

Health visitor enquiry about caregivers' adverse childhood experiences (ACEs):

Key learning from a pilot evaluation

Authors: Katie Hardcastle and Mark A. Bellis



In April 2019, Welsh Government commissioned a trainer-facilitator to work with colleagues in Aneurin Bevan University Health Board, Hywel Dda University Health Board and Swansea Bay University Health Board to design and deliver an approach to asking about adverse childhood experiences (ACEs) within routine health visiting contacts (known as ‘ACE enquiry’). Public Health Wales were commissioned to evaluate this mid-scale pilot programme. Implementation of ACE enquiry began in May 2019 and follow up data collection with participating families was scheduled until May 2020. However, at the end of March 2020, face-to-face contacts with health visitors were suspended across Wales due to the Coronavirus pandemic. Therefore, evaluation data were not collected from caregivers in April or May 2020.

This document summarises learning from the pilot programme by exploring both the practitioner and the service user perspective and considering the potential impacts of ACE enquiry on families’ health and wellbeing. It is hoped that this report will provide valuable reflection on the feasibility, acceptability and potential impact of ACE enquiry in a health visiting context and will be used to inform the future development of such models in Wales, as well as contribute to a growing international literature on ACE enquiry. The report may be of interest to those with responsibilities for the commissioning, design or delivery of health visiting and other early years support, or anyone with a more general interest in the response to ACEs and the prevention of intergenerational harms to health and wellbeing they can cause.

Acknowledgements

The authors would like to extend their sincere thanks to the managers and administrative staff in each pilot area who facilitated quantitative data collection and supported the organisation of practitioner focus groups, and to Andrew Bennett for supporting practitioner data collection following training. They would also like to thank Caspar Wynne (Bangor University), Kate Isherwood, Katie Creswell and Natasha Judd (Public Health Wales) for their support with data entry and cleaning, Dr Kat Ford (Bangor University) for providing valued peer review for the evaluation report, and Julie Sloan (Public Health Wales) for supporting report production.

Contact details

WHO Collaborating Centre on Investment for Health and Well-being
Public Health Wales
Clwydian House
Wrexham Technology Park
Wrexham LL13 7YP
Email: enquiries@wales.nhs.uk

ISBN - 978-1-78986-154-315

© 2021 Public Health Wales NHS Trust.

Material contained in this document may be reproduced under the terms of the Open Government Licence (OGL) www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ provided it is done so accurately and is not used in a misleading context. Acknowledgement to Public Health Wales NHS Trust to be stated. Copyright in the typographical arrangement, design and layout belongs to Public Health Wales NHS Trust.

Executive Summary

Background

Adverse childhood experiences (ACEs) - which include being the victim of abuse or neglect or being exposed to harmful factors in the household environment - in the absence of suitable resilience or protective factors, can have a profound impact on child development and lasting effects on health and wellbeing throughout the life course. Evidence demonstrates the potential for negative experiences such as ACEs to be passed on from one generation to the next, with a history of childhood adversity convening particular challenges for mental health, attachment and parenting. Health services that engage with families in the early years are uniquely placed, not only to support adults who may have experienced childhood adversity, but also to intervene early and prevent their children from similar exposures. Asking service users about their experiences of ACEs during routine contacts and/or as part of history taking (known as 'ACE enquiry') is one approach to ACE-informed care that is gaining momentum, both in the UK and internationally. However, to date there have been very few evaluations that consider the delivery and impacts or outcomes of ACE enquiry in health settings, and calls for more empirical research are paramount.

This report explores key findings from the evaluation of a pilot ACE enquiry intervention delivered with parents/caregivers during routine contacts with health visiting services across Swansea, Carmarthenshire and Blaenau Gwent. The pilot was delivered between April 2019 and April 2020 and engaged over 900 mothers and 243 fathers (along with a comparison cohort of 676 caregivers) in a supportive discussion about childhood adversity and its potential impact on individuals' health and wellbeing, as well as that of their children. Using both quantitative and qualitative data, this report considers the feasibility and acceptability of ACE enquiry within routine health visiting contacts, from both the practitioner and service user perspective, and examines the impact of the implemented enquiry model on practitioner awareness and skills, the service user-practitioner relationship, and the health and wellbeing of families.

Implementation and evaluation methods

The pilot intervention was conceived and commissioned by Welsh Government, who appointed a trainer-facilitator to work with service managers to design and deliver a model of universal ACE enquiry that was offered to parents/caregivers at their six week post-partum routine contact. Following training with 130 health visitors (HVs) and staffⁱ, a total of 1159 ACE enquiries were completed; representing an overall uptake rate of 89.2% of eligible available caregivers.

Public Health Wales were commissioned to provide an independent evaluation of the pilot programme. A range of quantitative and qualitative data collection methods were used to assess the feasibility, acceptability and impact of ACE enquiry for HVs and service users. Anonymised data from the Healthy Child Wales Programme (HCWP) was provided by health visiting services and caregivers self-reported their exposure to ACEs, as well as health, wellbeing, parental stress, resilience and community involvement outcomes. Caregivers were also invited to complete a short service user feedback questionnaire on their experiences of ACE enquiry. HVs provided data on their knowledge of ACEs and confidence working within an ACEs framework. In addition to a short feedback questionnaire that was completed following implementation, a series of focus groups were conducted across each area to explore practitioners' views in more detail.

ⁱ Training was attended by a wider range of colleagues within the services, including some team leaders, service managers and safeguarding nurse specialists.

Key findings

Implementation of ACE enquiry

- Across all three sites, the offer of ACE enquiry was very well received, with **9 out of every 10 caregivers agreeing to participate** in the pilot. As few as 140 caregivers declined participation and there were a further 60 occasions when HVs felt it was not appropriate to offer ACE enquiry (e.g. due to concerns about privacy in the home or the need to focus on acute health issues at that six week contact).
- Six-month health and wellbeing data were provided by 448 caregivers. However, follow up data collection was negatively impacted by the Covid-19 pandemic and six-month outcomes were unknown for many service users. From data provided by the health visiting services, it appears that those lost to follow up were more likely to be male and in receipt of Flying Start services.
- Over **40%** of caregivers with any ACEs said the ACE enquiry pilot was the **first time they had told a professional or service about these experiences**, with first disclosure most common among male caregivers (55.1% of males).



ACEs and their relationship with parental health and wellbeing

- Over half of caregivers reported having experienced at least one ACE, with just **over a quarter (27.7%) reporting multiple (≥2) ACEs**. The highest category of ACE exposure (≥4 ACEs) was reported by 11.8% of caregivers, with ACEs most prevalent among younger parents and those identifying as white British. Parental separation was the most commonly experienced ACE.
- A history of ACEs was strongly associated with current level of health visiting provisions (see Box 3; section 4.4). Intensive health visiting support was provided to 18% of those with the highest level of ACE exposure. When compared with those with no ACE exposure, **caregivers with high ACE exposure were twice as likely to be in receipt of intensive health visiting services**. FRAIT scores across all subscales (see Box 4; section 4.4.1) also showed a significant relationship with level of ACE exposure, representing lower family resilience with higher ACE exposure for all variables except family support.
- At six months post-partum, a significant relationship was found between prior exposure to childhood adversity and current self-rated health. Compared to those with no ACEs, **caregivers with ≥4 ACEs were over five and a half times more likely to describe low physical health, and two and a half times more likely to describe low mental health**. A similar relationship was found with smoking behaviour, with **the odds of smoking increasing almost four-fold among those with high ACE exposure**.
- The experience of any (i.e. at least one) form of measured parental stress was reported by just under a third (32.0%) of caregivers. Positive feelings about parenting and experiences of parental stress did not differ significantly by history of ACEs. However, **less than two thirds (63.8%) of caregivers with high ACE exposure reported that they and their children get involved with the local community**, even though they acknowledged the importance of socialising with other families.

The impact of ACE enquiry (ACE vs. Comparison cohort)

- At six months post-partum, **caregivers who did not receive ACE enquiry were 1.7 times more likely than those who did to report experiencing parental stress**. Conversely, receiving ACE enquiry was associated with significantly greater caregiver knowledge about sources of community help and support.
- Whilst there were no differences in health outcomes for female caregivers in either cohort, **male caregivers who received ACE enquiry were significantly less likely to report low physical or mental health** (at six months post-partum), when compared with those who had not taken part in ACE enquiry.
- Female caregivers receiving ACE enquiry were significantly **less likely** than their comparison cohort counterparts to report **feeling overwhelmed** and/or that caring for their children took more time and energy than they had to give.

The service user experience

- Feedback from caregivers was overwhelmingly positive, with **95% deeming ACE enquiry acceptable** in a health visiting context and viewing HVs' responses to ACE disclosure as **appropriate and sensitive**.
- As many as **4 in every 5 caregivers that provided feedback agreed that their HV got to know them better by asking about their childhood experiences** and 85% suggested the intervention had made them more likely to discuss other issues with their HV in future. Just under three quarters of caregivers reported that the **help and support they received was improved** as a result of the HV understanding their childhood better.
- No significant differences were found in positive service user feedback by either level of ACE exposure or first disclosure (among those with ACEs), although **female caregivers generally held more positive views** than their male counterparts.





The practitioner experience

- After training and experience delivering ACE enquiry, **three quarters of practitioners were highly confident in their understanding of what ACEs are and how they can impact brain development**, with over 85% highly confident in their understanding of the health and wellbeing impacts of ACEs. Whilst only a third of practitioners were highly confident in their ability to respond appropriately if ACEs were identified, this was **almost three times the proportion of HVs that were highly confident before training**.
- Over **95% of HVs felt it was important for them to understand what has happened in a service user's childhood**, but around **half felt they did not have enough time to talk to service users about their ACEs** in any detail.
- **Two thirds of HVs agreed that they were able to provide better support** as a result of having an increased understanding about caregivers' childhoods.
- The proportion of HVs who felt that ACE enquiry allowed them to understand service users better **differed significantly by length of service**; with 100% of practitioners who had worked in health visiting for less than two years agreeing/strongly agreeing, compared with only half of those with more than 15 years' service.
- In focus groups, HVs emphasised the **relevance of ACE enquiry for the health visiting role** and the importance of understanding about childhood history when supporting caregivers. Whilst many HVs valued a structured process or model to directly enquire, others supported a more organic or conversational approach. HVs agreed on the need to extend the conversation to **include discussion of resilience and protective factors** but some concerns were raised about the **timing of ACE enquiry** and the potential **availability of specialist support**, should more complex needs be identified.
- HVs suggested **improvements to training**, which included making the aims of ACE enquiry clearer, and recognising the complexities of working with families with multiple needs.

Conclusions and suggested actions

- Available quantitative data indicates a very positive response to ACE enquiry from the vast majority of caregivers sampled. Caregivers appear to value being asked about their experiences, with a sense that they may receive better help and support as a result.
- During focus groups, HVs suggested training should be improved to: provide more time on introducing and explaining data collection tools and processes; offer additional training on how to ask about childhood adversity and how to respond when caregivers disclose ACEs; and provide more information on the suitability and application of ACE enquiry methods when working with families from different cultures.
- Further work should be undertaken to: (a) capture service user voice and more fully understand caregivers' experiences of ACE enquiry and the potential therapeutic benefit of this current model; and (b) understand how the findings from this study, and in particular positive outcomes identified, might be used to address HVs' concerns over any issues that they perceive.
- Asking about ACEs may be a means to support the caregiver-HV relationship and provide service users with the opportunity to disclose and discuss their childhood adversity, including for the first time. To develop and scale this model, further consideration should be given to the range of ACEs addressed, accessibility of the language used and inclusion of caregivers from different cultural backgrounds or for whom English/Welsh is not their first language.
- Findings provide support for high quality training in ACE awareness, with HVs in this sample reporting considerable increases in skills and confidence. Post-training acceptability of ACE enquiry may be improved through a more flexible approach based on the strength of the HV's relationship with the family, and their assessment of the family's needs. Further work should revisit the issue of timing of ACE enquiry to fit with the range of challenges faced during the first few months post-partum.
- Successfully building confidence and engaging HVs in the ACE agenda would benefit from the use of findings from studies such as this one to improve understanding that ACE enquiry does not generally result in complex needs being expressed by caregivers, and that on those rare occasions when it does, specialist services to support adults will be available.

Contents

Executive Summary	1
1. Introduction	7
2. The intervention	10
2.1 Roles and responsibilities	10
2.2 Engagement and pilot area selection.....	10
2.3 Training.....	10
2.4 The ACE enquiry model	11
3. Evaluation methods	12
3.1 Data from service users	12
3.2 Data from practitioners	13
4. Findings	14
4.1 Implementation of ACE enquiry	14
4.2 Sample characteristics	17
4.3 Prevalence of ACEs	17
4.3.1 First disclosure.....	19
4.4 Service provision.....	19
4.4.1 Family resilience.....	20
4.5 Parental health and wellbeing.....	21
4.5.1 Support from family and friends	22
4.5.2 Community engagement.....	22
4.6 Exploring the potential impact of ACE enquiry.....	23
4.6.1 Analysis of impacts, by caregiver gender	23
4.7 Service user feedback.....	25
4.8 Practitioner data	27
4.8.1 Sample characteristics.....	27
4.8.2 Changes in practitioner knowledge and confidence.....	27
4.8.3 Practitioner feedback.....	29
4.9 Limitations	32
5. Summary	34
6. References	38
Appendix 1 – Evaluation methodology	39
Appendix 2 – Training information	45
Appendix 3 – Data tables	46

1. Introduction

Experiences early in life can have a profound and often lasting impact on health and wellbeing throughout childhood, adolescence and into adulthood.¹⁻³ When caregivers build positive attachments and provide safe, stable and nurturing environments, children are able to develop the physical, cognitive, emotional and social skills needed to thrive. However, for children that are exposed to abuse, neglect, adverse or traumatic experiences, development can take a very different path - one characterised by toxic stress, as the body and the brain learn to cope with constant threat.⁴ Research shows the impact of this chronic or toxic stress on important regulatory systems, including the immune system.⁵ Children exposed to adverse childhood experiences (ACEs) or other adversities, in the absence of resilience or protective factors, are more likely to experience poor physical and mental health in adulthood (see Box 1).



Box 1. Defining ACEs and understanding their health and wellbeing impacts

ACEs is a collective term used to refer to forms of maltreatment that directly impact the child, or negative experiences that occur in the household environment in which they grow up. A national Welsh survey found that over half of adults had experienced at least one ACE whilst growing up, with as many as one in ten experiencing four or more ACEs.⁶ Table 1 summarises prevalence by each ACE. Research in Wales has found that adults who were exposed to a high number of ACEs are just under five times more likely to have low mental wellbeing;⁷ twice as likely to be diagnosed with chronic diseases like heart disease or cancer;⁸ and up to 15 times more likely to later become a victim or a perpetrator of violence.⁹

Table 1. The percentage of adults in Wales (aged 18-69 years) exposed to each ACE⁶

	ACE Type	Prevalence
Child maltreatment	Verbal abuse	20%
	Physical abuse	16%
	Sexual abuse	7%
	Emotional neglect	7%
	Physical neglect	4%
Childhood household included	Parental separation	25%
	Domestic violence	17%
	Mental illness	18%
	Alcohol abuse	13%
	Drug abuse	6%
	Incarceration	4%

Evidence demonstrates the potential for negative experiences such as ACEs to be passed on from one generation to the next.¹⁰⁻¹¹ Adults who were exposed to ACEs in childhood may find it more difficult to build positive attachments with their children.¹² For example, mothers with ACEs are more likely to experience both antenatal and postnatal depression.¹³⁻¹⁴ Poor maternal mental health has been associated with negative outcomes for the child, from aggression and hyperactivity in early childhood,¹⁵ to poor academic performance in adolescence.¹⁶

Importantly, not all children that experience ACEs or other adversities suffer such negative consequences. Some children are able to access resources that help to build resilience – the ability to ‘bounce back’ and maintain a healthy, positive psychological state when dealing with life’s challenges.¹⁷ Accessing the consistent support of a trusted adult, having a strong sense of self-efficacy, and engaging in sports or cultural practices are all factors that have been shown to help to build resilience.^{6,18} Building resilience in children and adults is one key public health approach used to tackle ACEs and mitigate their impacts. A national survey in Wales revealed that adults who reported having more resilience resources in childhood were less likely to experience poor mental health in later life, regardless of the number of ACEs they experienced.⁶

Health services that engage with families in the early years are uniquely placed, not only to support adults who may have experienced childhood adversity, but also to intervene early and prevent their children from similar exposures. Asking adults directly about their previous childhood experiences (also known as ‘ACE enquiry’) is suggested as a means of offering more ACE-informed approaches to care,¹⁹ although it is often unclear if and how such approaches are distinguished from more formalised screening.²⁰ As a universal approach (i.e. one that asks everyone, irrespective of perceived risk), ACE enquiry aims to tackle the stigma that persists around talking about abuse, and build more open and trusting service user-practitioner relationships that facilitate person-centred and holistic care.²¹⁻²² Although the idea of ACE enquiry is gaining momentum,²³ there remain very few studies exploring the feasibility or impacts of different models²⁴ and some concerns persist about the potential for upsetting service users or creating demand for already overburdened support services.²⁵⁻²⁶ Nevertheless, an initial small-scale pilot with health visitors (HVs) in Anglesey, North Wales (see Box 2) found that ACE enquiry was acceptable to both female caregivers and health practitioners. ACE enquiry was perceived to build trust for mothers and provide HVs with novel information that allowed them to offer more tailored support to families.²⁷ Similar pilots in the US have reported positive reflections from practitioners²⁸ and service users.²⁹ Experts continue to call for more qualitative and quantitative evidence to inform the debate about the value and application of ACE enquiry.³⁰



Box 2. Pilot implementation of ACE enquiry by the health visiting service in Anglesey (Betsi Cadwaldr University Health Board [BCUHB])

In the first known initiative of its kind in the UK, ACE enquiry was delivered by HVs in a small-scale pilot across the island of Anglesey between October 2017 and April 2018. This pilot was commissioned by Cyngor Sir Ynys Môn Isle of Anglesey County Council, who appointed an independent consultant facilitator to provide training and support. All HVs within generic and Flying Start teams (N=14) received training on the purpose, rationale and delivery of ACE enquiry and were provided with materials and resources to support implementation. The facilitator and team leads from BCUHB worked collaboratively to design a model of ACE enquiry that was suitable for use during routine contacts with families. ACE enquiry was implemented with English or Welsh-speaking mothers, during either their six-week or six-month routine contact (see evaluation report for full details of design and delivery).²⁷

Following positive initial findings from the ACE enquiry pilot in Anglesey, Welsh Government (WG) wished to continue examining the feasibility and acceptability of ACE enquiry within a health visiting setting with a more diverse sample of families and on a larger scale. Public Health Wales (PHW) were commissioned to provide an independent evaluation of this scaled up pilot programme, designed to meet the following objectives.

Evaluation objectives:

1. To explore the feasibility and acceptability of retrospective enquiry for parents'/caregivers' ACEs within routine health visiting contacts, from both the practitioner and service user perspective.
2. To examine the potential impact(s) of ACE enquiry on:
 - a. Practitioner awareness and confidence in asking about ACEs and responding to disclosures;
 - b. The relationship between service users and health practitioners;
 - c. Health, wellbeing and service use outcomes for caregivers and families in the short- to medium-term.

2. The intervention

2.1 Roles and responsibilities

The ACE enquiry pilot was conceived and commissioned by the Children and Families Division of WG. WG appointed a trainer-facilitator (TF) to support in the design and delivery of the model of ACE enquiry by working alongside service managers from generic health visiting and Flying Start teams in the pilot areas. The TF provided training, materials and ongoing support to practitioners (see section 2.3). This built on an earlier model piloted in Anglesey, North Wales by Cyngor Sir Ynys Môn Isle of Anglesey County Council and BCUHB (see Box 2).²⁷ PHW were commissioned by WG to provide an independent evaluation of the pilot programme and were not responsible for the design of the approach to ACE enquiry or its delivery.

Service managers in each of the pilot areas were responsible for obtaining the approval of their respective Research and Development offices for the implementation of ACE enquiry and the sharing of pseudo-anonymised data with PHW for the purposes of evaluation (see Appendix 1 for more details). The evaluation framework and methodology designed by PHW was approved by PHW Research Governance Committee as a service evaluation, in accordance with the requirements outlined by the Health Research Authority. The committee determined that the evaluation raised no additional ethical issues.

2.2 Engagement and pilot area selection

The brief for WG was to develop and test a model of ACE enquiry in: (a) a predominantly rural area; (b) a predominantly urban area; and (c) a mixed rural and urban area. They therefore approached three health boards and local authorities to assess their interest in being part of the extended routine ACE enquiry pilot, all of whom gave their agreement to participate:

- Carmarthenshire County Council and Hywel Dda University Health Board;
- Blaenau Gwent County Borough Council and Aneurin Bevan University Health Board;
- Swansea City and County Council and Swansea Bay University Health Board.

Pilot areas were invited to an initial inception and planning meeting in January 2019 and were subsequently involved in monthly update meetings with WG as the pilot progressed. WG also held regular project meetings with PHW and the TF. Once ACE enquiry implementation was underway in all sites, a series of feedback meetings were held in September and December 2019 and January 2020 to identify any emerging issues and address any queries from staff and managers. These meetings provided an opportunity to consider any new training needs (i.e. for new staff) and for the evaluation lead from PHW to provide feedback and guidance on issues with data collection (e.g. missing data/data quality).

2.3 Training

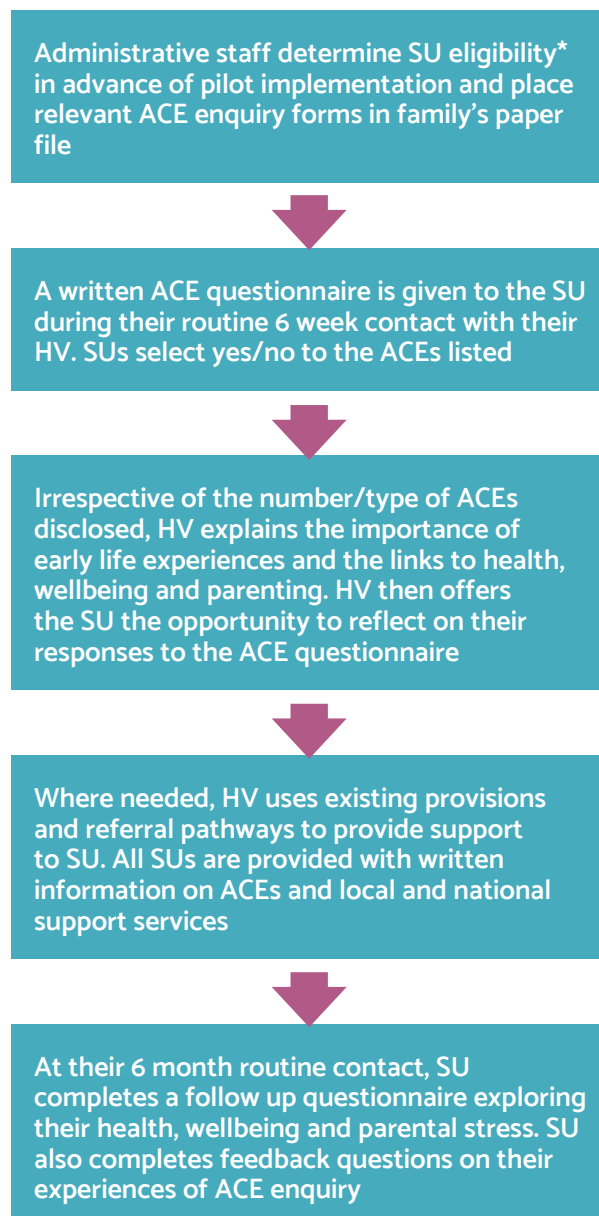
Training was provided to all HVs, team leaders and, where available, service managers by the commissioned TF. Training aimed to support HVs in becoming competent and confident to deliver ACE enquiry and included content on both the nature, extent and impacts of ACEs, and the rationale and approach for enquiry. More details on the training, as described by the TF, can be found in Appendix 2. To accompany training, HVs were provided with: a step-by-step guide and timeline for the pilot implementation; a prompt card for enquiry; a list of local and national support services; and a service user leaflet on ACEs and their prevention.

2.4 The ACE enquiry model

Figure 1 outlines the model of ACE enquiry developed by practitioners and managers in the pilot areas in collaboration with the TF. All areas chose to extend the ACE enquiry process to include any adult present within the home that HVs determined to have important caregiving responsibilities for the child. Following the recommendations from the Anglesey pilot that more flexibility in the timing of delivery may facilitate engagement,²⁷ the six week routine contact with families was outlined as the primary opportunity for ACE enquiry. However, HVs were also encouraged to use their professional judgement as to the most appropriate time to deliver ACE enquiry within a larger window between the birth visit (occurring in the first 14 days) and eight weeks post-partum, if required.ⁱⁱ All sites agreed that no service user would be automatically ineligible on the basis of language. Alternatively, HVs would use their professional judgement as to the suitability of delivering the ACE enquiry process with available telephone or face-to-face translation services on an ad-hoc basis. A leaflet introducing the concept of ACEs was provided to families either during the birth visitⁱⁱ or immediately prior to ACE enquiry.

All sites agreed to deliver ACE enquiry for an initial period of six months. Taking account of the birth rates in each areaⁱⁱⁱ and estimating an uptake rate of approximately 75%, a total target of 1,970 completed ACE enquiries (Swansea = 940; Carmarthenshire = 750; Blaenau Gwent = 280) and 1000 completed comparison questionnaires (see section 3; Figure 2) was agreed between all partners on the basis of providing an adequate sample for multivariate statistical analyses.

Figure 1. Service user (SU) pathway for ACE enquiry



*All SUs aged 16+ years considered cognitively able to participate and able to complete the ACE questionnaire in Welsh, English or with the assistance of available translation services. SUs could include biological, adoptive or foster parents, other individuals present and with considerable caregiving responsibilities (e.g. grandparents, adult siblings).

- ii In the Healthy Child Wales Programme, a routine home birth contact is offered by the HV to all parents/carers between 10 to 14 days following the birth of their baby. Further contacts will be offered before the baby is six weeks old if needed. At six weeks, the HV visits and conducts a physical examination of the baby. HV contact continues at 8, 12 and 16 weeks for growth assessment and to review the child's developmental progress. A further home visit is offered at six months to support weaning and baby safety advice, as well as to evaluate parenting capacity.
- iii Estimates for the total number of births per annum for each area provided by service managers at project outset were as follows: Swansea=2,500; Carmarthenshire=2,000; Blaenau Gwent=750. Figures were halved to provide six month estimates.

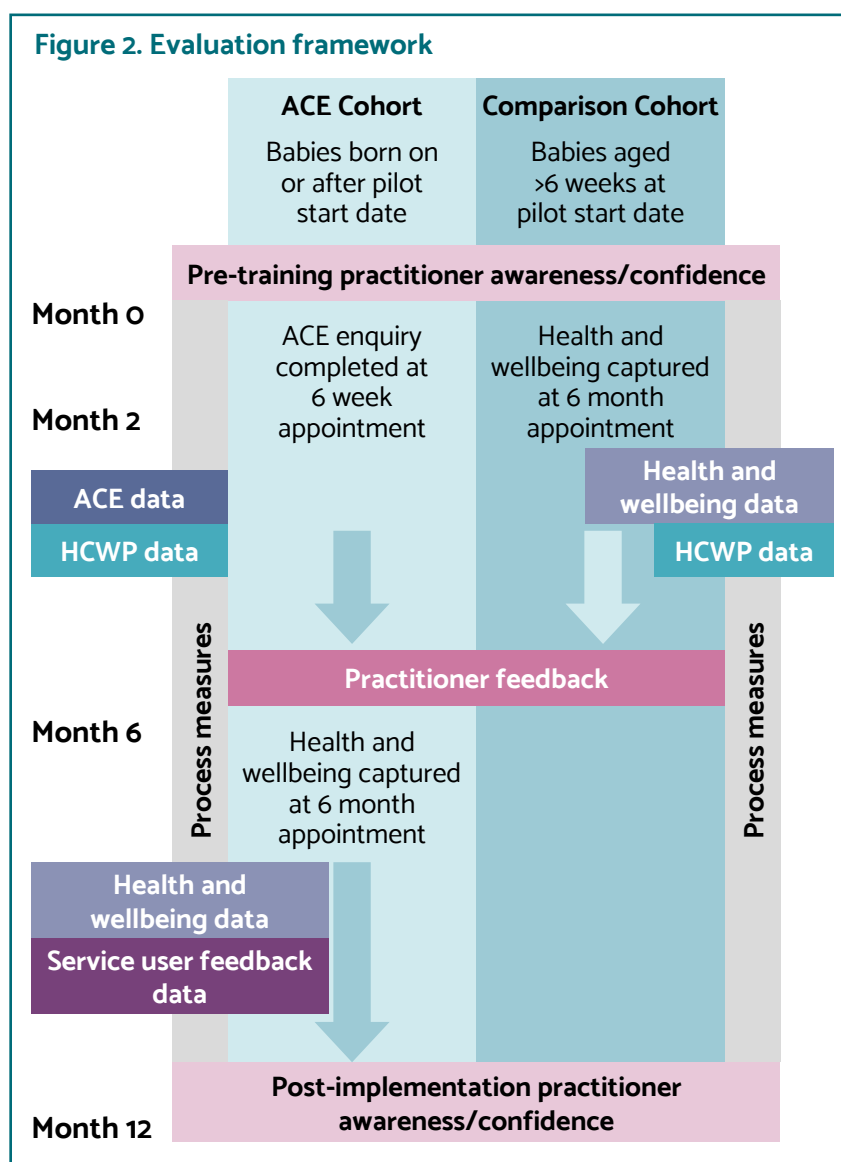
3. Evaluation methods

For full methodology, please see Appendix 1.

The evaluation framework designed by PHW is summarised in Figure 2. A range of quantitative and qualitative data collection methods were used to assess the feasibility, acceptability and impact of ACE enquiry for HVs and service users. The evaluation framework supported the generation of a natural comparison group, consisting of families who had already received their six week routine post-partum contact prior to pilot implementation. More information about the evaluation framework and the generation of both an ACE cohort and a comparison cohort, can be found in Appendix 1.

3.1 Data from service users

Caregivers were invited to complete ACE questionnaires during their six week routine contact with HVs. These data were recorded alongside other information collected as part of the Healthy Child Wales Programme (HCWP; e.g. demographics; smoking status; feeding method). At six months post-partum, caregivers were asked to complete a follow up questionnaire containing items on their health, wellbeing, parental stress, resilience and community involvement. Caregivers also completed a short feedback questionnaire on their experiences of ACE enquiry. All data were anonymised and shared with PHW for the purposes of the evaluation.





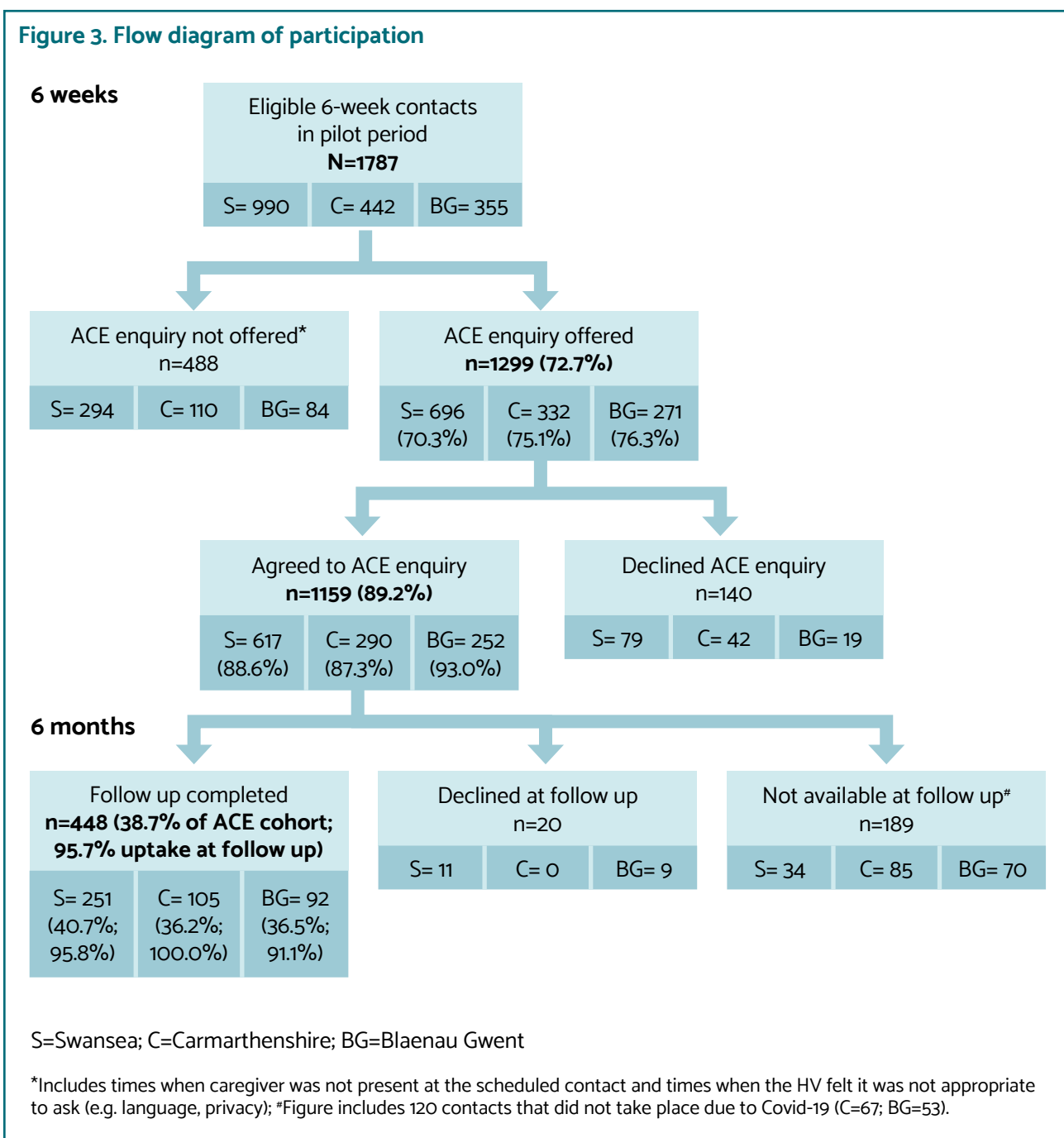
3.2 Data from practitioners

HVs provided data on their knowledge of ACEs and confidence working with an ACEs framework in practice immediately prior to receiving training, and again after implementation of the ACE enquiry pilot. A short feedback questionnaire was also provided to allow practitioners to share their experiences of ACE enquiry. Practitioners' views were explored in more detail during focus groups/feedback sessions (n=10) that took place in each area at the end of the pilot. Throughout section 4 (*Findings*), key findings from these practitioner feedback sessions are presented in pink boxes alongside the relevant sections of quantitative data analysis. This does not provide a full thematic analysis of practitioner feedback, but is intended to highlight key areas of consensus, or where expressed views appear to diverge from quantitative findings.

4. Findings

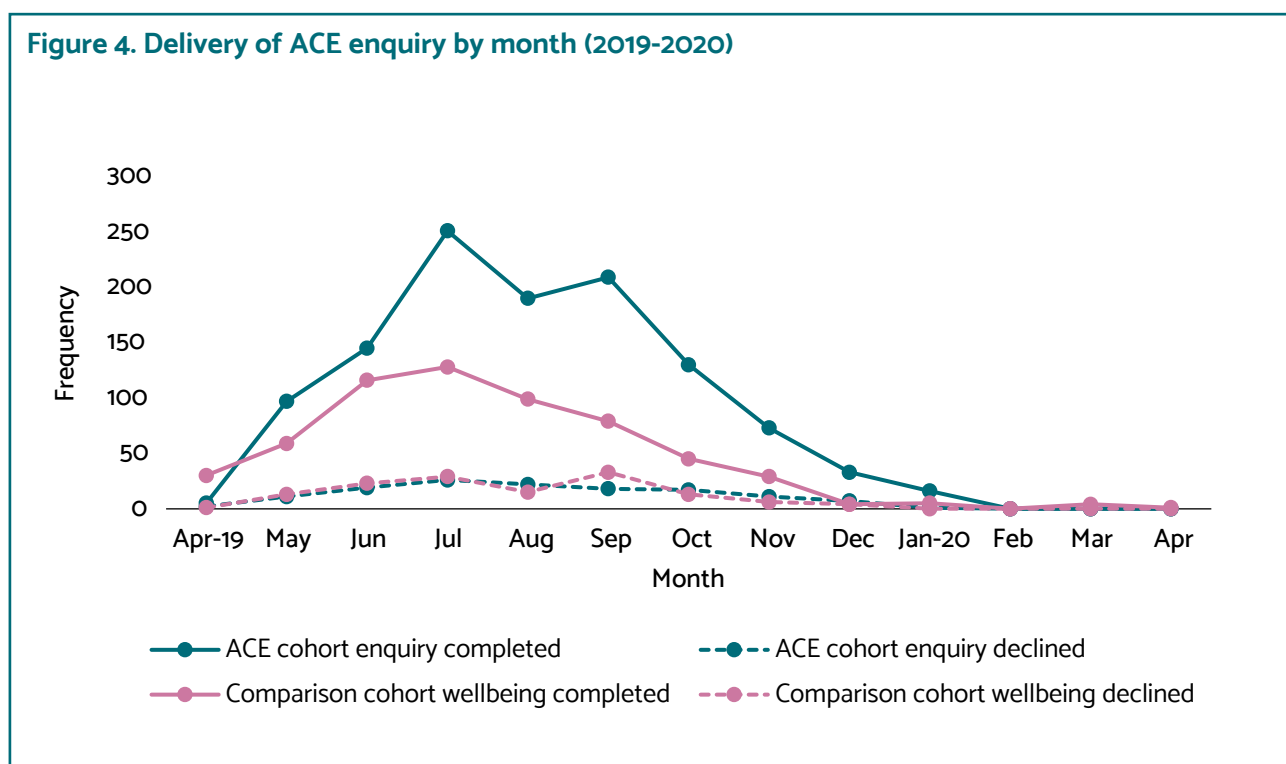
4.1 Implementation of ACE enquiry

Across all three pilot areas, ACE enquiry was delivered with a total of 1159 caregivers, representing an uptake rate of 89.2% (of those eligible and invited to participate by their HV). Of those who were invited to complete an ACE questionnaire, a total of 140 caregivers declined to do so or to engage with HVs in a discussion about their experiences of childhood adversity. Figure 3 provides an overview of participation in the pilot, with figures also broken down by area.



During the rolling six months implementation, there were 60 occasions when HVs felt it was not appropriate to offer ACE enquiry to caregivers.^{iv} When compared with those who were offered ACE enquiry, caregivers who were present at the six week contact but not offered ACE enquiry by their HV were significantly more likely to be single ($X^2=7.982$, $p=0.046$), of non-white British ethnicity ($X^2=27.184$, $p<0.001$), and in receipt of Flying Start services ($X^2=7.234$, $p=0.007$).

Overall delivery of ACE enquiry by month is shown in Figure 4. The comparison cohort consisted of 676 caregivers who completed wellbeing questionnaires at six months post-partum; with an uptake rate of 81.6%.



Follow up data collection was negatively impacted by the Covid-19 pandemic. Although uptake to ACE enquiry was high, a large proportion of caregivers who provided ACE information did not complete the follow up health and wellbeing survey at six months post-partum. Figure 3 shows known six month outcomes, where provided by the three services. However, outcomes are unknown for a further 502 caregivers, for whom data were not made available by the health visiting services (see limitations section 4.9). Attrition analyses indicated that participants who were lost to follow-up were more likely to be male (80.8% lost at follow up, compared with 56.2% of females; $X^2=48.782$, $p<0.001$), partnered or cohabiting (67.5% lost at follow up, compared with 55.8% of married caregivers and 60.5% of those who were single/separated/divorced or widowed; $X^2=13.431$, $p=0.004$), and in receipt of Flying Start services (66.8% lost at follow up, compared with 59.1% non-Flying Start; $X^2=5.741$, $p=0.017$).^v

iv Comparing the figures in Figure 3 with the target total sample identified in section 2.4 shows a shortfall in the total number of eligible appointments and completed ACE enquiries. Whilst data collection for the evaluation does not provide conclusive evidence to account for this difference, this may be mediated by a number of factors, including: fluctuations in birth rates; families choosing not to engage with health visiting services; HV caseloads limiting the provision of 6-week contacts; early challenges in ensuring that teams had the correct training and paperwork to deliver ACE enquiry; and/or the reliability of data recording for decliners and those not invited to participate.

v No significant differences were found in attrition by area, age, ethnicity, number of children, first child or pre-term birth.

Practitioner views on delivery

Overall, HVs described the need for flexible delivery of ACE enquiry; using their professional judgement to determine if and when it was suitable to introduce the concept of ACEs to caregivers and discuss the ACE questions with them. At times, implementation differed in Flying Start, where HVs were able to introduce ACEs at their antenatal contact with families (although often still chose not to). The model of the pilot designed by services, which instructed HVs to ask about caregivers' ACEs at the six week post-partum contact, was seen by a range of HVs as requiring more flexibility, especially as six weeks was often considered an unsuitable time to enquire (the issue of timing is explored in more detail in section 4.7). Whilst some HVs described framing the ACEs conversation with caregivers as an opportunity for them to discuss the impact of their personal experiences on attachment and parenting, others suggested the purpose was to inform service delivery, or that caregivers were being invited to take part in a research study (not the intended purpose – see section 2). On reflection, HVs felt the way that the ACE enquiry was framed had considerable implications for service user engagement and that better instructions about its delivery and purpose could be given during training (see also section 4.8 on training). The process of initially delivering ACE enquiry was described in all focus groups as a steep learning curve, although much of the difficulty was attributed to the data collection requirements of the evaluation (rather than ACE enquiry, *per se*).

“There is a time and place [to discuss childhood adversity] and as health professionals, we make that judgement as to when it is appropriate to address certain things. The ACEs pilot didn't give us that responsibility.”

Practitioner views on engagement

Practitioners' perceptions of engagement were mixed. Some felt the vast majority of caregivers were happy to complete the ACE questionnaire and discuss their childhood history – an observation supported by the implementation data (see section 4.1). However, other HVs suggested that a number of caregivers in their case-loads had declined involvement. This variation was anecdotally attributed to demographic or socioeconomic factors. Families from more deprived areas were described by some HVs as more cautious but other HVs suggested these families were the most open, and often volunteered personal information unprompted. Differences may also, in part, be attributable to the approach of individual HVs, with some reassuring caregivers that their responses to the ACE questionnaire would not be shared with other services. More research is required to identify factors relating to caregiver participation.

HVs across all three pilot areas reported being unable to discuss ACEs with caregivers for whom English or Welsh was not their first language and those with poor literacy. This lack of equity was a primary area of concern for many HVs. It was also reported that it was often hard for HVs to engage fathers in ACE enquiry as they were frequently not present in the home for the six week contact. However, on the limited occasions when they were present, most fathers were described as being very keen to get involved (something that HCWP data collection does not currently emphasise). Issues of privacy occurred in only a small proportion of homes, where extended family or older children were present and, as a result, the HV felt it was not appropriate to discuss ACEs.

“We've got quite a large ethnic minority Bengali community. If you ask someone in the Bengali families, you couldn't ask the husband to translate for you like you normally would - they wouldn't say those words to their wives.”

4.2 Sample characteristics

The demographic profile of all caregivers that took part in ACE enquiry, and all those that voluntarily provided health and wellbeing data and thus comprised the comparison cohort, is summarised in Table 2. Around one in five participating caregivers were male. Less than 1 in 10 described their ethnicity as something other than white British, as is representative of the overall ethnic diversity of Wales.³¹ Just under a third of caregivers were married, with a further 40% describing their relationship status as partnered or cohabiting. Across the whole pilot, 17 caregivers (<1%) reported they were in a same sex relationship.

Whilst there was equivalence in caregivers' gender and ethnicity across the two cohorts, the two groups differed significantly in age profiles, with a greater proportion of 26-35 year olds in the ACE cohort. Caregivers in the ACE cohort also had more children on average than their comparison cohort counterparts.

A further comparison of the demographic and relationship variables of those who completed ACE enquiry and those who declined to take part in the pilot can be found in Appendix 3 (Table A1). Caregivers from ethnic minorities and those living in Flying Start areas/receiving Flying Start services (i.e. more deprived) were significantly more likely to decline participation.

4.3 Prevalence of ACEs

Over half (53.8%) of all caregivers in the ACE cohort reported having experienced at least one ACE during their first 18 years of life. Just over a quarter (27.7%) reported experiencing multiple ACEs (i.e. two or more). The prevalence of each of the different childhood adversities that caregivers were asked to disclose during the pilot is shown in Figure 5. Parental separation was the most common experience, reported by 42.2% of caregivers.

Among this sample, ACEs were more prevalent among younger caregivers (16-25 years) and those of white British ethnicity. A history of ACEs was strongly associated with deprivation, with those in receipt

of Flying Start services reporting a higher prevalence of physical abuse, verbal abuse and witnessing domestic violence in the home, as well as living with adult caregivers who experienced mental health and substance use problems, or were incarcerated. Although overall very rare, female caregivers reported a significantly higher prevalence of sexual abuse than males (see Appendix 3; Table A2).

Figure 5. Reported prevalence of individual ACEs and ACE exposure categories

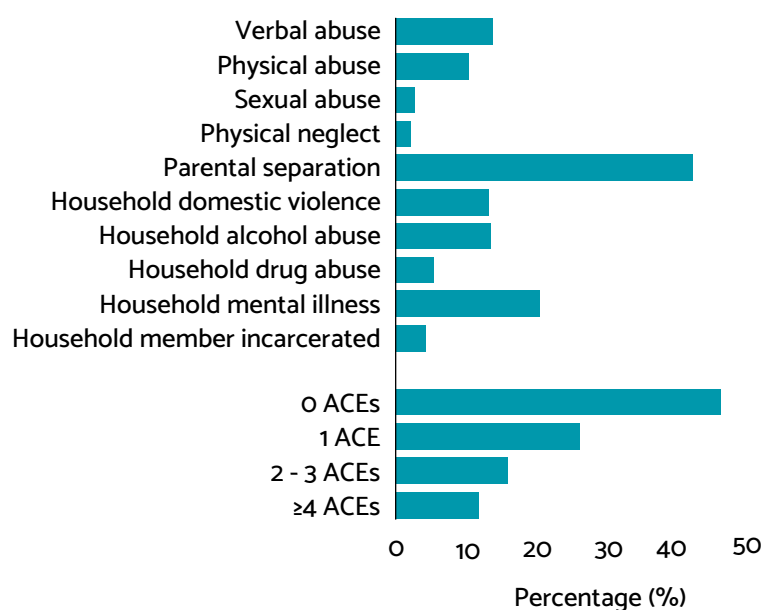


Table 2. Sample characteristics

		ACE Cohort		Comparison Cohort		χ ²	p	
		N	%	N	%			
		All	1159	-	676	-		
Demographics	Age (years)	16-25	260	22.4	176	26.0	6.591	0.037
		26-35	705	60.8	372	55.0		
		>36	158	13.6	109	16.1		
		Not disclosed	36	3.1	19	2.8		
Gender	Female	910	78.5	538	79.6	1.775	0.412	
	Male	243	21.0	123	18.2			
	Transgender [#]	5	0.4	2	0.3			
	Not disclosed	1	0.1	13	1.9			
Ethnicity	White	1029	88.8	588	87.0	1.914	0.167	
	Other	96	8.3	69	10.2			
	Not disclosed	34	2.9	19	2.8			
Relationship status	Single [*]	86	7.4	58	8.6	1.162	0.559	
	Partnered/cohabiting	471	40.6	276	40.8			
	Married	351	30.3	193	28.6			
	Not disclosed	251	21.7	149	22.0			
Same sex relationship (Yes)		10	0.9	7	1.0	0.139	0.710	
Pilot area	Swansea	617	53.2	350	51.8	4.251	0.119	
	Carmarthenshire	290	25.0	152	22.5			
	Blaenau Gwent	252	21.7	174	25.7			
Deprivation	Flying Start	325	28.1	184	27.2	0.045	0.832	
Dependants	Total number of children	1 child	510	44.0	356	52.7	13.320	0.001
		2-3 children	570	49.2	286	42.3		
		≥4 children	79	6.8	34	5.0		
Multiple birth (Yes)		21	1.8	11	1.6	0.085	0.771	

[#]Not included in subsequent analysis due to potential for identification, owing to small numbers. ^{*}Single includes those who are single, separated, divorced or widowed.

4.3.1 First disclosure

Of those with any ACE(s) (n=517), 42.6% said the ACE enquiry pilot was the first time they had told a professional or service about these experiences. Among male caregivers reporting ACEs, over half (55.1%) said this was their first disclosure; significantly more than female caregivers (38.8%).^{vi} Likelihood of prior disclosure did not differ significantly by any other measured demographic variable. Whilst there was no overall difference in first disclosure by ACE exposure, caregivers who had experienced sexual abuse as a child were significantly more likely to have already disclosed their ACEs to a professional or service (21.9% first disclosure; compared with 43.9% of those who had experienced ACEs other than sexual abuse; $X^2=5.967$, $p=0.015$).

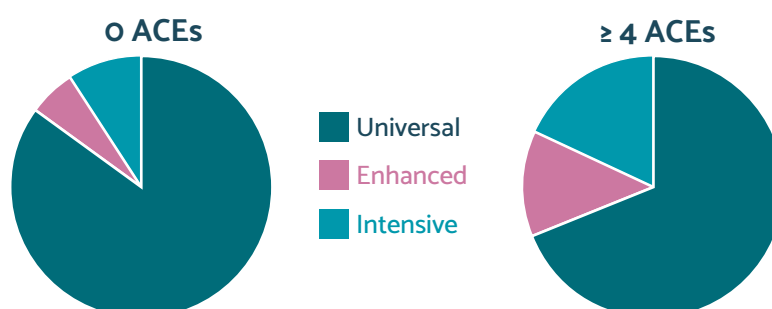
4.4 Service provision

Overall, just over 80% of caregivers in the ACE cohort were in receipt of universal service provision within HCWP (see Box 3). Around 1 in 10 received intensive intervention and support. However, a clear relationship was identified between history of caregiver ACEs, and current level of health visiting service provision (Figure 6; Appendix 3: Table A3). Intensive support was provided to 18% of those with the highest level of ACE exposure. When compared with those with no ACE exposure, caregivers with high ACE exposure were twice as likely to be in receipt of intensive services.^{vii}

Box 3. Healthy Child Wales Programme (HCWP)

HCWP is a universal health programme for all families with children aged 0-7 years, which was introduced in Wales in October 2016. It is underpinned by the principle of progressive universalism - outlining key interventions provided as a minimum, irrespective of need. Thus the programme identifies all planned contacts that children and their families can expect from their health boards, from maternity services to primary school, and covering three key areas of intervention: screening, immunisation, and monitoring and supporting child development. Families and children with increased levels of need receive enhanced or intensive interventions. Level of intervention is determined by a HV's assessment of family resilience (see also Box 4). The enhanced service includes interventions such as for emotional and psychological issues, positive behaviour change (e.g. smoking, substance misuse) or infants with health problems, whilst the intensive service may be provided for those with significant needs such as referral to specialist services or child safeguarding concerns.

Figure 6. Proportion (%) of caregivers receiving universal, enhanced and intensive support, shown by level of ACE exposure (0 ACEs vs ≥4 ACEs)



vi Multivariate (logistic regression) model with first disclosure as the outcome, adjusting for age, gender, deprivation, sexual identity and number of ACEs; adjusted odds ratio=2.130, $p<0.001$.

vii Multivariate (logistic regression) model with intensive service (yes/no) as the outcome, adjusting for age, gender, ethnicity, area and deprivation; adjusted odds ratio=2.039, $p=0.023$.



4.4.1 Family resilience

Across the whole sample, over a third (36.1%) of families were considered to have low family support (based on HV-determined FRAIT score; mean subscale score=4.0; SD=0.89; see Box 4). Families in this pilot sample generally scored more highly on measures of family health (13.2% low resilience; mean FRAIT score=4.8; SD=0.48) and responsive parenting (18.1% low resilience; mean=4.8; SD=0.50).

Among the ACE cohort, FRAIT scores across all subscales showed a significant relationship with level of ACE exposure. Whilst the likelihood of a low FRAIT score increased with increasing ACE exposure across four of the five subscales, low resilience in family support showed an inverse relationship with ACEs, when controlling for demographic variables (Figure 7). Thus those caregivers with greater ACE exposure were actually assessed by HVs to have more family support available to them (although the quality and suitability of this support was not determined).

Box 4. The Family Resilience Assessment Instrument Tool (FRAIT)

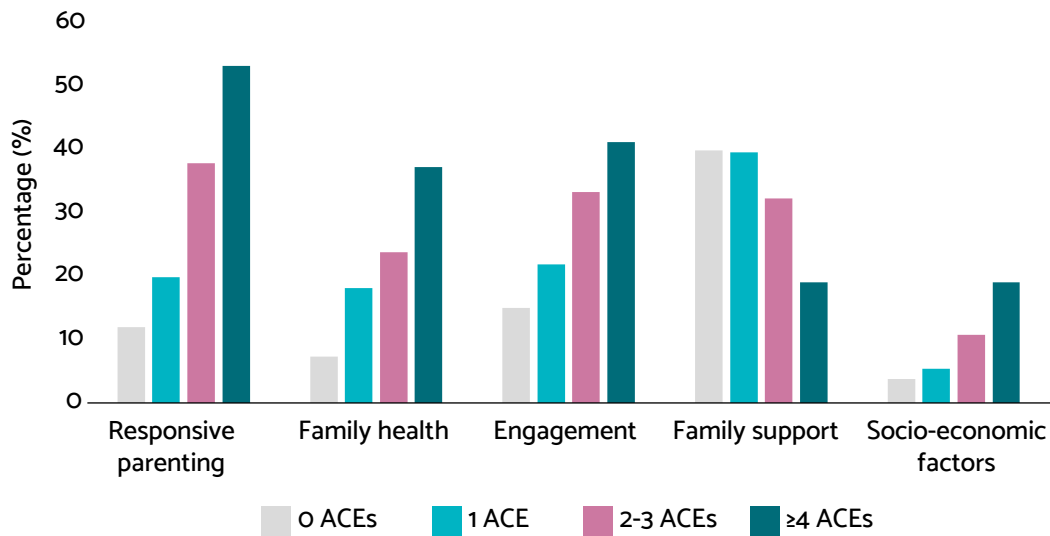
The FRAIT was introduced in Wales in 2017 and is designed to assist HVs in making robust, consistent and reliable assessments of family resilience and in identifying the support and interventions needed to help families to deal with adversity. HVs are instructed to use their observation skills and knowledge of the family when making an assessment of resilience, but it is advised that the tool is not completed when with the family in the home. The tool is split into five sections: Family Health; Engagement; Family Support; Socio-economic Factors; and Responsive Parenting. The HV must select one of five possible responses in each section, which are numbered from one to five. A score of one indicates low resilience, whilst a score of five is high resilience. Multiple items are used to generate an overall score for each subscale. Such scoring is proposed to be used for a number of purposes, including as part of workload acuity calculations, and for briefing colleagues from other services about a family.

Practitioner views on ACEs and the FRAIT

Generally HVs described feeling more comfortable with the ACEs approach, which they described as “co-produced” or “done with”, when compared with the FRAIT, which is perceived to be “done to”. HVs expressed concerns that the FRAIT only offers a single snap shot, rather than a more holistic description of need, but may be strengthened by combining with an ACEs framework.

“There is very little value to the FRAIT, because it is just what we think. And I think the ACEs has shown us that very often, we are not right, are we.”

Figure 7. Proportion of families scored as having low resilience on the five subscales of the FRAIT, shown by level of ACE exposure

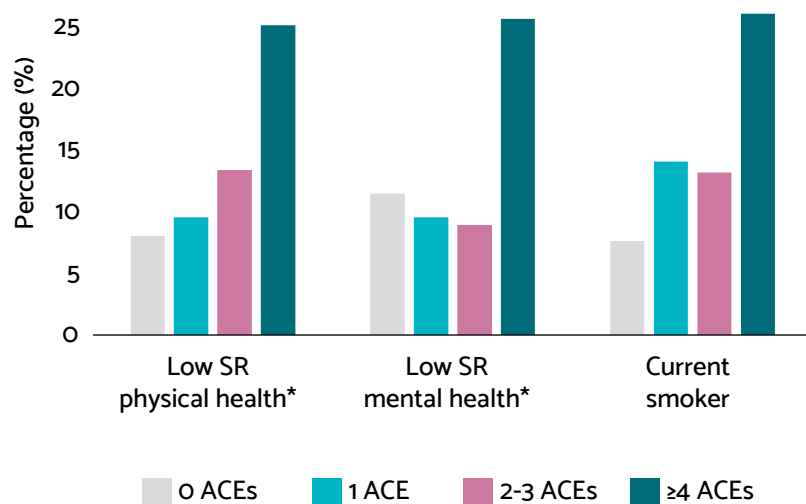


4.5 Parental health and wellbeing

At follow up, a significant relationship was found between prior exposure to childhood adversity and current self-rated health amongst the ACE cohort (n=362). The proportion of caregivers reporting both low physical and mental health increased with increasing ACE exposure (Figure 8), with as many as a quarter of caregivers with high ACE exposure rating their health poorly. Compared to those with no ACEs, caregivers with ≥4 ACEs were over five and a half times more likely to describe low physical health, and two and a half times more likely to describe low mental health (see Appendix 3; Table A4).

A similar relationship was found with smoking behaviour, with a quarter of caregivers with high ACE exposure describing themselves as current smokers and the odds of smoking increasing almost four-fold in this group (compared with those with no ACEs; Figure 8).

Figure 8. Proportion of caregivers reporting low self-rated (SR) health and identifying as a current smoker, shown by ACE exposure



*Low = rated poor or OK.

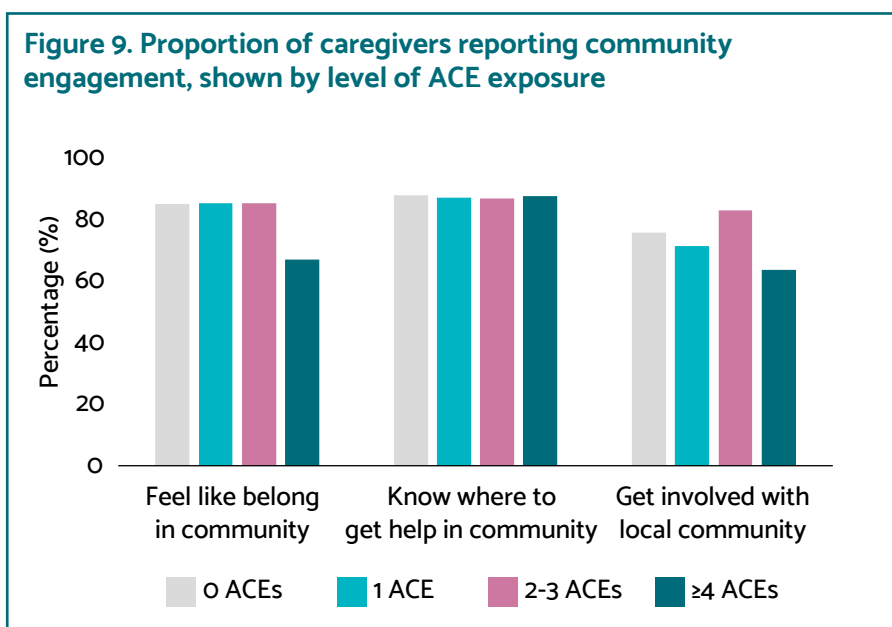
Overall, caregivers reported very positive feelings about parenting and limited experiences of parental stress at six months post-partum. For example, over 99% of caregivers said they were happy in their role as a parent and felt close to their children (Appendix 3; Table A5). Whilst over a quarter (28.8%) of caregivers reported that caring for their children took more time and energy than they had to give, as few as 10.6% felt overwhelmed by the responsibility of being a parent. Positive feelings about parenting and experiences of parental stress did not differ significantly by history of ACEs. However, experiences were significantly less positive for male caregivers (see Appendix 3; Table A5).

4.5.1 Support from family and friends

Whilst overall caregivers reported high levels of support from familial and social networks at six months post-partum, the proportion reporting high levels of support differed significantly by ACE exposure, with more support received by those with fewer ACEs (Appendix 3; Table A6), contrary to HV assessments of family support using the FRAIT (see section 4.4.1; Figure 7). The relationship between ACEs and support was not linear however, with the lowest levels of both practical help and emotional support found among those with increasing (not high) ACE exposure. Older caregivers (aged >36 years) also indicated they received less support, when compared with their younger counterparts.

4.5.2 Community engagement

Across all levels of ACE exposure, the majority of caregivers (>85%) reported that they knew where to get help in their community. However, feelings of belonging and willingness to get involved in the community differed significantly by ACE exposure (Figure 9). For example, less than two thirds (63.8%) of caregivers with high ACE exposure



reported that they and their children get involved with the local community. Importantly, this was the case even though caregivers across all levels of ACE exposure agreed on the importance of socialising with other families (Appendix 3; Table A6). Younger caregivers (aged 16-25 years) reported being less likely to get involved with the local community, whilst male caregivers were less likely to know where to go for help and support.

Taken together, the experience of any (i.e. at least one) form of parental stress was reported by just under a third (32.0%) of caregivers. The likelihood of experiencing any parental stress did not differ significantly by age, gender, ethnicity, geographical area or deprivation. Whilst a higher proportion of highly ACE exposed caregivers (≥4 ACEs) reported experiencing any parental stress, differences did not reach statistical significance in bivariate or multivariate models.

Practitioner views on parental health and wellbeing

HVs suggested that caregivers wanted to portray that they were coping well and that may have affected their honesty regarding their current health and wellbeing. This was perceived by the HV to be motivated by the caregivers' embarrassment or fear of being judged. This was described as an underlying problem for general engagement with families (i.e. not specific to the ACE enquiry pilot), that HVs felt unable to challenge.

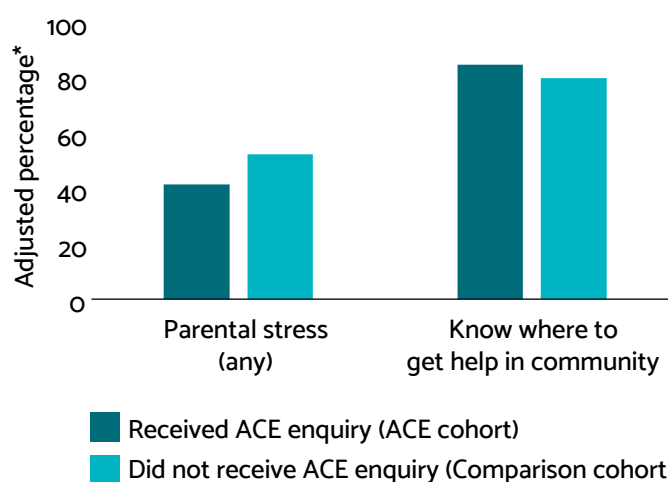
4.6 Exploring the potential impact of ACE enquiry

The previous section supports existing empirical evidence in suggesting that earlier experiences of adversity may be related to negative health and wellbeing outcomes post-partum. Thus, comparing the six month follow up data from the ACE cohort, with the same data collected from the comparison cohort, offers some tentative suggestion of possible changes that may have followed ACE enquiry. It is recognised that there may be other confounding factors that influence these relationships (also see limitations section 4.9), and causality cannot be inferred here. However, it is hoped that exploring potential differences may offer insight into areas for future research or development of the ACE enquiry model. It is important to note that ACE information was not formally collected for the comparison cohort, therefore it is not possible to consider how the potential impacts of ACE enquiry may differ for those with different levels of ACE exposure.

At six months post-partum, a significantly greater proportion of caregivers in the comparison cohort reported experience of any parental stress, when compared with caregivers in the ACE cohort. When experience of ACE enquiry (yes/no) was included as a predictor in multivariate models, which also controlled for demographic variables, geographical area and number of children, caregivers in the comparison cohort were 1.7 times more likely to report any parental stress (Figure 10; see Appendix 3; Table A7).

No differences in measures of support from family and friends or community engagement were found between caregivers in the two cohorts. However, a significantly greater proportion of caregivers who received ACE enquiry reported knowing where to get help in their communities, and this difference remained significant in multivariate analyses (see Figure 10; Appendix 3; Table A7).

Figure 10. Adjusted proportion of caregivers reporting parental stress and knowledge of community support at six months post-partum



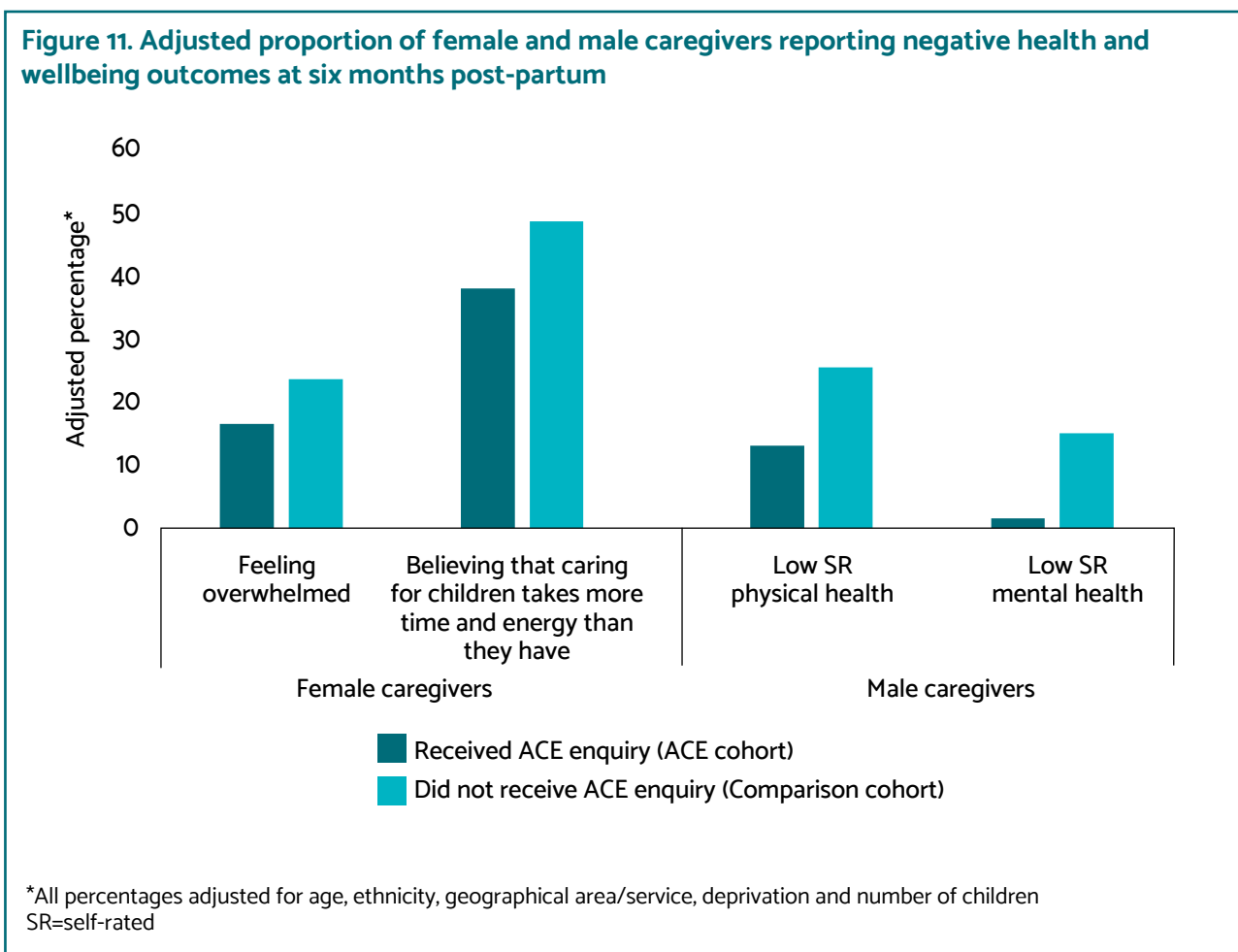
*All percentages adjusted for age, gender, ethnicity, geographical area/service, deprivation and number of children.

4.6.1 Analysis of impacts, by caregiver gender

When data for female and male caregivers were analysed separately, potential differential impacts of ACE enquiry were revealed. Whilst there were no difference in health outcomes for female caregivers, significantly fewer male caregivers in the ACE cohort reported low physical and mental health at six months post-partum, when compared with those in the comparison cohort. These significant

differences remained when controlling for other demographic characteristics, with males who had not taken part in ACE enquiry over six times more likely to experience low mental health,^{viii} and seven times more likely to experience low physical health (Figure 11).^{ix}

Conversely, whilst there was no difference in experiences of parental stress for male caregivers in each cohort at follow up, significantly fewer female caregivers in the ACE cohort reported feeling overwhelmed and that caring for their children took more time and energy than they had to give, when compared with those in the comparison cohort (Figure 11). These significant differences also remained in multivariate analyses when controlling for demographic variables. Female caregivers who had not taken part in ACE enquiry were almost twice as likely to feel overwhelmed,^x and 1.6 times more likely to feel they did not have the time/energy needed for caring for their child(ren).^{xi}



viii Multivariate (logistic regression) model with low self-rated mental health as the outcome, adjusting for receipt of ACE enquiry, age, ethnicity, area, deprivation and total number of children; adjusted odds ratio=6.431 (confidence interval: 1.321-31.310), p=0.021.

ix Multivariate (logistic regression) model with low self-rated physical health as the outcome, adjusting for receipt of ACE enquiry, age, ethnicity, area, deprivation and total number of children; adjusted odds ratio=7.336 (confidence interval: 1.283-41.958), p=0.025.

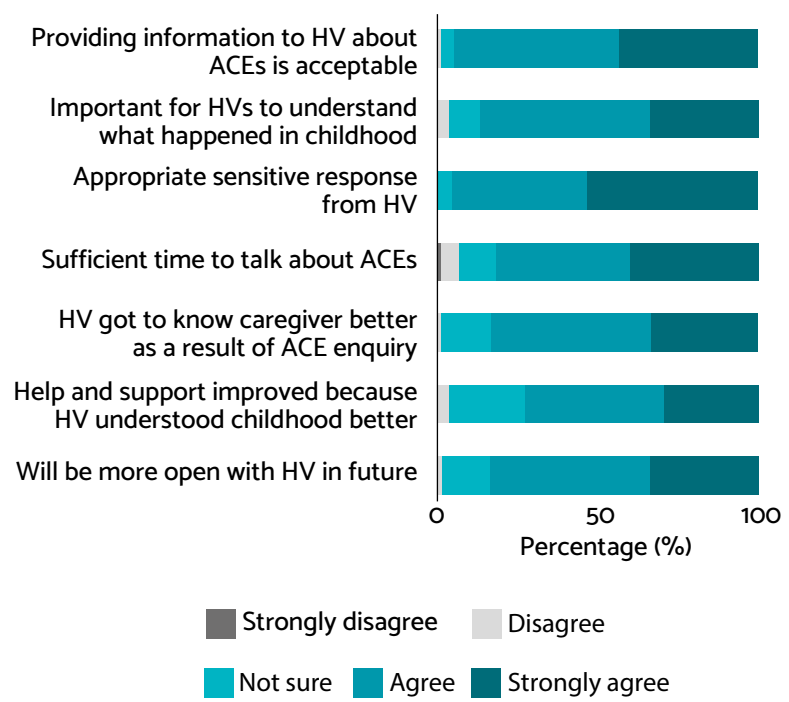
x Multivariate (logistic regression) model with feeling overwhelmed (agree/strongly agree) as the outcome, adjusting for receipt of ACE enquiry, age, ethnicity, area, deprivation and total number of children; adjusted odds ratio=1.801 (confidence interval: 1.213-2.675), p=0.004).

xi Multivariate (logistic regression) model with caring for children takes more time and energy than I have to give (agree/strongly agree) as the outcome, adjusting for receipt of ACE enquiry, age, ethnicity, area, deprivation and total number of children; adjusted odds ratio=1.600 (confidence interval: 1.199-2.134), p=0.001.

4.7 Service user feedback

Feedback on ACE enquiry was provided by 445 caregivers from the ACE cohort. Overall, feedback was overwhelmingly positive, with 95% of caregivers reporting that ACE enquiry is acceptable in health visiting and that HVs responded appropriately and sensitively. As many as 4 in every 5 caregivers agreed that their HV got to know them better by asking about their childhood experiences, and almost 85% indicated that after ACE enquiry they would be more likely to discuss ACEs or other issues with their HV in future (Figure 12). A quarter of caregivers felt unable to identify if the help and support they received from their HV had improved as a result of ACE enquiry.

Figure 12. Extent to which caregivers agree or disagree with positive statements about ACE enquiry



Practitioner views on the service user experience - acceptability

In Carmarthenshire and Blaenau Gwent, HVs suggested that overall, the majority of caregivers were happy to complete and discuss the ACE questionnaire, with only a small minority declining to take part in ACE enquiry. In Swansea, some HVs suggested that as many as half of all caregivers declined, expressing particular concerns that those families with the more complex histories or needs were those most likely to decline. However, this was not supported by the quantitative data collected on implementation (see section 4.1). HVs described a number of reasons why people may decline, including being “defensive”, especially where there had been prior social services involvement.

“I had anticipated there being more problems with people being open and honest, but they were happy to answer the questions. Where there were a few who refused, they were very anti-being asked. So there was nothing in the middle. People were very happy, or absolutely didn’t want to.”

“I think the ones that I would’ve wanted to give it to where there would be concerns, they didn’t want to fill them in. They read them, and they didn’t want to...and they’re the ones where you have an idea there is something going on, you get this intuition, a gut feeling, but they never disclose.”

The importance of giving control to the service user was expressed across all areas, with the approach to ACE enquiry commended for allowing caregivers to decide what they wanted to disclose, and then if they wanted to discuss this in any detail. It was suggested that for some people, this was a more accessible approach than being asked questions verbally.

“I had one Dad who did disclose something. He understood why we were asking. He was honest enough, but they do have the opportunity not to disclose...and I think there were probably lots who didn’t disclose.”

“I think because it is written down, they have time to process it and say yes or no. If we did ask them directly, I think that would be more difficult.”

For many HVs, caregivers were perceived to be receptive to the idea of ACE enquiry and how their earlier life experiences could impact later life.

“Once I had explained it to them, they were kind of receptive to the idea [of ACEs]. Maybe they hadn't thought about it in that way, how this could relate to their current relationships and them as parents. They were quite receptive and could see how that could have had an impact.”

However, in focus groups HVs also reported concerns about adding ACE enquiry into their already detailed discussions and overloading caregivers with information.

“We already ask how they are feeling, mental health, blah blah blah. Then we go and ask ‘how's your partner?’, domestic abuse, can we go up to your bedroom and see where the baby sleeps, and ‘oh by the way, we've got a new pilot, here it is, read about it, it's about adverse childhood experiences.”

There was a firmly held view among HVs across all three services that the timing of ACE enquiry should be flexible. In focus groups, the majority of HVs felt that six weeks post-partum was often not the best time to ask about childhood adversity - as caregivers may be overwhelmed or exhausted - and discretion about when to ask would be beneficial.

“I think the six week period after birth is a very precious, fragile, traumatic time for parents. I feel you need to concentrate on their feelings around the birth, and I don't know about bringing past experiences into it at that time. That's my opinion.”

Although findings from the service user feedback survey suggest ACE enquiry was well received (see section 4.7) some HVs were uncomfortable asking questions they regarded as “intrusive”. Particular concerns were expressed about the questions on sexual abuse. However, other practitioners suggested that talking about sexual abuse in the way they would also talk about physical abuse or neglect was important for addressing the stigma surrounding this type of violence. Further, although HVs reported concerns that caregivers may be upset by the process of ACE enquiry, there were very few occasions when this actually happened throughout the pilot. During one of the focus groups in Carmarthenshire, HVs actually expressed how important it was to allow people to be upset if they needed to be.

“Things happen. We can't change that, we just have to sit and listen, and that's enough. People are really grateful to have that space to have the conversation, and to be given permission to get sad or upset.”

No significant differences were found in positive service user feedback by either level of ACE exposure or first disclosure (among those with ACEs). Further, responses to service user feedback did not differ by service level (universal; enhanced; intensive) or deprivation (i.e. Flying Start). A significantly lower proportion of caregivers in Carmarthenshire felt that their HV got to know them better by asking about their childhood (76.5% agree/strongly agree, compared with 83.5% in Swansea and 89.8% in Blaenau Gwent; $\chi^2=6.027$, $p=0.049$). Whilst there were no significant differences by relationship status, for caregivers for whom this was their first



child, ACE enquiry was considered significantly more acceptable (98.5% agree/strongly agree, compared with 91.6% for those with other children; $\chi^2=10.771$, $p=0.001$).

Female caregivers held more positive views than their male counterparts across all items (see Figure 13 for statistically significant differences). Perceptions of ACE enquiry differed by caregiver age (Figure 14; only statistically significant differences shown), with caregivers aged 26-35 years generally reporting more positive views. There were no significant differences found in service user feedback by caregiver ethnicity.

Figure 13. Proportion of female and male caregivers agreeing/strongly agreeing with positive statements about ACE enquiry

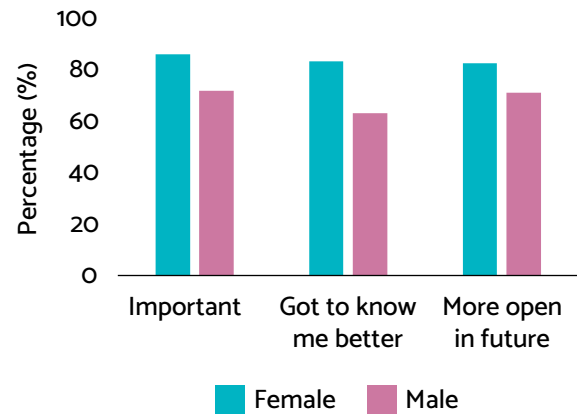
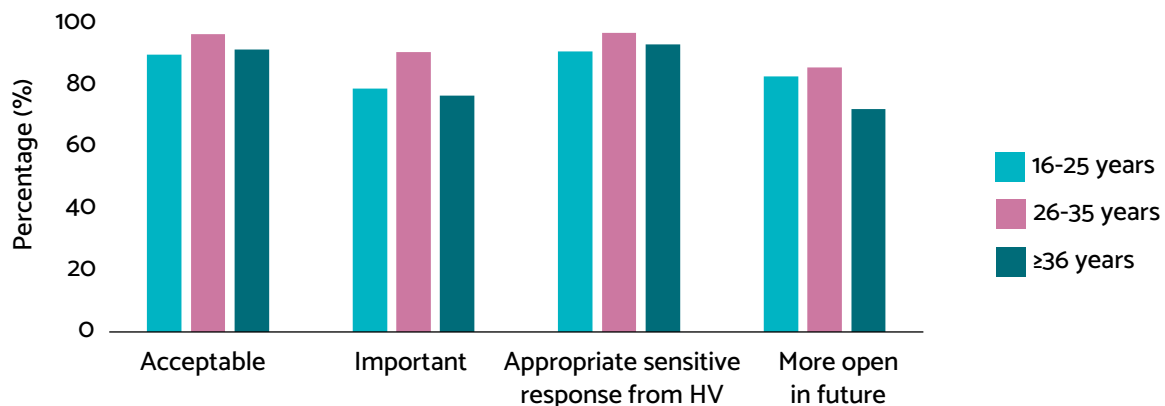


Figure 14. Proportion of caregivers agreeing/strongly agreeing with positive statements about ACE enquiry, shown by caregiver age



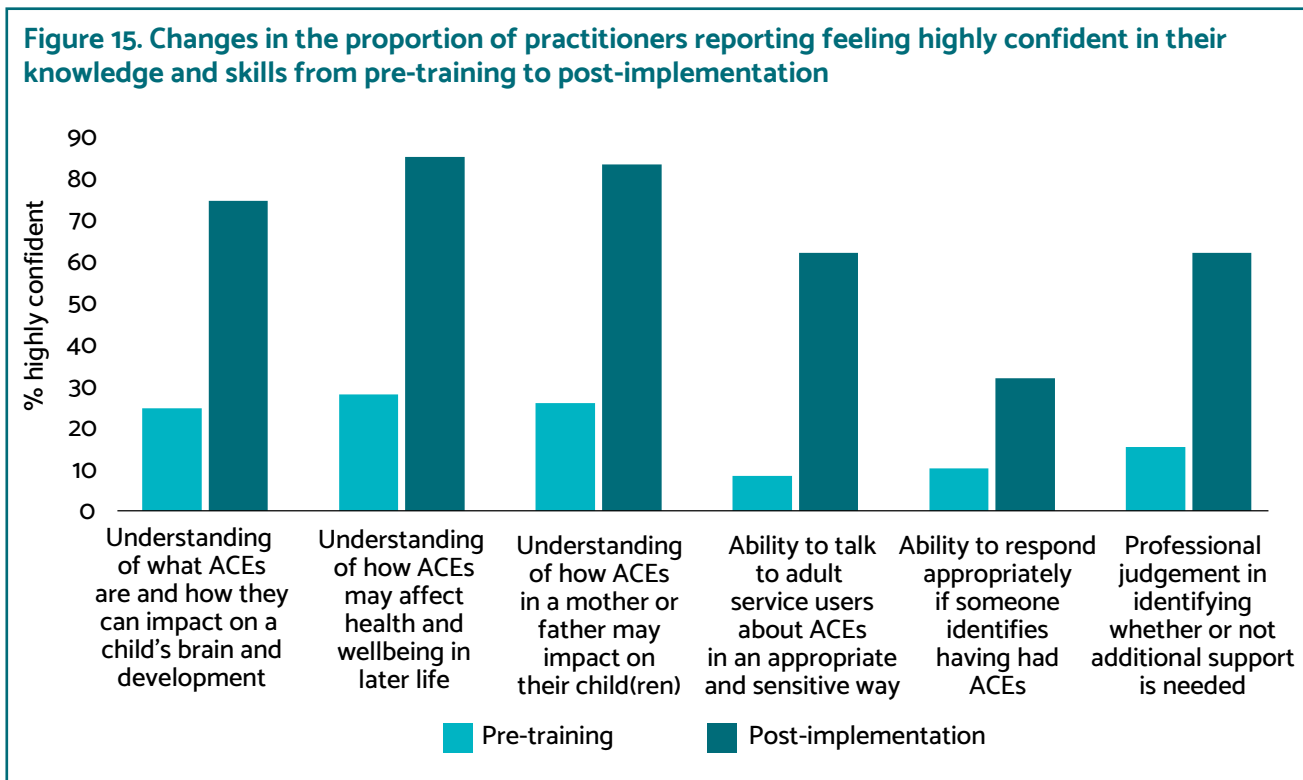
4.8 Practitioner data

4.8.1 Sample characteristics

Questionnaires on practitioner ACE awareness and confidence to discuss ACEs in practice were completed pre-training by 118 practitioners across all three pilot areas. Half of practitioners ($n=58$) also provided responses post-training and implementation. Information on the practitioner sample can be found in Appendix 1. One in five practitioners had been a HV for less than two years. Just over 80% of respondents worked for generic health visiting services, whilst the remainder were Flying Start HVs.

4.8.2 Changes in practitioner knowledge and confidence

All measures showed a stark improvement between pre-training and post-implementation (Figure 15). After receiving training (see section 2.3 and Appendix 2 for details) and delivering ACE enquiry, three quarters (75.0%) of practitioners were highly confident in their understanding of what ACEs are and how they can impact brain development, with over 85% highly confident in their understanding of the health and wellbeing impacts of ACEs (Figure 15). Whilst only a third of practitioners were highly confident in their ability to respond appropriately if ACEs were identified, this was almost three times the proportion of HVs that were highly confident before training and implementation and appears somewhat divergent from service user feedback (in which 95% of caregivers felt that their HV responded appropriately and sensitively; see section 4.7).



Practitioner views on training, skills and confidence

Quantitative findings strongly support the utility of training and its contribution to increased understanding about ACEs and ability to respond to those with a history of ACEs. Whilst HVs felt that the training provided a good background to the theory behind ACEs, during focus groups they were often critical of the training they had received and felt that the pilot could have been improved by: making its aims clear; recognising the complexities of working with families with multiple needs; ensuring more appropriate timing between training and implementation; and dedicating more time to introducing and explaining data collection tools and processes, and preparing/upskilling HVs in how to ask about childhood adversity and how to respond appropriately when caregivers disclosed ACEs.

“I think most people at the training were experienced health visitors, who are already well aware of the impact ACEs have on adults and on children when they are growing up...But there wasn't a lot in the training about how to relate to the individual after they have disclosed something.”

During focus group discussions, there was some indication that HVs understood many of the key issues that are pertinent to ACE enquiry and current debates around its suitability (e.g. ensuring that conversations around ACEs are not deficit-based and childhood experiences are not framed deterministically), issues which were also communicated in training. However, comments made by HVs about the links between ACEs and deprivation suggest they may benefit from a greater focus on this during training.

Some HVs reported that they could feel “out of their depth” in dealing with issues that they had not been trained in dealing with.

“We don't really have training on sexual abuse and what to do and how to support somebody through that. That's a lot to put on health visitors....”

However, HVs suggested greater involvement of service managers in the training would help ensure that clear and consistent messages were provided around delivery, as well as more opportunity to ask questions and discuss ACE enquiry.

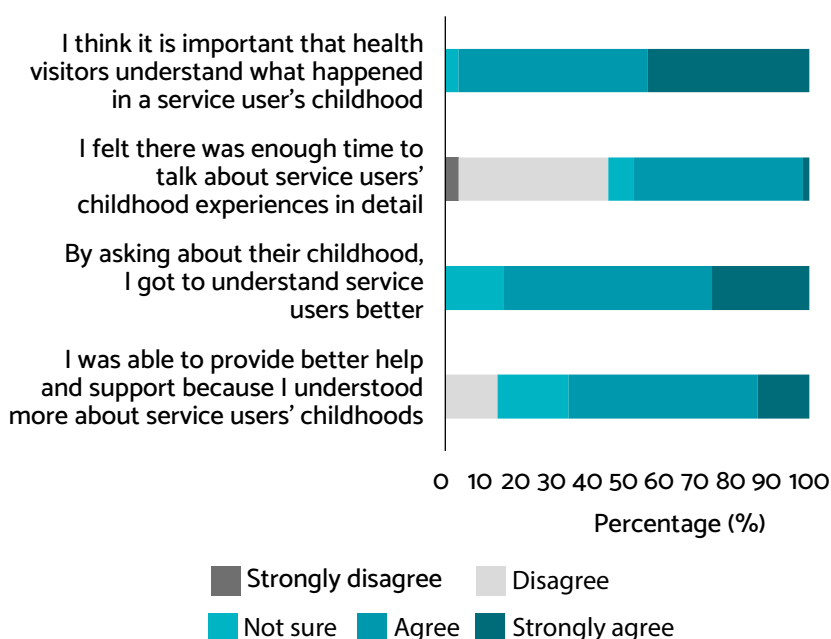
4.8.3 Practitioner feedback

Following the conclusion of the pilot, 58 HVs (out of 130 HVs trained to deliver ACE enquiry; 44.6% uptake; see Appendix 1 for sample information) completed a short questionnaire to provide feedback on their experiences of delivering ACE enquiry, echoing similar measures completed by service users (see section 4.7).

Similarly to service users, over 95% of HVs felt it was important for them to understand what has happened in a service user's childhood. Approximately half of HVs felt there was not enough time to talk to service users

about their childhood experiences in any detail, which compares with 20% of service users who held this view (Figure 16). The proportion of HVs who felt that ACE enquiry allowed them to understand service users better differed significantly by length of service; with 100% of practitioners who had worked in health visiting for less than two years agreeing/strongly agreeing, compared with only half of those with more than 15 years' service ($X^2=13.500$; $p=0.004$). Whilst over 90% of HVs with 2-5 years' experience felt that understanding ACEs translated into providing better support for families, only 50% of those with more experience (6-15 years or more than 15 years) agreed ($X^2=7.996$; $p=0.046$). All HVs (100%) surveyed in Blaenau Gwent felt they could provide better support to families by understanding ACEs, compared with just over two thirds of those in Carmarthenshire (69.2%) and half of those in Swansea (54.5%; $X^2=7.150$; $p=0.028$).

Figure 16. Extent to which practitioners agree or disagree with positive statements about ACE enquiry



Practitioner views on the time required for ACE enquiry

There was consensus among HVs that delivering ACE enquiry made their contacts with families longer, by anything from 15 minutes, through to over one and a half hours. Practitioners differed in the extent to which they saw this as a problem. Some HVs suggested this was substantively no different to normal practice, where unexpected issues could arise that lengthened appointments, with others suggesting that ACE enquiry actually allowed them to prioritise their time with families. Some HVs felt that discussion following ACE enquiry could lead to unmanageable workloads (i.e. if every caregiver wanted to discuss their childhood experiences in detail). It was suggested that some alterations to the language used in the ACE questionnaire was one means of saving time by improving ease of reading and understanding for caregivers.

"It is important to know what families have been through and how we can support them. It has prioritised your time around asking those questions and that is useful, even if it is time consuming."

Practitioner views on the importance of ACE enquiry

Across services, HVs agreed on the relevance of ACEs for the health visiting role, and the importance of understanding about childhood and family history for supporting caregivers in attachment and positive parenting. HVs described their motivations to make a positive difference for families, suggesting that understanding ACEs can be valuable information that can help them to support caregivers in addressing the root causes of issues such as difficulties bonding with their child(ren).

“Undoubtedly it’s valuable. If you know a person has had an adverse experience as a child that they feel is impacting on their ability to parent. Or it might be impacting positively. Then yes, it’s really helpful.”

Caregivers were consistently described as wanting to do better for their children, although it was felt that often they did not understand the potential life course implications of their own childhood experiences. Many HVs felt that by discussing childhood adversity, they were laying the foundation for more positive future service engagement from families, both within and beyond health visiting.

“You are introducing to families that professionals from all walks of life are now recognising that impact [of ACEs]. If something did happen, perhaps they would feel that they would be able to open up about it to other professionals, as we’ve laid the foundation stone.”

The importance of a structured process or model to directly enquire about ACEs was valued by some HVs, but with others suggesting ACE information may be disclosed regardless of the enquiry process. In general, however, HVs felt that they obtained new information by engaging caregivers in ACE enquiry, achieving a more holistic understanding of need. Even for those in Carmarthenshire and Blaenau Gwent who suggested they already ask about childhood adversity in normal practice, ACE enquiry was described as offering a more direct means of obtaining this information earlier in their relationship with families. However, for around half of practitioners providing feedback in Swansea, a formalised process of ACE enquiry was deemed unnecessary as conversations already emerged organically and families were very open about the information they wanted to share, without the need to ask.

“I didn’t need a questionnaire to inform me of things I was going to be doing anyway, because of the families I deal with and see...it’s a deprived area, and maybe their educational attainment was quite low. These families are quite open and would’ve come out with it anyway.”

HVs reported that ACE enquiry challenged their preconceptions about families and they were often surprised by the extent to which caregivers had experienced adversity.

“You get to know families so well over the years, and you think you know what the history was. But there are some families where more came out, and I was thinking well after all these years, I didn’t know that!”

Across all areas, HVs felt that it was important that the ACE conversation be extended to include a discussion of resilience and protective factors, which were not part of the formal questionnaire. Although some recalled this being mentioned in training, there was a consistent call among HVs involved in focus groups for a greater focus on families’ strengths and assets.

Practitioner views on the service user-practitioner relationship

Some practitioners suggested that rapport should be built with caregivers before childhood adversity is discussed, and trying to engage in ACE enquiry before families were comfortable risked being detrimental to the relationship longer-term. However, other practitioners suggested that ACE enquiry actually helped to build rapport with caregivers by evidencing that HVs are there to provide support and care about the needs of the caregiver, as well as the child. This was considered particularly helpful for building a relationship with fathers, who HVs felt are often overlooked in universal early years support.

“It’s often the first time actually someone has sat and talked to them about themselves, which is really valuable.”

The importance of explaining why caregivers are being asked about ACEs was highlighted by one caregiver phoning the service manager to express concerns as they thought they had been specifically targeted with ACE questions.

“They phoned the manager as they thought they had been targeted, that I was assessing their parenting skills.”

In general however, HVs reported that there was relatively little evidence that caregivers themselves were concerned by inclusion of ACE enquiry and it was often their own discomfort that limited the positive impact of ACE enquiry on the relationship. It was suggested that this professional discomfort could be alleviated by more emphasis in the pilot on their self-care, against a backdrop of staff shortages and high workloads.

“I think it was more my discomfort than theirs. I never picked up on anyone else’s discomfort.”

“I had one who answered a lot, probably ninety percent of the ACEs, which was a shock to me...She just said, ‘I’ve completed the form, but I don’t want to talk anymore about it’. I said that was fine, but I am always here in future if you do want to talk about it.”

A key concern of HVs taking part in focus groups, and a perceived barrier to ACE enquiry, was a lack of options for ongoing support. HVs expressed that *should* families need further support in dealing with childhood adversity, such support must be available and should be more than a list of websites. HVs felt that successful ACE enquiry required them being supported to develop more knowledge and skills relevant to the process so they can offer appropriate support beyond just listening visits and ensure that they did not raise issues they were then unable to help address.

“... if they did identify things that hadn’t been dealt with, I just wondered what I was going to offer them... I haven’t got anything else in my arsenal, other than listening visits...”

4.9 Limitations

Findings presented in this report should be considered in light of the following limitations:

Engagement/sample selection

As participation in ACE enquiry was voluntary, it is not possible to identify or exclude any bias created by caregivers' refusal to participate. Similarly, whilst HVs were encouraged to apply ACE enquiry universally, it was down to their discretion/professional judgement to determine times when it may not be suitable to ask caregivers to participate (e.g. due to concerns about privacy, or the need to address other acute issues during contacts). As HVs did not routinely provide clear reasoning for their decision-making, it is also not possible to identify or exclude any bias in the caregiver sample introduced as a result.

Comparability of the comparison cohort

Whilst available data suggest that the naturalistic comparison cohort generated in this evaluation was similar to the ACE cohort in important demographic characteristics (e.g. caregiver gender and ethnicity), and analyses controlled for differences in age distribution, in order to provide an 'uncontaminated' sample, ACE information was not collected from caregivers in this comparison group at any point during the pilot. Therefore it is not possible to determine if the two groups were equivalent in levels of ACE exposure.

Fidelity to intended model of implementation

Due to the confidential nature of consultations between families and HVs, the evaluation of this pilot did not include any observation or assessment of the actual discussions that took place following completion of the ACE questionnaire. Therefore, it was not possible to directly examine fidelity to the intended model of delivery, the content of discussions supporting ACE enquiry, or resultant caregiver behaviour. Current understanding of what was actually delivered to caregivers during the pilot was derived from qualitative practitioner feedback only. Therefore, it is not possible to draw any firm conclusions about the therapeutic benefit of the ACE enquiry process.

Data reliability

Caregiver data were self-reported and, in the case of ACEs, retrospective, and therefore are vulnerable to recall capacity, subjectivity and inaccurate reporting. Further, service user feedback was collected from caregivers at six months post-partum – approximately 4.5 months after they had initially taken part in ACE enquiry. Anecdotally, HVs suggested that, when presented with the service user feedback survey items, many caregivers had difficulty recalling having taken part in ACE enquiry at six weeks post-partum, considering the vast array of information they are given by their HV during the first few months and the multiple assessments that are undertaken. For some caregivers, completion of the health, wellbeing and parental stress data occurred during March 2020, when some people's lives across Wales may have already been impacted by Coronavirus and associated pressures.

Attrition (service users)

A considerable proportion of caregivers who contributed to six-week data collection in the ACE cohort did not provide outcome and service user feedback data at follow up (i.e. 4.5 months later). Overall, only 38.7% of the ACE cohort sample was retained at follow up. Due to limitations of the implementation data provided by services, compounded by the impact of the Coronavirus pandemic on service demand and provision, it is not possible to conclusively determine the reasons for loss to follow up for around two out of every five ACE cohort caregivers. Although it is probable that many of those lost to follow up did not receive a six month face-to-face contact from their HV due to the pandemic, and service managers determined it was not suitable to ask six month questions

of caregivers over the phone, this raises important questions as to the representativeness of the caregiver sample in both outcome and service user feedback analyses. In particular, as attrition analyses reveal, the views of male caregivers and those living in more deprived (Flying Start) areas may not be accurately reflected in available data.

Attrition (practitioners)

Whilst there was very good uptake to the initial practitioner survey delivered pre-training, only 58 HVs completed the post-implementation practitioner survey. Due to this high attrition, it was not possible to compare individuals on a case-by-case/matched sample basis from pre-training to post-implementation. Therefore findings should be interpreted with caution and may not be generalisable to all trained HVs. Focus groups offered a more representative sample and captured the views of approximately half of HVs who delivered ACE enquiry. However, although they were actively encouraged by service managers to take part, ultimately HVs self-selected for participation in focus groups/feedback sessions, introducing another potential source of (selection) bias.

Length of follow up

The outcome data (health, wellbeing and parental stress) collected from caregivers considers only a relatively short follow-up period (approximately 4.5 months; from six weeks to six months post-partum). Thus, results may not provide reliable insight into: (a) the association between ACEs and child or maternal outcomes beyond the first few months of life; or (b) the long-term impacts of ACE enquiry on key variables such as the development and maintenance of the service user-practitioner relationship, as well as future service engagement or support needs.

5. Summary

Q. Is ACE enquiry in health visiting feasible?

In Blaenau Gwent, Carmarthenshire and Swansea, there was considerable uptake to ACE enquiry among caregivers during routine health visiting contacts. Across the three pilot areas, around 90% of caregivers who were invited to do so voluntarily completed an ACE questionnaire and discussed this information with their HV at their routine six weeks post-partum contact (section 4.1), mirroring the high level of engagement in the previous pilot undertaken in Anglesey, North Wales in 2018.²⁷ Importantly, for over 40% of caregivers with ACEs, this larger-scale initiative represented the first time they had told a professional or service about their experiences, suggesting enquiry in health visiting may offer a unique opportunity for those with a history of childhood adversity to discuss these experiences in the context of a trusted relationship with a health practitioner (section 4.3.1). To the best of our knowledge, this is the first pilot in the UK to explore a history of ACEs with both female and male caregivers and acceptability was high for all (section 4.7). However, there were lower rates of uptake among men and those from ethnic minority backgrounds, as well as a higher attrition rate for those from more deprived backgrounds (section 4.1). Thus, ACE enquiry could be improved through a review of materials and methodologies that focuses on issues such as accessibility of language used, including simplifying language and making materials available in languages other than English and Welsh, as well as (additional) mechanisms to include male caregivers in the process.

Almost all caregivers (>95%) providing service user feedback reported that HVs responded sensitively and appropriately to discussions about their childhood experiences (section 4.7). Further, quantitative data available from a small sample of practitioners suggest that taking part in the training and delivery of the ACE enquiry pilot positively increased HVs' knowledge and skills across all measured domains (section 4.8.2). This includes enhancing their awareness of ACEs, as well their ability to talk to service users about childhood adversity and identify when additional support may be needed. Findings from practitioner focus groups suggest that support to deliver ACE enquiry could be improved by:

- Making the aims of ACE enquiry clearer;
- Dedicating more time during training to introducing and explaining data collection tools and processes;
- Providing more specific training on how to ask about childhood adversity and the links between ACEs and deprivation;
- Providing better training on how to respond appropriately when caregivers disclose ACEs;
- Sharing information on using ACE enquiry methods with families from different cultures and those with multiple other needs.

Many of the challenges described by HVs related specifically to the needs of the evaluation, rather than implementing ACE enquiry *per se*. However, further work with services may be needed, especially for developing the skills and thus confidence in HVs that they can respond to ACE disclosures. The involvement of managers in training and closer supervision during implementation were suggested by HVs as possible enablers that may support future delivery.

The demand ACE enquiry placed on HVs was a much debated issue, with some practitioners suggesting the impact was minimal or framing the time taken for enquiry as an investment, whilst others felt delivering this initiative extended their appointments/contacts (section 4.8.3). Around half of HVs felt there was enough time to talk about childhood experiences during routine contacts and over 80% of caregivers felt sufficient time was given to these discussions (section 4.7). Concerns about ACE enquiry resulting in additional demand, as expressed by HVs in focus groups, largely reflect their perceived limitations of the wider system, such as the availability of specialist support services, waiting times



for mental health support and lack of ACE awareness among other professionals in health (e.g. GPs, school nurses), social care and the voluntary/community sector. In this pilot, and consistent with other studies, no such substantive additional demand was identified and caregivers appeared satisfied to have undergone ACE enquiry without referral into any additional specialist support. Addressing the concerns of some HVs may be a matter of presenting them with evidence that specialist need is not usually exposed, and that expert support will be available through suitable referral pathways or interventions on the rare occasions when it is required.

Q. Is ACE enquiry in health visiting acceptable to caregivers and HVs?

Overall, feedback from caregivers who took part in ACE enquiry was overwhelmingly positive, with 95% of caregivers considering enquiry acceptable in a health visiting context (section 4.7). Positive views of ACE enquiry did not differ by ACE exposure, suggesting its universal application, and echoing positive results from the earlier Anglesey pilot,²⁷ adding further support for the acceptability of this type of model in this setting. Service user feedback findings suggest that ACE enquiry may be viewed particularly favourably by first-time caregivers who are experiencing health visiting services for the first time. Although feedback from male caregivers was marginally less positive in response to some items (e.g. the importance of ACE enquiry), no difference was found by gender in overall views of the acceptability of the approach.

HVs were more divided in their views of ACE enquiry, with the initiative generally viewed more favourably by HVs earlier in their career. Findings from the practitioners surveyed suggest widespread support for the need to achieve an understanding of caregivers' childhood experiences (section 4.8.2). However, during focus groups, participating HVs raised concerns about the timing of ACE enquiry close to birth and early in their relationship with families (section 4.7). HVs suggested a holistic view of caregivers' needs and the range of challenges facing families should be in focus, ensuring consideration of solely historic experiences is not a distraction.

Practitioners readily recognised the relevance of the ACEs framework to their role and the value of understanding a caregiver's history in order to support them with the challenges of parenting. Some

HVs felt that a formal and direct model of ACE enquiry was not appropriate and could alternatively be delivered through flexible and more discursive approaches which they felt may be better for the caregiver-practitioner relationship (section 4.8.3). However, this evaluation did not explore whether such approaches would be more acceptable to caregivers, and further research would be required to consider whether alternative models could be equally or more successful. HVs' concerns about the potential for ACE enquiry to cause distress were not realised during the period of pilot implementation, potentially as participation in ACE enquiry is entirely under the control of service users. Previous studies on ACE enquiry have also highlighted the primacy of, and need to address, provider (here HV) discomfort which appears to predominate over client (here caregiver) discomfort.²⁹

HVs often recognised the resilience of caregivers and the importance of taking a positive strengths-based approach. However, this was juxtaposed against widespread concerns about the suitability of the FRAIT – the current means of assessing family resilience. Findings here actually suggest a positive association between FRAIT-based assessments of family support and ACEs, with higher levels of family support assessed among those with the highest level of ACE exposure (section 4.4.1), underlining the need to consider ACEs in the context of assets and protective factors. Further implementation of approaches to asking about ACEs may consider how to integrate exploration of positive childhood factors, especially when ACE enquiry may not be feasible. The Benevolent Childhood Experiences tool is one example of a means of empirically identifying resilience resources.³²

Q. What impact may ACE enquiry have on caregivers?

Findings from service user feedback provide considerable support for the idea of a positive change in caregivers' relationships with HVs as a result of ACE enquiry, with over 80% of caregivers suggesting asking about ACEs allowed their HV to get to know them better, and over 70% reporting that the help and support they received was improved as a result (section 4.7). Strikingly similar views were reflected by the surveyed practitioners, with four in every five HVs agreeing that ACE enquiry helped their understanding of caregivers, and two thirds reporting resultant improvements in the help and support they provided to families (section 4.8.3). In focus groups, some HVs suggested that whilst many caregivers who described having experienced ACEs did not want to talk about their experiences in any detail and felt they had already dealt with these issues or did not require any onward referral or support, they still valued having the opportunity to share this information with their HV and benefited from simply feeling listened to and having their experiences acknowledged (section 4.8.3). Importantly HVs stressed the need to foster and maintain open and honest relationships with service users,³³⁻³⁴ and consequently the importance of ACE enquiry not appearing to question caregivers' mental wellbeing or parenting ability, especially if caregivers felt there may be consequences (e.g. social services involvement). It is important that such issues are dealt with in training so that there is no negative impact of enquiry on caregivers' views of HVs or their roles.

At six months post-partum, measures of caregiver health and wellbeing taken from those who had experienced ACE enquiry, and compared to those who had not, provide support for ACE enquiry in reducing negative outcomes such as parental stress and ill health, and supporting caregivers in knowing how and where to access community support (section 4.6). This may be the result of direct information sharing by HVs (i.e. providing service users with a list of local and national support services), the empowerment of caregivers in their help seeking behaviour, as well as other factors not studied here. These positive findings suggest the role of ACE enquiry warrants further investigation, with consideration given to better understanding how benefits are delivered and how training and other aspects of ACE enquiry delivery can be further refined to improve outcomes.

Conclusions and suggested actions

- The quantitative data available from this pilot indicate a very positive response to ACE enquiry from the vast majority of caregivers sampled in Blaenau Gwent, Carmarthenshire and Swansea, building on previous positive findings from female caregivers in North Wales.²⁷ Caregivers appear to value being asked about their experiences, with a sense that they may receive better help and support as a result - although it is important to note that a large proportion did not provide feedback.
- Qualitative data obtained from some HVs suggested areas for improvement. In particular, training should be improved to dedicate more time to introducing and explaining data collection tools and processes; offer additional training on how to ask about childhood adversity and how to respond when caregivers disclose ACEs; and provide more information on the suitability and application of ACE enquiry methods when working with families from different cultures.
- Further work should be undertaken to: (a) capture service user voice and more fully understand caregivers' experiences of ACE enquiry and the potential therapeutic benefit of this current model; and (b) understand how the findings from this study, and in particular positive outcomes identified, might be used to address HVs' concerns over any issues that they perceive as barriers to delivery. This appears particularly important in later-career HVs.
- Asking about ACEs may be a means to support the caregiver-HV relationship and provide service users with the opportunity to disclose and discuss their childhood adversity, including for the first time. However, further consideration should be given to the range of ACEs addressed, accessibility of the language used and inclusion of caregivers from different cultural backgrounds or for whom English/Welsh is not their first language.
- Support for high quality training in ACE awareness is apparent, with training shown here to increase the skills and confidence of HVs in this limited sample. Post-training acceptability of ACE enquiry may be improved, especially in later-career HVs, through a more flexible approach based on their assessment of the needs of the family, and the strength of the relationship with the HV. It is important that further work incorporating evidence from both caregivers and HVs revisits the issue of timing of ACE enquiry to fit with the range of challenges that both groups face when dealing with the first few months post-partum.
- Findings suggest that successfully building confidence and engaging HVs in the ACE agenda would benefit from the use of findings from studies such as this one to improve understanding that ACE enquiry does not generally result in complex needs being expressed by caregivers and that on those rare occasions when it does, specialist services to support adults will be available.

6. References

- Lanier P, Maguire-Jack K, Lombardi B, Frey J, Rose RA. Adverse childhood experiences and child health outcomes: comparing cumulative risk and latent class approaches. *Maternal and Child Health Journal* 2018; 22: 288-297.
- Balistreri KS, Alvira-Hammond. Adverse childhood experiences, family functioning and adolescent health and emotional well-being. *Public Health* 2016; 132: 72-78.
- Hughes K, Bellis MA, Hardcastle K, et al. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet* 2017; 2: e356-366.
- Bucci M, Silvério Marques S, Oh D, Burke Harris N. Toxic stress in children and adolescents. *Advances in Pediatrics* 2016; 63: 403-428.
- Danese A, McEwen BS. Adverse childhood experiences, allostasis, allostatic load, and age-related disease. *Physiology & Behaviour* 2012; 106: 29-39.
- Hughes K, Ford K, Davies AR, Homolova L, Bellis MA. Sources of resilience and their moderating relationships with harms from adverse childhood experiences: Report 1: Mental illness. Public Health Wales and Bangor University: Wrexham; 2018.
- Ashton K, Bellis MA, Hardcastle K, et al. Adverse childhood experiences and their association with mental well-being in the Welsh adult population. Public Health Wales: Cardiff; 2016.
- Ashton K, Bellis MA, Davies AR, Hardcastle K, Hughes K. Adverse childhood experiences and their association with chronic disease and health service use in the Welsh adult population. Public Health Wales: Cardiff; 2016.
- Bellis MA, Ashton K, Hughes K, et al. Adverse childhood experiences and their impact on health-harming behaviours in the Welsh adult population. Public Health Wales: Cardiff; 2015.
- McDonnell CG, Valentino K. Intergenerational effects of childhood trauma: evaluating pathways among maternal ACEs, perinatal depressive symptoms, and infant outcomes. *Child Maltreatment* 2016; 21: 317-326.
- Randell KA, O'Malley D, Dowd MD. Association of parental adverse childhood experiences and current child adversity. *JAMA Pediatrics* 2015; 169(8): 786-797.
- Cooke JE, Racine N, Plamondon A, Tough S, Madigan S. Maternal adverse childhood experiences, attachment style, and mental health: Pathways of transmission to child behavior problems. *Child Abuse & Neglect* 2019; 93: 27-37.
- Angerud K, Annerbäck E, Tydén T, Boddeti S, Kristiansson P. Adverse childhood experiences and depressive symptomatology among pregnant women. *Acta Obstetrica et Gynecologica Scandinavica* 2018; 97: 701-708.
- Mersky JP, Janczewski CE. Adverse childhood experiences and post-partum depression in home visiting programs: prevalence, association, and mediating mechanisms. *Maternal and Child Health Journal* 2018; 22: 1051-1058.
- McDonald SW, Madigan S, Racine N, et al. Maternal adverse childhood experiences, mental health, and child behaviour at age 3: the all our families community cohort study. *Preventive Medicine* 2019; 118: 286-294.
- Doi S, Fujiwara T, Isumi, A. Association between maternal adverse childhood experiences and child's self-rated academic performance: Results from the K-CHILD study. *Child Abuse & Neglect* 2020; 104: 104478.
- Center on the Developing Child at Harvard University. Supportive relationships and active skill-building strengthen the foundations of resilience: Working Paper No. 13; 2015. Available at <https://developingchild.harvard.edu/resources/supportive-relationships-and-active-skill-building-strengthen-the-foundations-of-resilience/> [Accessed 06/11/2020]
- Bellis MA, Hardcastle K, Ford K, et al. Does continuous trusted adult support in childhood impart life-course resilience against adverse childhood experiences - a retrospective study on adult health-harming behaviours and mental well-being? *BMC Psychiatry* 2017; 17: 110.
- Larkin W, Cairns P. Addressing adverse childhood experiences: implications for professional practice. *British Journal of General Practice* 2020; 70: 160-161.
- Finkelhor D. Screening for adverse childhood experiences (ACEs): cautions and suggestions. *Child Abuse & Neglect* 2018; 85: 174-179.
- Kia-Keating M, Barnett ML, Liu SR, Sims GM, Ruth AB. Trauma-responsive care in a pediatric setting: feasibility and acceptability of screening for adverse childhood experiences. *American Journal of Community Psychology* 2019; 5: e01900.
- Pearce J, Murray C, Larkin W. Childhood adversity and trauma: experiences of professionals trained to routinely enquire about childhood adversity. *Heliyon* 2019; 5: e01900.
- Rariden C, Smith Battle L, Yoo JH, Cibulka N, Loman D. Screening for adverse childhood experiences: literature review and practice implications. *The Journal for Nurse Practitioners* 2020; Online first 18 September 2020: <https://doi.org/10.1016/j.nurpra.2020.08.002>
- Ford K, Hughes K, Hardcastle K, et al. The evidence for routine enquiry into adverse childhood experiences: a scoping review. *Child Abuse & Neglect* 2019; 91: 131-146.
- Flanagan T, Alabaster A, McCaw B, Stoller N, Watson C, Young-Wolff KC. Feasibility and acceptability of screening for adverse childhood experiences in prenatal care. *Journal of Women's Health* 2018; 27: 903-911.
- Bright MA, Thompson L, Esernio-Jensen D, Alford S, Shenkman E. Primary care pediatricians' perceived prevalence and surveillance of adverse childhood experiences in low-income children. *Journal of Health Care for the Poor and Underserved* 2015; 26: 686-700.
- Hardcastle K, Bellis MA. Asking about adverse childhood experiences (ACEs) in health visiting: findings from a pilot study. Public Health Wales: Cardiff; 2019.
- Johnson K et al. Parents' adverse childhood experiences and mental health screening using home visiting programs: a pilot study. *Public Health Nursing* 2017; 34: 522-530.
- Mersky JP, Plummer Lee CT, Gilbert RM. Client and provider discomfort with an adverse childhood experiences survey. *American Journal of Preventive Medicine* 2019; 57: e51-e58.
- Dube SR. Continuing conversations about adverse childhood experiences (ACEs) screening: A public health perspective. *Child Abuse & Neglect* 2018; 85: 180-184.
- Stats Wales. Ethnicity by area and ethnic group; 2020. Available at <https://statswales.gov.wales/Catalogue/Equality-and-Diversity/Ethnicity/ethnicity-by-area-ethnicgroup> [Accessed 23/11/2020]
- Merrick JS, Narayan AJ. Assessment and screening of positive childhood experiences along with childhood adversity in research, practice, and policy. *Journal of Children and Poverty* 2020; Online first 2 August 2020: <https://doi.org/10.1080/10796126.2020.1799338>
- Bidmead C, Cowley S, Grocott P. The parental contribution to the parent/health visitor relationship. *Journal of Health Visiting* 2016; 4: 48-55.
- Bidmead C, Cowley S, Grocott P. The health visitor contribution to the parent/health visitor relationship. *Journal of Health Visiting* 2016; 4: 212-220.

Appendix 1 – Evaluation methodology

a. The evaluation framework

Generating a comparison cohort

Enquiry for adverse childhood experiences (ACEs) began at each pilot site on a given implementation start date. From this date, the caregivers of all new births were invited to take part in ACE enquiry at their six week routine contact with the health visitor (HV). The intervention design supported the generation of a natural comparison group, consisting of families who had already received their routine six week post-partum contact prior to pilot implementation. These families did not complete the ACE questionnaire or directly discuss their experiences of childhood adversity with a HV. However, all families receiving ACE enquiry (the 'ACE cohort') and all those providing a comparison (the 'Comparison cohort') were invited to complete measures of their health and wellbeing at six months post-partum.

b. Approval

Approval for delivering ACE enquiry was sought locally by service managers. Research and Development functions in each of the participating health boards (Swansea Bay University Health Board; Hywel Dda University Health Board; and Aneurin Bevan University Health Board) determined that the evaluation was appropriate and did not require further NHS research ethical approval due to its use of non-identifiable data only. The protocol for the evaluation was also reviewed by the Research Governance Committee at Public Health Wales.

c. Service user data – Healthy Child Wales Programme (HCWP)

Sample and procedure

HCWP data held by the services were extracted for all service users who chose to provide ACE information to the HV during their six week routine contact (ACE cohort) or completed the follow up/health and wellbeing questionnaire at their six month routine contact (Comparison cohort). Data collection materials were pre-numbered before being placed in service users' files, thus all participating service users were allocated a unique random sequential service user ID (i.e. a number from 1 to 1999 for the ACE cohort, and from 2000 to 3000 for the comparison cohort). Service users within the same family/relating to the same child (e.g. mother and father) were linked by having the same numerical ID, with the addition of alpha code (i.e. a for mother, b for father). HVs were provided with pseudo-anonymised data extraction sheets that allowed them to capture only relevant variables from HCWP and ensure that no identifiable data were provided (e.g. age provided in categories; ethnicity reduced to dichotomous measure; see below). HVs completed a separate HCWP data extraction sheet for each participating caregiver. Useable HCWP data were extracted for a total of 2731 service users (1477 in Swansea; 671 in Carmarthenshire and 583 in Blaenau Gwent).

Measures

Demographics

Categorical data were collected on service user gender (female; male; transgender; not disclosed) and age (<18 years; 18-25; 26-35; 36-45; >46 years). Owing to it being a protected characteristic under GDPR, ethnicity was extracted as a dichotomous variable only (white British; other). As it was not possible to determine area level deprivation from only part postcodes that were provided, residency in a Flying Start area/receipt of Flying Start services was identified (yes/no) and is used here as a proxy for deprivation.

Family structure

Categorical data were extracted on service users' marital status (single; partnered/cohabiting; married; separated/divorced; widowed; not disclosed). HVs also recorded the total number of children service users had, and the current age of their eldest child both as continuous variables. For the purposes of analysis, these variables were later re-categorised into first child (yes/no) and 1 child, 2-3 children or 4 or more children.

Service need

Level of service provision by the health visiting service was recorded using existing categories – universal; enhanced and intensive (see section 4.4; Box 3).

Family Resilience Assessment Instrument Tool (FRAIT)

HV-generated FRAIT scores (see section 4.4.1; Box 4) were also extracted. Individual scores were given for each of the following subscales: responsive parenting; family health; engagement; family support; and socio-economic factors. Low scores indicate low resilience.

Other public health measures

Categorical data were extracted on service users' smoking status (current smoker; ex-smoker; never smoked) and re-categorised as a dichotomous variable (current smoker yes/no).

d. Data on adverse childhood experiences

Sample and procedure

At their six week post-partum routine contact with the HV, service users in the ACE cohort were invited to complete the ACE questionnaire. Questionnaires were completed individually, or with the help and support of the HV where necessary (e.g. reading the questions aloud when service users had poor literacy skills). Service users had the opportunity to complete the ACE questionnaires in English or in Welsh. Completed questionnaires were retained in service users' files and later securely scanned to PHW. ACE questionnaires were not completed by service users in the comparison cohort.

Measures

Questions adapted from established ACE questions from the Centers for Disease Control and Prevention short ACE tool^{xii} were used to measure childhood exposure to forms of abuse and household dysfunction. Service users responded yes or no to experiencing each of the 10 ACEs during the first 18 years of life. The total number of ACEs experienced was summed and this resultant variable was split into the following four ACE count categories for the purposes of analysis: 0 ACEs; 1 ACE; 2-3 ACEs; ≥4 ACEs. Critically, these categories were selected for consistency with previous empirical

xii Centers for Disease Control and Prevention: Behavioural Risk Factor Surveillance System ACE data. http://www.cdc.gov/violenceprevention/cestudy/ace_brfs.html.

research and are intended only to illustrate potential differences in outcomes by number of ACEs. These categories do not represent thresholds for experiencing negative impacts of ACEs and have not been identified as having any practical application for screening or intervention. Thus, all caregivers in this pilot were engaged in a discussion about early adversity and parenting regardless of their number of ACEs. ACE questionnaires were coded with service users' unique IDs (see above).

A footer section was also provided on each ACE questionnaire for HVs to complete. This detailed the date of ACE enquiry, the appointment during which it took place and the service users' relationship to the child. If HVs did not deem it suitable to complete ACE enquiry, this footer also allowed them to record the reasons for their decision, as well as a space to detail any actions resulting from the enquiry process (e.g. onward referrals to specialist services; etc.).

e. Self-reported, health, parental stress and resilience (the 'follow up' questionnaire)

Sample and procedure

All service users (ACE cohort and comparison cohort) were invited to complete a health and wellbeing questionnaire during their six month routine contact with the HV. Service users had the opportunity to complete the follow up questionnaire in English or in Welsh. Follow up questionnaires were linked to HCWP data extraction (both cohorts) and ACE data (ACE cohort only) by unique ID.

Measures

Self-rated health

Service users were asked to rate their general physical and mental health using a series of faces with the labels: poor; OK; good; and excellent. For the purposes of analysis, dichotomous low self-rated physical/mental health variables were created from poor and OK responses.

Parental stress

Five items taken from the Parental Stress Scale^{xiii} and commonly used in the evaluation of parenting support programmes (Incredible Years; Attentive Parenting Survey <http://www.incredibleyears.com/for-researchers/measures/>) were used to assess service users' confidence and experiences of parental stress. Caregivers responded to statements such as '*I am happy in my role as a parent*' using a Likert scale from strongly disagree to strongly agree. Responses were dichotomised to yes (agree/strongly agree) and no (not sure/disagree/strongly disagree) for each construct. Items exploring community belonging and support were included from the Resilience Centre Adult Resilience Measure^{xiv} and were captured using the same Likert scale and categorised in the same way.

f. Service user feedback

At their routine six month contact with the HV, service users in the ACE cohort were also asked to complete a short feedback survey and provide their reflections on the ACE enquiry process and their engagement with the HV. Using a Likert scale of strongly disagree to strongly agree, service users completed items on the acceptability of ACE enquiry, the importance of HVs understanding their childhood, the experience of ACE enquiry (e.g. HV sensitivity; time to discuss) and its impacts (e.g. improving the help and support provided).

xiii Berry JO & Jones WH. The Parental Stress Scale: Initial psychometric evidence. *Journal of Social and Personal Relationships* 1995; 12(3), 463-472.

xiv Liebenberg L & Moore JC. A social ecological measure of resilience for adults: the RRC-ARM. *Social Indicators Research* 2018; 136(1): 1-19.

g. Practitioner focus groups

Sample and procedure

The lead author worked with service managers in each area to identify suitable timings and locations for feedback sessions. A convenience sample of practitioners was then derived based on staff available to attend for the duration of those allocated sessions. Six focus groups were conducted in Swansea (n=37 participants in total), three in Carmarthenshire (n=21) and one in Blaenau Gwent (n=16). All focus groups took place during normal working hours at a local community or health board venue and were facilitated and recorded by the lead author. All participants were provided with written information about the nature and aims of the focus group and provided informed written consent to participation and audio recording. Focus groups lasted between 35 and 60 minutes and all recordings were transcribed verbatim.

Measures

Semi-structured questions were used to initially direct the discussions (e.g. 'Can you describe what your involvement was in the ACE enquiry pilot? For example, what you did differently when delivering the pilot?'). Topics covered were determined by the participants, who were invited to reflect on any learning, experiences or opinions they felt were relevant to the evaluation. It is important to note that HVs were not directly observed during the pilot. Therefore, any insight into the actual implementation of ACE enquiry, the nature of discussions with service users and fidelity to the ACE enquiry model and process, is derived solely from this practitioner feedback process.

Data analyses

Transcripts from the focus groups were analysed manually by the lead author for coding and thematic analysis. Particular attention was paid to instances where practitioners had consensus or were in disagreement, and findings were triangulated with implementation data and responses from practitioner surveys. Key findings and quotes from practitioner feedback are provided throughout section 4, shown alongside relevant findings from quantitative data analysis to provide context or elaboration.

h. Practitioner surveys

Sample and procedure

Immediately prior to the training sessions delivered by the trainer facilitator (TF), all participating practitioners were invited to complete a pre-training questionnaire. Paper versions of the questionnaire were provided, along with an information sheet outlining the purpose of the evaluation and the voluntary and anonymous nature of participation for practitioners. By completing the questionnaire, practitioners were giving their consent for their data to be used anonymously in the evaluation. Questionnaires were completed individually and took approximately 15 minutes to complete. Completed questionnaires were placed in large envelopes before the training session started and sent to PHW by the TF. Pre-training questionnaires were completed by 118 practitioners (90.8% of those receiving training [n=130]).

Post-implementation questionnaires were completed by practitioners following six months of ACE enquiry implementation, immediately following conclusion of the practitioner focus groups. Completed questionnaires were collected by the lead author and were not seen by team leaders or service managers. Post-implementation questionnaires were completed by 58 practitioners (44.6% of

those receiving training and 49.2% of those who completed a pre-training questionnaire).^{xv} The table below summarises the practitioner sample.

Area	Pre N	Post N	Percentage (%)									
			Age (years)				Length of service (years)				Service	
			<35	36-45	46-55	55+	<2	2-5	6-15	>15	Generic	Flying Start
Swansea	51	36	14.9	35.8	25.4	23.9	14.9	31.3	35.8	17.9	82.1	17.9
Carmarthenshire	47	12	8.0	22.0	38.0	32.0	16.0	28.0	38.0	18.0	94.0	6.0
Blaenau Gwent	20	10	20.0	36.0	36.0	8.0	44.0	32.0	16.0	8.0	68.0	32.0
Total	118	58	13.4	31	31.7	23.9	20.4	30.3	33.1	16.2	83.8	16.2

NB. One male health visitor was excluded from analyses due to being identifiable.

Measures

Demographics (pre-training only)

Practitioners self-reported gender (male; female; transgender; prefer not to say), age (in categories – 18-25 years; 26-35; 36-45; 46-55; over 55 years), their current job role and the length of time they had been in that current role (in years and months). They were also asked to indicate their geographical location (Swansea; Carmarthenshire; Blaenau Gwent).

Confidence to deliver ACE enquiry (pre-training and post-implementation)

Practitioners were asked to indicate, on a scale from 1 (not at all confident) to 10 (completely confident), how confident they felt in:

- Their understanding of what ACEs are and how they can impact a child's brain and their development;
- Their understanding of how ACEs may affect health and wellbeing in later life;
- Their understanding of how ACEs in a mother or father may affect their child;
- Their ability to talk to service users about ACEs in an appropriate and sensitive way;
- Their ability to respond appropriately if someone identifies having had ACEs as a child;
- Their professional judgement in identifying whether or not additional support is needed for a person who has experienced ACEs.

These measures were written for the purposes of this evaluation (in the absence of any suitable established validated tools) but were based on items with good face validity previously used with practitioners in health and policing.^{xvi}

xv Whilst no practitioner taking part in the focus groups explicitly declined completion of the post-implementation practitioner questionnaire, a number of practitioners left focus groups before or immediately after their conclusion to meet other diary commitments.

xvi See: Hardcastle K, Bellis MA. Asking about adverse childhood experiences (ACEs) in health visiting: findings from a pilot study. Public Health Wales: Cardiff; 2019.

Hardcastle K, Bellis MA. Routine enquiry for history of adverse childhood experiences (ACEs) in the adult patient population in a general practice setting: A pathfinder study. Cardiff: Public Health Wales; 2018.

Glendinning F, Barton ER, Newbury A, et al. An evaluation of the Adverse Childhood Experience Trauma Informed Multi-agency Early Action Together (ACE TIME) training: national roll out to police and partners. Cardiff: Public Health Wales; 2019.

i. Data analyses

Data sharing and storage

Two methods of data collection were used to measure service user health and wellbeing: (1) extraction of data from the HCWP by HVs; and (2) self-report by service users. Completed data extraction forms and service user data forms were scanned by service administrators in each of the pilot areas and sent to PHW via secure email for the purposes of analysis. Scanned data files were stored electronically on secure NHS servers in files accessible only to the lead author and nominated research assistant. Services were responsible for ensuring that no personal identifiable information was provided to PHW.

Statistical analyses

Pseudo-anonymous patient data were imported into SPSS v24 for cleaning and statistical analyses. Analyses used chi squared tests for initial bivariate examination of the relationships between ACEs and service provision, family resilience, health, parental stress and community involvement. Binary logistic regression was also used to examine the independent contributions of ACEs and demographics (age; gender; ethnicity; Flying Start; first child; relationship status) to these outcomes. A generalized linear model (GLM) was used to generate adjusted means (i.e. estimated marginal means) for any parental stress and knowledge of community support for individuals with different levels of ACE exposure. GLM allows covariate and categorical variables to be fitted to dependent variables and the resultant model can be used to generate estimates for the dependent variable for given values of the independent variable.^{xvii}

xvii See: IBM Knowledge Centre. SPSS Statistics 24.0.0 Generalized Linear Models. Available at https://www.ibm.com/support/knowledgecenter/zh/SSLVMB_24.0.0/spss/advanced/idh_lidd_genlin_typeofmodel.html [Accessed 11/01/2021].

Appendix 2 – Training information

[Text provided by the training facilitator]

Delivery

A half-day course (3 hours, 15 minutes) was developed and delivered to health visitors and Flying Start staff in Blaenau Gwent (2 courses), Carmarthenshire (3 courses) and Swansea (5 courses) between 15 January and 19 February 2019. A further four courses were provided once the intervention was underway to staff across the three areas who were unable to attend the initial training.

The training approach included slide presentations, video and structured discussion sessions to examine issues such as participants' concerns about, and views as to the benefits of, asking clients about ACEs. The course began by approving a learning agreement and emphasising the importance of self-care.

Purpose

To be competent and confident to deliver the ACE routine enquiry

Learning objectives

1. To improve knowledge and awareness about the nature and extent and impact of ACEs
2. To improve knowledge and awareness about how ACEs can be prevented and their impact reduced
3. To understand the purpose and rationale of ACE routine enquiry
4. To follow the approach and key steps of the ACE routine enquiry

Materials

- Health visitor guide (A4, 10 pages) - The document comprised information about ACEs; the rationale for asking about ACEs in health visiting; findings from the pilot study in Anglesey; a step-by-step health visitor guide and a timeline for the intervention.
- Staff prompt card (A5, 1 side) - Designed to fit inside a diary or notebook, the document summarised the four stages of the step-by-step guide and provided indicative prompts.
- Client leaflet (A5, 2 sides) - Available in Welsh and English, the leaflet described the nature and extent of ACEs and what can be done to prevent them. The leaflet explained that health visitors would provide new parents with the opportunity to find out more about ACEs. The *ACEs animation* website address was also included.
- Advice and support in Wales (A4, 2 sides) - Available in Welsh and English, this document provided website addresses and telephone helplines for 11 national agencies including Live Fear Free, Mind, NSPCC, Samaritans and Women's Aid.

Support

Advice and support was provided to managers on an ad hoc basis. Issues included: addressing concerns about the inclusion of sexual abuse in the ACE questionnaire; responding to client disclosures; and clarifying the purpose of the routine enquiry.

Appendix 3 – Data tables

Table A1. Sample characteristics, comparing the demographics of caregivers who voluntarily took part in ACE enquiry and those who declined

			ACE enquiry		Declined		χ^2	<i>p</i>
			N	%	N	%		
All			1159	-	137	-		
Demographics	Age (years)	16-25	260	22.4	38	27.7	2.709	0.258
		26-35	705	60.8	76	55.5		
		>36	158	13.6	15	10.9		
		Not disclosed	36	3.1	8	5.8		
Gender	Female	910	78.5	93	67.9	9.253	0.010	
	Male	243	21.0	44	32.1			
	Transgender	5	0.4	0	0.0			
	Not disclosed	1	0.1	0	0.0			
Ethnicity	White British	1029	88.8	101	73.7	14.749	<0.001	
	Other	96	8.3	24	17.5			
	Not disclosed	34	2.9	12	8.8			
Relationship status	Single*	86	7.4	14	10.2	1.942	0.379	
	Partnered/cohabiting	471	40.6	49	35.8			
	Married	351	30.3	39	28.5			
	Not disclosed	251	21.7	35	25.5			
Same sex relationship (Yes)		10	0.9	0	0.0	1.191	0.275	
Pilot area	Swansea	617	53.2	76	55.5	5.267	0.072	
	Carmarthenshire	290	25.0	42	30.7			
	Blaenau Gwent	252	21.7	19	13.9			
Deprivation	Flying Start (Yes)	325	28.1	62	45.3	18.907	<0.001	
Dependants	Number of children	1 child	510	44.0	52	38.0	4.009	0.135
		2-3 children	570	49.2	70	51.1		
		≥4 children	79	6.8	15	10.9		
Multiple birth (Yes)		21	1.8	4	2.9	0.795	0.373	

*Includes those self-identifying as single, separated, divorced and widowed. ACE=Adverse childhood experience

Table A2. Bivariate relationships between demographic variables and individual ACEs and total ACE exposure

		Child abuse					Household dysfunction					Total ACE exposure			
		Verbal abuse	Physical abuse	Sexual abuse	Physical neglect	Parental separation	Domestic violence	Mental illness	Alcohol abuse	Drug use	Incarceration	0	1	2-3	≥4
Prevalence	%	13.8	10.4	2.8	2.2	42.2	13.2	20.4	13.5	5.4	4.2	46.2	26.1	15.9	11.8
Age category (years)	16-25	16.3	11.6	3.1	1.2	51.0	16.3	22.5	12.0	8.6	5.1	37.2	32.6	15.5	14.7
	26-35	13.3	10.1	3.1	3.0	29.1	13.3	20.5	14.8	5.3	4.6	48.6	25.1	14.3	12.0
	>36	15.2	10.1	1.9	0.6	39.9	9.5	18.4	10.1	1.3	2.5	49.4	20.3	22.2	8.2
	χ^2	1.567	0.468	0.719	5.077	11.135	3.987	1.039	3.094	10.204	1.592				20.787
	p	0.457	0.791	0.698	0.079	0.004	0.136	0.595	0.213	0.006	0.451				0.002
Gender	Female	13.5	10.1	3.5	2.2	41.5	14.3	20.8	14.2	5.3	3.7	47.3	24.7	15.8	12.2
	Male	15.4	11.6	0.4	2.5	45.7	9.5	19.3	10.7	5.8	6.2	41.2	32.1	16.5	10.3
	χ^2	0.537	0.437	6.660	0.063	1.358	3.718	0.240	1.992	0.087	2.833				6.162
	p	0.464	0.509	0.010	0.802	0.244	0.054	0.624	0.158	0.768	0.092				0.104
Ethnicity	White British	14.7	10.8	2.8	2.3	44.7	13.2	21.4	13.7	5.8	4.7	43.9	27.8	16.0	12.3
	Other	8.3	8.3	4.2	2.1	20.0	15.6	10.4	11.5	3.1	1.0	64.6	12.5	14.6	8.3
	χ^2	2.921	0.549	0.541	0.011	21.643	0.436	6.514	0.373	1.171	2.802				17.236
	p	0.087	0.459	0.462	0.916	<0.001	0.509	0.011	0.541	0.279	0.094				0.001
Pilot area	Swansea	13.2	10.3	2.4	2.0	42.3	13.2	18.4	11.4	4.6	5.2	47.1	26.5	14.7	11.7
	Carmarthenshire	17.1	11.5	3.1	2.4	41.0	14.3	23.6	15.3	7.3	2.8	46.5	22.9	17.7	12.8
	Blaenau Gwent	12.0	9.6	3.6	2.8	44.4	12.4	21.9	16.3	5.2	3.6	42.6	29.5	17.1	10.8
	χ^2	3.550	0.572	0.948	0.620	0.655	0.469	3.676	4.838	2.893	3.146				4.947
	p	0.169	0.751	0.622	0.734	0.721	0.791	0.159	0.089	0.235	0.207				0.551
Deprivation	Non Flying Start	12.4	8.9	2.4	1.8	41.7	11.3	18.0	11.7	4.2	2.5	49.3	26.5	13.9	10.3
	Flying Start	17.8	14.3	4.0	3.4	44.2	18.4	27.0	18.0	8.4	8.7	37.3	25.5	21.4	15.8
	χ^2	5.592	7.230	2.188	2.739	0.626	10.079	11.641	7.928	7.962	21.685				21.859
	p	0.018	0.007	0.139	0.098	0.429	0.001	0.001	0.005	0.005	<0.001				<0.001

ACE=adverse childhood experience

Table A3. Bivariate relationships between ACE exposure, demographics and service provision/caregiver self-rated (SR) health outcomes

		Service level received			Caregiver health		
		Universal	Enhanced	Intensive	Low SR physical health*	Low SR mental health*	Current smoker
All	%	81.3	8.3	10.4	11.3	12.4	12.3
ACE exposure	0 ACEs	85.0	5.6	9.3	8.0	11.4	7.6
	1 ACE	83.4	6.8	9.8	9.5	9.5	14.0
	2-3 ACEs	76.2	14.9	8.8	13.3	8.9	13.1
	≥4 ACEs	69.2	12.8	18.0	25.0	25.5	25.9
	χ^2			30.647	11.487	8.854	35.197
	<i>p</i>			<0.001	0.009	0.031	<0.001
Age category (years)	16-25	75.9	14.2	9.9	5.9	21.2	18.7
	26-35	82.5	7.2	10.4	12.8	11.1	10.8
	>36	85.3	4.5	10.3	12.5	4.2	9.5
	χ^2			15.661	3.083	9.249	12.178
	<i>p</i>			0.004	0.214	0.010	0.002
Gender	Female	82.2	7.8	10.0	12.1	14.0	12.0
	Male	77.9	10.0	12.1	4.9	0.0	13.3
	χ^2			2.354	1.885	6.564	0.269
	<i>p</i>			0.308	0.170	0.010	0.604
Ethnicity	White British	81.4	8.0	10.7	11.7	13.0	12.5
	Other	78.3	10.9	10.9	3.6	7.1	9.6
	χ^2			0.988	1.741	0.816	0.675
	<i>p</i>			0.616	0.187	0.366	0.411
Pilot area	Swansea	87.5	7.7	4.8	10.2	10.7	10.3
	Carmarthenshire	70.4	6.4	23.3	11.1	11.2	12.2
	Blaenau Gwent	78.8	11.9	9.4	14.3	18.2	17.3
	χ^2			74.684	0.949	2.987	7.939
	<i>p</i>			<0.001	0.622	0.225	0.019
Deprivation	Non Flying Start	88.3	7.7	4.0	12.4	12.5	8.4
	Flying Start	63.5	9.7	26.7	7.8	12.2	22.4
	χ^2			131.458	1.454	0.005	42.161
	<i>p</i>			<0.001	0.228	0.945	<0.001

ACE=Adverse childhood experience; SR=self rated; *rated as poor or OK

Table A4. Adjusted odds ratios (AOR) for caregiver health outcomes in demographic and ACE exposure groups

		Low SR physical health*				Low SR mental health*				Current smoker			
		AOR	Low CI	High CI	p	AOR	Low CI	High CI	p	AOR	Low CI	High CI	p
ACE exposure	0 ACEs	(ref)			0.008	(ref)			0.077	(ref)			< 0.001
	1 ACE	1.137	0.444	2.911	0.788	0.699	0.292	1.673	0.422	1.708	1.043	2.796	0.034
	2-3 ACEs	1.640	0.535	5.028	0.387	0.976	0.301	3.162	0.968	1.568	0.889	2.768	0.120
	≥4 ACEs	4.579	1.836	11.416	0.001	2.534	1.048	6.129	0.039	3.728	2.196	6.329	< 0.001
Age category (years)	16-25	(ref)			0.264	(ref)			0.010	(ref)			0.037
	26-35	2.369	0.841	6.671	0.103	0.387	0.188	0.798	0.010	0.597	0.393	0.908	0.016
	>36	2.077	0.531	8.122	0.293	0.161	0.034	0.765	0.022	0.544	0.276	1.072	0.079
Gender#	Male	0.187	0.024	1.445	0.108	0.000	0.000	0.000	0.998	1.130	0.716	1.686	0.599
Ethnicity#	Other	0.303	0.039	2.386	0.257	0.579	0.127	2.643	0.480	0.973	0.462	2.052	0.943
Pilot area	Swansea	(ref)			0.912	(ref)			0.380	(ref)			0.024
	Carmarthenshire	0.982	0.403	2.397	0.969	0.804	0.334	1.931	0.625	1.172	0.737	1.865	0.502
	Blaenau Gwent	1.188	0.501	2.816	0.695	1.535	0.692	3.406	0.291	1.884	1.193	2.975	0.007
Deprivation#	Flying Start	0.600	0.239	1.505	0.276	0.847	0.379	1.893	0.686	2.985	2.034	4.380	< 0.001

ACE=Adverse childhood experience; AOR=adjusted odds ratio; CI=confidence interval; SR=self-rated; *rated as poor or OK. #Reference categories for dichotomous variables: female; white British; non-Flying Start.

Table A5. Bivariate relationships between ACE exposure and demographics and parental stress

		Happy in parent role	Feel close to my children	Feel confident as parent	Caring for children takes more time/energy than I have to give	Overwhelmed by responsibility of being a parent
All	%	99.3	99.1	95.9	28.8	10.6
ACE exposure	0 ACEs	99.1	99.5	96.7	31.6	7.5
	1 ACE	99.1	99.1	96.5	25.7	10.7
	2-3 ACEs	100.0	98.4	96.7	19.7	14.5
	≥4 ACEs	100.0	98.3	91.2	34.5	17.2
	χ^2	1.119	1.242	3.733	4.744	5.796
	p	0.772	0.743	0.292	0.192	0.122
Age category (years)	16-25	100.0	98.9	96.7	34.8	16.5
	26-35	99.3	99.3	96.1	26.6	9.2
	>36	98.3	98.3	93.2	30.0	8.3
	χ^2	1.518	0.534	1.250	2.316	4.246
	p	0.468	0.766	0.535	0.314	0.120
Gender	Female	99.7	99.5	95.9	29.9	10.6
	Male	95.9	95.9	95.9	20.4	10.4
	χ^2	9.548	6.282	0.000	1.903	0.002
	p	0.002	0.012	0.994	0.168	0.968
Ethnicity	White British	99.2	99.0	95.7	28.4	10.9
	Other	100.0	100.0	97.1	32.4	11.8
	χ^2	0.260	0.347	0.149	0.236	0.023
	p	0.610	0.556	0.700	0.627	0.879
Pilot area	Swansea	98.8	98.8	95.2	29.2	11.2
	Carmarthenshire	100.0	99.0	96.1	28.4	8.7
	Blaenau Gwent	100.0	100.0	97.8	28.3	11.0
	χ^2	2.356	1.090	1.139	0.039	0.487
	p	0.308	0.580	0.566	0.981	0.784
Deprivation	Non Flying Start	99.1	99.4	96.4	28.6	10.1
	Flying Start	100.0	98.1	94.3	29.5	12.3
	χ^2	0.944	1.533	0.912	0.032	0.415
	p	0.331	0.216	0.340	0.857	0.520

ACE=adverse childhood experience

Table A6. Bivariate relationships between ACEs, demographics and support and community engagement

		Support			Community engagement		
		Family and friends help	Emotional support from family and friends	Feel like belong in community	Know where to get help in community	Get involved with local community	Think it is important to socialise with other families
All	%	93.0	93.3	83.1	87.9	74.3	90.1
ACE exposure	0 ACEs	97.6	96.7	85.4	88.2	76.1	94.8
	1 ACE	92.0	92.9	85.7	87.5	71.7	85.8
	2-3 ACEs	83.9	87.1	85.5	87.1	83.3	85.5
	≥4 ACEs	87.7	87.9	67.2	87.9	63.8	85.7
	χ^2	17.598	10.400	12.043	0.071	6.671	10.333
	<i>p</i>	0.001	0.015	0.007	0.995	0.083	0.016
Age category (years)	16-25	95.7	92.5	83.9	87.1	59.1	84.8
	26-35	94.0	95.0	83.0	88.7	77.7	92.2
	>36	85.0	86.7	80.0	84.7	81.0	88.3
	χ^2	7.382	5.709	0.410	0.747	14.282	4.515
	<i>p</i>	0.025	0.058	0.815	0.688	0.001	0.105
Gender	Female	93.4	94.7	83.6	88.9	75.7	90.1
	Male	89.8	81.6	79.6	79.2	63.3	89.8
	χ^2	0.880	11.837	0.496	3.788	3.530	0.005
	<i>p</i>	0.348	0.001	0.481	0.052	0.060	0.942
Ethnicity	White British	93.1	93.2	83.5	88.1	74.6	90.1
	Other	91.2	94.1	85.3	88.2	76.5	88.2
	χ^2	0.186	0.045	0.070	0.001	0.057	0.121
	<i>p</i>	0.666	0.832	0.791	0.977	0.812	0.728
Pilot area	Swansea	94.4	94.4	82.8	88.8	75.6	92.0
	Carmarthenshire	89.2	93.2	78.6	82.5	70.6	86.4
	Blaenau Gwent	93.4	90.1	89.1	91.3	75.0	88.9
	χ^2	3.054	1.976	3.864	3.953	0.981	2.770
	<i>p</i>	0.217	0.372	0.145	0.139	0.612	0.250
Deprivation	Non Flying Start	93.8	94.4	83.5	87.0	75.4	90.9
	Flying Start	90.6	89.6	82.1	90.5	70.8	87.6
	χ^2	1.289	2.926	0.114	0.896	0.930	0.941
	<i>p</i>	0.256	0.087	0.736	0.344	0.335	0.332

ACE=adverse childhood experience

Table A7. Adjusted odds ratios (AOR) for caregiver health outcomes for ACE cohort and comparison cohort, with demographics

		Low SR physical health*				Low SR mental health*				Parental stress (any)				Know where to get help in the community			
		AOR	Low CI	High CI	p	AOR	Low CI	High CI	p	AOR	Low CI	High CI	p	AOR	Low CI	High CI	p
ACE enquiry	No	1.474	0.982	2.213	0.061	1.346	0.916	1.978	0.131	1.667	1.286	2.162	<0.001	0.664	0.465	0.947	0.024
Age category (years)	16-25	(ref)			0.581	(ref)			<0.001	(ref)			0.247	(ref)			0.027
	26-35	0.896	0.566	1.420	0.641	0.475	0.313	0.720	<0.001	0.773	0.565	1.058	0.108	1.560	1.043	2.332	0.030
	>36	0.699	0.356	1.373	0.298	0.318	0.16	0.633	0.001	0.895	0.582	1.376	0.613	2.115	1.162	3.850	0.014
Gender	Male	0.705	0.406	1.225	0.215	0.707	0.413	1.208	0.204	0.921	0.654	1.296	0.635	0.641	0.423	0.971	0.036
Ethnicity	Other	0.866	0.440	1.704	0.677	0.634	0.295	1.363	0.244	1.682	1.098	2.579	0.017	1.036	0.564	1.903	0.908
Pilot area	Swansea	(ref)			0.386	(ref)			0.627	(ref)			0.361	(ref)			0.042
	Carmarthenshire	0.703	0.426	1.160	0.168	1.137	0.716	1.804	0.587	0.843	0.608	1.167	0.303	0.665	0.443	0.997	0.048
	Blaenau Gwent	0.912	0.571	1.456	0.699	1.238	0.796	1.928	0.343	1.103	0.804	1.513	0.542	1.203	0.769	1.882	0.419
Deprivation	Flying Start	1.336	0.871	2.048	0.184	0.839	0.545	1.291	0.425	1.324	0.987	1.777	0.061	1.451	0.955	2.209	0.081
No. children	1 child	(ref)			0.014	(ref)			0.304	(ref)			0.018	(ref)			0.600
	2-3 children	1.065	0.707	1.606	0.762	1.148	0.776	1.698	0.490	1.415	1.083	1.849	0.011	1.028	0.715	1.479	0.880
	≥4 children	2.912	1.395	6.080	0.004	1.872	0.832	4.211	0.129	1.752	0.983	3.123	0.057	0.707	0.339	1.473	0.355

ACE=adverse childhood experience; AOR=adjusted odds ratio; CI=confidence interval; SR=self-rated; *low=rated as poor or OK; *Reference categories for dichotomous variables are receiving ACE enquiry (ACE cohort), female, white British, non-Flying Start.

Katie Hardcastle & Mark A. Bellis
Policy and International Health
World Health Organization Collaborating Centre on
Investment for Health and Well-being
Public Health Wales NHS Trust
Clwydian House
Wrexham Technology Park
Wrexham LL13 7YP

Email: enquiries@wales.nhs.uk

© 2021 Public Health Wales NHS Trust

Material contained in this document may be reproduced under the terms of the Open Government Licence (OGL) www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ provided it is done so accurately and is not used in a misleading context. Acknowledgement to Public Health Wales NHS Trust to be stated.

Copyright in the typographical arrangement, design and layout belongs to Public Health Wales NHS Trust.

ISBN 978-1-78986-154-315