

Risk factors for child maltreatment recurrence: An updated systematic review

Oliver G White, Nick Hindley and David PH Jones

Med Sci Law published online 8 August 2014

DOI: 10.1177/0025802414543855

The online version of this article can be found at:

<http://msl.sagepub.com/content/early/2014/08/07/0025802414543855>

Published by:



<http://www.sagepublications.com>

On behalf of:



[British Academy of Forensic Sciences](#)

Additional services and information for *Medicine, Science and the Law* can be found at:

Email Alerts: <http://msl.sagepub.com/cgi/alerts>

Subscriptions: <http://msl.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

>> [OnlineFirst Version of Record](#) - Aug 8, 2014

[What is This?](#)

Risk factors for child maltreatment recurrence: An updated systematic review

Oliver G White^{1,2}, Nick Hindley^{2,3} and David PH Jones³

Medicine, Science and the Law

0(0) 1–19

© The Author(s) 2014

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/0025802414543855

msl.sagepub.com



Abstract

Objectives: Children who have been maltreated are at increased risk of further maltreatment. Identification of those at highest risk of further maltreatment is a priority for professionals working in child protection services. The current study is intended to consolidate and expand on previous work on recurrence of child maltreatment. It has sought to identify risk factors for maltreatment recurrence in the recent literature in the expectation that this may help in the practical identification of children at risk.

Methods: We conducted a systematic review of cohort studies published between 2003 and 2009, identifying factors associated with maltreatment recurrence in children. Studies included demonstrated differing levels of substantiation of maltreatment.

Results: Fifteen studies met inclusion criteria but showed significant heterogeneity, varying in setting, recruitment of subjects, types of maltreatment considered and length of follow-up. Previous findings were replicated and expanded in the current study in relation to a range of factors, including rates of maltreatment recurrence, maltreatment types, frequency of previous episodes of maltreatment, child and family considerations, home environment and service provision. Factors were identified irrespective of level of maltreatment substantiation.

Conclusion: This study provides further systematic evidence of the existence of a number of factors associated with child maltreatment recurrence. It points to the possibility of practical application of its findings within the wider context of decision making in child protection services, with the ultimate aim of reducing recurrence of maltreatment in individual cases.

Keywords

Child maltreatment, recurrence, re-reporting, re-referral, risk assessment, risk factors

Introduction

Child maltreatment affects millions of children throughout the world. In 2010, an estimated 3.3 million referrals involving the alleged maltreatment of approximately 5.9 million children were received by Child Protective Services (CPS) in the United States.¹ In the UK, the National Society for the Prevention of Cruelty to Children found that 5.9% of under 11 year olds and 18.6% of 11–17 year olds had experienced severe maltreatment during their childhood.² In England, there were 607,500 referrals to children's social care services in the year ending 31 March 2010.³

Child maltreatment is associated with numerous negative outcomes⁴ and high cost of providing services to families.⁵ Protecting children from harm is a primary function of child welfare agencies and the overriding concern of child protection laws internationally.

Maltreatment recurrence is becoming increasingly recognised in the context of risk assessment by clinicians and practitioners. Many children and families are the subjects of repeated referrals to child protection services. Inquiries into child deaths and serious

injuries reveal that, all too often, the children in question were already known to such services.⁶ Recurrence is now a well-established indicator of child welfare system functioning; in the United States, it forms part of the ongoing US Federal Child and Family Services Review (CFSR) process. Annual reports by the US federal government document six-month recurrence rates for each state.¹ In the United States, during 2010, rates of child maltreatment recurrence (defined as a further incident of substantiated or

¹Bluebird House Secure Forensic Mental Health Service for Young People, UK

²Thames Valley Community Forensic Child and Adolescent Mental Health Service, UK

³University of Oxford, UK

Corresponding author:

Oliver G White, Consultant Child and Adolescent Forensic Psychiatrist, Bluebird House Secure Forensic Mental Health Service for Young People, Tatchbury, Mount Calmore, Southampton, SO40 2RZ, UK.

Email: owhite@nhs.net

indicated maltreatment within a six-month period) by US state varied between 1.2% and 12.3%.¹ In the UK, re-registration of a child subject to a child protection plan is recorded in a similar way. In England, in the year ending 31 March 2010, 44,500 children became the subject of a child protection plan. Of these 6000 (13.6%) became the subject of a plan for a second or subsequent time.³

There has been a general reduction in recorded maltreatment recurrence in recent years.^{1,7} The latest available national US data indicate that 52.9% of states were able to meet the US Department of Health and Human Services target for absence of maltreatment recurrence in 2010.¹

Evidence identifying risk factors for recurrence of maltreatment already existed prior to the current study. Child factors included younger age,^{8,9} physical health problems and vulnerability^{10,11} and race.¹² Parent/caregiver factors included single parent status,¹³ parents' own history of maltreatment,¹⁴ substance abuse,^{8,15} high levels of stress,^{16,17} low levels of social support^{10,16} and mental health problems.^{13,18} Environmental factors associated with maltreatment recurrence included larger numbers of children in the household,^{10,11,19} domestic violence¹⁶ and low family income.^{18,20} Recurrence had also been shown to vary with type of maltreatment, child neglect being most frequently implicated.^{12,20,21} In their review, Hindley et al.²² found that four factors were most consistently identified as predicting future maltreatment: number of previous episodes of maltreatment, neglect (as opposed to other forms of maltreatment), parental conflict, and parental mental health problems. They also concluded that children maltreated previously were approximately six times more likely to experience recurrent maltreatment than children who had not previously been maltreated. Risk of recurrence was highest within 30 days of the index episode of maltreatment and diminished thereafter.

It has proved difficult to extract consistent meaning from the current evidence base, and considerable uncertainty remains as to which factors should take precedence during risk assessment. It is for this reason that we sought to extend and consolidate the findings of a previous systematic review undertaken by Hindley et al.²² As other reviewers have acknowledged,²³ heterogeneity of the literature leads to difficulties in interpretations for clinicians and researchers alike. It was felt that further examination of more recent studies along similar methodological principles might contribute to a more reliable evidence base. Further, a stronger evidence base could provide a sufficiently strong empirical foundation for structured risk assessment, given that professionals working with children and families are still required to make crucial decisions about whether children should be removed from, or returned to, a family where an incident of maltreatment has occurred.

This systematic review therefore builds upon and extends the work of Hindley et al.,²² and shares the same broad methodology to facilitate comparisons. In the current study, the scope of material under review is widened by considering, in addition to fully substantiated maltreatment, studies examining cases with varying degrees of substantiation. This has been done in the light of evidence^{8,24} that such broadening of inclusion criteria should not significantly affect results. We decided on a more inclusive approach for three principal reasons. First, evidence linking substantiation with outcomes for children, such as levels of harm or risk, has been contradictory; some studies find a clear association between substantiation status and measures of harm, risk and degree of evidence, while others do not.²⁵ Second, poor child protection decision making (with underestimation of substantiated cases) has been noted by several authors in large-scale studies of substantiation decision making.^{26,27} In Cross and Casanueva's²⁶ study of adolescents, a full 9% of the sample had suffered indications of harm, risk and evidence sufficient to warrant being categorised as substantiated, and yet they were not being designated so by practitioners. Thus, to use substantiation as a faithful index of whether a child has suffered significant harm may be misguided. Finally, there is variation between countries as to policy and practice with regard to substantiation. This even occurs within the United States where there are mandatory reporting systems.²³ Such variation is likely to be greater in countries without mandatory reporting (such as much of Europe and Australasia), and thus cross-national comparisons on the basis of substantiation are potentially problematic.

Methods

Data acquisition

The aim of this systematic review was to identify all cohort studies (published or unpublished) available for review from January 2003 to December 2009, which identified factors linked with recurrence of child maltreatment, whether substantiated or unsubstantiated.

Search strategy

The search time period for this study was from January 2002 to December 2009 inclusive. This ensured that there was overlap with Hindley et al.'s²² original search period (i.e. prior to December 2002). However, in the current study, only studies published from January 2003 onwards were included so that material from the same studies was not duplicated in the two reviews.

Electronic databases. We searched Medline, PsycINFO, CINAHL and Embase for publications. The search

used the following terms: terms relating to children ('young people', 'young person', 'child', 'children', 'adolescent/s', 'adolescence', etc.); terms relating to child abuse ('neglect', 'maltreatment', 'battered', 'significant harm', etc.); terms relating to repetition ('re-abuse', 'recurrence', 'reunification', etc.); and reference to 'outcome'. The full search strategy is available on request from the authors.

Reference checking. The reference lists of all selected studies were inspected to identify additional published and unpublished research.

Hand searching. We searched the three journals that produced the most citations for the review (Child Abuse and Neglect, Child and Youth Services Review, and Child Maltreatment). Issues for the period January 2003 to December 2009 were inspected electronically for further references.

Electronic alerts. We also had a running search open via SCOPUS and Science Direct with key search terms.

Selection of studies

All papers of potential relevance were requested. One author checked all identified studies. Final decisions, relating to inclusion of papers for review, were made by collective discussion between all authors. Studies were considered eligible for review if:

- they considered 'maltreatment' in any accepted form;
- they dealt with recurrence of maltreatment during follow-up;
- the study participants were under 18 years of age;
- they were classifiable as cohort studies;
- they were written in English;
- they considered factors related to recurrence of maltreatment;
- they made some effort to quantify their findings;
- they were published between 1 January 2003 and 31 December 2009.

Consideration was given to studies that dealt with both substantiated and unsubstantiated maltreatment at both inclusion and follow-up time points. The decision to do this, rather than restrict analysis only to studies including fully substantiated cases, as in Hindley et al.'s²² study, was made on the basis of research indicating that substantiation status does not necessarily predict child outcome, including recurrence of maltreatment.²⁴ It has become clear to us that substantiation is not a dichotomous variable but that there are differing degrees of substantiation along a spectrum. This issue is complicated further by the fact that different administrations, databases and therefore studies

vary in their use of terminology with regards to substantiation.

Consideration of the studies included in the current investigation led to the identification of three different categories/degrees of substantiation ('substantiated/verified/indicated', 'investigated/reported' and 'referred') for both initial and follow-up measures. These definitions are broadly recognised within the existing literature.^{1,23} The categories are as follows:

- (a) Substantiated/verified/indicated. (i) An investigation disposition that concludes that the allegation of maltreatment or risk of maltreatment was supported or found according to US state law or policy ('substantiated/verified'). (ii) An investigation disposition that concludes that maltreatment could not be substantiated under US state law or policy, but where there was reason to suspect that at least one child may have been maltreated or was at risk of maltreatment. This is applicable only to states that distinguish between substantiated and indicated dispositions ('indicated').
- (b) Investigated/reported. A referral that has been accepted for investigation or assessment.
- (c) Referral. Notification made to an agency of suspected child maltreatment resulting in a decision to investigate, assess or screen out the referral.

Quality assessment

Two authors assessed the methodological quality of included studies. We used a scoring system that addressed those aspects of study design most important for internal validity. This was adapted from published systems for assessing cohort studies.^{28,29} The key variables assessed were: sample selection, study design, clarity of identification of risk factors, dropouts or withdrawals, clarity of outcome measure, appropriateness of statistical analysis and appraisal of limitations. Each of the seven variables was assessed on a three-point scale (0, poor; 1, fair; and 2, good). The total quality score was obtained by adding the scores of the seven variables, giving a total score ranging from 0 to 14. Differences between reviewers were resolved by consensus. This rating scale is consistent with the scale used in Hindley et al.'s²² systematic review, and is available on request.

Data extraction

One author extracted further data relating to participant characteristics, type of maltreatment experienced, rates of maltreatment recurrence, length of follow-up and factors associated with repetition of maltreatment.

Data analysis

Risk factors were identified in each study, and those that met a statistical significance level of $p < .05$ were accepted. Consistency of the presence of risk factors between studies was then examined.

Meta-analysis was not undertaken due to the heterogeneity of the studies (see below), and because we agree with Altman²⁹ and Egger et al.³⁰ who have argued that meta-analyses of observational epidemiological studies can produce misleading summary statistics. These authors emphasise that reviews of the kind undertaken here should utilise a systematic approach fully documented in the methods section of the paper and that statistical combination of data across studies should not be a prominent component of the review. They point to the danger within meta-analysis of the inclusion of observational data from individual studies which may be distorted by confounding and selection bias and which in turn may distort the significance of meta-analytic findings.

Results

Presentation of results

Detailed findings from included studies are collated in Tables 1–3. Table 2 contains a summary of the overall findings, and Tables 2 and 3 present a summary of the included studies, identifying the variables studied irrespective of reported outcome. The following paragraphs provide an overview of the principal findings.

Studies selected

A total of 496 articles were initially identified via electronic searches. Following initial review and identification of further studies from reference checking, hand searching and electronic alerts, 44 studies were selected for further analysis. This significant reduction in potential studies represents the generalised nature of the electronic searches. Full texts for all 44 studies were obtained and reviewed in detail. Twenty-nine failed to meet inclusion criteria principally because of failure to demonstrate recurrence of maltreatment. Other reasons for exclusion, either alone or in combination, included insufficient data on risk factors, insufficient statistical data and focus on adult abusers only. Fifteen studies were included in the final analysis.

Study heterogeneity

The studies selected for inclusion varied widely in setting, sources of recruitment of subjects, types of maltreatment considered and length of follow-up. This

significant heterogeneity led to our decision not to undertake meta-analysis. It also means that caution should be exercised in interpretation of individual results.

Substantiation

Table 4 shows the distribution of studies according to their substantiation status at original sample selection and follow-up. Eight studies^{31–38} had a standard of substantiated/verified/indicated maltreatment as an inclusion criterion for their original sample. Of these, six studies^{31–33,36–38} maintained the substantiation/verified/indicated standard at the point of follow-up, while the remaining two studies^{34,35} used investigated/re-reported cases at the point of follow-up.

The remaining seven studies^{39–45} used 'investigated/reported maltreatment' as an inclusion criterion. Of these, three studies^{39–41} used the substantiation/verified/indicated standard at the point of follow-up, and four studies^{42–45} used investigated/re-reported as the standard at point of follow-up (although Connell et al.⁴⁵ refer to 're-referral' in their manuscript, close examination of their study indicates that re-investigation was their criterion for inclusion at follow-up).

Methodological quality

There was considerable spread of quality scores across the included papers (see Table 1). These scores ranged between 5 and 13 (maximum possible score 14). One study³⁶ received a quality score (5) which was substantially lower than other studies, and findings from this study, particularly when they occur in isolation, should therefore be interpreted with caution. The heterogeneity of the studies meant that no summary statistics were prepared and that formal sensitivity analysis was not undertaken. Any interpretation of results must clearly take into consideration the quality of the study or studies from which the findings are derived.

Study populations

All 15 studies were conducted in the United States. All dealt with samples of families or children living in community settings, identified by administrative child protection databases. Geographic samples varied from a single county to multi-state databases. The study samples comprised:

- subsets of large, multi-state databases such as NSCAW (National Survey of Child and Adolescent Well-being),^{40,42,43} LONGSCAN (Consortium of Longitudinal Studies on Child Abuse and Neglect)³⁵ and NCANDS (The National Child Abuse and Neglect Data System);^{39,45}

Table 1. Overview of included studies.

Author (year)	Subjects, setting, study design	Quality Score (max 14)	Maltreatment type at baseline (T1)	Length of follow-up	Recurrence rate (T2)	Maltreatment type at follow-up (T2)	Factors associated with reabuse
Sledjeski et al. (2008) ³¹	244 families who had a substantiated case of child maltreatment in a child aged 17 or younger Middle-income county in CT Data from all substantiated investigations between 1 Jan 2003 and 31 Dec 2003 were collected and each family's first 2003 investigation served as the index case	13	All types Substantiated	18 months	Family recurrence rate: 31%	All types of maltreatment Any subsequently substantiated case for a family	History of abuse/neglect (OR = 4.1 [*]) Child's visibility (OR = 2.4 [*]) Perpetrator access (OR = 2.3 [*]) Caregiver limitations (OR = 1.8 [*]) Parenting skills (OR = 2.3 [*]) Parent-child relationship (OR = 2.4 ^{**}) Caregiver assaultative behaviour history (OR = 1.8 [*]) Domestic violence (OR = 2.1 [*]) Low family support (OR = 1.9 [*])
Bae et al. (2009) ³²	32,163 families (37,634 reports) with no previous report history who had a substantiated case of physical abuse, sexual abuse and neglect Seven counties in Florida Data from all substantiated cases between 1 Jan 1996 and 31 Dec 1996	11	Physical abuse, sexual abuse, neglect Substantiated	4.4–5.4 years	Family recurrence rate: 13% Likelihood of recurrence steadily increased at the second, third and fourth recurrences	One or more subsequent substantiated reports of physical abuse, sexual abuse or neglect on any child in the family that is reported to CPS agencies during the follow-up period	Multiple recurrence vs. no recurrence Initial abuse type: sexual (OR = 0.59 ^{***}) Initial abuse type: physical (OR = 0.71 ^{***}) Age of victim (OR = 0.94 ^{***}) Ethnicity: Latino (OR = 0.64 ^{**}) Ethnicity: Other (OR = 0.19 ^{**}) Single mother (OR = 1.62 ^{***}) Single father (OR = 1.64 ^{**}) Stepparent (OR = 1.46 ^{**}) Number of dependants (OR = 1.37 ^{**}) Reporter: Medical staff (OR = 0.74 [*]) Reporter: Law enforcement (OR = 0.68 ^{***}) Freq of contact by CPS worker (OR = 1.17 ^{**}) Investigation level (OR = 0.68 ^{***}) Foster care (OR = 1.37 [*]) General CPS services (OR = 1.46 ^{**}) Multiple recurrences vs. single recurrence Age of victim (OR = 0.97 ^{**}) Single mother (OR = 1.21 [*]) Stepparent (OR = 1.36 [*]) Number of dependants (OR = 1.16 [*]) Freq of contacts (OR = 1.10 ^{**}) General CPS services (OR = 1.46 ^{**}) Age 16–20 (RR = 0.14 ^{**}) Prior history of foster care (RR = 2.06 ^{**}) Foster care entry, physical (RR = 0.58 [*]) Final placement: non-relative foster care (RR = 1.94 ^{**})
Connell et al. (2009) ³³	1208 children who had been placed in foster care due to maltreatment and had returned to their parents between 1 Jan 2001 and 30 Sept 2004 Rhode Island	9	Neglect, physical abuse, sexual abuse Substantiated maltreatment	45 months (3.75 years)	Child-level recurrence rates: 8% at 6 months 16% at 12 months 23% at 24 months 30% at 36 months	All types Substantiated maltreatment	

(continued)

Table I. Continued.

Author (year)	Subjects, setting, study design	Quality Score (max 14)	Maltreatment type at baseline (T1)	Length of follow-up	Recurrence rate (T2)	Maltreatment type at follow-up (T2)	Factors associated with reabuse
Fuller and Wells (2003) ³⁶	95 cases from a random sample of 300 first report indicated investigation cases occurring between September 1999 and December 1999 from who had caretaker alcohol or drug use as part of the indicated allegation of maltreatment Cook County region of Illinois	5	All types Indicated maltreatment report	60 days	60 day case recurrence rate: 26%	All types Indicated maltreatment report	African-American mother single parent (OR = 51.26 ^{***}) Police not involved in investigation (OR = 17.67 ^{**}) Risk of caretaker criminal behaviour HIGH (OR = 770.83 ^{***}) Risk of caretaker criminal behaviour LOW (OR = 57.53 ^{**})
Yampolskaya and Banks (2006) ³⁷	499,330 children referred to CPS in seven-year period who had verified maltreatment or some indication of maltreatment occurring between 1 July 1996 and 30 June 2003 Florida	9	All types Indicated/verified	12 months	Child recurrence rates 1996–1997: Approx. 23% at 36 months Approx. 20% at 24 months Approx. 15% at 12 months Reducing recurrence rate over fiscal years	All types Indicated/verified	Bivariate (b) Multivariate (m) (all ^{**}) Prior referrals (bOR = 1.19; mOR = 1.33) Neglect type (bOR = 1.21) Caregiver absence (bOR = 1.37) Multiple maltreatments (bOR = 1.27; mOR = 1.32) Drug use (bOR = 1.19) Alcohol use (bOR = 1.22) D&A use (bOR = 1.25; mOR = 0.98)
Lipien and Forthofer (2004) ³⁸	189,375 children aged between 0 and 15 years with at one least allegation of maltreatment between 1 Jan 1998 and 31 Dec 1999 Florida	12	All types Includes three groups: • No indication • Some indication • Verification	2 years	Child recurrence rate 26% Reducing recurrence rate over fiscal years	All types 1st recurrence of substantiated maltreatment	Ethnicity (compared with white): – Non-white (OR = 0.88 ^{***}) Age (compared with 0–3 years): – 4–7 years (OR = 0.85 ^{***}) – 8–11 years (OR = 0.79 ^{***}) – 12–15 years (OR = 0.77 ^{***}) Indication level (compared with no indication): – Some indication (OR = 1.59 ^{***}) – Verification (OR = 1.33 ^{***}) Maltreatment type (compared with neglect): – Physical abuse (OR = 0.74 ^{***}) – Sexual abuse (OR = 0.69 ^{***}) – Threatened harm (OR = 0.91 ^{***}) Disposition type (compared with no services): – Short-term services (OR = 1.22 ^{***}) – In-home services (OR = 1.70 ^{***}) – Relative foster care (OR = 0.81 ^{***})

(continued)

T1 = Substantiated/verified/indicated

T2 = Substantiated/verified/indicated

Table 1. Continued.

Author (year)	Subjects, setting, study design	Quality Score (max 14)	Maltreatment type at baseline (T1)	Length of follow-up	Recurrence rate (T2)	Maltreatment type at follow-up (T2)	Factors associated with reabuse
Fuller and Nieto (2009) ³⁴	188,471 children aged under 17 who had an initial report for abuse or neglect during fiscal years 1999–2004 and were investigated but did not receive child welfare post-investigation services (i.e. intact family services or substitute care) within 12 months of the index report Illinois	8	All types Report	12 months	Not reported	All types Maltreatment re-reporting. Defined as an investigated re-report, regardless of substantiation deposition.	Child race (compared to Caucasian): – African-American (HR=0.86 ^{***}) – Hispanic (HR=0.65 ^{***}) Child age: (compared to 15–17 years) – 0–2 (HR=2.1 ^{***}) – 3–5 (HR=1.7 ^{***}) – 6–8 (HR=1.6 ^{***}) – 9–11 (HR=1.4 ^{***}) – 12–14 (HR=1.5 ^{***}) Abuse type (compared to sexual abuse) – Physical (HR=1.1 ^{***}) – Neglect (HR=1.2 ^{***}) No of allegations (compared to two or more): – One (HR=0.81 ^{***}) Maltreatment reporter (compared to social service workers) – Family/neighbor (HR=0.82) ^{***} – Law enforcement (HR=0.73) ^{***} – Medical (HR=0.90) ^{**} Number of children in home (compared to none) – 1 (HR=1.2) ^{***} – 2 (HR=1.2) ^{***} – >3 (HR=1.3) ^{***} Perpetrator: mother (HR=1.6) ^{***} Initial report substantiated (HR=1.7) ^{***} Physical or sexual abuse (at index) (OR=5.00 ³⁵) Maltreatment substantiation (OR=2.04 [*])
Thompson and Wiley (2009) ³⁵	149 high-risk families with a target child of <18 months of age who had been reported to CPS and had children removed from the home City districts (USA) Capella project data – one site of the multisite LONGSCAN data	11	Physical abuse, sexual abuse, neglect Substantiated (64.4%) and unsubstantiated (35.6%) reports	11–15 years	10-year child recurrence rate: 42.3%	All types Re-report	
Fluke et al. (2008) ³⁹	505,621 children that were investigated or assessed by CPS from 1998 to 2000 NCANDS case-level data from eight selected states of the United States	12	All types Only reports that received an investigation or assessment response from the agency are included	2 years	2-year child recurrence rate: 22% re-reported 7% re-reported and substantiated	All types Re-report and substantiated re-report	Initial report: Medical personnel sub (RR=0.81 ^{**}) any re-report (RR=0.87 ^{***}) Law enforcement or legal personnel sub (RR=0.89 ^{***}) any rr (RR=0.88 ^{***}) Nonprofessional/other sub (RR=1.05 ³⁵) anyrr (RR=1.14 ^{***}) Child age at initial report: Risk decreases with age both sub ^{***} and any rr ^{***} .

(continued)

Table 1. Continued.

T1 = Substantiated/verified/indicated	T2 = Substantiated/verified/indicated	Quality Score (max 14)	Maltreatment type at baseline (T1)	Length of follow-up	Recurrence rate (T2)	Maltreatment type at follow-up (T2)	Factors associated with reabuse
Jonson-Reid (2003) ⁴¹	1915 children aged between 0 and 16 years reported to child welfare agencies in 1993 or 1994 and who exited foster care	10	All types Reported to child welfare agencies	4.5 years	4.5-year child re-report rate 37% (of which 40% are substantiated)	All types Re-report Substantiated re-report Re-entry to foster care (excluded for purposes of our review)	<p>Child sex: Male sub (RR=0.93^{***}); any rr (RR=0.95^{***})</p> <p>Child ethnicity (compared to white only):</p> <ul style="list-style-type: none"> - American Indian and Alaskan sub (RR=1.18^{***}) - Asian and Pacific Islander sub (RR=0.69^{***}); any rr (RR=0.6^{***}) - African-American sub (RR=0.9^{***}); any rr (RR=0.84^{***}) - Hispanic sub (RR=0.88^{***}); any rr (RR=0.87^{***}) - Other/multiple races sub (RR=1.37^{***}); any rr (RR=1.28^{***}) <p>Child with indication of disability: sub (RR=1.53^{***}); any rr (RR=1.47^{***})</p> <p>Caretaker abuse of alcohol: sub (RR=1.22^{***}); any rr (RR=1.12^{***})</p> <p>Child victim at initial investigation: sub (RR=1.64^{***}); any rr (RR=1.07^{***})</p> <p>Post invest services provided sub (RR=1.74^{***}); any rr (RR=1.35^{***})</p> <p>Child placement in foster care sub (RR=4.24^{***}); any rr (RR=2.19^{***})</p> <p>Age at exit (compared to <5)</p> <ul style="list-style-type: none"> - 5-10 rep (RR=0.73[*]) sub (RR=0.51[*]) - 11-13 (rep: RR=0.60[*]) - 14-16 (rep: RR=0.59[*]) <p>Placement type (compared to foster hm): Kin (rep: RR=0.82[*])</p> <p>Length in care (compared to 3+ months): 0-2 months (rep: RR=1.29[*]) (sub: RR=1.38^{**})</p> <p>Exit type (compared to reunified):</p> <ul style="list-style-type: none"> Adopt/kin/guardian (rep: RR=0.58^{***}) (sub: RR=0.47[*])
Kohl et al. (2009) ⁴⁰	1820 children and families investigated for child maltreatment between November 1999 and December 2000. The	13	All types	36 months	17.4% cases had a re-report 5.3% cases had a substantiated re-report 4.0% cases had the child	All types of maltreatment 1. Any re-report 2. Substantiated re-report 3. Foster care placement	<p>Any re-report: Families below poverty line (HR=1.6[*]) Child with developmental problems (HR=2.0^{**}) Substantiated re-report: Child with developmental problems (HR=2.4^{**})</p>

(continued)

Table I. Continued.

Author (year)	Subjects, setting, study design	Quality Score (max 14)	Maltreatment type at baseline (T1)	Length of follow-up	Recurrence rate (T2)	Maltreatment type at follow-up (T2)	Factors associated with reabuse
	children all remained at home following in the index investigation.				placed into foster care		<i>Foster-care placement:</i> Families below poverty line (HR=2.9%)
Dorsey et al. (2008) ⁴²	National USA data (NSCAW) 2139 children aged 0–14, residing with their primary caregiver and who were the subjects of allegations of maltreatment investigated by child welfare agencies	11	Physical abuse and neglect only Children who had been alleged to have experienced maltreatment and had completed a CPS investigation.	12 and 18 months	18 month child recurrence rate 20.2%	Re-reports of any type of maltreatment subsequent to the index report.	For cases involving physical abuse: Casework report of parental maltreatment (OR=3.36 ^{***}) Prior report of maltreatment (OR=2.44%) For cases involving neglect: Low social support (OR=1.93%) Prior report of maltreatment (OR=2.56 ^{***})
Barth et al. (2006) ⁴³	National USA data set (NSCAW) with exclusions for: 1. Children not residing in the home of their primary caregiver 2. Only children whose primary type of abuse was physical abuse or neglect	10	All types Investigated as victims of child abuse and neglect	18 months	Child level recurrence rates: 19.3% in treated group 8.6% in non-treated group	All types Re-reports	Substance abuse service receipt (HR=2.53 ^{***}) Caregiver mental health problems (HR=2.36 ^{***}) Poverty level: – 100–150%: (HR=0.48 ^{**}) – > 200%: (HR=0.33%)
Drake et al. (2006) ⁴⁴	National USA data (NSCAW) 4957 children aged between 0 and 11 years whose families were receiving 'Aid to Families with Dependent Children (AFDC)' between 1991 and 1994, and the child with a first child abuse and neglect (CAN) report in 1993 or 1994	11	Report All types	7.5 years	3-year child recurrence rate 47.7% 7.5-year child recurrence rate 62.1%	Re-report All types	Older child age in years at index (HR=0.97 ^{***}) Abuse type index report (compared with neglect) – Physical (HR=0.85 ^{***}) – Sexual (HR=0.74 ^{***}) Index report substantiated (HR=1.29 ^{***}) More than one victim in index report (HR=1.22 ^{***}) More than one child in family (HR=1.16 ^{***}) Caregiver graduated high school (HR=0.88 ^{***}) Caregiver mental health/substance misuse

(continued)

Table 1. Continued.

Author (year)	Subjects, setting, study design	Quality Score (max 14)	Maltreatment type at baseline (T1)	Length of follow-up	Recurrence rate (T2)	Maltreatment type at follow-up (T2)	Factors associated with reabuse
	A large Midwestern (USA) metropolitan area						treatment before index (HR=1.58 ^{***}) Permanent AFDC exit before index (HR=0.88 ^{**}) Permanent AFDC exit after index (HR=0.68 ^{**}) Child welfare services after index: - Family Centred Service (FCS) only (HR=0.72 ^{**}) - Family Preservation Service (FPS) or FPS and FCS (HR=1.44 [*]) - Foster care (HR=2.46 ^{**}) - Service need but no services (HR=1.47 ^{**}) Each increase in \$1000 income (HR=0.99 ^{**}) Children eligible for special education services for emotional disturbance (HR=1.49 ^{***})
Connell et al. (2007) ⁴⁵	22,584 children who experienced at least one allegation of child maltreatment that was investigated by CPS between 2001 and 2004 were not removed from the home after initial investigation Rhode Island State submissions to NCANDS – all completed CPS investigations	9	All types of maltreatment Report of alleged maltreatment for which a disposition had been reached	45 months	Child level recurrence rates: 40% overall (45 months) 13% during 1st 6 months 14% over next 12 months 7% over next 12 months	All types of maltreatment Re-investigation	Age at index report: • 11–15 (RR=0.73 ^{***}) • 16–18 (RR=0.37 ^{***}) African-American (RR=0.8 ^{***}) Hispanic (RR=0.83 ^{***}) Child disability (RR=1.33 ^{**}) Family substance abuse history (RR=1.5 ^{**}) Poverty/financial difficulty (RR=3.26 ^{***}) Sexual abuse (RR=0.82 [*]) Substantiated disposition (RR=0.61 ^{**}) Prior maltreatment victim (RR=1.09 ^{**})

*p<.05; **p<.01; ***p<.001.

Table 2. Consideration of key risk factors in the studies.

	Bae et al. (2009) ³²	Barth et al. (2006) ⁴³	Connell et al. (2007) ⁴⁵	Connell et al. (2009) ³³	Dorsey et al. (2008) ⁴²	Drake et al. (2006) ⁴⁴	Fluke et al. (2008) ³⁹	Fuller and Nieto (2009) ³⁴	Fuller and Wells (2003) ³⁶	Jonson-Reid (2003) ⁴¹	Kohl et al. (2009) ⁴⁰	Lipien and Forthofer (2004) ³⁸	Sledjeski et al. (2008) ³¹	Thompson and Wiley (2009) ³⁵	Yampolskaya and Banks (2006) ³⁷
Quality score	11	10	9	9	11	11	12	8	5	10	13	12	13	12	9
Type of abuse (neglect vs. others)	+	0	n/a	n/a	n/a	n/a	+	n/a	n/a	n/a	n/a	+	n/a	-	+
Substantiation	n/a	n/a	-	n/a	n/a	+	n/a	+	+	n/a	n/a	-	n/a	+	n/a
Previous episodes of maltreatment	+	n/a	+	n/a	+	n/a	+	n/a	n/a	n/a	n/a	n/a	+	n/a	+
Child factors															
Younger age	+	0	+	+	0	+	+	+	n/a	+	0	+	0	+	0
Child disability/developmental problems/emotional disturbance	n/a	n/a	+	0	n/a	+	+	n/a	n/a	n/a	+	n/a	n/a	n/a	n/a
Parent/carer factors															
Substance/alcohol misuse	n/a	+	+	n/a	0	+	n/a	n/a	0	n/a	0	n/a	n/a	+	0
Mental health problems	n/a	+	n/a	n/a	0	+	0	n/a	0	n/a	0	n/a	+	n/a	0
Family and environmental factors															
Poverty/low income/financial markers	n/a	+/0	+	n/a	n/a	n/a	n/a	n/a	0	n/a	+/0	n/a	0	n/a	0
Increased family/household size	+	n/a	n/a	n/a	n/a	+	n/a	+	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Service factors															
Involvement of medical/law personnel	-	n/a	n/a	n/a	n/a	n/a	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a
Provision of services/increased contact frequency	+	n/a	0	+	n/a	+	+	n/a	n/a	n/a	n/a	-	n/a	n/a	n/a

+, positive association; -, negative association; 0, non-significant finding; n/a, did not examine this factor.

Table 3. Consideration of key risk factors in the studies.

	No. of studies examining the factor	Positively associated with recurrence	Negatively associated with recurrence	No significant relationship with recurrence
Type of abuse (neglect vs. others)	6	4	1	1
Substantiation	6	4	2	0
Previous episodes of maltreatment	6	6	0	0
Child factors				
Younger age	14	9	0	5
Child disability/developmental problems/emotional disturbance	5	4	0	1
Parent/carer factors				
Substance/alcohol misuse	8	4	0	4
Mental health problems	8	3	0	5
Family and environmental factors				
Poverty/low income/financial markers	6	1/3	0	5/3
Increased family/household size	3	3	0	0
Service factors				
Involvement of medical/law personnel	4	0	4	0
Provision of services/increased contact frequency	6	4	1	1

+, positive association; -, negative association; 0, non-significant finding; n/a, did not examine this factor.

Table 4. Level of substantiation at T1 (intake) and T2 (follow-up) for each included study.

T1 (intake)			
T2 (follow-up)	Substantiated/verified/indicated	Investigated/reported	Referral
Substantiated/verified/indicated	Sledjeski et al. ³¹ Bae et al. ³² Connell et al. ³³ Fuller and Wells ³⁶ Yampolskaya and Banks ³⁷ Lipien and Forthofer ³⁸	Fluke et al. ³⁹ Kohl et al. ⁴⁰ Jonson-Reid ⁴¹	
Investigated/re-reported	Fuller and Nieto ³⁴ Thompson and Wiley ³⁵	Dorsey et al. ⁴² Barth et al. ⁴³ Drake et al. ⁴⁴ Connell et al. ⁴⁵	
Re-referral			

- samples based on single state databases, specifically Missouri,⁴¹ Illinois,^{34,36} Florida^{32,37,38} and Rhode Island;³³
- samples based on smaller areas, such as a single metropolitan area⁴⁴ and a single county.³¹

Types of maltreatment

Twelve studies included children who had experienced any form of maltreatment, including neglect, emotional abuse, physical abuse and sexual abuse.^{31,32,34,36-41,43-45} One study excluded emotional abuse.³³ One study³⁵ included physical and sexual abuse only. One study⁴² included physical abuse and neglect only. All 15 studies, including those that

defined a specific type or types of maltreatment at the start, considered any form of subsequent maltreatment as a measure of recurrence.

Rates of maltreatment recurrence

The range of follow-up times across the studies varied from 60 days to 15 years, and some studies reported recurrence rates at various time points.

Eleven studies examined the recurrence of maltreatment in the same child.^{33,35,37-45} The study with the largest sample size³⁸ reported a recurrence rate of 26% at two years, and the study with the longest follow-up reported a 10-year recurrence rate of 42.3% in 'high risk' families.³⁵ Five studies that reported at 18-24-month follow-up

described child recurrence rates in the region of 20%.^{33,37–39,42}

In three studies,^{31,32,36} maltreatment was considered recurrent if any child within the same family or household was affected. These studies described varying family recurrence rates: 31% at 18 months;³¹ 13% at 4.4–5.4 years;³² and 26% at 60 days where a caretaker had substance misuse problems.³⁶

Four studies reported recurrence rates at different time points.^{33,35,37,45} All of these reported reduction in recurrence rate with time.

Factors associated with maltreatment recurrence

Type of maltreatment. There was a consistent finding that neglect was the maltreatment type associated with the highest risk of future maltreatment.^{32,34,37,38,44} Physical abuse showed the next most significant association with maltreatment recurrence.^{32,34,38,44} Sexual abuse was least associated with maltreatment recurrence.^{32,33,38,44}

Yampolskaya and Banks³⁷ found that children who had experienced more than one form of abuse at baseline had higher rates of recurrence than those who had experienced single forms of abuse.

Three studies^{31,40,41} found no difference in recurrence frequency between different types of maltreatment.

The results of other studies related to special circumstances. In their sample of infants exposed to illicit substances, Thompson and Wiley³⁵ found that both physical and sexual abuse (when compared to medical neglect) were associated with higher rates of maltreatment recurrence. Connell et al.³³ found that physical abuse as the reason for entry to foster care led to reduced risk of future maltreatment. Barth et al.⁴³ found that maltreatment type did not predict risk of maltreatment recurrence in their 60-day follow-up of caregivers who had received treatment for substance misuse.

Substantiation. There were conflicting results regarding the association between substantiation status and risk of future child maltreatment. Three studies^{34,35,44} found an increased risk of recurrence in substantiated cases, whereas two studies^{38,45} found a reduced risk. (There were no major differences in terms of quality scores (10 vs. 10.5), average size of study samples (106,000 compared to 49,000), average length of follow-up (three years compared to six years) or geography).

Number of previous episodes of maltreatment. Five studies^{31,37,39,42,45} found that reports of maltreatment prior to the index event (indicating chronicity) were associated with higher rates of maltreatment recurrence. Bae et al.³² specifically investigated recurrence rates associated with multiple episodes, single

recurrence and no recurrence of child maltreatment; they reported steady growth in rates of recurrence as numbers of episodes of prior maltreatment increased.

Child factors

Age. Nine studies found that the risk of child maltreatment recurrence was greater in younger children.^{32–34,37–39,41,44,45} No studies found older children to be at greater risk, but five studies^{31,35,40,42,43} found that age was not a significant predictor of recurrence. (The latter five studies had a higher average quality score (11.6) compared to the nine other studies (9.2), but tended to be shorter in length of follow-up).

Ethnicity. Minority ethnic groups were associated with a lower risk of child maltreatment recurrence in four studies.^{32,34,39,45} However, three studies^{36,38,41} found that non-white ethnic groups had an increased risk. Four studies^{33,40,42,44} recorded no significant finding in respect to child's race/ethnicity. (There were no major differences between these groups of studies in terms of average quality score (10 vs. 9 vs. 10.8), length of follow-up, degree of substantiation, sample size or geography).

Gender. Jonson-Reid⁴¹ (2003) and Fluke et al.³⁹ both found increased rates of maltreatment recurrence in females. However, the 10 other studies that examined child's gender as a risk factor for recurrence found this not to be significant.^{32–35,37,38,40,42,44,45} (There were no major differences in the quality (11 vs. 10.4), length of follow-up, degree of substantiation, sample size or geography of the two positive studies when compared with the 10 negative studies).

Disability, emotional disturbance and mental health difficulties. Two studies^{39,45} found that 'indicated child disability' (including physical, emotional, behavioural and cognitive causes) increased the risk of maltreatment recurrence. Kohl et al.⁴⁰ described a similar finding in relation to emotional, behavioural and cognitive 'developmental problems', and Drake et al.⁴⁴ found that children eligible for special educational services for emotional disturbance were also at increased risk. Child disability as a risk factor was not replicated in Connell et al.³³ The same study found that child diagnosis of mental health difficulties also did not predict recurrence. (This study was much smaller in scale than Connell's 2007 study⁴⁵ and focused on cases where families were being reunified – a potentially different population).

Thompson and Wiley³⁵ found no association between 'child behaviour problems' or 'fussy child temperament' and risk of recurrence.

Parent/caregiver factors

Substance and alcohol misuse. Caregiver or parental history of substance abuse (alcohol misuse, illicit drug use, or both) was found to be a consistent risk factor for maltreatment recurrence.^{37,43–45} Fluke et al.³⁹ found that caretaker abuse of alcohol was associated with increased risk of recurrence, whereas caretaker abuse of drugs was not. In Fuller and Wells,³⁶ families headed by single, African-American women with alcohol and/or other drug involvement had a higher risk of short-term maltreatment recurrence than those without such alcohol and/or drug involvement. (This study had a relatively small sample size and a very short follow-up period). No studies found that a history of caregiver/parental substance misuse reduced risks, but three studies^{35,40,42} found no association. (Kohl et al.'s study⁴⁰ had a relatively small sample size.)

Mental health problems. Caregiver/parental history of mental health problems was found to result in a higher risk of recurrence in three studies.^{31,43,44} Five studies found no significant increase in risk.^{35,36,39,40,42} (There were no major differences in the quality, length of follow-up, degree of substantiation, sample size or geography of the three positive studies compared with four of the five negative studies. One of the negative studies³⁶ received the lowest quality score (5) and was very short in follow-up (60 days)).

Family/parenting factors. Poor parenting skills were found to increase the risk of maltreatment recurrence by Sledjeski et al.,³¹ but this was not replicated in three other studies which examined this factor.^{35,36,42} (Of these four studies, Sledjeski et al.³¹ received the highest quality score (13) and was the only study to have a long follow-up and to include substantiated cases at both time points).

Sledjeski et al.³¹ also found that both a poor parent-child relationship and 'caregiver limitations' increased the risk of child maltreatment recurrence. No other study specifically examined these factors, although Fuller and Wells³⁶ found that caretakers' negative description of a child was not a significant factor for recurrence. (Fuller and Wells³⁶ received the lowest quality score (5) and was very short in follow-up (60 days)).

Dorsey et al.⁴² found that parental history of maltreatment was a risk factor for maltreatment recurrence. However, this was not replicated by Fuller and Wells.³⁶ (Fuller and Wells³⁶ received the lowest quality score (5) and was very short in follow-up (60 days)).

Academic achievement, criminality, marital status and other factors. Drake et al.⁴⁴ found that caregivers/parents who were high school graduates were less associated with the risk of child maltreatment

recurrence than those who were not. However, parental/caregiver education status was not found to be a significant indicator of recurrence in three other studies.^{35,40,43}

Fuller and Wells³⁶ found that risk of maltreatment recurrence was increased where there was a history of high caretaker criminal behaviour. Sledjeski et al.³¹ found that a caregiver history of assaultive behaviour was associated with increased maltreatment recurrence. Barth et al.⁴³ found that caregiver recent arrest/jail time was not a significant risk factor. (Fuller and Wells³⁶ received the lowest quality score (5) and was very short in follow-up (60 days)).

Sledjeski et al.³¹ found that parental/caregiver cooperation with CPS investigation or subsequent treatment plan did not impact on risk of future maltreatment.

Two studies that examined caregiver/parental marital status as a risk factor for maltreatment recurrence did not find it to be significant.^{42,43} However, Bae et al.³² found that single parenthood increased the risk of maltreatment recurrence and that step-parenthood predicted the likelihood of multiple maltreatment recurrences.

Other factors found not to be significant in predicting recurrence included age of caregiver,^{31,43} caregiver employment status⁴³ and caregiver ethnicity.⁴³

Family and environmental factors

Family financial status. Three studies^{40,43,45} found that family poverty was associated with a higher risk of maltreatment recurrence. Similar findings were not reported by other studies who looked at this area of interest: Sledjeski et al.³¹ studied families from a middle income single county only; Thompson and Wiley³⁵ and Kohl et al.⁴⁰ examined low family/household income as a potential factor; Barth et al.⁴³ and Fuller and Wells³⁶ similarly did not find any positive association with recurrence when they examined certain specific markers of low income/poverty (including trouble paying for basic necessities, and insufficient access to food, clothing or shelter).

Family/household size. Three studies^{32,34,44} found that an increased number of dependants/number of children in a family/household was associated with a higher risk of maltreatment recurrence.

Family social support. Low social/family support was identified as a risk factor for maltreatment recurrence in two studies.^{31,42} This was not replicated by Fuller and Wells.³⁶ (Fuller and Wells³⁶ received the lowest quality score (5) and was very short in follow-up (60 days)).

Domestic violence. Domestic violence was found to increase the risk of maltreatment recurrence by Sledjeski et al.,³¹ but this was not replicated in the

study by Dorsey et al.⁴² (Sledjeski et al.³¹ was a higher-quality study (13 vs. 11), included substantiated cases at both time points and included all types of maltreatment at baseline).

Other factors. Sledjeski et al.³¹ found that low 'child visibility' within the community and high 'perpetrator access' both increased the risk of maltreatment recurrence.

Other environmental factors not found to be associated with maltreatment recurrence included family type,³¹ health/safety and environmental conditions of the home,^{31,36} 'housing stability',³¹ and 'family interaction'.³⁶

Service factors

Involvement of specific services. Three studies^{32,34,39} found that involvement of medical and law personnel in the initial report of maltreatment reduced the risk of recurrence. This is supported by the finding that if police were not involved in the initial investigation, the risk of recurrence increased.³⁵

Type of service provision. Two studies^{39,44} found that the provision of services following the index episode of maltreatment resulted in an increase in the risk of recurrence. Placement in foster care appears to be a particular risk factor for future maltreatment,^{32,33,39,44} although Lipien and Forthofer³⁸ found placement in foster care with relatives to be protective.

Bae et al.³² found that increased frequency of contact with CPS workers was associated with increased risk of maltreatment recurrence. Bae et al.³² also found that less coercive service provision (i.e. general CPS services or no services) was associated with increased risk when compared to court-ordered permanency. Connell et al.⁴⁵ found that post investigation services had no impact on rates of recurrence.

Other factors. Fuller and Wells³⁶ found that arrest of alleged perpetrator during child protection investigation did not predict recurrence. (Fuller and Wells³⁶ received the lowest quality score (5) and was very short in follow-up (60 days)).

Discussion

Main findings

This review of research on maltreatment recurrence published between January 2003 and December 2009 revealed 15 studies that met inclusion criteria. All were conducted in the United States. Five studies that reported at 18–24-month follow-up described child recurrence rates in the region of 20%.^{33,37–39,42} This group of studies was somewhat heterogeneous with respect to the population studied. It included samples both from more general populations^{37–39,42}

and from specific high-risk populations.³³ Reporting rates were higher in the months immediately following an episode of maltreatment.^{33,37–39,42}

Many factors were associated with increased rate of recurrence of maltreatment. Neglect was linked with higher rates of recurrence than physical abuse, which in turn was more commonly linked with recurrence than sexual abuse. Cases involving multiple types of maltreatment, more than one victim or where a child had suffered more than one previous episode of maltreatment were associated with increased rates of recurrence. The same was true for younger children and those who were disabled or developmentally impaired, and also for parents who abused substances or had a history of assaultive behaviour. Furthermore, a wide range of family and environmental factors were associated with greater rates of recurrence. These included: poor parent-child relationships (one study), poverty (three studies), larger numbers of children (three studies), low levels of social or family support (two studies), lone parenthood (two studies), the presence of domestic violence (one study), situations where children were not visible to the outside world and where there was high perpetrator access (one study), mental health problems (three studies) and substance misuse (four studies).

For a range of other factors, findings were equivocal or even contradictory between groups of studies. For example, substantiation status was linked with a higher rate of recurrence in some studies but not in others. The same was true of black and minority ethnic status, child's gender, childhood mental health difficulties, parental mental health status, parental marital status, parenting skills, caregiver educational status and provision of services.

Some factors were found to be not significant in terms of recurrence. These included caregiver age, employment status and ethnicity.

Risk of recurrence was reduced when medical and/or legal services were involved.

Comparison with Hindley et al.²¹

Hindley et al.'s²² findings in relation to the associations between recurrent maltreatment and neglect, chronicity (in the form of prior maltreatment reports), involvement of younger children, parents who abused substances and households which lacked social or family support networks were all echoed in the current work. In many ways, the two studies complemented each other and allowed for clearer delineation of factors where one or other review reported equivocal findings. Thus, substance abuse, family stress, low levels of social support and involvement of younger children emerge as significant risk factors in the current review, but were only identified as weakly associated with maltreatment recurrence previously. Similarly, parent-child relationship

difficulties, found not to be significantly associated with recurrence in 2006, were significantly associated in this review. In addition, new associations with maltreatment recurrence, such as low child visibility and high continuing perpetrator access, emerged from the current review.

Hindley et al.'s²² study reported that low support was consistently associated with recurrence. The term 'low support' represents a construct of various dimensions which differ slightly between the latter study and the current investigation. Thus, the dimensions included in 2006 comprised lack of support from extended family or friends and ineffective use of helping systems, whereas the dimensions included here comprised lack of social and family support networks and lone parenthood. Both studies found an association between recurrence of maltreatment and high stress, as measured by various specific factors including family stress, parental stress, large family size, poor home conditions and housing instability.

The current findings allow further consideration of the impact of parenting on the risk of child maltreatment recurrence. In Hindley et al.'s²² paper, poor parenting skills were found to be associated with recurrence. In the current review, this was an equivocal finding. However, poor parent-child relationships were consistently associated with recurrence. We suggest that these subtle dimensional differences in fact indicate a common domain of concern, namely impairment of positive interaction between parents/caregivers and children. Similarly, previous findings concerning parental mental health difficulties were not consistently replicated in this latest batch of studies. One explanation for this may be that not all studies distinguished clearly between parental substance abuse and mental health difficulties. Nevertheless, combination of the results from both reviews would support the continuing consideration of parental mental health difficulties as a significant risk factor for recurrence.

Domestic violence and maltreatment recurrence were associated in Hindley et al.'s²² previous review, but less strongly in the present study. Precise explanations for this are unclear. There has, however, been recent widespread recognition in the childcare field of the importance of exposure to pervasive interpersonal violence within families and its relationship to child maltreatment.⁴⁶ It may be that the large-scale studies which we drew upon for this review do not reliably record important details, such as other aspects of family violence, parental assaultive behaviour and parent-child attachment relationships: these aspects may emerge better from smaller-scale, more fine-grained studies.

Substantiation status

For the purposes of the present review, studies that examined different levels of substantiation of

recurrence were included. This means that some studies were included which considered cases to be recurrent even if not ultimately substantiated after further assessment by children's social services. In our evaluation of such studies, where factors were identified as associated with maltreatment recurrence, the association was only considered significant if identified in at least one other study where recurrence was formally substantiated. The attribution of undue weight to a finding merely associated with re-reporting rather than substantiation was thus avoided.

The decision in the present study to broaden inclusion criteria with regard to the issue of substantiation appears to have been justified in that factors identified in studies of re-reports without substantiation were largely replicated in those studies that restricted themselves to either substantiated or indicated re-reports.

Service issues

Decisions in this area of work are being made within highly complex systems, where risks cannot all be readily appreciated at first assessment or at initial entry into the child protection arena. Further, decisions are frequently made by inexperienced and poorly trained practitioners, with inadequate supervision and lack of management recognition of the need for time for reflective, considered practice. English et al.⁴⁷ have drawn attention to the need, within the children's social care system, for cases to be capable of transfer from being 'in need of services' to being 'in need of protection' from significant harm. English found that this was not the case for many children in her study.⁴⁷ This ability to change direction from a focus on child welfare needs to a focus on protection from significant harm is one that is important for all child welfare systems that organise their service delivery on the basis of this distinction (whether this is through mandated reporting of maltreatment or not).

Links between the provision of services and risk of re-reporting or recurrence provided some unusual results. Where legal or medical services were involved, the risk of recurrence was lowered. It may be that such involvement represents a proxy for severity of maltreatment possibly resulting in active response from local child welfare systems (cases where children were removed into substitute care were generally omitted from the studies, or controlled for, and this may explain the lowered rate of recurrence among this group).

There were contradictory findings concerning future risk in relation to provision of services in the wake of initial assessment. It is possible that these either reflect the complexity of child welfare and protective systems or improved subsequent surveillance and identification of maltreatment as a result of ongoing intervention.²³ Nevertheless, in spite of DePanfilis and Zuravin's¹¹ finding that attendance at sessions was linked with better outcome, the

possibility that intervention can lead to negative effects should not be discounted. For example, it is quite feasible that supportive services delivered without a specific requirement for measurable changes for children could result in worse outcomes. As recommended by Fluke,²³ the interaction between service provision and recurrence needs to be explored in greater detail.

Strengths and limitations

A major strength of the current research lies in its inclusion of a number of large child protection service data sets. In all, 1.5 million cases had been included in the 15 studies that we have reviewed. Furthermore, the current study allows comparison with, substantiation of and, in some areas, questioning of factors identified in Hindley et al.'s²² paper; combination of the two studies allows collation of evidence now from a total of 32 studies, each reviewed in comparable way. This provides significant support for the majority of the risk factors that have been identified. A disadvantage of reliance on large child protection service databases is that fine-grained detail is frequently lost; for example in relation to the quality of parent-child relationship. Nonetheless, we contend that the advantages of these large studies outweigh their disadvantages in that they allow the establishment of a baseline of principal factors which appear to be associated with recurrence of child maltreatment.

As previously mentioned, significant heterogeneity of the studies selected precluded meta-analysis in both the current study and in Hindley et al.'s review.²² Out of necessity, we have had therefore to rely on a relatively crude method of identifying common associations using non-statistical methods such as box scores, quality evaluations and stringent inclusion criteria. Our results therefore should be framed as hypotheses needing further empirical support.

The studies reviewed do not enable us to make distinctions between levels of risk of future harm for each of the different factors, that is, studies did not necessarily distinguish between high, medium and low risk. High-risk cases indicate those in which risk factors are considered to be clearly present and are having serious effects on a child whose safety needs to be secured immediately. Risk factors rated as medium or low may not have immediate safety implications, when considered individually, but may of course do so when they exist in combination with other risk factors; a series of relatively low risk factors can create a significant issue for the safety of the individual child. We emphasise, therefore, that reviews of risk factors provide a crucial substrate for the practitioner to hold in mind when he or she appraises the situation of a given child which can then be considered in relation to the developmental status and needs of an individual child and the parents' capacity to meet those needs.

All studies included in the current review were undertaken in the United States, giving rise to some uncertainty regarding the generalisation of findings to other countries and child protection systems.

Implications

The identification of factors associated with recurrence of maltreatment is clearly important. However, such identification is merely one element within a safe approach to risk management in the field of child maltreatment (referred to as a 'decision-making ecology'⁴⁸). Nevertheless, case factors associated with recurrence identified here should contribute to the development of safer approaches to risk management in this difficult area of work if they are applied within the context of models of practitioner decision-making such as those proposed by Baumann et al.⁴⁸ and Munro.⁴⁹ Such models allow appreciation and management of complex decision making and place the practitioner at the centre of a number of competing organisational, internal and external factors. Indeed, some of the apparently contradictory findings arising from the reviews (e.g. in relation to service delivery and outcome) may well reflect such complexities derived from organisational or external factors within 'the decision-making ecology'.

Could case factors associated with recurrence be used as a basis for a more structured approach to decision making? Those who have proposed a move towards an actuarial (or statistically derived) approach to risk management argue that decision making would be simplified and made more uniform if such methods were employed.⁵⁰⁻⁵² However, if case factors such as those identified in this review were to be used blindly without full account being taken of key contextual factors in the decision-making process, the result could be negative in terms of risk management. In Australia, the state of Queensland tried, unsuccessfully, to implement a more structured approach to decision making in child protection services. This has been described by Gillingham and Humphreys⁵³ who found that social work practitioners used case factors post hoc in order to support a decision they had already reached, and further that the system itself failed because there was insufficient infrastructure in place to support it.

Like Hindley et al.,²² we highlight the existence of a number of family, child, parental and environmental indices associated with child maltreatment recurrence. We suggest that there may be further scope for inclusion of factors associated with recurrence of maltreatment into a risk assessment and management model based on 'structured professional judgement' methods, as developed by Webster et al.⁵⁴ Structured professional judgement (also known as 'guided clinical assessment') represents a development out of the actuarial versus clinical risk assessment debate, which has

prevailed over the last 20 years, in relation to a number of fields where complex judgements need to be made.^{55,56} The objective of structured professional judgement has been to incorporate the best features of clinical and actuarial assessments to improve the quality and applicability of final judgements. Such methods have been employed in a variety of settings,⁵⁷ including violence risk in adolescents⁵⁸ and recurrence of domestic violence.⁵⁹ Some work has also taken place in the field of child maltreatment recurrence using structured professional judgement principles,^{60,61} although it has not as yet been internationally recognised, standardised or applied. Any further developments of this nature should of course form part of a wider decision-making process. Only then can it be hoped that subsequent maltreatment in individual cases might be reduced.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

References

1. U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. Child maltreatment 2010, www.acf.hhs.gov/programs/cb/stats_research/index.htm#can (2011, accessed 31 July 2012).
2. Radford L, Corral S, Bradley C, et al. Child abuse and neglect in the UK today, www.nspcc.org.uk/news-and-views/our-news/nspcc-news/11-02-15-report-launch/overview-report_wdf80875.pdf (2011, accessed 31 July 2012).
3. Department for Education (DfE). *OSR24/2010 statistical release: Referrals, assessments and children who were the subject of a child protection plan (children in need census – provisional) Year ending 31 March 2010*. London: DfE Publications, 2010.
4. Kaplow J and Widom C. Age of onset of child maltreatment predicts long-term mental health outcomes. *J Abnorm Psychol* 2007; 116: 57–66.
5. Geen R, Boots S and Tumlin K. *The cost of protecting vulnerable children: Understanding federal, state and local child welfare spending*. Washington, DC: Urban Institute, 1999.
6. Brandon M, Belderson P, Warren C, et al. Analysing child deaths and serious injury through abuse and neglect: What can we learn? A biennial analysis of serious case reviews 2003–2005. Research Report DCSF-RR023, Department for Children, Schools and Families, www.citycentreleeds.com/uploadedFiles/Children_Leeds/Content/Standard_Pages/Levels_of_Need/child%20deaths%20SCR%20research.pdf (2008, accessed 31 July 2012).
7. Oklahoma Department of Human Services, Children and Family Services Division. *Recurrence of child maltreatment in Oklahoma*. University of Kansas, 2004.
8. English D, Marshall D, Coghlan L, et al. Causes and consequences of the substantiation decision in Washington state child protective services. *Child Youth Serv Rev* 1999; 21: 1–23.
9. Fryer G and Miyoshi T. A survival analysis of the revictimization of children: The case of Colorado. *Child Abuse Negl* 1994; 18: 1063–1071.
10. DePanfilis D and Zuravin S. Predicting child maltreatment recurrences during treatment. *Child Abuse Negl* 1999; 23: 729–743.
11. DePanfilis D and Zuravin S. The effect of services on the recurrence of child maltreatment. *Child Abuse Negl* 2002; 26: 187–205.
12. Fluke J, Yuan Y and Edwards M. Recurrence of maltreatment: An application of the National Child Abuse and Neglect Data System (NCANDS). *Child Abuse Negl* 1999; 23: 633–650.
13. Sedlack AJ and Broadhurst DD. *Executive summary of the third incidence study of child abuse and neglect*. Washington, DC: DHHS, Administration for Children and Families, NCCAN, 1996.
14. Gaudin JM and Dubowitz H. Family functioning in neglectful families: Recent research. In: Berrick JD, Barth RP and Gilbert N (eds) *Child welfare research review*. New York: Columbia University Press, 1997, pp.28–62.
15. Baird S. Development of risk assessment indices for the Alaska Department of Health and Social Services. In: Tataro T (ed.) *Occasional monograph series no. 2 Validation research in CPS risk assessment: Three recent studies*. Washington, DC: American Public Welfare Association, 1988, pp.84–142.
16. Baird S, Wagner D and Neuenfeldt D. Actual risk assessment and case management in child protective services. In: Tataro T (ed.) *Sixth national roundtable on CPS risk assessment summary of highlights*. Washington, DC: American Public Welfare Association, 1993, pp.152–168.
17. DePanfilis D and Zuravin S. Assessing risk to determine the need for services. *Child Youth Serv Rev* 2001; 23: 3–20.
18. Rittner B. The use of risk assessment instruments in child protective services case planning and closures. *Child Youth Serv Rev* 2002; 24: 189–207.
19. Johnson W and L'Esperance J. Predicting the recurrence of child abuse. *Soc Work Res Abstr* 1984; 29: 21–26.
20. Levy H, Markovic J, Chaudhry U, et al. Reabuse rates in a sample of children followed for 5 years after discharge from a child abuse inpatient assessment program. *Child Abuse Negl* 1995; 19: 1363–1377.
21. Marks J and McDonald T. *Predicting recurrence of child maltreatment*. Portland, ME: National Child Welfare Resource Center for Management and Administration, University of Southern Maine, 1989.
22. Hindley N, Ramchandani PG and Jones DPH. Risk factors for recurrence of maltreatment: A systematic review. *Arch Dis Child* 2006; 91: 744–752.
23. Fluke J. Child protective services rereporting and recurrence – context and considerations regarding research. *Child Abuse Negl* 2008; 32: 749–751.
24. Drake B and Jonson-Reid M. Substantiation and recidivism. *Child Maltreatment* 2003; 8: 248–260.
25. Fluke J. Allegory of the cave: On the theme of substantiation. *Child Maltreatment* 2009; 14: 69–72.
26. Cross T and Casanueva C. Caseworker judgements and substantiation. *Child Maltreatment* 2009; 14: 38–52.

27. Fakunmoju SB. Substantiation and adverse appeal outcomes: Content analysis and testing of Drake's harm/evidence model. *Child Maltreatment* 2009; 14: 53–68.
28. Laupacis A, Wells G, Richardson WS, et al. Users' guides to the medical literature: How to use an article on prognosis. *J Am Med Assoc* 1994; 272: 234–237.
29. Altman DG. Systematic reviews of evaluations of prognostic variables. In: Egger M, Davey Smith G and Altman DG (eds) *Systematic reviews in health care. Meta-analysis in context*, 2nd ed. London: BMJ Books, 2001, pp.228–247.
30. Egger M, Schneider M and Davey Smith G. Spurious precision? Meta-analysis of observational studies. *Br Med J* 1998; 316: 140–144.
31. Sledjeski EM, Dierker LC, Brigham R, et al. The use of risk assessment to predict recurrent maltreatment: A classification and regression tree analysis (CART). *Prev Sci* 2008; 9: 28–37.
32. Bae H-O, Soloman PL and Gelles RJ. Multiple child maltreatment recurrence relative to single recurrence and no recurrence. *Child Youth Serv Rev* 2009; 31: 617–624.
33. Connell CM, Vanderploeg JJ, Katz KH, et al. Maltreatment following reunification: Predictors of subsequent child protective services contact after children return home. *Child Abuse Negl* 2009; 33: 218–228.
34. Fuller T and Nieto M. Substantiation and maltreatment rereporting: A propensity score analysis. *Child Maltreatment* 2009; 14: 27–37.
35. Thompson R and Wiley TR. Predictors of re-referral to child protective services: A longitudinal follow-up of an urban cohort maltreated as infants. *Child Maltreatment* 2009; 14: 89–99.
36. Fuller TL and Wells SJ. Predicting maltreatment recurrence among CPS cases with alcohol and other drug involvement. *Child Youth Serv Rev* 2003; 25: 553–569.
37. Yampolskaya S and Banks SM. An assessment of the extent of child maltreatment using administrative databases. *Assessment* 2006; 13: 342–355.
38. Lipien L and Forthofer MS. An event history analysis of recurrent child maltreatment reports in Florida. *Child Abuse Negl* 2004; 28: 947–966.
39. Fluke JD, Shusterman GR, Hollinshead DM, et al. Longitudinal analysis of repeated child abuse reporting and victimization: Multistate analysis of associated factors. *Child Maltreatment* 2008; 13: 76–88.
40. Kohl PL, Jonson-Reid M and Drake B. Time to leave substantiation behind: Findings from a national probability study. *Child Maltreatment* 2009; 14: 17–26.
41. Jonson-Reid M. Foster care and future risk maltreatment. *Child Youth Serv Rev* 2003; 25: 271–294.
42. Dorsey S, Mustill SA, Farmer EMZ, et al. Caseworker assessments of risk for recurrent maltreatment: Association with case specific risk factors and reports. *Child Abuse Negl* 2008; 32: 377–391.
43. Barth RP, Gibbons C and Guo S. Substance abuse treatment and the recurrence of maltreatment among caregivers with children living at home: A propensity score analysis. *J Subst Abuse Treat* 2006; 30: 93–104.
44. Drake B, Jonson-Reid M and Sapokaite L. Rereporting of child maltreatment: Does participation in other public sector services moderate the likelihood of a second maltreatment report? *Child Abuse Negl* 2006; 30: 1201–1226.
45. Connell CM, Bergeron N, Katz KH, et al. Re-referral to child protective services: The influence of child, family, and case characteristics on risk status. *Child Abuse Negl* 2007; 31: 573–588.
46. Jones DPH. Child maltreatment. In: Rutter M, Bishop D, Pine D, et al. (eds) *Rutter's child and adolescent psychiatry*, 5th ed. Oxford: Blackwell, 2008, pp.421–439.
47. English DJ, Wingard T, Marshall D, et al. Alternative responses to child protective services: Emerging issues and concerns. *Child Abuse Negl* 2000; 24: 375–388.
48. Baumann DJ, Dalgleish L, Fluke J and Kern H. *The decision-making ecology*. Washington, DC: American Humane Association, 2011.
49. Munro E. Common errors of reasoning in child protection work. *Child Abuse Negl* 1999; 23: 745–758.
50. Dawes RM, Faust D and Meehl PE. Clinical versus actuarial judgement. *Science* 1989; 243: 1668–1674.
51. Grove PE and Meehl PE. Comparative efficiency of informal (subjective, impressionist) and formal (mechanical, algorithmic) prediction procedures. The clinical–statistical controversy. *Psychol Pub Pol Law* 1996; 2: 293–323.
52. Grove WM, Zald DH, Lebow BS, et al. Clinical versus mechanical risk prediction: A meta-analysis. *Psychol Assess* 2000; 12: 10–30.
53. Gillingham P and Humphreys C. Child protection practitioners and decision-making tools: Observations and reflections from the front line. *Br J Soc Work* 2010; 40: 2598–2616.
54. Webster CD, Douglas KS, Eaves D, et al. *HCR-20: Assessing violence risk in adults*. Bernaby, BC: Simon Fraser University, MHLPI, 1997.
55. Hanson RK. Twenty years of progress in violence risk assessment. *J Interpers Viol* 2005; 20: 212–217.
56. Webster CD, Hucker SJ and Bloom H. Transcending the actuarial versus clinical polemic in assessing risk for violence. *Crim Just Behav* 2002; 29: 659–665.
57. Maden A. Structured clinical assessment of violence risk. In: *Treating violence: A guide to risk management in mental health*. Oxford: OUP, 2007.
58. Borum R, Bartel P and Forth A. *The structured assessment of violence risk in youth*. Florida: PAR, Inc, 2006.
59. Kropp PR, Hart SD, Webster CD and Eaves D. *Manual for the spousal assault risk assessment guide* (2nd ed.). Vancouver: British Columbia Institute of Family Violence, 1995.
60. Agar SE. *The development of general risk assessment guidelines for physical child abuse and neglect*. PhD Thesis, Simon Fraser University, 2003.
61. De Ruiter C and de Jong EM. *CARE-NL Richtlijn voor gestructureerde beoordeling van het risico van kindermishandeling*. Utrecht: Corinne de Ruiter, 2005.