree; agree; neither agree nor disagree; disagree; strongly disagree) that also included space for respondents to provide any other comments, were handed to patients along with the ACE enquiry tool (prior to their appointment) or could be picked up from practitioners following consultations. Patients were instructed to deposit completed postcards in locked collection boxes in the waiting area at each site. Questions were designed to assess patients' views as to the comprehensibility and acceptability of the ACE questions and the enquiry process. One further question considered the impact of being asked these questions on their consultation with the health practitioner.

Patients who had disclosed ACEs were also asked to identify if this was the first time they had told a professional service (i.e. not their friends and family) about these childhood experiences. Across all three surgery sites, 123 patients completed the feedback questionnaire (response rate of 56.4%).

Data analysis

Patient feedback questionnaires were analysed using basic frequencies for likert responses. Due to the anonymous nature of the questionnaire², it was not possible to relate responses to ACE count or other patient information.

2.3 Patient records (practice data)

Sample and procedure

A flow diagram of patient participation in the pathfinder is outlined in Figure 2. Data collection was coordinated by the Data Manager at Beacon Primary Care, who designed a coding script that allowed ACE data to be added to existing patient records within the current practice system (EMIS Web) by senior practice administrators. This process also allowed reception staff across the sites to maintain a record of patients that met eligibility criteria³ (and were therefore offered the ACE questionnaire) but subsequently declined participation. Anonymous health and service use data were extracted for N=218 patients that completed the ACE enquiry and consented to the practice sharing their health data with PHW for the purposes of the evaluation.

Data analysis

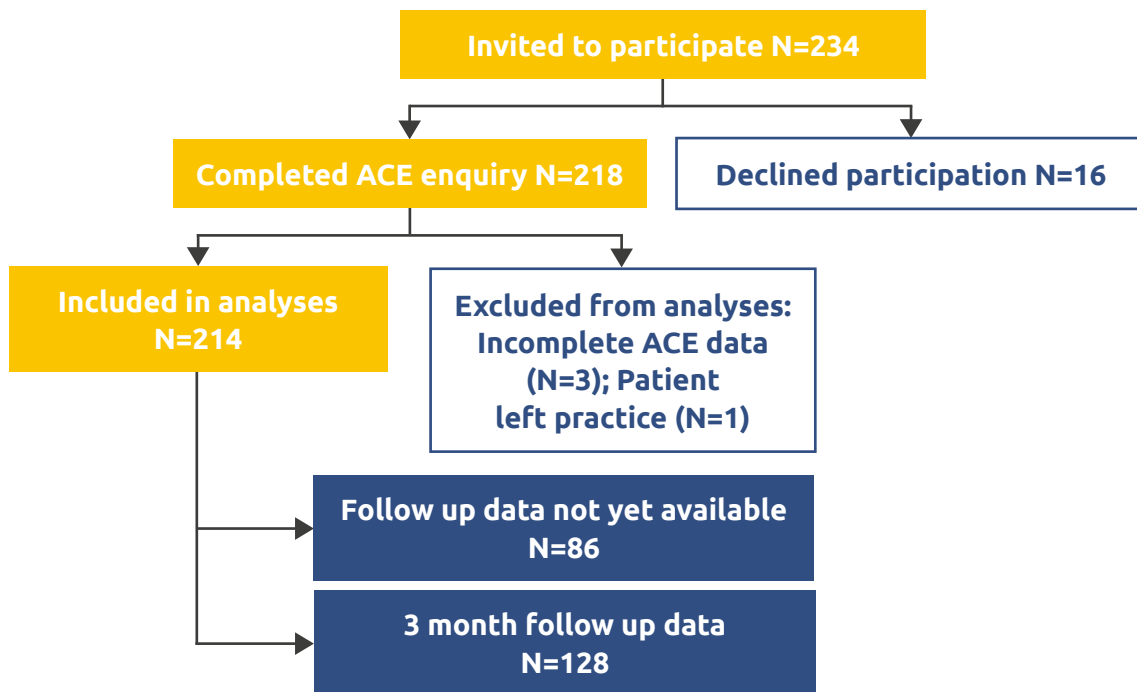
Anonymous patient data were imported into IBM SPSS v24 software for cleaning and statistical analysis. Cases were excluded from analyses if: (a) patients did not answer three or more ACE questions⁴; or (b) data from the patient record was not accessible or was incomplete. This resulted in a final sample of N=214 (Figure 2).

Demographic data

Patient age was categorised into four distinct categories (18-30; 31-50; 51-70 and ≥71 years old). Ethnicity was recorded by 2011 census categories, but due to the small number of patients in many of these categories, this variable was re-coded as a dichotomous variable (White; Other). Townsend scores⁵ for deprivation were split into tertiles (high, medium and low deprivation).

²An anonymous approach was selected to facilitate response rate and ensure all patients had the opportunity to provide feedback directly to the research team. ³Reception staff determined eligibility for REACH based on the following criteria. Patient is: (1) attending a pre-booked appointment with an enquiring clinician; (2) ≥18 years of age; (3) English speaking; (4) considered to have capacity and cognitively able to provide informed consent. ⁴If responses were missing to only one or two ACE questions, but all other items were complete, cases were retained in analyses but interpreted with caution and these ACEs were assumed to be negative (no responses). ⁵The Townsend Material Deprivation score (Townsend, 1988) is a measure of relative deprivation that incorporates four variables: unemployment; non-car ownership; non-home ownership; household overcrowding. Total numerical scores (range -6.61 to +11.06) are based on current residential postcode and routinely captured in patient records.

Figure 2. Flow diagram of patient participation in the REACH pathfinder



Adverse Childhood Experiences (ACEs)

Questions adapted from established ACE questions from the Centers for Disease Control and Prevention short ACE tool [1] and used extensively in previous research [7] were used to measure childhood exposure to forms of abuse and household dysfunction (see Appendix 1). Patients responded yes/no or by frequency to experiencing each of the 10 ACEs and these data were used to calculate an overall ACE score. For the purposes of analysis, scores were dichotomised into ACE count categories (0-1 ACE(s) and ≥ 2 ACEs).

Life style factors

Lifestyle data on BMI and smoking were included in analyses if they were collected or updated by the practice in the last five years. BMI was dichotomised into healthy weight (BMI = 18-25) and unhealthy weight (BMI <18 or >25) and categories for self-reported smoking status were: current smoker; and ex- or non-smoker. Measures of patient alcohol consumption and physical activity/exercise level were poorly completed and were therefore not used in analyses.

Physical and mental health problems

Chronic health conditions examined included: cardiovascular disease (including coronary heart disease; myocardial infarction; heart failure; angina; stroke and transient ischaemic attack); Type II diabetes; asthma and mental health. Patients were coded as having these chronic conditions if at least one of the following criteria were met:

- The patient was identified as being on the Quality and Outcomes Framework (QOF) register⁶ for that particular condition;
- The patient was Read⁷ coded with that condition as an existing problem AND was on consistent current medication (acute or repeat);
- The condition was described in written evidence from a clinical practitioner (e.g. in the notes of the GP following a consultation or in a letter from a specialist hospital department).

⁶The QOF is part of General Medical Services contract for general practices and was established in 2004 to reward practices for the provision of quality care. For more information see <http://www.nhsemployers.org/your-workforce/primary-care-contacts/general-medical-services/quality-and-outcomes-framework>. ⁷Read codes are a thesaurus of clinical terms that provide a standard vocabulary for clinicians to record patient findings and procedures in health and social care.

Patients that were on the QOF register for two or more chronic health conditions (including those above, plus atrial fibrillation, hypertension, respiratory disease, cancer, chronic kidney disease, osteoarthritis and rheumatoid arthritis) were categorised as having multiple long-term conditions (MLTC).

For patients who had consulted with a GP for mental health problems, available scores from the 7-item Generalised Anxiety Disorder Assessment (GAD) and 9-item Patient Health Questionnaire (PHQ) were also extracted. The GAD is a self-administered tool used as a screening and severity measure for anxiety. The PHQ is also self-administered and is used to monitor the severity of depression and response to treatment. Both are validated for use in primary care.

Health service use

Data were collected on the number of both telephone triage and face-to-face appointments patients had attended in the 6 months prior to ACE enquiry. This included an appointment at any of the four practice sites but did not include appointments that were booked but subsequently categorised as DNA (patient did not attend). Patients that attended ≥ 4 times in the six month period were categorised as 'frequent attenders'. However, as the mean number of attendances in this practice appeared to be much higher than the national average (mean=5.0; SD=4.86; in 6 months)⁸, a further category was produced to identify those patients that created the greatest demand on the practice. For this, 1 standard deviation above the mean was set as a cut off point, with patients who attended ≥ 10 times in six months labelled as 'high demand' patients.

Patients in the 75th percentile for number of repeat medications issued in the previous 12 months were categorised as having 'high medication use' (≥ 45 prescriptions in 12 months). Where available, data on the number of attendances in the three months following ACE enquiry were also collected (N=128 patients; see Figure 2).

Data related to ACE enquiry

Further data were extracted to explore the process of REACH implementation (see section 3.1.1-2). This included: the date of enquiry; the enquiring clinician (GP; Advanced nurse practitioner [ANP]; healthcare assistant [HCA]); and the reason for that particular consultation (see Appendix 1 for full list and description). Patients who disclosed ACEs were also asked to indicate if this was the first time they had told a professional service about those experiences (yes/no). Free text searches within all historical consultation notes were also used to identify if ACEs had been previously disclosed and captured within patients' records. Search terms were as follows: trauma; abuse; maltreatment; violence; violent; parent and childhood. Such searches were conducted for the 50 patients with the highest number of ACEs⁹.

Statistical analyses

The relationship between ACEs and lifestyle factors, chronic health and health service use was explored using bivariate (Chi squared) and multivariate (binary logistic regression) statistics.

⁸The British Medical Association (2017) reports that nationally, patients consult an average of six times per year with their GP. ⁹To select this sub-sample, patients were ranked in descending order by total number of ACEs. ACE count for the first 50 patients ranged from 3 to 7 ACEs.

Findings

3.1 Feasibility and acceptability among staff

An assessment of the process of implementation of the REACH GP pathfinder explored its feasibility in this new (general practice) context and aimed to answer two key questions: (1) to what extent was the programme implemented as intended; and (2) who did the programme engage in different processes and activities? Both implementation data

and practitioner feedback were used to consider these questions. Practitioners' personal reflections on how they felt delivering ACE enquiry, what this meant for their consultations and how this may have affected their patients also offered insight into the acceptability of this type of approach.

3.1.1 Programme design and delivery

The REACH objectives and intended model of delivery are described in Box 3. The following sections summarise information provided by practitioners on what took place during the pathfinder at each stage of delivery.

(Stage 1 and 2) Organisational readiness and change management

The first stage of the REACH model – the organisational readiness checklist (Box 3) – was created by LCFT to ensure that any organisation looking to implement routine enquiry could do so in a 'well-managed and safe way' by making the necessary commitments of time, human resources and management capacity, and ensuring that appropriate systems and processes were in place for safeguarding and information governance. This checklist was completed by a working group at the practice, with the support of the RDL from LCFT. It identified specific actions and decisions which needed to be taken to support the REACH pathfinder (Box 5).

Prior to the implementation of ACE enquiry across Beacon Primary Care sites, a planning process took place involving a core internal working group of practitioners and management representatives to address arising questions (Box 5) and explore how routine ACE enquiry may fit within existing patient pathways. Support at these meetings was provided by LCFT and PHW were also in attendance¹⁰.

Box 5. Key questions resulting from the organisational readiness assessment

- How would patients be informed about the pathfinder?
- What system would be used to gain consent from patients for their participation?
- Where in the patient pathway should enquiry take place?
- When would patients be asked to complete the questionnaire?
- On completion, how would the questionnaire be relayed to the relevant health professional?
- Which patients should be included in (or excluded from) the pathfinder?
- Which practitioners should carry out the enquiries?
- Where and how would the data from the enquiry be stored?
- Does recording ACE data fit with current data collection systems or are changes needed?
- Who will have access to this data?
- What support will be available for staff?
- What support systems will be available for patients?
- What is the best method for training delivery (in a large practice where time is limited and there are few opportunities to get everyone together)?

¹⁰PHW provided advice and guidance on the development of the evaluation framework and were engaged in the early stages of the pathfinder to ensure that the evaluation was designed alongside the implementation process.

Outcomes from these meetings were presented to all staff during whole-practice study afternoon sessions in order to allow all staff to contribute to the change management process. Patient representatives were also engaged through the PPG (see section 2). The method for the delivery of REACH and the accompanying patient pathway that was agreed by the practice and LCFT is shown in Figure 3.

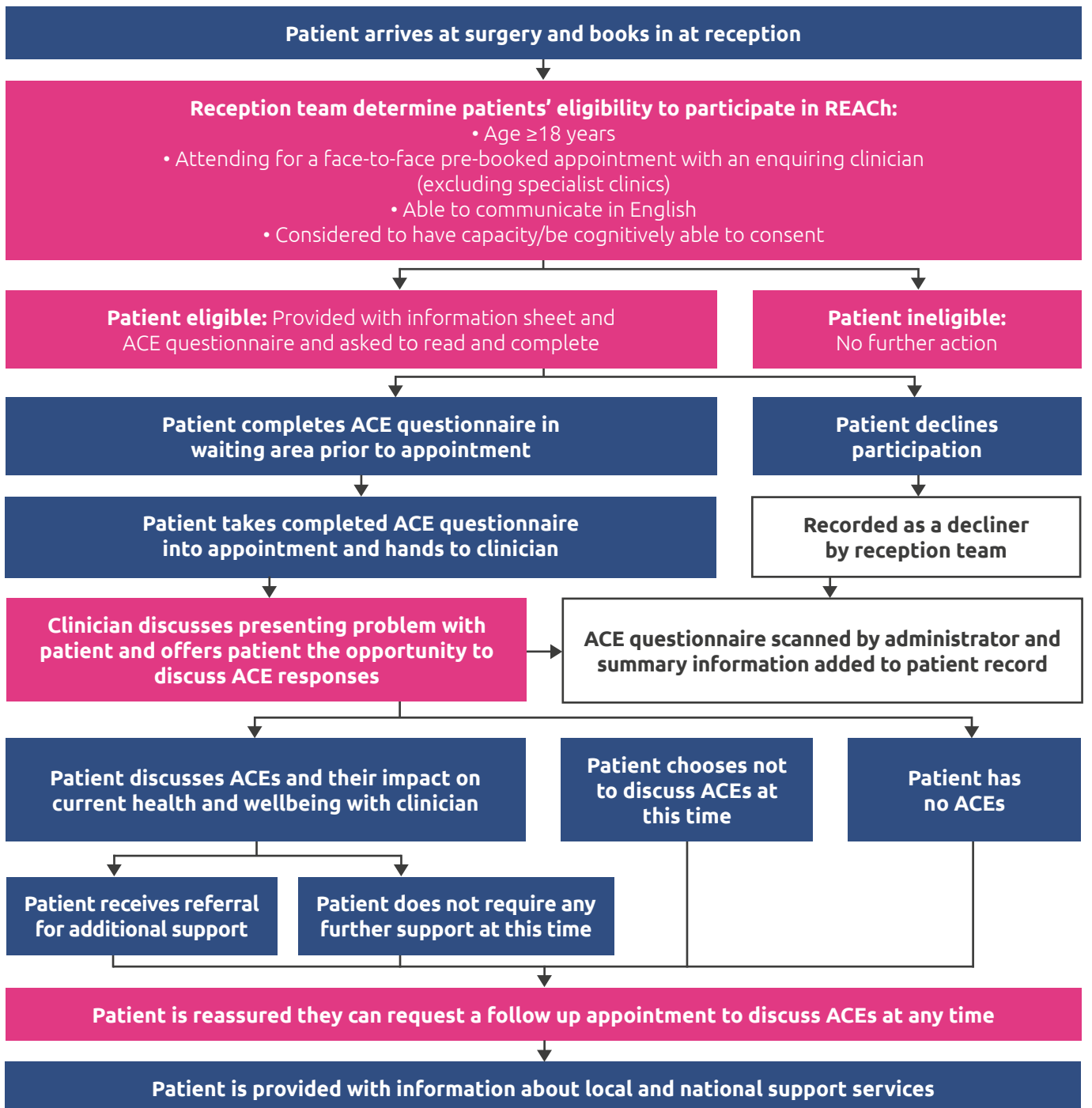
The usual mode of delivery for REACH, and the model that was intended for this ACE enquiry pathfinder in general practice, was one in which all staff participate in a practice-wide change. Initially a small group of practitioners were identified who would pilot the REACH approach over a two-week trial period, allowing for any changes to the design or process of the pathfinder to be addressed before implementation was extended to the full practice. During this period, time was blocked out/protected at the end of each relevant session for the participating practitioners (i.e. reception and administrative staff were unable to use this time for patients) to provide a buffer against any overrunning consultations.

After this initial two-week period, practitioners provided feedback to colleagues as to the impact of REACH on their consultations and wider workload. Feedback was very positive; only one patient out of 40 had declined to take part and practitioners reported that they were pleased overall with how the trial period had gone. There were no reports of any patient becoming distressed, and anecdotes supported the idea that even those patients that reported no ACEs recognised this as a valuable initiative to the wider practice.

Concerns were expressed about time and capacity for enquiring practitioners but only one patient was reported to have taken considerable time to talk through many complex issues, resulting in substantial delays during that clinical session for the practitioner concerned. Consequently, any additional burden in this initial stage was not large, blocked protected time had not been used, and a wider roll out across the whole practice was considered something that may actually lessen the impact on the small group of practitioners who were currently enquiring. No concerns were raised by reception staff at this time.

However, when the decision of how and when to roll out to the whole practice was discussed with all staff the majority decided against full implementation. Practitioners across the rest of the practice were asked by a senior GP partner to volunteer to take part but there was no additional uptake to the pathfinder. The management and senior partners at the practice reported that while staff saw the benefit of ACE enquiry, they would not deliver and respond to the ACE questionnaire without having time blocked out within each session to support this. As the practice were not in a position to facilitate this request, the pathfinder continued with only the initial small group of enquiring clinicians; all of whom agreed to proceed with no blocked or protected time.

Figure 3. REACH process and intended patient pathway



3.1.2 Staff and patient engagement

(Stage 3) Training

The engagement of different staff groups in the training and implementation activities of the pathfinder is summarised in Table 1. A further additional 1:1 training session was conducted by RDL for a new member of staff in October 2017¹¹.

All but one enquiring clinician attended all of the three training sessions. However, many other staff were unable to attend all sessions. Due to other demands on the time set aside by the practice for training (monthly sessions), REACH training sessions took place over five months. RDL confirmed that this was a notable deviation from previous applications of the REACH approach.

The following was captured in training evaluation forms provided to the RDL (N=34):

- 44.1% (n=15) of staff felt that the training had been very useful, with the remaining 55.9% (n=19) stating it had been fairly or quite useful.

- All participating staff reported that the training had increased their confidence in asking about and responding to ACEs to different degrees; 26.5% somewhat (n=9), 44.1% considerably (n=15) and 29.4% definitely (n=10).

From practitioner feedback:

- Staff reported that they felt the training was informative and provided them with new insight into the impact of early life experiences on health and wellbeing.
- However, some staff also felt that the training was protracted and could be condensed.

From the perspective of the trainer, concerns about the organisation and completion of the training were also expressed by the RDL who reported a “real disconnect” between the different training elements (based on the timing of sessions) and challenges retaining the focus of trainees when time that had been set aside for the REACH training was reassigned to discuss other emerging practice issues.

Table 1. Training activity and attendees, per staff group (N=out of a possible)

		Total (N=63)	GPs* (N=7)	Nursing staff** (N=12)	HCA's (N=6)	Management (N=3)	Admin & other (N=16)	Reception team (N=19)
Training 1 Pathfinder briefing and introduction to ACE research	Nov 2016	32	6	5	2	3	6	10
Training 2 Why don't people disclose and why don't people ask?	Jan 2017	33	6	5	2	1	9	10
Training 3 Responding to the ACE questionnaire	Mar 2017	40	7	6	3	2	8	14
Implementation	Apr 2017	6	3	2	1	N/A	N/A	N/A

HCA = Healthcare Assistant; *Including GP partners; **Including nurse clinicians, nurse prescribers, nurse matrons

¹¹1:1 training was provided to a GP who was new to the practice and wanted to engage in the REACH pathfinder programme. This practitioner replaced an enquiring GP who had left the practice in April 2017.

(Stage 4) Implementation

The first ACE enquiry was completed on 3rd April 2017. The subsequent progress of the pathfinder is summarised in Figure 4.

A total of 218 ACE enquiries were completed during implementation. Over this same period, 16 patients (8 male; 8 female) declined to take part. Decliners ranged in age from 34 to 81 years, with a mean age of 64.4 years. The number of completed ACE enquiries varied considerably by month. Although numbers were highest in the first month of implementation, a steady decline occurred over the following 4 months (Figure 4). After the first month, one enquiring GP left the practice and additional resource was not available to commit to the delivery of the pathfinder until October. In August, only eight enquiries were completed by the practice. Fidelity to the agreed enquiry process (Figure 3) was not measured and findings cannot quantify or qualify the interactions between patients and reception staff or clinicians (i.e. during consultation). Insights into the nature of appointments are provided from practitioner feedback (section 3.1.3) and anonymous patient feedback (section 3.2).

Appointment characteristics

Throughout the pilot, ACE enquiries were completed by GPs (36.4%), advanced nurse practitioners (42.5%) and healthcare assistants (20.6%). Reasons for consultation at the time of enquiry were categorised into six distinct groups (see Appendix 1 for full details): general consultation (5.1% of enquiry appointments); sexual

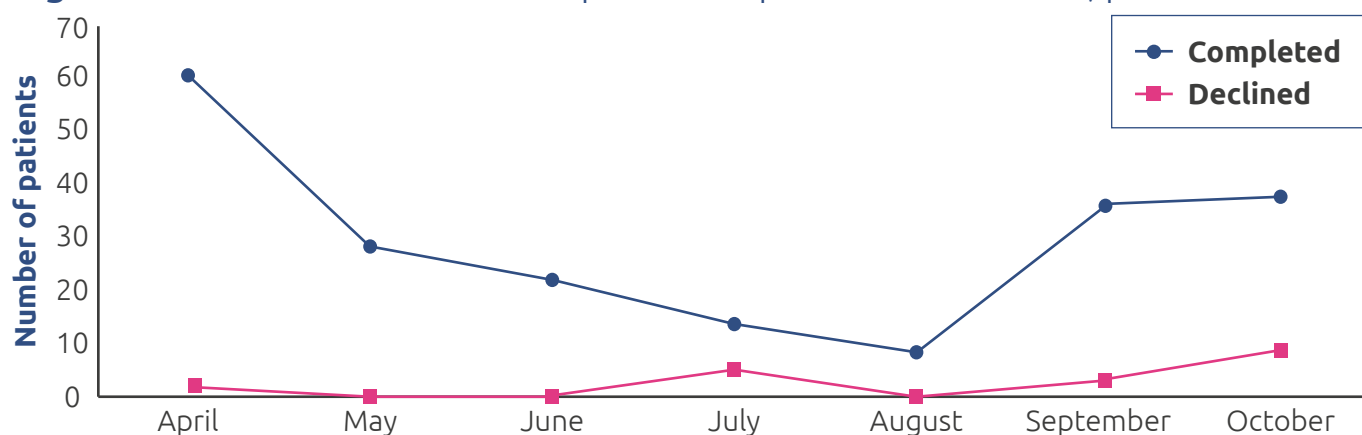
health (11.2%); chronic condition management (33.2%); mental health (5.6%); acute physical health presentations (34.1%); and investigative appointments (e.g. blood tests; 10.3%). Enquiring staff suggested that it was feasible to deliver ACE enquiry within a range of different pre-booked appointments (see section 3.2.2).

Demand for follow up support

According to practitioners, although all were offered, no patient requested onward referral or specific follow up support following ACE enquiry. There was no indication that any patient had booked a further appointment at the practice specifically to discuss their ACEs or any reflections or reactions they had following the initial ACE enquiry consultation. Although many patients were reportedly keen to retain the information provided by the practice on sources of support and relevant contact numbers, no patient indicated to practitioners an explicit intention to access these services in the immediate future. The challenges associated with understanding patients' experiences following ACE enquiry were discussed extensively during practitioner feedback (see 3.2.3). However, no data were collected directly from patients on the nature of ACE discussions with clinicians.

“ I can't say that anyone I saw that had ACEs wanted to come back or have any other support. More often than not it was a simple 'I'll think about it'. Clinician (HCA) ”

Figure 4. Total number of ACE enquiries completed and declined, per month



3.1.3 Successes and impacts

Practitioners described what they felt were the strengths and potential benefits of the pathfinder. Although their comments were largely focused around changes in the patient experience, they were also able to reflect on wider impacts for themselves as professionals.

The patient-practitioner relationship

Staff were unanimous that the training and learning of REACH had positively influenced the way in which they delivered consultations and structured support around their patients. They reported the following changes for practitioners:

- Increases in empathy, particularly towards patients that frequently visit the practice and may previously have been considered 'troublesome' or attending inappropriately and placing unnecessary burden on the practice.
- Recognition that it often was not the patients they expected that were reporting a high number of adversities, and that the impact of these experiences may 'look' very different for different patients.
- A more holistic consideration of patients' needs, including the many possible influences on their health and wellbeing.

“ Knowing about someone's ACEs absolutely helps you to structure support around that person, there is no doubt about that. It definitely helps you to understand that person sitting in front of you so much more. Clinician (Nurse)

Practitioners also perceived changes for some patients following ACE enquiry:

- (Improved) understanding that current health can be linked to earlier life experiences.
- Changes in help seeking behaviour, such as looking for reassurance and the opportunity to talk, rather than further tests or referrals for ongoing problems.
- Acknowledgement of a positive difference in consultation style.

“ There was one particular patient I'm thinking of, who I never would've guessed had that kind of background, and who comes in regularly for chronic disease management. She actually talked about what happened in her childhood and she said she had never spoken to anyone about it before. She didn't want to do anything with it, but she did say she appreciated being asked. So that, to me, made it worthwhile.

Clinician (Nurse)

The commitment of enquiring clinicians and the managerial and administrative staff supporting the pathfinder, even in light of the considerable challenges and barriers, was commended both by practice management and the RDL. Their innovation, motivation and enthusiasm for improving patient care was described as a key driver for shaping implementation and delivering the target number of ACE enquiries.

“ They still remained motivated, despite all of the hurdles we faced. There was no lack of enthusiasm; even though it [the pathfinder implementation] took a very long time. RDL

Wider personal impacts

Staff acknowledged that having an understanding about ACEs carried impacts beyond their immediate clinical roles and described how:

- Their awareness had re-shaped their attitude towards friends and family members who may have experienced ACEs.
- They had now come to recognise and appreciate the strengths that some people have in the face of adversity.

“ Some people that came in with ACEs were really quite strong characters. I was completely in awe of some of these 'power house' types, how they had dealt with that type of situation and got on with the rest of their lives. Clinician (HCA)

3.1.4 Challenges and barriers to implementation

Staff identified many challenges and barriers to successful REACH implementation. Some of these challenges were thought to be specific to operating within this particular practice, whilst others were described as more reflective of the wider demands currently facing primary care.

Coordination across a large multi-site practice

A combination of factors created difficulties for the delivery of training, meetings and implementation. Amongst these, staff described how:

- Staff are constantly moving around sites, including to locations not involved in delivering the pathfinder.
- The practice offers many different clinics and services, but only some clinician appointments were designated as eligible for ACE enquiry, therefore causing additional confusion as to when and where ACE questionnaires should be given to patients.
- Different sites have different patient demographics (e.g. one site has a much higher proportion of older patients) and therefore practitioners had very different experiences of delivering ACE enquiry across the different sites.
- The practice underwent wider changes as a result of taking on a new surgery site and a large student intake during the implementation period which influenced staff capacity in ways that had not been foreseen or accounted for during the organisational readiness assessment.
- All of the above factors prevented any substantial practice-wide 'systems change', as would usually be required to support the adoption of a new process with the practice.

However, there was notable disagreement among staff as to whether the REACH approach may work better in a different practice. Whilst some felt that a smaller practice may not face some of the challenges for coordination that have hampered this pathfinder, others suggested that these challenges, and a constant evolution in process and demand, are fundamentally inherent to general practice and would therefore be the same in any practice.

“ You can't have people coming into a service and arriving at a reception that isn't ACE-informed. Because those people may experience distress. They might appear to be 'difficult'. Something may be triggered for them. If everybody isn't aware that this might be a trauma response, the system doesn't work. RDL

Staff engagement and full-scale roll out

The lack of involvement of the wider practice in the pathfinder was cited as a key barrier from the perspective of both the RDL and the staff delivering ACE enquiry for the following reasons:

- Many staff, particularly those in non-clinical roles, were reported to feel as if the REACH process had nothing to do with them. Consequently, it was felt that these individuals failed to engage or buy-in to the pathfinder and the training.
- It was suggested that any change to the way that clinicians consult with patients, if it is going to be truly ACE-informed, must be supported by a change in the way that patients experience and interact with the whole system; starting with how they are received by the practice over the telephone and at reception.
- It was also felt that it is important for all staff to understand what the ACE questionnaire means, how it is going to be used and the relevance of asking about ACEs for patient health and wellbeing, in order to drive and support culture change at a practice-level.
- Some staff that had themselves experienced ACEs (and disclosed this to senior practice staff) had reservations about the suitability of asking about childhood adversity in general practice, and therefore did not engage in the pathfinder.
- Staff suggested that the voluntary nature of implementation for clinicians may have been a key factor – psychologically sending out the message that this change in process was temporary and not considered very important.

- Enquiring staff reported that not having clinicians across the whole practice involved in conducting ACE enquiries was a considerable barrier to effective delivery; suggesting that this caused confusion for reception staff about eligibility for the pathfinder and was a key contributing factor in eligible patients not being offered the ACE questionnaire¹².
- However, feedback from reception staff was that the pathfinder had resulted in only minimal impacts on the day-to-day running of reception and that the process ran smoothly in its current form.

“ Staff were pretty unanimous in seeing the merit of the work. However, there was a great deal of anxiety about the potential impact on the consultation, and the fact that we do not have enough surgery time to deal with what is already coming through the door.

Practice Manager

Current capacity and demand for appointments

The fact that staff were already under considerable pressure and working to capacity was implicated as a reason for both the non-engagement of those clinicians that did not volunteer to deliver ACE enquiry, and as a significant challenge for those that did. Staff suggested that:

- Dealing with their heavy workloads and the other demands on their time and attention meant that they would not remember until part way through the day that patients should have been coming in with complete ACE questionnaires (but were not).
- They felt unable to always give the time they wanted to exploring patient’s ACE responses due to the pressures of waiting patients and the implications of running behind in a given clinic or surgery session.
- In times of high demand, they were instead restricted to being over-reliant on simply passing on the list of support services, rather than engaging fully with patients in a discussion about what support they felt they needed now or in the future.

- These pressures were described as reflective of the current national landscape for general practice and it’s “never ending demand”. Capacity issues were also attributed to national staffing crises, as vacant clinical positions can remain unfilled for extended periods of time.
- As staff feel they are already at breaking point, and cost savings are at the forefront of people’s minds, it is a big undertaking to pursue something new that includes extra work and no immediate gains in terms of efficiency or funds.

“ Taking the time to explore the questionnaire would and did have a massive impact on your workload. Sometimes if you were running behind, it was easy to feel as though you were doing a disservice to it really. You’d say ‘any problems?’ and they’d say ‘yes’ and you would start thinking well how can I deal with this now. Clinician (Nurse)

The ACE questionnaire

Staff suggested that the challenges of service demand were further compounded by the following experiences of patients and staff:

- Patients needing more time than anticipated to complete the ACE questionnaire, with the majority taking in excess of five minutes and some reported to experience difficulties understanding parts of the questionnaire (however, see also section 3.3).
- The process for completing the ACE questionnaire not allowing for any flexibility when patients arrived late for their appointments (as was a frequent occurrence). Therefore, many patients did not have the time to complete all questions before they were called in for their consultation.
- Although reception staff confirmed that the questionnaires were generally well received when initially handed out to patients, a few patients were noted as commenting the questions were intrusive.

“ To broach it can be uncomfortable as a clinician. But I wouldn’t say it’s difficult. It’s just about getting over that awkwardness at first. Clinician (HCA)

¹²Not measured.

- Older patients were considered by reception staff and clinicians to be less willing to complete the questionnaire and more likely to openly challenge its appropriateness.
- Enquiring staff suggested that broaching the subject of ACEs could be uncomfortable for clinicians and it took time to develop their confidence in discussing these topics with patients. However, they stated that the more experience they had, the easier it became.
- It was also acknowledged that clinicians are required to be very careful about what open ended questions they might ask during a consultation, especially if, in the patients' view, they are unrelated to the problem(s) with which they are presenting. All enquiring staff felt that the ACE questionnaire and the designated process of self-completion was a huge strength of the REACH approach – helping the patient, but also protecting the clinician.
- Whilst there was some suggestion of a positive impact on patients (e.g. from body language), the possibility of undetected adverse outcomes was also widely acknowledged.
- Staff also recognised that existing challenges for clinicians in managing patient confidentiality and appropriate record keeping had hampered any meaningful record of the actual detail of the ACE enquiry discourse (i.e. beyond the patients yes/no responses and overall 'score').
- Staff expressed concerns that there were no follow up mechanisms to understand what happened after patients left the practice, that patients may stop engaging with the practice all together¹³, and that if this were the case there would be no opportunity for practitioners to reflect on their ACE discussion with that patient again in future.
- Although some staff felt that the fact that patients are reassured that they can revisit the issue of ACEs with practitioners at any time went some way towards bridging this gap, others raised concerns that this may not be enough for some patients, particularly as there is no way of knowing if those patients would actually be able to access a suitable appointment with a preferred clinician in future (i.e. due to availability; service demand etc).
- For example, staff felt it was very unlikely that a patient who had reflected on their ACE enquiry and consequently attempted to book a follow up appointment would outline this situation and the nature of their required consultation to reception staff at the time of booking.

“ If they haven't finished completing the form before they come in [to the consultation room], even giving them five minutes more to complete it has such a knock-on effect. Some patients were walking in still filling in their forms. But you are very aware that another patient has arrived, you have two home visits to do, so you don't want to give them those extra ten minutes because everything is backing up all the time!

Clinician (Nurse)

“ It could've had a detrimental effect though. So they buried it deep, but then we've opened that can of worms. You give them the numbers, but you can't know whether they will then actively seek any help.

Clinician (Nurse)

Understanding outcomes for patients

One of the biggest challenges reported by staff was understanding how patients felt and how their behaviour may have changed during and following ACE enquiry. In particular:

- Critically, staff all agreed that it was simply not possible to gauge whether patients had experienced an inherent therapeutic benefit from being given the opportunity to talk to a health professional about their childhood (section 1.2).

¹³But see section 3.3.3 which summarises data showing that only N=26 patients did not attend the practice at all during the 3 month follow up period.

“ All we can see is their body language and how they respond, and those that have had ACEs have responded quite positively. Clinician (Nurse)

“ GPs are complex organisations. The systems and processes that we have tried to shoe-horn asking about adversity into in many ways just don't support it. RDL

Moving away from the medical model

For those working to adapt and facilitate the REACH approach, it was acknowledged that general practice presents the following challenges not experienced previously with this approach:

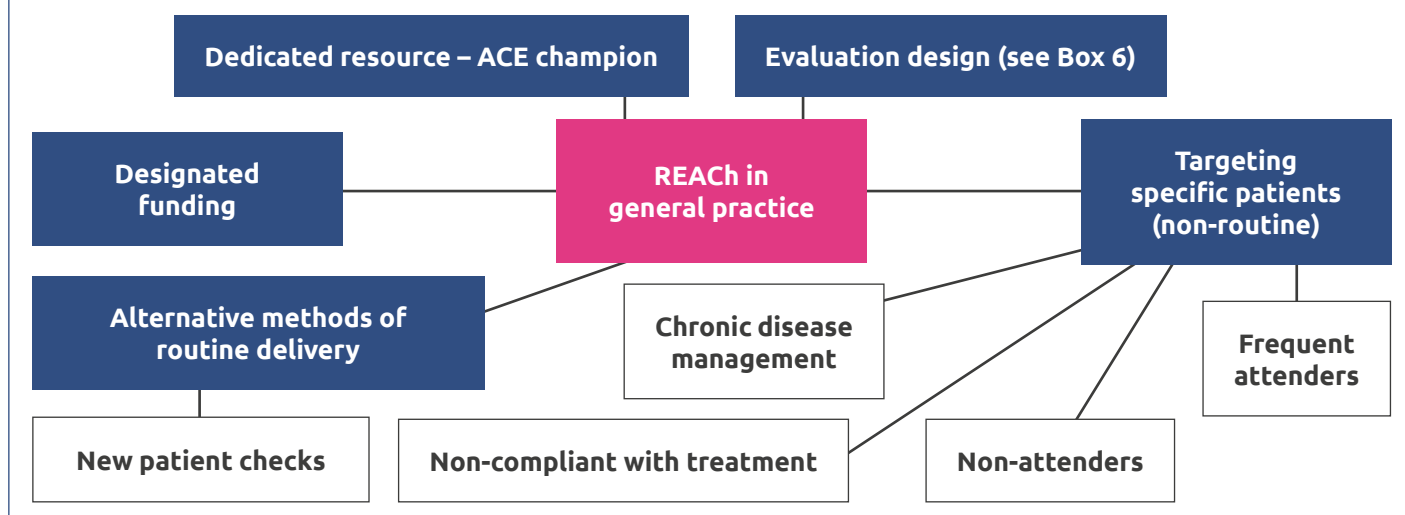
- Addressing the discord between the medical model that underpins healthcare in the UK and is based on the pharmacological or surgical treatment of physical problems, and the broader social model of health that considers social, cultural, environmental and economic factors needed to support trauma-informed care.

- Supporting a fundamental shift in perspective for professionals that are trained in, and accustomed to, one prescribed way of working, and may feel vulnerable moving into new domains. This includes alleviating concerns and misconceptions of the need for greater patient access to trauma-informed mental health services as a pathway from ACE enquiry.

3.1.5 Enablers and opportunities for future development

Practitioners identified a range of ways in which they felt the pathfinder could be improved or better supported for future implementation. These suggestions are summarised in Figure 5 and expanded upon in the text sections below.

Figure 5. Developing the REACH model for future implementation in general practice



Funding

Staff suggestions about financing routine enquiry focused on the following:

- Suitable financial provisions to reflect the hours of surgery and administrative support time that are needed to ensure a model like this is delivered effectively.

- Funding allocated to a dedicated resource – e.g. an ACE enquiry champion – whose substantive role would be to support training, administration, implementation and supervision. This role may also act as a direct point of contact for patients; thus potentially encouraging uptake and providing a more reliable vehicle for patient feedback.

Methods of delivery

Staff discussed the possibility of a range of different methods for delivering routine ACE enquiry, including: mailing questionnaires to patients at home; having patients complete the ACE questions on exit from the surgery; and incorporating ACE enquiry within new patient checks. Whilst it was generally felt that the former two options may compromise patient safety, there was considerable support for the idea of enquiry with new patients alongside their other standard assessments (height; weight; smoking status etc).

“ In a new patient check, we are not as swamped as the prescribers. This would be a good appointment to carry ACE enquiry out. We would then be able to allocate them a follow up consultation if required. Clinician (HCA)

Staff suggested this may be feasible if delivering clinicians were allowed access to pre-bookable appointments that would be readily available for those disclosing ACEs who required additional support. However, some staff expressed reservations about the suitability of enquiry within new patient checks, due to its similarity to a screening process, but lack of onward referral pathways or treatment options for those patients experiencing trauma.

“ So if there is a high ACE score, should we be addressing that? Like we do if there is high blood pressure or BMI. Somewhere down the line, could there be litigation because we didn't address it? There are lots of implications of asking using a form for new patients. Clinician (Nurse)

Targeting patients

Although different cohorts of patients were suggested that may specifically benefit from ACE enquiry, staff were divided as to whether they thought a more targeted approach was suitable. Some felt that gathering any information about childhood was better than none (in terms of understanding patients' history) and the ACE questionnaire could be used in the way that the GAD and PHQ are at present.¹⁴ Others felt that conducting enquiries opportunistically would simply not work as initiatives in the GP setting require a very clear process that can be applied to and by all clinicians.

Evaluation design

Staff expressed a range of ideas (or "wish-list") as to the data they would like to see collected from general practice patients to evaluate ACE enquiry more rigorously and over the longer term. These variables and research questions are summarised in Box 6.

Box 6. Practitioners' ideas for designing and scaling an evaluation framework assessing the effectiveness of ACE enquiry in general practice

- For people disclosing ACEs for the first time: how did it make them feel? Did this open up a conversation that they had previously wanted to have but didn't feel able? Had it ever crossed their mind to speak to a health professional about this?
- If ACE enquiry has altered a patient's attendance, is this because they have stopped to consider how often they may attend unnecessarily, or have they been put off coming back at all?
- Is that short intervention enough for patients?
- Would they want some form of follow up, even if only by phone call, in the following weeks?
- How do patients feel once they reflect on their ACE enquiry after a week or a month?
- If patients did want a follow up ACE consultation, were they able to get a timely appointment?
- Does capacity in general practice and the availability of appointments with a preferred clinician make a difference to how patients feel about responding to ACE questions?

¹⁴The GAD and the PHQ are used to assess risk. When a patient first attends for an appointment related to mental health, their patient record is flagged to ensure that they are given the questionnaires at reception. These scales are then completed in the waiting area and taken in to the consultation with the clinician. The scales may also be completed again at a later date to monitor changes.

3.2 Patient feedback

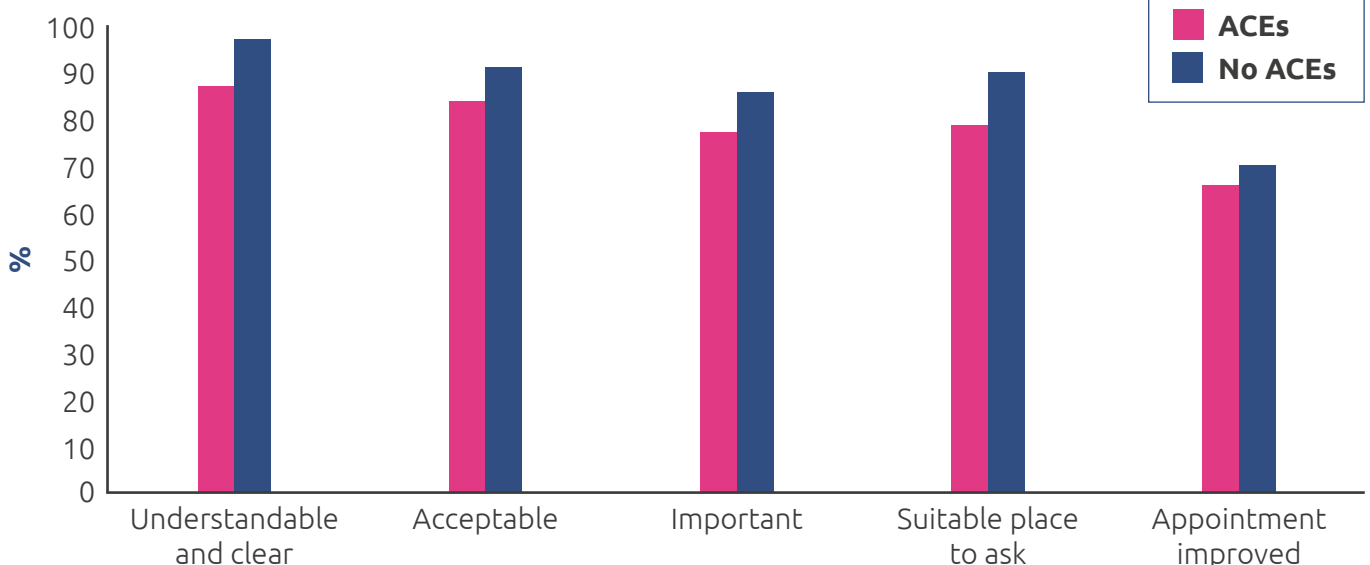
Patient feedback questionnaires were completed by 123 patients. Assuming that all patients were provided with the appropriate postcard to complete their feedback (not measured), this suggests a response rate of 56.4%. Although patient feedback was anonymous and cannot be linked to any patient demographic or other information, respondents were asked to indicate whether or not they had disclosed ACEs on their ACE questionnaire (completed; N=112), with 49.1% of respondents with at least one ACE. Generally, patients held overwhelmingly positive views of the ACE enquiry pathfinder, with over 85% of respondents agreeing or strongly agreeing that the questions were clear and understandable, that it was acceptable and important to provide information about childhood experiences to a health professional, and that a GP surgery was a suitable place to be asked these questions.

Over two thirds of respondents also indicated that their appointment with the health practitioner was improved because of this enhanced understanding of their childhood. However, opinion was overall more divided on this measure, with around one in five (21.1%) selecting the neutral, mid response (neither agree nor disagree). Although patients with no ACEs reported marginally more positive views on each of the measures, none of these differences were statistically significant (Figure 6).

Box 7. Additional feedback received from patients

- All of this is life, but some people do need help to get over it.
- I think it is important that you ask about receiving physical abuse, but also about witnessing it in the home. But what about, for example, someone who is 4.5 years older than them?
- This is incredibly emotive and can open a can of worms that will be incredibly difficult to deal with alone. Having someone to follow up on the impact of these questions immediately would be really useful.
- I think it's an excellent idea to ask these difficult questions and is extremely useful.
- Questionnaires should be sent out in the post, not completed in the surgery.
- The questionnaire should ask in more detail about different forms of emotional abuse.

Figure 6. Percentage of patients with (N=55) and without (N=57) ACEs strongly agreeing or agreeing with the items positively describing ACE enquiry in general practice



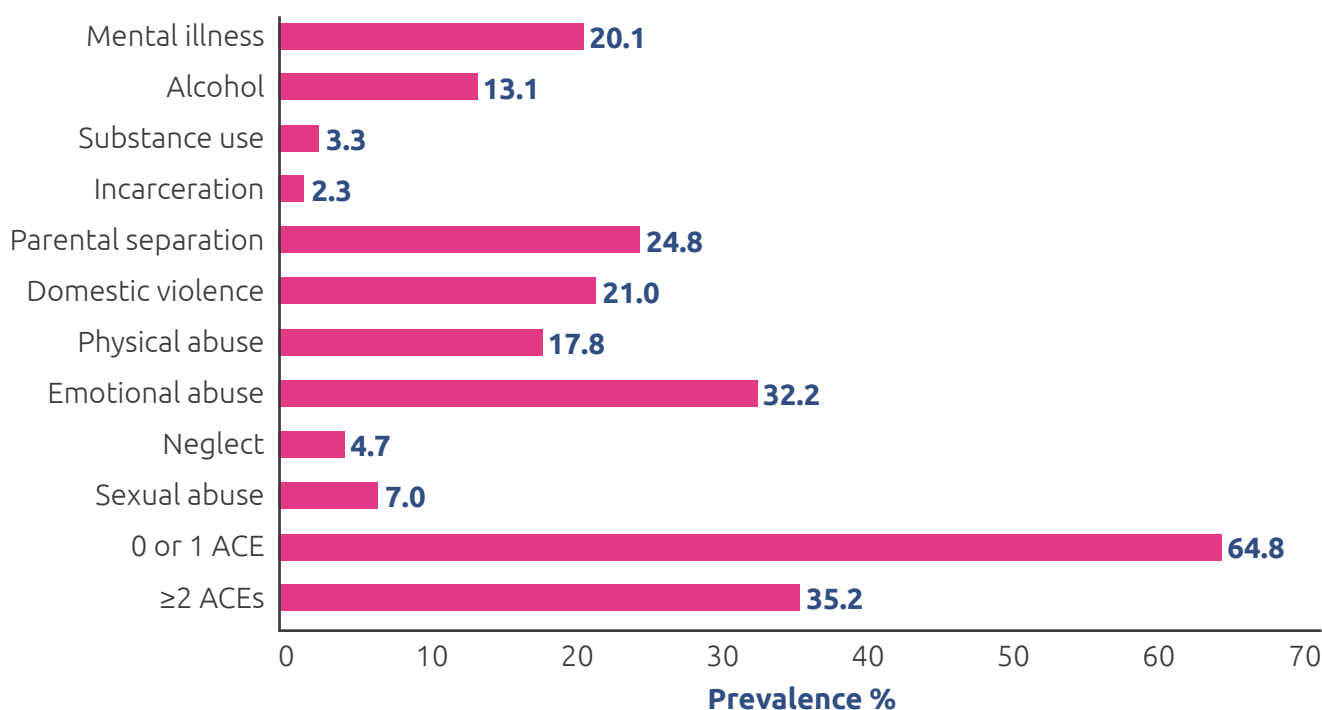
Of the 55 respondents who indicated that they had disclosed one or more childhood adversity on the ACE questionnaire, 67.2% (N=37) stated that this was the first time they had told a professional (i.e. someone other than their friends and family) about these experiences. There was no difference in the views about ACE enquiry of those patients who had and had not previously disclosed their ACEs to a service or professional. On the reverse of the feedback postcards, patients were also provided with the opportunity to share any general comments on ACE enquiry with the research lead. Further comments were provided by four respondents (many of whom provided multiple comments) and are paraphrased in Box 7.

3.3 Patient Data

3.3.1 Sample characteristics

During the course of the REACH pathfinder, 214 patients completed an ACE questionnaire and provided details on their childhood experiences to a health practitioner. A summary of these ACEs, and patients' demographic and other lifestyle and health variables extracted from health records is provided in Table 2 (see also Appendix 1 for full description of ACEs). Participating patients ranged in age from 18 to 93 years (mean age: 52.2 years) and just under two thirds were female. Just over a third of patients had experienced two or more ACEs during the first 18 years of life. The prevalence of individual ACEs ranged from 2.3% of patients growing up with an incarcerated household member, to 32.2% experiencing emotional abuse (Figure 7). Compared with previous research of the general population in England collected via self-selected household surveys, as may be expected overall ACE prevalence was marginally higher among this general practice sample (13.6 vs. 14.9% ≥ 4 ACEs respectively; [2])¹⁵. The relationship between ACEs and demographic factors is summarised in Box 8.

Figure 7. Prevalence of individual ACEs experienced and total number of ACEs



¹⁵Data from general population surveys includes only those aged 18-69 years.

Table 2. Sample characteristics

			N	%
All			214	-
Demographics	Age (years)	18-30	40	18.7
		31-50	54	25.2
		51-70	76	35.5
		71 and over	44	20.6
	Gender	Male	75	35.0
		Female	139	65.0
	Ethnicity	White	121	56.5
		Other	32	15.0
		Not disclosed	61	28.5
Lifestyle factors	BMI	Healthy (18-25)	39	18.2
		Unhealthy (<18>25)	151	70.6
		Not recorded	24	11.2
	Smoking	Never smoked	129	60.0
		Ex smoker	40	18.6
		Current smoker	37	17.3
		Not recorded	9	4.2
Health	Chronic conditions	Cardiovascular disease ^{&}	29	13.6
		Type 2 diabetes	49	22.9
		Asthma	33	15.4
		Multiple long-term conditions [£]	66	30.8
	Mental health (any)		55	25.7
Service use	Prescriptions [*]	High medication use	56	26.2
	Appointments ^{**}	Frequent attender (≥4)	116	54.2
		High demand (≥ 10)	30	14.0

[&]Including coronary heart disease, myocardial infarction; heart failure; angina; stroke and transient ischaemic attack; [£]QOF register for ≥2 of the following chronic health conditions: cardiovascular disease; diabetes; asthma; atrial fibrillation; hypertension; respiratory disease; cancer; chronic kidney disease; osteoarthritis; and/or rheumatoid arthritis. ^{*}In previous 12 months; ^{**}In previous 6 months;

Box 8. ACEs and demographic factors

The prevalence of certain ACEs and overall ACE score was found to differ significantly by demographic factors (see Appendix 2: Table A1):

Age

- Whilst half of all patients aged 18-30 years reported experiencing parental separation or divorce, less than 20% of those aged 51-70 experienced this ACE, and as few as 6.8% of patients over 70 years of age ($X^2=23.604$, $p<0.001$).
- No patients over the age of 51 years reported growing up with a substance abusing household member, compared with 7.5% of those aged 18-30 and 31-50 years ($X^2=9.239$, $p=0.026$).
- Half of patients aged 18-30 experienced ≥ 2 ACEs, compared with 37.0% of 31-50 year olds, 36.8% of 51-70 year olds, and only 18.2% of those over 70 years of age ($X^2=9.550$, $p<0.023$).

Deprivation

- Patients from the more deprived tertiles (high and medium) experienced a significantly higher prevalence of emotional abuse than patients from the low deprivation tertile (41.4, 35.7 and 19.2% respectively; $X^2=8.829$, $p<0.012$).
- Just under a quarter (24.3%) of patients from the most deprived tertile reported growing up with a household member who abused alcohol, compared with only 1 in 10 patients from the middle tertile, and as few as 1 in 20 from the least deprived tertile ($X^2=13.963$, $p<0.007$).
- Whilst a quarter (24.7%) of patients in the least deprived tertile experienced a total of ≥ 2 ACEs, this rose to 37.1% in the middle tertile and 44.3% among those most deprived ($X^2=6.205$, $p<0.045$).

Gender and ethnicity

- The prevalence of different ACEs did not differ for males and females, or for patients of different ethnic groups.

3.3.2 ACEs and patient health and wellbeing

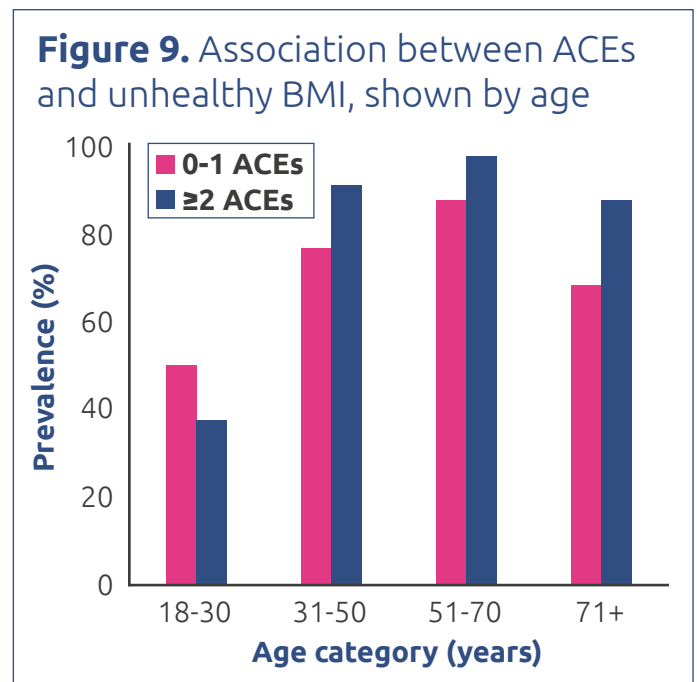
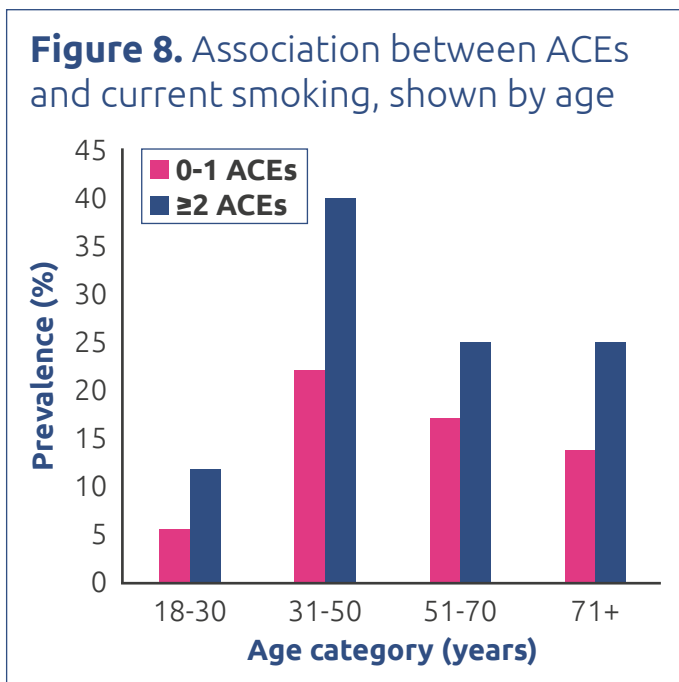
Information from patient health records was used to explore the relationship between ACEs, demographic factors and lifestyle and health variables, using bivariate and multivariate statistics. A table of full bivariate analyses can be found in Appendix 2 (Table A2).

Lifestyle Factors

A positive relationship was found in bivariate analyses between status as a current smoker and increased ACE count for patients across all age categories (Figure 8), with the biggest difference by ACEs found among those aged 31-50 years. However, this overall difference narrowly failed to reach statistical significance ($X^2=3.722$, $p=0.054$).

Patients with a BMI of less than 18 (underweight) or over 25 (overweight) were classified as having an unhealthy BMI. A similar positive relationship was apparent between unhealthy BMI and ACE count (Figure 9) in all but the youngest age category, although again this overall difference was not statistically significant ($X^2=2.250$, $p=0.134$).

Data on other lifestyle factors (alcohol consumption; physical activity/exercise) were extracted but were insufficiently complete in practice records to allow analysis.



Long-term health conditions

In bivariate analyses, the prevalence of asthma was significantly higher among patients with ≥ 2 ACEs, compared with those with 0 or 1 ACE ($X^2=4.362$, $p=0.037$; Figure 10) across all age categories. An independent effect of ACEs on asthma remained after adjusting for demographic confounders in multivariate analyses, with patients with two or more ACEs over two and a half times more likely to suffer from this long-term inflammatory disease (Adjusted Odds Ratio (AOR)=2.43; 95% CI=1.04-5.71, $p=0.041$; Appendix 2: Table A3).

A significant positive association was also found between more complex chronic health needs (multiple long-term conditions; MLTC) and ACE count (Figure 11), particularly among those aged 51-70 years. After accounting for socio-demographic confounders in multivariate analyses, patients with ≥ 2 ACEs were almost three times more likely to be living with MLTC, compared with patients with 0-1 ACE(s) (AOR=2.76; 95% CI=1.27-6.01, $p=0.010$; Appendix 2: Table A3).

No significant relationship was found between prior exposure to ACEs and prevalence of cardiovascular disease ($X^2=0.016$, $p=0.901$) or diabetes ($X^2=0.041$, $p=0.839$) in adulthood (Appendix 2: Table A2).

Figure 10. Association between ACEs and asthma, shown by age

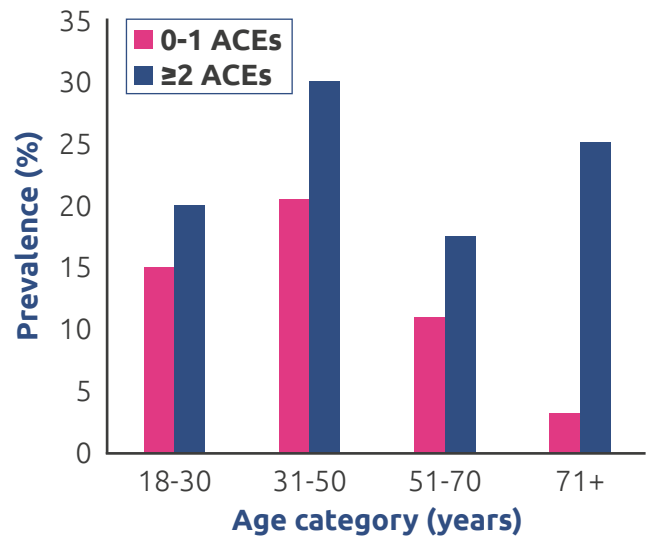
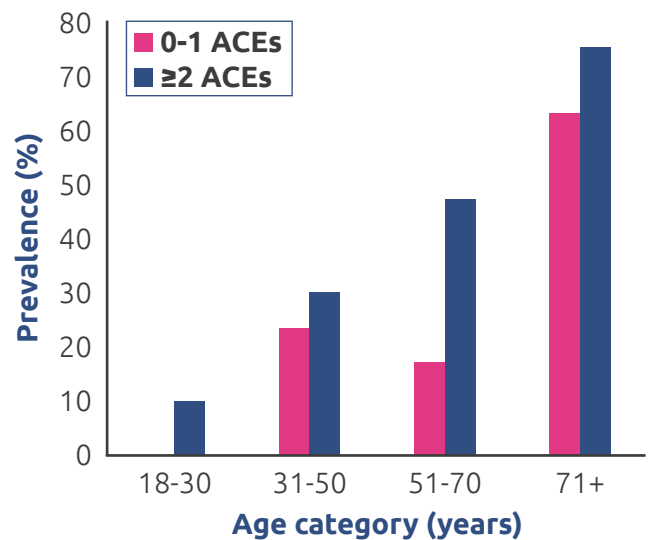


Figure 11. Association between ACEs and MLTC, shown by age



Mental health

The strongest association between childhood adversity and a negative adult health outcome was found when considering current mental health ($X^2=16.609$, $p<0.001$; Figure 12). Unlike the physical health conditions examined, prevalence of current mental health problems did not show a stepwise increase with age, instead peaking in the 31-50 age category. However, across all age categories, patients with ≥ 2 ACEs were significantly more likely to experience some form of mental illness, compared with those with 0-1 ACE(s). Thus, multivariate analyses controlling for socio-demographic confounders revealed that patients with ≥ 2 ACEs were over three and a half times more likely to experience mental health problems in adulthood, compared with those with 0-1 ACE(s) (AOR=3.65; 95% CI=1.80-7.41, $p<0.001$; Appendix 2: Table A3).

On first consultation for mental health-related problems (including stress, low mood and general anxiety), patients at Beacon Primary Care are invited to self-complete screening tools for depression (PHQ; N=74) and anxiety (GAD; N=52; see section 2.4) in the waiting area prior to their appointment. Scores on both screening tools were found to significantly positively correlate with total ACE score ($r=0.338$, $p<0.01$ and $r=0.289$, $p<0.05$ respectively). Figures 13 and 14 show the relationship between ACE count categories and categories for severity of depression and anxiety, among patients consulting for mental health problems.

Figure 12. Association between ACEs and current mental health problems, shown by age

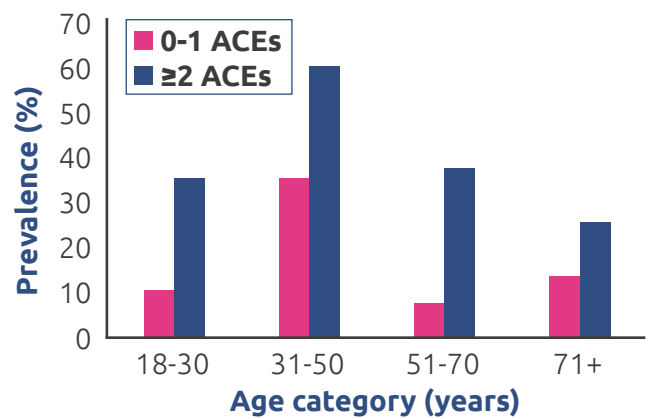


Figure 13. Association between ACEs and depression severity (PHQ category)

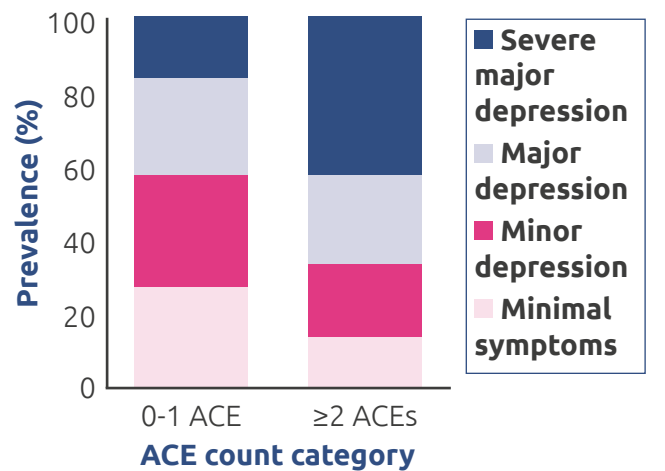
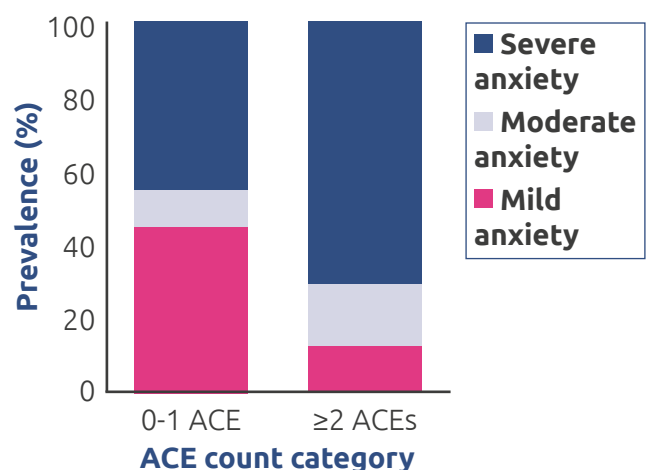


Figure 14. Association between ACEs and anxiety severity (GAD category)



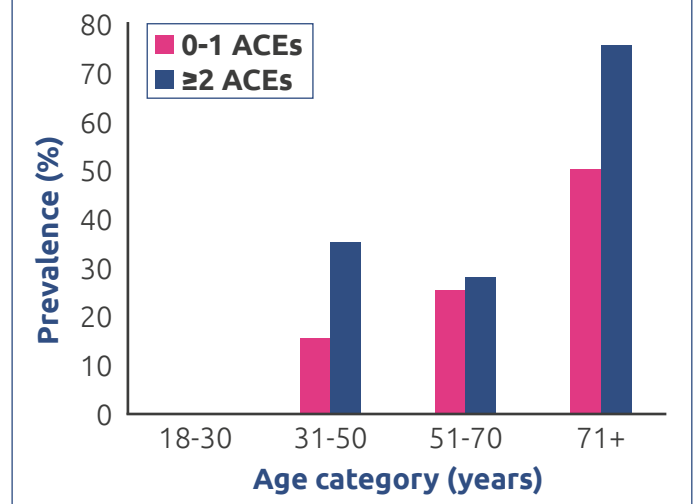
Service utilisation

Overall, no significant relationship was found between exposure to ACEs in childhood and frequent GP attendance ($X^2=0.023$, $p=0.880$; Appendix 2: Table A2). Among those patients aged 18-30 years, having ≥ 2 ACEs actually resulted in fewer face-to-face and triage appointments (0-1 ACE(s) =42.1% vs. ≥ 2 ACE=29.4% frequent attenders; not significant). In this youngest age group, no patients were classified as having high medication use (>45 repeat prescriptions in 12 months). However, among the other age categories, a positive relationship can be seen between ACEs and current high medication/prescription use, although again this failed to reach statistical significance ($X^2=1.069$, $p=0.301$; Figure 15)¹⁶.

Previous disclosure of childhood adversity

Free text searches found no record of childhood adversity having been disclosed in previous consultations for the vast majority of patients with ACEs. For three patients, clinical codes identified a history of abuse. For a further two patients childhood sexual abuse had been discussed during past consultations for mental health problems. All five of these patients were currently on the QOF register for mental health and taking medication for anxiety or depression.

Figure 15. Association between ACEs and high medication use, shown by age



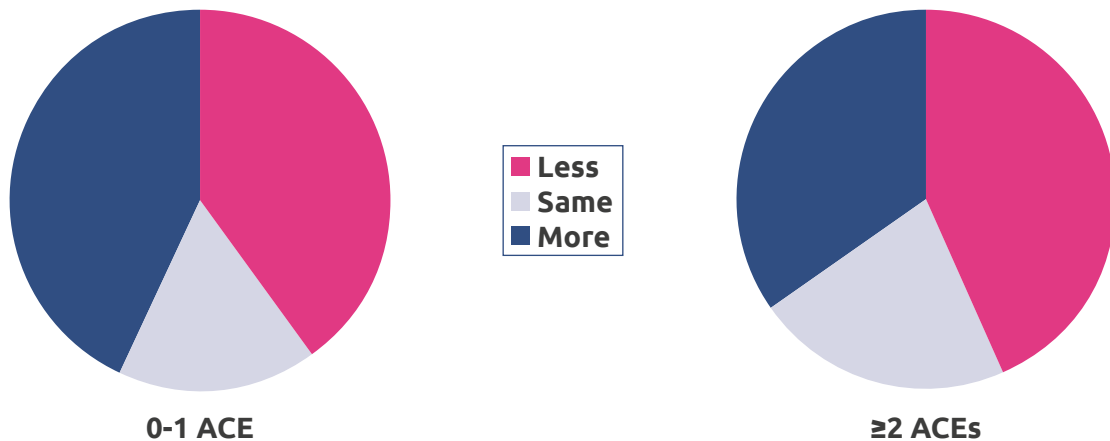
¹⁶ X^2 analysis included those aged 31 years and over.

3.3.3 Patient follow up – 3 months after ACE enquiry

The number of times patients attended the practice (either for face-to-face appointments or telephone triage) was compared on a matched case basis in the three months before and following ACE enquiry (Figure 16). Whilst the attendance frequency of around one in five patients remained the same, over 40% of patients with 0-1 ACE(s) attended the practice more often in the follow up period.

In contrast, 43.5% of patients with ≥ 2 ACEs attended less during these three months post-enquiry. Change in attendance (less; same; more) was significant for those with ≥ 2 ACEs ($Z=-1.977$, $p=0.048$), but not among those with 0-1 ACE(s) ($Z=-0.559$, $p=0.576$). However, overall there was no significant difference in attendance rates between ACE count categories ($X^2=0.878$, $p=0.645$).

Figure 16. Changes in patients' attendance in the 3 months following ACE enquiry, shown by ACE count



The total number of prescriptions (acute and repeat) issued to patients in the three months following ACE enquiry ranged from 0 to 27, with a mean of 4.2 (SD=4.36). When compared with estimated¹⁷ medication use in the three months prior to enquiry, 75.6% of patients with 0-1 ACE(s) and 89.1% of patients with ≥ 2 ACEs showed reduced medication use post-enquiry (Wilcoxon Signed rank $Z=-6.447$, $p<0.001$ and $Z=-5.442$, $p<0.001$ respectively). We cannot rule out that declines in both groups were related to GP attendance at sampling coinciding with a period of higher medication. Moreover, there was no overall significant difference in medication use between ACE count categories ($X^2=4.792$, $p=0.091$).

At present, it is not possible to identify whether patients with higher ACEs may be attending less due to reduced need, reduced access/availability of appointments or a change in willingness to present at the practice. It is also not possible to identify or account for seasonal and other extraneous effects in attendance. However, useful insight can be gained from considering the proportion of patients that had zero attendances at the practice following ACE enquiry. Of the 128 patients for which three month follow up data were available, 26 patients did not attend the practice at all during that period. There was no significant difference in rates of complete (3 month) non-attendance for those with 0-1 and ≥ 2 ACEs (18.3 and 23.9% respectively; $X^2=0.575$, $p=0.448$).

¹⁷Figures for previous medication use were provided over a 12 month period. This figure was divided by 4 to provide a 3 month estimate for the purposes of comparison to follow-up data.

3.4 Limitations

The following limitations should be considered when interpreting findings from this proof of concept study:

- Due to the confidential nature of consultations between patients and health professionals, researchers were unable to observe the actual discussions that took place following completion of the ACE questionnaire. Therefore, it was not possible to directly examine fidelity to the intended REACH process (see Figure 3). Whilst clinicians' notes were considered, these contained very little detail of the content of the discussions that took place. Therefore, current understanding of what was actually delivered to patients during the pathfinder was derived from practitioner feedback and one item of patient feedback (see below) only.
- There was considerable variation in the response rate and completion of patient feedback surveys, across sites and over time. Overall response rate was relatively low, suggesting that feedback may not provide a reliable representation of the patient experience. During practitioner feedback, it was highlighted that initially patients were given the feedback postcard at the same time as the ACE questionnaire (on initial booking in with reception) and some patients could have completed their feedback prior to the consultation. After a meeting that re-affirmed with staff the appropriate process for patient feedback - in which postcards were handed over by practitioners on consultation exit - staff reflected that response rate for patient feedback reduced. Further, only one item in the patient feedback questionnaire was used to explore views as to the nature or quality of that consultation with a health professional following the provision of ACE responses. This item was more poorly completed than the other items on the questionnaire¹⁸, which presents challenges for interpretation of fidelity to the REACH model by enquiring clinicians.
- Although reception staff retained a record of the number of people who were offered but declined to complete an ACE questionnaire, reasons for non-completion were not recorded. Further, the practice were unable to quantify how many eligible appointments were conducted by enquiring clinicians over any given time period (e.g. each week). Therefore, it was not possible to determine if all patients that should have been asked by reception to complete an ACE questionnaire were provided with this opportunity.
- The relatively small sample size attained in this pathfinder study increases the likelihood of Type II errors in the analyses of patient data. That is, the number of patients with ≥ 2 ACEs and any given demographic, lifestyle or health outcome of interest may be too small to produce a significant effect, thus resulting in a 'false negative' for instance with examination of differences in health conditions or attendance by ACE count.
- The data included here only considers relatively short term follow up (e.g. 3 months), whilst evidence suggests that changes over such periods are likely to only be temporary and frequent attendance is best considered over a duration of a year or more [22]. Consequently, the results do not provide reliable insight into any long-term impacts on attendance and may be impacted by seasonal and other confounding effects.

¹⁸Of patient feedback respondents (N=123), 91% provided an answer to this question; compared with a completion rate of 97 – 100% across the other 4 items.

Discussion

Over the course of seven months, six volunteer clinicians within a multi-site general practice piloted the REACH approach to ACE enquiry with patients over 18 years of age attending pre-booked face-to-face appointments.

Although lack of clinician engagement prevented this approach being scaled to the whole practice, a total of 218 patients agreed to self-complete the 10-item ACE questionnaire in the waiting area prior to their appointment, and subsequently shared this information with a health practitioner during their consultation. As few as 16 patients were recorded as declining participation throughout the pathfinder. Anonymous patient feedback was provided by 123 patients and non-identifiable data from practice records were obtained for 214 patients to explore health and service use. Participating clinicians, practice management and the REACH Development Lead (RDL) from LCFT also provided detailed qualitative feedback on their personal experiences of delivering REACH in general practice.

With suitable training and support, findings suggest that motivated health practitioners in different roles (GPs, nurses and healthcare assistants) are willing and able to discuss histories of childhood adversity with general practice patients across a range of appointment types (e.g. chronic disease management; medication reviews; screening and investigative appointments; section 3.1.1). Although some initial apprehension was described, enquiring clinicians suggested that the use of the ACE questionnaire - a written and structured tool - allowed them to introduce the concept of childhood trauma to their consultation, regardless of the patients' reason for presentation. Overall, practitioners reported positive experiences of the REACH training, with those who took part in the pathfinder suggesting it had improved both their knowledge (of the impact of trauma and adversity on health) and their confidence to deliver ACE enquiry.

They felt that training, and their experiences of delivery, had both increased their empathy and extended their field of reference to encourage them to consider a more holistic view of health and wellbeing; all of which were considered to be of direct benefit to patient care (section 3.1.3).

Nevertheless, it remains unclear as to how suitable the training is to foster engagement among staff who are more reluctant and/or do not have an existing personal interest in ACEs, trauma-informed care or related ideas.

Although limited in number, findings from patient feedback were also positive and suggest that, in this sample, adult patients thought it acceptable and feel comfortable completing the ACE questionnaire and discussing histories of childhood trauma and adversity with health practitioners in a general practice context (section 3.2). For many patients with a history of ACEs, the REACH pathfinder presented an opportunity to disclose this information for the first time, suggesting that they may previously have not been asked potentially relevant questions about social and emotional determinants for health and wellbeing. This is in line with findings from patient data that revealed exceptionally limited discussions of ACEs from consultation notes recorded prior to the pathfinder, even among patients with current diagnoses of mental disorders (section 3.3.2). Practitioners provided anecdotal evidence that supported the idea that ACE enquiry had positive impacts on their patients. Although enquiring clinicians raised concerns about the potential for undetected adverse outcomes, on only a few isolated occasions were overt negative reactions to the ACE questionnaire described (e.g. an older patient expressing that it was intrusive; section 3.1.4). There was no evidence that any patient who then went on to discuss ACEs with a clinician experienced adverse effects as a result of this exchange.

However, clinicians were not observed and records of their discussions with patients were very limited, due in part to concerns about patient confidentiality. Indications from both patient and practitioner feedback were that detailed discussions about the questionnaire may not have taken place and patients may not have been given the opportunity to reflect on their psychological and emotional reactions to ACE enquiry within the consultation (3.1.4). Whilst two thirds of patients with ACEs did positively indicate that their appointment was improved as a result of the clinician understanding more about their childhood, this particular measure was poorly completed (see limitations and section 3.2).

Analyses of patient data revealed a high prevalence of ACEs, with over 60% of the sample experiencing at least one ACE and 1 in 3 patients reporting two or more childhood adversities (section 3.3.1). ACEs were found to be more prevalent among those currently residing in more deprived areas and among younger patients (aged 18-30 years) – a cohort that is increasing at the practice (with student intake from a local university), but typically not attending as often as their older counterparts. A positive (although not statistically significant) relationship was found between ACEs and recorded negative lifestyle factors (smoking and unhealthy weight), echoing previous research with general population samples [2, 7]. Importantly, a significant association was found between ACEs and long-term health conditions such as asthma. Patients with a higher number of ACEs were found to have more complex health needs, as they were more likely to be living with multiple long-term conditions. Even in this limited sample, a strong positive relationship was also found between ACE exposure and the diagnosis and severity of adult mental health problems (section 3.3.2). These findings align with existing evidence and suggest a clear need for approaches that support the physical and mental health needs of those with a history of childhood trauma [1, 7, 23, 24].

Prior concerns that asking about ACEs could result in a large increase in service demand were not realised during the pathfinder (section 3.1). Although processes were in place allowing all patients the opportunity for a further consultation following disclosure, there was no evidence of patients seeking additional support in this way. Whilst many patients were described (by practitioners) as interested in retaining information about additional available support services, no patient expressed an explicit intention to engage with any of these services. This is supported by findings from patient data which tentatively suggest that for patients with ACEs, attendances and medication use may marginally reduce following ACE enquiry (section 3.3.3). Although to a considerably lesser degree here, this is conducive with research from the US that reported a 35% reduction in doctor office visits in the year following ACE enquiry [25].

However, although there were no detectable implications for overall service delivery at a practice-level, practitioners expressed concerns over the time delays that were incurred within individual appointments and across clinics or surgery sessions as a result of the ACE enquiry process (section 3.1.4). In particular, learning suggests that the model of delivery used in the pathfinder did not have the resilience or flexibility to account for patients arriving late for appointments or requiring more time to complete the ACE questionnaire. Concerns over such time pressures were cited as a major contributing factor for the lack of wider practice engagement in the pathfinder and may have a considerable impact on the scalability of this process.

Consistently the size and geographical location of the practice (i.e. across multiple sites) and the lack of whole practice engagement were described by practitioners and the RDL as compounding the challenges of delivery (section 3.1.4). Although patient uptake to the pathfinder was considerable, there was nevertheless notable variation in the number of ACE enquiries completed each month (section 3.1.1). During the summer months in particular, adherence to REACH dropped substantially.

Fewer patients attending the practice, staff annual leave and unfilled clinical positions were all cited as possible reasons for lower rates of completion, suggesting that both internal and external factors may have considerable impact on capacity to deliver ACE enquiry. However, it is also important to note that the process of successfully delivering an ACE enquiry when implementation is not at a whole-practice level is reliant on the reception team at that site correctly identifying a patient as attending an eligible appointment with an enquiring clinician. Therefore, a reduction in the number of completed enquiries may not signify a change in practitioner willingness to deliver, or patient willingness to complete, but wider limitations based on other staff members' adherence to correct processes for delivery.

For example, the administration manager at the practice confirmed that during the final few weeks of the pathfinder, daily reminders to all staff were required to ensure that enquiries took place.

In practitioner feedback, the ease of initiating the appropriate REACH process at reception was a primary source of disagreement (section 3.1.4). Enquiring clinicians suggested that the nature of involving only a small group of clinicians in the pathfinder meant that busy reception teams faced challenges in co-ordinating which patients were eligible to take part, often resulting in questionnaires erroneously not being offered to eligible patients. However, reception staff divergently reported that the REACH process was easy to deliver and added very little additional demand to their workload. Nevertheless, it was agreed that a whole-practice process change would be easier to manage.

Conclusions and recommendations

The higher prevalence of both physical and mental health problems among adult general practice patients with ACEs highlights a clear need to respond to wider determinants and examine a more trauma-informed approach in primary care.

This proof of concept study provides encouraging but only initial insights into the acceptability of ACE enquiry to both patients and practitioners and suggests that clinicians in a general practice setting may be well placed to offer patients the opportunity to disclose ACEs. However, the complexity and demands of this setting present many inherent challenges for the delivery of a sustained approach to routinely enquiring about childhood adversity and the extent to which clinicians are able to discuss the impact on current health and wellbeing with patients. Based on the findings of this report, the following recommendations are made to support the future implementation and evaluation of ACE enquiry in general practice.

Overall

- Further research and evaluation is required before ACE enquiry is considered for any wider implementation. Such research should examine models of enquiry that address the points below.



Further developments in ACE enquiry in primary care should consider:

- Whole-practice engagement to ensure that ACE enquiry is embedded in robust systems all capable of supporting change. General practices should present a joined-up approach that ensures that the entire patient pathway is ACE-informed (i.e. from them being telephoned triaged or arriving at reception, through to their discourse with the clinician during consultation). This requires efforts to ensure that dedicated training is prioritised and is timely and accessible to all. This training should directly address buy-in and the concerns of staff who may be reluctant to engage. Doing so must recognise the potential for staff to be impacted by their own ACEs or trauma, and appropriate support and supervision must be made available.
- Emphasising through training and delivery the content and value of the discussions that follow completion of the ACE questionnaire, rather than focusing primarily on completion of the questionnaire itself. Practitioners should ensure that they are entering a genuine dialogue with patients and allowing suitable opportunity for patients to reflect, in the present, on how the ACE enquiry process may be impacting them. For evaluation and developmental purposes, more detailed recording of the nature of these discussions with patients would aid evaluation of fidelity to the model of delivery.
- Fostering improved linkages with support services to allow greater understanding of patient pathways beyond the individual practice. Seeking more detailed feedback from patients following ACE enquiry (e.g. a follow up phone call) may help to better understand both the nature of the practitioner-patient exchange, but also the impacts of ACE enquiry in the immediate and longer term.

Further research should:

- Build on these tentative but encouraging findings to test approaches to ACE enquiry in other practices addressing the process and implementation deficits identified in this evaluation.
- Further explore the feasibility and acceptability of more targeted approaches (e.g. patients managing long-term conditions) and including enquiry at different points in the patient pathway; especially as part of new patient checks.
- Consider, by using larger and more representative sample(s), the relationship between ACEs and different attendance patterns for patients, and the potential association between routine enquiry and any subsequent reduction in attendance in primary care.
- Develop a better understanding of, and evaluate, the nature and content of discussions about ACEs between clinicians and patients; including assessing fidelity to any proposed model of delivery.
- Undertake detailed and longer term follow up with patients and understand the impact that processes like REACH may have on their health, well-being and health service utilisation.

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Appendix 1. Methodology: measures and variables

Box A1. Adverse Childhood Experiences (ACEs)

ACE	Question All ACE questions were preceded by the statement "While you were growing up, before the age of 18..."	Response indicating ACE
Mental illness	Did you live with anyone who was depressed, mentally ill or suicidal?	Yes
Alcohol	Did you live with anyone who was a problem drinker or alcoholic?	Yes
Substance use	Did you live with anyone who used illegal street drugs or who abused prescription medications?	Yes
Incarceration	Did you live with anyone who served time or was sentenced to serve time in a prison or young offender's institution?	Yes
Parental separation	Were your parents ever separated or divorced?	Yes
Domestic violence	How often did your parents or adults in your home ever slap, hit, punch or beat each other up?	Once or twice or many times
Physical abuse	How often did a parent or adult in your home ever hit, beat, kick or physically hurt you in any way? This does not include gentle smacking for punishment.	Once or twice or many times
Emotional abuse	How often did a parent or adult in your home ever swear at you, insult you, or put you down?	Once or twice or many times
Neglect	Did your parent(s) for long periods of time make you go without enough food or drink, clean clothes, or a clean and warm place to live?	Once or twice or many times
Sexual abuse	How often did anyone at least 5 years older than you (including adults) ever touch you sexually?	Once or twice or many times to any of the 3 questions
	How often did anyone at least 5 years older than you (including adults) try to make you touch them sexually?	
	How often did anyone at least 5 years older than you (including adults) force you to have any type of sexual intercourse (oral, anal or vaginal)?	

Box A2. Categories for consultation reason

Category name	Description
General	Patients have no presenting symptoms or acute problems; consultation is for general health advice (e.g. foreign travel advice) and medical assessments (e.g. for certain job requirements)
Sexual health	Contraception and sexually transmitted infections
Chronic condition management	Consultations relating to existing and ongoing conditions; includes annual reviews for chronic conditions and medication reviews for long-term repeat prescriptions. Also includes the delivery of ongoing injections (e.g. for vitamin deficiency or arthritis)
Mental health	Consultations for any issues related to mental health; including anxiety, depression, low mood and general stress. Does not include consultations for those who have existing Read codes or QOF registration for mental health (see chronic condition management above)
Acute physical health	Any first presentation for a physical health complaint; may include a range of injuries, skin disorders, musculoskeletal, gastrointestinal, urogenital or respiratory problems
Investigative appointments	Patients are exposed to a minor procedure such as blood testing; lung function testing; blood pressure checks

Appendix 2. Data tables

Table A1. Bivariate relationship between participant demographics, individual ACEs and ACE Count

		Individual ACEs										ACE Count	
		Household dysfunction						Child abuse				0 or 1	≥2
		Mental illness	Alcohol	Substance use	Incarceration	Parental separation	Domestic violence	Physical abuse	Emotional abuse	Neglect	Sexual abuse		
Prevalence	%	20.1	13.1	3.3	2.3	24.8	21.0	17.8	32.2	4.7	7.0	64.8	35.2
	n	214	214	214	214	214	214	214	214	214	214		
Age category (years)	18-30	32.5	22.5	7.5	5.0	50.0	17.5	40.0	5.0	10.0	50.0	50.0	50.0
	31-50	22.2	11.1	7.4	3.7	29.6	22.2	27.8	5.6	3.7	63.0	63.0	37.0
	51-70	18.4	14.5	0.0	1.3	18.4	25.0	38.2	3.9	10.5	63.2	63.2	36.8
	≥71	9.1	4.5	0.0	0.0	6.8	15.9	20.5	4.5	2.3	81.8	81.8	18.2
	X ²	7.437	9.191	9.239	3.086	23.604	1.763	5.610	1.548	5.818	9.550	9.550	
	p	0.059	0.163	0.026	0.379	<0.001	0.623	0.132	0.956	0.444	0.023	0.023	
Gender	Male	20.0	10.7	5.3	2.7	21.3	21.3	34.7	4.0	2.7	65.3	65.3	34.7
	Female	20.1	14.4	2.2	2.2	26.6	20.9	30.9	5.0	9.4	64.0	64.0	36.0
	X ²	0.001	1.166	1.552	0.055	0.730	0.006	0.310	1.434	4.544	0.036	0.036	
	p	0.980	0.558	0.213	0.814	0.393	0.936	0.577	0.488	0.103	0.849	0.849	
Ethnicity	White	18.2	13.2	1.7	1.700	21.5	20.7	30.6	5.8	5.8	67.8	67.8	32.2
	Other	34.4	15.6	3.1	6.300	34.4	31.3	46.9	6.3	6.3	50.0	50.0	50.0
	Not disclosed	16.4	11.5	6.6	1.600	26.2	16.4	27.9	1.6	9.8	65.6	65.6	34.4
	X ²	4.861	1.099	3.086	2.526	2.354	2.812	3.824	2.294	1.599	3.533	3.533	
	p	0.088	0.894	0.214	0.283	0.308	0.245	0.148	0.682	0.809	0.171	0.171	
Deprivation tertile[§]	High	18.6	24.3	2.9	2.9	27.1	30.0	41.4	7.1	8.6	55.7	55.7	44.3
	Medium	25.7	10	5.7	1.4	28.6	18.6	35.7	4.3	7.1	62.9	62.9	37.1
	Low	15.1	5.5	1.4	2.7	19.2	15.1	19.2	2.7	4.1	75.3	75.3	24.7
	X ²	2.645	13.963	2.182	0.386	1.972	5.190	8.829	3.430	3.054	6.205	6.205	
	p	0.266	0.007	0.336	0.824	0.373	0.075	0.012	0.489	0.549	0.045	0.045	

ACE = Adverse Childhood Experience; [§]Deprivation tertile calculated on the basis of Townsend score – High=most deprived/Low=least deprived

Table A2. Bivariate association between ACEs, demographic factors and lifestyle and health variables

		Lifestyle Factors		Long term health conditions					Service utilisation		
		Unhealthy BMI	Current smoker	CVD	Diabetes	Asthma	Mental Health	Multiple LTC**	Frequent attender^	High demand^	High med use (≥45)^^^
Prevalence	%	70.6	17.3	13.6	22.9	15.4	25.7	30.8	54.2	14.0	26.2
ACE Count	0-1	76.4	14.2	13.8	22.5	11.6	16.7	28.3	55.9	13.2	25.4
	≥2	85.7	25.0	13.2	23.7	22.4	42.1	35.5	54.8	16.4	27.6
	X ²	2.250	3.722	0.016	0.041	4.362	16.609	1.213	0.023	0.396	0.131
	p	0.134	0.054	0.901	0.839	0.037	<0.001	0.271	0.880	0.529	0.718
Deprivation tertile[§]	High	89.6	29.0	10.0	24.3	14.3	32.9	30.0	64.3	20.0	30.0
	Medium	79.7	17.6	15.7	28.6	18.6	25.7	34.3	52.2	8.7	32.9
	Low	68.3	7.4	15.1	16.4	12.3	17.8	27.4	50.7	14.5	16.4
	X ²	8.998	10.847	1.171	3.067	1.135	4.283	0.813	3.132	3.598	5.711
	p	0.011	0.004	0.557	0.216	0.567	0.117	0.666	0.209	0.165	0.058
Age category (years)	18-30	45.8	8.6	0.0	0.0	17.5	22.5	5.0	36.1	0.0	0.0
	31-50	82.7	28.3	3.7	20.4	24.1	44.4	25.9	50.0	14.8	22.2
	51-70	91.8	19.7	10.5	21.1	13.2	19.7	28.9	56.6	9.2	26.3
	≥71	73.2	9.5	43.2	50.0	6.8	15.9	63.6	76.7	34.9	54.5
	X ²	24.756	8.132	44.309	30.529	6.028	13.774	35.449	14.035	22.420	32.952
	p	<0.001	0.043	<0.001	<0.001	0.110	0.003	<0.001	0.003	<0.001	<0.001
Gender	Male	85.1	21.1	20.0	32.0	16.0	22.7	34.7	52.1	9.6	28.0
	Female	76.4	16.3	10.1	18.0	15.1	27.3	28.8	57.4	16.9	25.2
	X ²	1.990	0.737	4.099	5.419	0.030	0.557	0.792	0.540	2.072	0.201
	p	0.158	0.391	0.043	0.020	0.863	0.456	0.373	0.462	0.150	0.654
Ethnicity	White	80.7	17.6	14.0	28.1	23.1	24.0	40.5	58.8	18.5	32.2
	Other	80.0	20.0	18.8	15.6	9.4	25.0	18.8	58.6	13.8	25.0
	X ²	0.432	0.099	1.483	4.275	13.321	0.662	12.173	2.211	4.677	6.438
	p	0.806	0.952	0.476	0.118	0.001	0.718	0.002	0.331	0.096	0.040

[§]Deprivation tertile calculated on the basis of Townsend score – High=most deprived/Low=least deprived; *Unhealthy Body Mass Index (BMI) = ≤18 or ≥25; **Multiple long term conditions = ≥2 QOF registers; ^6 months; ^^12 months

Table A3. Logistic regression analyses of association between ACEs and adult health problems (adjusted for demographics)

		Mental health problems				Asthma				Multiple Long Term Conditions (MLTC)			
		AOR	Low CI	High CI	p	AOR	Low CI	High CI	p	AOR	Low CI	High CI	p
ACEs	0 or 1	(ref)				(ref)				(ref)			
	≥2	3.65	1.80	7.41	<0.001	2.43	1.04	5.71	0.041	2.76	1.27	6.01	0.010
Age category (years)	18-30	(ref)			0.006	(ref)			0.150	(ref)			<0.001
	31-50	4.05	1.41	11.67	0.009	1.50	0.45	4.99	0.513	12.27	1.47	102.37	0.021
	51-70	1.10	0.39	3.14	0.857	0.67	0.20	2.29	0.524	15.23	1.88	123.51	0.011
	≥71	1.21	0.36	4.02	0.758	0.34	0.07	1.60	0.172	99.57	11.59	855.46	<0.001
Gender	Male	(ref)				(ref)				(ref)			
	Female	1.18	0.58	2.41	0.657	0.81	0.35	1.89	0.631	0.83	0.41	1.67	0.594
Ethnicity	White	(ref)			0.643	(ref)				(ref)			
	Other	1.15	0.42	3.15	0.792	0.31	0.08	1.19	0.087	0.29	0.09	0.88	0.029
Deprivation		1.05	0.93	1.20	0.434	0.97	0.83	1.14	0.727	1.00	0.87	1.14	0.988



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