# MRC/CSO Social and Public Health Sciences Unit Consultation Response

## Title of consultation
Evidence-based Early Years Intervention Inquiry

## Name of the consulting body
House of Commons Select Committee: Science and Technology Committee

## Link to consultation

## Why did the MRC/CSO Social and Public Health Sciences Unit contribute to this consultation?
This inquiry specifically asks about the state of the evidence-base for the link between adverse childhood experiences (ACEs) and long-term negative outcomes, as well as the quality of the evidence-base for early-years interventions to address adverse childhood experiences and minimise their effects. Research currently being conducted at the Unit can address both these issues. Our contribution outlines our current understanding of the impact of experiencing ACEs on health and social outcomes, as well as describing our ongoing research which can contribute to answering these questions.

## Our consultation response
We are responding to the following questions outlined by the Committee for this inquiry’s written evidence on:

1. The evidence-base for the link between adverse childhood experiences and long-term negative outcomes, and any gaps in that evidence base, as well as data on which specific adverse childhood experiences produce greatest adverse impact.
2. The quality of the existing evidence-base for specific early-years interventions that aim to address adverse childhood experiences and minimise their effects in later life.
3. The extent to which local and national government policies for early-years intervention reflect that evidence-base, and the challenges involved in disseminating, accessing and using the latest evidence, as well as the opportunities for intervention suggested by the evidence but not currently being implemented.

## Our response:

### Executive Summary
- There is robust evidence that Adverse Childhood Events (ACEs) adversely affect physical and psychological health, and contribute to premature death. Parental psychopathology, child maltreatment, physical and sexual abuse, and being looked after in local authority care are particularly detrimental.
- No prevalence estimates exist in the UK for the proportion of children who are currently being...
exposed to ACEs. As recent exposure to adversity may heighten health risks, inclusion of ACEs measures in routine child health surveillance would allow for data linkage to assess the short-, medium- and long-term impacts on child health.

- Little is known about the causative pathways underscoring these relationships. Possible mechanisms are: adoption of health-harming behaviours; impacts upon social determinants of health; and the effects of toxic stress on physiological responses.
- Interventions seeking to address ACEs should seek to both reduce the harmful sequelae of ACEs and reduce the likelihood of ACEs occurring in the first place. Poverty is a major cause of conflict within families and relationship breakdown. Reducing poverty among families with children is essential to preventing ACEs.
- Early-years interventions are likely to provide the highest level of return on investment [1]. Parenting interventions offer opportunities to do this. However, little research has addressed how interventions engage the most vulnerable, or how and why some early-years interventions work for some families but not others. We recommend that future work focuses on understanding how interventions work and for whom, assesses cost-effectiveness, and explores how to reach and engage the most vulnerable. The THRIVE and BeST trials being conducted at the University of Glasgow will address some of these issues.
- Continuing to intervene throughout the lifecourse is necessary to reduce intergenerational transmission of ACEs. Interventions focussed upon reducing gender-based violence, promoting emotional and social wellbeing and promoting recovery from drugs and alcohol may afford benefits.
- Whilst interventions to address ACEs and their associated effects upon health are needed, unless structural inequalities in society are addressed, and the projected rise in poverty among families with children prevented, we will continue to witness substantial health inequalities.

Background
The MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, conducts world-leading research to understand the determinants of population health and health inequalities, and to develop and test interventions to improve health and reduce inequalities. The Unit is part of the Institute of Health and Wellbeing. Our research uses a wide variety of methods including qualitative research, the collection, linkage and analysis of social survey and routinely collected data, evidence synthesis, randomised controlled trials and natural experimental studies. The Unit receives core funding from the Medical Research Council and the Scottish Government Chief Scientist Office, as well as grant funding for specific projects from a range of sources. Further information about the Unit is available at http://www.gla.ac.uk/sphsu

1. Link between adverse childhood experiences and long-term negative outcomes, any gaps in that evidence base, as well as data on which specific adverse childhood experiences produce greatest adverse impact.

1.1 ACEs include being a victim of abuse and/or neglect, and growing up in households characterised by mental ill-health, substance abuse, domestic violence, parental separation and parental imprisonment [2]. There is well-established, robust evidence demonstrating ACEs increase the risk of illness, including: angina pectoris, arthritis, asthma, cancer, chronic lung disease, diabetes, hypertension, ischaemic heart disease, liver disease, osteoporosis, psychiatric disorders, skeletal fractures, stroke and suicidal ideation [2-10]. In all studies, reported risk is cumulative, with those experiencing higher numbers of ACEs having the poorest health.

1.2 Illness onset occurs earlier in those exposed to ACEs. By age 69, approximately 80% of individuals with 4+ ACEs will develop a major illness compared to approximately 50% of individuals with 0 ACEs [11]. The earlier onset of disease contributes to premature mortality. Data from the 1958 British Birth Cohort Study shows that men with 2+ ACEs have a 57% increased risk of dying before 50. Women with 2+ ACEs have an 80% increased risk [12].

1.3 There is evidence from studies in Europe and north America that parental psychopathology, child maltreatment and being a looked after child (LAC) are the strongest predictors of depressive
disorders, anxiety disorders, suicide attempts, drug use, engagement in risky sexual behaviour and the contraction of sexually transmitted infections [5, 13-16]. Physical and sexual abuse during childhood may have unique adverse influences upon the development of poor health [14]. Further research is required to understand risk factors associated with maltreatment and the causative pathways to adverse health. Given evidence demonstrating suicidal ideation is predicted by sexual abuse histories in women, and exposure to domestic violence in men [6], research should focus upon identifying differential effects of gender upon ACEs-associated health outcomes.

1.4 Approximately 50% of adults in England and Wales have experienced 1+ ACEs, with 8% (England) and 14% (Wales) reporting 4+ ACEs [17, 18]. No published data exists on ACEs prevalence amongst those aged 0-18 in the UK. This is a significant gap as it is likely that recent adversity will have more pronounced effects upon health than historic exposures [19]. Although there is evidence to suggest that ACEs accumulation at ages 6, 12 and 17 is associated with poorer physical and mental health outcomes at those ages [20-23], it is not sufficient to conclusively state what the short-, medium-, and long-term effects of ACEs are. Thus it is essential that ACEs prevalence is measured for 0-18 year olds. Data from cohort studies can estimate ACEs prevalence. Exploratory analyses from the Growing Up in Scotland (GUS) study show that by age 8, 65% of Scottish children have 1+ ACEs, whilst 10% have 3+ ACEs [24]. However, measurement issues may result in prevalence being underestimated. For instance, the GUS figures do not include measures of material neglect or sexual abuse [25]. Inclusion of ACEs measures in routine child health surveillance would remedy this, and afford opportunities for: 1) data linkage with health, social care and education datasets to assess the impact of ACEs across a range of outcomes, and 2) the use of this data as pre- and post- assessment measures of potential intervention effects. An exemplar linkage project to assess the health of LAC in Scotland has been approved by the Scottish Government [26]. This project, which will ascertain whether health, mortality and pregnancy rates of LAC differ from those of school-aged children in the general population, will act as a test case for linking educational, health and social work data.

1.5 Whilst there is robust evidence demonstrating that ACEs increase morbidity and mortality, less is known about the causative pathways and mechanisms underscoring this relationship. Potential mechanisms for exploration include:

1.5.1 Adoption of health-harming behaviours
ACEs increase the risk of adopting health-harming behaviours such as poor diet, substance abuse, alcohol abuse, smoking, sexual risk taking, antisocial behaviour, interpersonal violence and criminal behaviour [27]. These behaviours are known predictors of illness, injury and accident [28, 29], and may therefore explain the increased risk of morbidity and mortality observed. Health-harming behaviours may also affect health through their impact upon social determinants of health, including educational attainment, employment and household income [30].

1.5.2 Impacts upon social determinants of health
ACEs adversely affect educational attainment, employment and income. There is significant evidence that maternal mental ill-health and child maltreatment is associated with increased school exclusion, lower attainment and greater use of special educational needs placements [31-37]. Lower educational success contributes to higher levels of unemployment, greater welfare dependency and lower household income amongst maltreated individuals [38-40]. These factors may act as a pathway towards the experience of increased morbidity and mortality by increasing poverty and social exclusion [41]. Better understanding of how social determinants of health and ACEs intersect would help inform intervention development.

1.5.3 Effects of toxic stress on physiological responses
A growing body of evidence demonstrates that repeat exposure to ACEs can result in long-term changes to nervous, endocrine and immune system [42, 43]. This evidence suggests that long-term activation of the body’s stress responses alters its function in such a way that when an individual who has been exposed to ACEs feels stressed the usual
This results in chronically elevated stress hormones and is referred to in the literature as a toxic stress response. Chronic and toxic stress places additional wear and tear upon physiological systems, and contributes to increased risk of mortality and morbidity [44-47]. Continued research is needed to ascertain 1) the extent to which physiological pathways underscore increased mortality and morbidity, and 2) whether differences exist by age, gender, ethnicity and type of adversity faced.

1.6 Interventions to prevent ACEs would result in substantial cost savings to statutory agencies. A recent study undertaken for the NSPCC concluded that for each victim of non-fatal child maltreatment the cost to health and social care, education, criminal justice and the wider economy is approximately £89,390. This figure rises to approximately £940,758 when maltreatment results in a fatality [48]. Substantial savings to the NHS may also be possible. The English national ACEs study [11] estimates that eradicating ACEs would result in reductions of: 31% for pre-16 sex; 38% for teenage pregnancy; 16% in the use of tobacco; 15% for binge drinking; 52% in the perpetration of violence; 33% in the use of cannabis; 59% in the use of heroin or crack cocaine; and, 53% for imprisonment [49]. It is also estimated that up to 30% of all psychiatric illnesses could be eliminated by addressing ACEs [9].

2. Quality of the existing evidence-base for specific early-years interventions that aim to address adverse childhood experiences and minimise their effects in later life.

2.1 High ACE scores are associated with parental stress, role reversal, permissive parenting, lower perceived parental competence and the use of harsh physical discipline [50, 51]. As children of individuals with ACEs are at increased risk of also experiencing ACEs [15, 37, 52, 53], understanding parenting practices may help explain intergenerational transmission of ACEs.

2.2 Parenting programmes are a key way of intervening in early life [54]. An extensive body of high-quality research demonstrates their effectiveness in improving health and other outcomes for parents and children [55-58]. Particular emphasis has been placed on the use of parenting programmes, including intensive home visiting, for the reduction of child maltreatment [59, 60]; however, a recent review of such programmes concluded that results were mixed and warranted further investigation [61]. Context is important and further investigation of the transferability of interventions developed overseas into the UK is needed. For instance, a recent RCT in England of the Family Nurse Partnership, which has proven successful at improving maternal and child outcomes in the USA, concluded that intensive home visiting for young mothers afforded no more benefit than routine health and social care in England [62]; suggesting funds would be better invested in existing universal services.

2.3 Four other important gaps exist in the evidence of parenting programme efficacy. First, few studies address the issue of reach, i.e. the proportion of a target group who receives the programme. Second, few studies consider whether programmes actually recruit and retain those parents and children in the most disadvantaged positions who are likely to need them most [63]. Third, it is not fully understood how and why some early interventions which work on average for disadvantaged families do not work for the most disadvantaged. Finally, few studies have long term follow-up so it is not known how long the effects of interventions persist. Future studies should focus on unpacking how evidence-based interventions work, and for whom. They also need to build on the existing, but relatively small, evidence-base around long-term outcomes, cost effectiveness and the challenges of reaching the most vulnerable.

2.4 Two randomised controlled trials (RCTs) at the University of Glasgow are evaluating early interventions targeting the most vulnerable groups in society.

2.4.1 The THRIVE trial (based at our unit, MRC/CSO SPHSU) is evaluating two evidence-based parenting programmes in a three-arm RCT. Funded by the National Institute for Health Research (NIHR) from 2013-2019, main outcomes will be published in 2019 [64]. The theoretical basis of the interventions is that women vulnerable in pregnancy are more likely to be anxious and depressed...
and thus produce higher levels of stress-related hormones that are damaging to the developing foetus [65]. Thus, intervening antenatally may be optimal [66-69]. The trial will compare the cost-effectiveness of Enhanced Triple P for Babies (ETPB), Mellow Bumps (MB), and health and social care as usual (CAU) in improving mother-child interaction and maternal mental health. The primary questions THRIVE will address are:

1) Do participants receiving ETPB or MB show significantly lower anxiety, depression and outwardly expressed irritability compared to those receiving CAU when their babies are 6 months old?

2) Do women who receive ETPB or MB show more sensitive interactions with their babies compared to those receiving CAU when their babies are 6 months old?

THRIVE will also contribute to the evidence base by exploring:

- whether, and how, such group-based parenting programmes work for mothers with particular vulnerabilities
- whether, and how, more skills-based or more therapeutic intervention is most effective for particular parents
- the role of fathers in parenting interventions [70]
- whether parenting interventions designed for vulnerable populations can successfully recruit and retain the women they are designed to reach

2.4.2 The Best Services Trial (BeST) is rigorously evaluating the New Orleans Intervention Model (NIM) in a two-arm RCT. Funded by NIHR from 2015-2020, outcomes are likely to be published in 2020 [71]. NIM was developed in the USA and is an infant mental health service targeting families whose children have entered foster care because of maltreatment. NIM is being compared with enhanced services as usual – a social work based assessment service – across three sites in England and Scotland; 462 families with children aged 0-5 at the time of entry into foster care will be recruited.

The theoretical basis of NIM is that if families who have maltreated their child are to be able to change enough to safely have their children home, they need to own the fact that they have maltreated their child and work to build more positive attachment relationships. For maltreated children, the most important intervention may be the provision of a safer and more nurturing home environment as research on sensitive periods in neural development suggests that addressing inadequate care in the early years of life may improve neural circuits underpinning emotional regulation in later life [72]. The primary aim of BeST is to establish whether NIM is effective in improving the mental health of maltreated children compared to routine case management. Secondary aims include identifying whether NIM: improves the relationship between maltreated children and their primary caregiver; effects more timely permanent placement decisions for maltreated children; and, is cost-effective in terms of the mental health of the child and the longer term impact on society.

2.5 In addition, a number of studies taking place at MRC/CSO SPHSU aim to increase understanding of parenting practices and inform design of interventions that support vulnerable parents. These include:

- an evaluation of parenting and play interventions with incarcerated fathers [73-75];
- a mixed methods study of vulnerable mothers and/or their partners that will explore how people’s upbringings, including their experiences of ACEs, influence their subsequent parenting practices [76];
3. Extent to which local and national government policies for early-years intervention reflect that evidence-base, as well as the opportunities for intervention suggested by the evidence but not currently being implemented.

3.1 In this section we focus upon opportunities for intervention suggested by the evidence that are not currently being implemented.

3.2 Although early-years interventions provide the highest level of return on investment [1], there is continued need to intervene throughout the life course to address the sequelae of ACEs. Interventions that may 1) mitigate the adverse effects of ACEs upon child and adolescent health and 2) help prevent intergenerational transmission of ACEs are being evaluated by MRC/CSO SPHSU:

3.2.1 Promoting emotional and social wellbeing in primary school pupils
Children exposed to ACEs often present with significant behaviour problems, including emotional instability, depression and a tendency towards showing aggressive behaviours towards others [78]. This may result in the display of problematic behaviours in schools which increase the likelihood of school exclusion and poor attainment [79]. Primary schools are a practical setting to enhance emotional and social wellbeing since virtually the whole population can be reached and programmes may be relatively cheap to deliver if integrated into existing educational provision. The Social and Emotional Education and Development (SEED) trial is rigorously evaluating an intervention designed to promote emotional and social wellbeing amongst Scottish primary school children. Funded by NIHR from 2012-2017, outcomes of this two-arm RCT will be available in late 2017. SEED uses educational psychologists to provide school staff and pupils with feedback on assessments of pupils’ needs (measured using the Strengths and Difficulties Questionnaire) and school organisational needs. This feedback is used to: promote reflection on school policy, practice and culture; help teachers to select initiatives/approaches to address pupil and school needs; and, develop commitment to positive change. This approach is incorporated into the school’s improvement plan and can result in additional support for pupils, teachers and parents being identified and provided.

3.2.2 Tackling gender-based and inter-personal violence
As ACEs are predictive of both experiencing and perpetrating interpersonal violence, interventions designed to promote understanding of respectful, responsive and non-violent relationships are required. Intervening during adolescence may prevent intergenerational transmission of gender-based and inter-personal violence by providing adolescents with the knowledge and skills to recognise and challenge behaviours indicative of abusive relationships prior to their becoming parents. Recent pilot work suggests that schools-based intervention may be beneficial [80]. If funded, the Equally Safe in School study will explore the potential of using a whole-school approach to reduce rates of gender-based violence. This study will evaluate an intervention delivered by Rape Crisis Scotland, aiming to embed positive gender norms in schools’ ethos and environment.
### 3.2.3 Alcohol and drugs recovery

Drug and alcohol addiction remains a significant public health challenge [81]. Interventions designed to promote recovery from drugs and alcohol may have beneficial impacts upon families, including reducing the risk of children being exposed to parental substance abuse. There is little evidence that current provision, including opioid replacement therapy, contributes to stable, long-term recovery [82]. Independence from Drugs and Alcohol Scotland (IFDAS) is currently developing a recovery community modelled on ‘San Patrignano’ (www.sanpatrignano.com) in Italy, one of the largest and most successful drug recovery communities in the world [83, 84]. A realist evaluation of the transferability of key mechanisms underpinning the model is currently being undertaken to inform the development of the recovery community in the Scottish context [85, 86].

### 3.2.4 Preventing recidivism

Higher ACEs prevalence is associated with shorter time to recidivism amongst individuals leaving prison [87]. An evaluation of the role of professional sports organisations in reducing youth recidivism is currently underway [88].

3.3 Whilst interventions to address both ACEs and their associated effects upon health are needed, unless structural inequalities in society are addressed, we will continue to witness substantial health inequalities. Evidence shows that disadvantage starts before birth and accumulates through the life-course [41, 89-91]. Recent conditions of austerity and economic contraction in the UK have disproportionately affected the poorest in society [92, 93], and are likely to increase health inequalities. Child poverty has increased since 2010, following a long period in which the poverty rate fell, and is projected to rise significantly more in the next few years if present policies, in particular the benefit freeze and roll-out of Universal Credit, are maintained [94]. As the accumulation of ACEs is highest amongst those in the most deprived communities [11] we would expect to see ACE-related harms increase, placing additional burden on already stretched health and statutory agencies. We know from qualitative research that “the cumulative effect of benefit sanctions, benefit delays, price rises in basic commodities such as food and energy is tipping more families into crisis and aggravating pre-existing difficulties such as mental health problems, substance misuse and relationship breakdown” [95]. To prevent an increase in the risk of ACE-related harms, economic and welfare policies need to change to prevent a significant rise in the risk of poverty among families with children.

### References


64. Henderson, M., et al., *Trial of Healthy Relationships Initiatives for the Very Early Years (THRIVE): A three arm randomised controlled trial for mothers identified as vulnerable in pregnancy and their babies who are at risk of high maltreatment*. THRIVE protocol. 2013.


73. Moran, J., *Evaluating prison services delivery by Early Years Scotland*. MRC PhD Studentship, jointly funded by Early Years Scotland - Start Date, Sept. 2016.


75. Buston, K., *Recruiting, retaining and engaging men in social interventions: lessons for implementing focusing on a prison based parenting intervention for young incarcerated*
76. Barrett, S., *How people's own upbringing influences their subsequent parenting practices: a mixed method study of vulnerable mothers and/or their partners; to complement the THRIVE trial*. MRC Funded Studentship - Start Date, Sept. 2016.

77. Phipps, R., *Exploring the influence of masculine constructs on the adjustment experiences of fathers after the death of their cohabiting partner*. MRC Funded PhD: Start Date, Sept. 2016.


When was the response submitted?

6th December 2017

Find out more about our research in this area
https://www.gla.ac.uk/researchinstitutes/healthwellbeing/research/mrccsosocialandpublichealthsciencesunit/programmes/relationships/fisr/

Who to contact about this response

Ms. Karen Maxwell or Dr. Catherine Nixon
MRC/CSO Social and Public Health Sciences Unit University of Glasgow
200 Renfield Street Glasgow G2 3QB
Tel: 0141 353 7500
Email: k.maxwell.1@research.gla.ac.uk or Catherine.Nixon@glasgow.ac.uk