

## **Protocol title:**

Kinship care for the safety, permanency, and well-being of children removed from the home for maltreatment

## **Reviewers**

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## **Contribution of reviewers**

Marc Winokur, Amy Holtan, and Deborah Valentine contributed to the writing and revising of this protocol. The search strategy was developed with Jo Abbott, Trial Search Coordinator for the Cochrane DPLPG. Marc Winokur will be responsible for updating this review as additional evidence accumulates and as funding becomes available.

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## Background

Every year a large number of children around the world are removed from their homes because they are abused, neglected, or otherwise maltreated. For example, there were 520,000 children in out-of-home placements in the United States as of September 2003 ([USDHHS 2006a](#)), 60,900 children in public care in England as of March 2005 ([DFES 2005](#)), 23,965 children in out-of-home care in Australia as of June 2005 ([AIHW 2006](#)), 12,185 children in public care in Scotland as of March 2005 ([SENS 2005](#)), and 4,668 children in public care in Wales as of March 2005 ([NAW 2005](#)).

The main reasons for the removal of children in the United States are neglect, physical abuse, sexual abuse, psychological maltreatment, abandonment, threats of harm, and drug addiction ([USDHHS 2006b](#)). Abuse and neglect are the most prevalent causes of children being removed from the home in other countries as well (e.g., Wales) ([NAW 2005](#)).

Internationally, child welfare systems are accountable for the safety, permanency, and well-being of children in their care. For children removed from the home, child welfare professionals are responsible for placing them in out-of-home settings that will facilitate these outcomes. Specifically, the primary placement options are traditional foster care, kinship care, residential treatment centers, and group homes ([USDHHS 2006a](#); [AIHW 2006](#)). Children in out-of-home placements typically display more educational, behavioral, physical, and psychological problems than do their peers ([Gleeson 1999](#)), although it is unclear whether this results from the placement itself, the maltreatment that precipitated it, or inadequacies in the child welfare system. In addition to experiencing poor adult outcomes, these children are at risk for drifting in out-of-home care until, in some cases, they "graduate" from the system because of age ([Zuravin 1999](#)).

### *Kinship Care*

Kinship care is broadly defined as, "the full-time nurturing and protection of children who must be separated from their parents, by relatives, members of their tribes or clans, godparents, stepparents, or other adults who have a kinship bond with a child" ([CWLA 1994](#), p. 2). Kinship care is known by many other names around the world, including family and friends care in the United Kingdom and kith and kin care in Australia. There are several variations of kinship care including formal, informal, and private placements. Formal kinship care is a legal arrangement in which a child welfare agency has custody of a child ([Ayala-Quillen 1998](#)). Informal kinship care is when a child welfare agency assists in the placement of a child but does not seek custody ([Geen 2000](#)). Private kinship care is a voluntary arrangement between the birth parents and family members without the involvement of a child welfare agency ([Dubowitz 1994](#)).

The most commonly perceived benefits are that kinship care "enables children to live with persons whom they know and trust, reduces the trauma children may experience when they are placed with persons who are initially unknown to them, and reinforces

children's sense of identity and self esteem which flows from their family history and culture" ([Wilson 1996](#), p. 387). The primary aims of kinship placements are family preservation, in which the permanency goal is reunification with birth parents, and substitute care, in which kinship care is considered to be a long-term arrangement when restoration is not possible or the permanency goal is adoption or guardianship by kin caregivers ([Scannapieco 1999](#)). Kinship care also is considered to be the least restrictive ([Scannapieco 1999](#)) and safest setting ([Gleeson 1999](#)) on the continuum of out-of-home placements.

#### *Intervention Context*

Although an ancient practice in many cultures, formal kinship care is a newer placement paradigm in countries like the United States and Australia due to its recent adoption by the child welfare field as the placement of choice, when appropriate, in the continuum of out-of-home care services for children ([Ainsworth 1998](#); [Geen 2000](#); [Scannapieco 1999](#)). For example, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 explicitly required American states to give preference to family members when placing a child outside of the home ([Leos-Urbel 2002](#)). The most recent United States legislation, the Adoption and Safe Families Act of 1997, continues this federal commitment towards promoting and supporting kinship care ([Ayala-Quillen 1998](#)). In some European countries, there also has been a shift in policy regarding kinship placements. Specifically, the Children Act 1989 (United Kingdom), the Children Act 1995 (Scotland), and the Children Order 1995 (Northern Ireland) are generally supportive of kinship care ([Broad 2005a](#)).

During the past 15 years there has been a rapid increase in the number of children removed from home and placed with relatives ([Cuddeback 2004](#)). The main reasons for the growth of this placement option include an influx of abused and neglected children into out-of-home care ([Berrick 1998](#)), concern about poor outcomes for children leaving care ([Broad 2005b](#)), a persistent shortage in foster care homes ([Berrick 1998](#)), and a shift in policy toward treating kin as appropriate caregivers with all of the legal rights and responsibilities of foster parents ([Leos-Urbel 2002](#)).

In a comprehensive review of the literature, [Cuddeback 2004](#) confirmed much of the conventional wisdom about kinship care while identifying many of the weaknesses of quantitative research on the topic. Cuddeback found that kinship caregivers are more likely to be older, single, less educated, unemployed, and poor than are foster parents and non-custodial grandparents. Furthermore, Cuddeback reported that kin caregivers report less daily physical activity, more health problems, higher levels of depression, and less marital satisfaction. Cuddeback also concluded that kinship care families receive less training, services, and financial support than do foster care families. In addition, Cuddeback reported that birth parents rarely receive family preservation services, which means that children in kinship care are less likely than children in foster care to be reunified. Lastly, Cuddeback found inconclusive evidence that children in kinship care have greater problems related to overall functioning than do children in foster care.

#### *Rationale for this Review*

[Geen 2004](#) argues that, "despite the centrality of kinship foster care in child welfare, our understanding of how best to utilize and support kin caregivers, and the impact of kinship foster care on child development, is limited" (p. 144). Specifically, social

work researchers have not kept up with the exponential growth of kinship care as a placement option ([Berrick 1994](#); [Dubowitz 1994](#)). Furthermore, much of the research supporting kinship care is anecdotal and conjectural, which does not allow child welfare professionals to make evidence-based decisions from comparisons of children in out-of-home care ([Goerge 1994](#)). For example, there is great interest in the safety and well-being of children placed in kinship care, but very little experimental research on these outcomes ([Gibbs 2000](#)). However, ethical standards preclude the random assignment of children to kinship or foster care, as these placements typically are based on the appropriateness and availability of kinship caregivers or foster parents.

We will address these methodological challenges by identifying and synthesizing the most strongly designed and executed studies on kinship care. Thus, this review will have important policy and practice implications for maltreated children, kin caregivers, birth parents, and child welfare systems.

## **Objectives**

To evaluate the effect of kinship care placement on the safety, permanency, and well-being of children removed from the home for maltreatment.

## **Criteria for considering studies for this review**

### **Types of studies**

Randomized experimental and quasi-experimental studies, in which children placed in kinship care are compared cross-sectionally or longitudinally with children placed in foster care. Studies that compare kinship care to more restrictive out-of-home settings (e.g., residential treatment centers) will not be considered for this review. Relative to children who are placed in kinship or foster care, children placed in more restrictive settings tend to differ in important ways. These differences complicate inferences about the effects of placement and as such, the review will focus on kinship and foster care placements only.

### **Types of participants**

Children and youth under the age of 18 who were removed from the home for abuse, neglect, or other maltreatment and subsequently placed in kinship care.

### **Types of interventions**

Formal kinship care placements, irrespective of whether the kin caregivers were licensed (paid) or unlicensed (unpaid). Thus, studies that exclusively examine informal or private kinship care arrangements will not be considered. Studies will be considered if participants experienced other placement types in conjunction with the kinship care intervention. For example, the treatment group may include children for whom kinship care was their first, last, or only placement in out-of-home care. However, these children must have spent the majority (i.e., more than 50%) of their total time in out-of-home care in kinship care.

## **Types of outcome measures**

Eligible studies must analyze child welfare outcomes in the well-being, permanency, or safety domains. Although caregiver and birth parent outcomes are very relevant, they will not be considered in this review because child outcomes are what drive the policy and practice of kinship care. However, these outcomes may mediate or moderate the effect of kinship care on child welfare outcomes and should be explored in future research on the topic.

Primary outcomes for the review are behavioral development, mental health, placement stability, and permanency. Secondary outcomes include educational attainment, family relations, service utilization, and re-abuse. The following list of outcome domains is meant to be exhaustive, although the examples in each domain are illustrative of the outcomes to be considered in this review.

### *Behavioral Development*

Behavior problems, adaptive behaviors  
Measured by case records, caregiver, teacher, and self-reports, and standardized instruments (e.g., Child Behavior Checklist)

### *Mental Health*

Psychiatric illnesses, psychopathological conditions, well-being  
Measured by case records, caregiver and self-reports, and standardized instruments

### *Placement Stability*

Number of placements, reentry, length of placement  
Measured by child welfare administrative databases

### *Permanency*

Reunification, adoption, guardianship  
Measured by child welfare administrative databases

### *Educational Attainment*

Graduation, grades, test scores  
Measured by school records and child welfare administrative databases

### *Family Relations*

Problem-solving, tolerance, commitment, conflicts  
Measured by caregiver and self-reports and standardized instruments

### *Service Utilization*

Mental health services, foster support groups, family therapy  
Measured by medical records, caregiver and self-reports, and child welfare administrative databases

#### *Re-abuse*

Substantiated abuse, institutional abuse  
Measured by child welfare administrative databases

## **Search strategy for identification of studies**

To identify relevant studies, the following online databases will be searched: *Cochrane Library (CENTRAL), MEDLINE, Campbell Collaboration's Social, Psychological, Educational, and Criminological Trials Register (C2-SPECTR), Sociological Abstracts, Social Work Abstracts, Social Sciences Citation Index, Family and Society Studies Worldwide, Child Abuse and Neglect (CANDIS), Education Resources Information Center (ERIC), PsycINFO, ISI Web of Knowledge, ISI Proceedings, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Applied Social Sciences Index and Abstracts (ASSIA), System for Information on Grey Literature in Europe (SIGLE), and UMI Dissertation Abstracts International (DAI).*

The following search strategy will be used to search CENTRAL: **((relative\* near foster\*) or (relative near substitute) or (family near foster) or (families near foster) or (family near substitute) or (families near substitute) or (kin near care\*) or (kinship near care\*) or (kin near caring) or (kinship near caring)) AND ((child\* or girl\* or boy\* or adolescent\* or teen\* or baby or babies or infant\* or preschool\* or pre school\* or (young person\*) or (young people))**. This strategy will be modified, where necessary, to search the other databases listed above. Both published or unpublished studies will be sought, and there will be no language, date, or geographic limitations.

The following also will be searched: the websites of international child welfare organizations, University libraries, and State departments to identify governmental and non-governmental reports and texts. The most recent volumes of peer-reviewed social work journals also will be manually searched. In addition, authors of studies included in this review will be contacted for knowledge of other studies not yet identified. Lastly, the reference lists of published literature reviews will be screened for relevant studies.

## **Methods of the review**

### *Selection of Trials*

Two reviewers will independently read the titles and abstracts of identified articles and reports to select those that describe an empirical study of kinship care. A study will be obtained if either reviewer believes it is appropriate. Once retrieved, two reviewers will use a "keywording" rubric to categorize each study by the type of design, participants, intervention, and outcome measure(s). Two reviewers then will

determine if each study is eligible for selection based on the aforementioned *criteria for considering studies for this review*. When consensus regarding selection decisions cannot be reached through discussion with a third reviewer, it will be resolved by appeal to external advisers.

#### *Quality Assessment*

Existing scales for measuring the quality of controlled trials have not been properly developed, are not well-validated, and are known to give differing (even opposing) ratings of trial quality in systematic reviews ([Moher 1999](#)). At present, evidence indicates that "scales should generally not be used to identify trials of apparent low quality or high quality in a given systematic review. Rather, the relevant methodological aspects should be identified a priori and assessed individually" ([Juni 2001](#), p. 45). According to [Higgins 2005](#), "factors that warrant assessment are those related to applicability of findings, validity of individual studies, and certain design characteristics that affect interpretation of results (p. 79). Thus, studies will be assessed in regard to the following research quality dimensions: selection bias, performance bias, detection bias, report bias, and attrition bias ([Higgins 2005](#)).

#### *Methodological Criteria*

To provide guidelines for assessing the methodological criteria of included studies, a "data extraction" rubric will be developed. Two reviewers will independently extract data from each study before coming to consensus on the assessment of quality dimensions for each study. The methodological criteria will be operationalized as follows:

- *Selection Bias:* Was group assignment determined randomly or might it have been related to outcomes or the interventions received?
- *Performance Bias:* Could the services provided have been influenced by something other than the interventions being compared?
- *Detection Bias:* Were outcomes influenced by anything other than the constructs of interest, including biased assessment or the influence of exposure on detection?
- *Report Bias:* Were the outcomes, measures, and analyses selected a priori and reported completely? Were participants biased in their recall or response?
- *Attrition Bias:* Could deviations from protocol, including missing data and dropout, have influenced the results?

#### *Data Management*

Citations for all selected studies will be entered into Reference Manager 11, which is an interactive literature management software package. The citations for included studies then will be uploaded into the Cochrane Collaboration's Review Manager 4.2.8 software (*RevMan*). Outcome data will be extracted from studies and entered into *RevMan*, where it will be analyzed in the meta-analyses for this review. The statistical results will be presented in both narrative form and in figures and tables. Specifically, forest plots generated from *RevMan* will be used to display effect size estimates and confidence intervals from the meta-analyses. In addition, data from the quality assessment process will be presented in a table created in *RevMan*.

#### *Incomplete Data and Attrition*

Although studies with incomplete outcome data (e.g., missing means, standard

deviations, sample sizes) will be included in the review, they will be excluded from the meta-analyses unless the reviewers can calculate an effect size from the available information. When outcome data are missing from an article or report, reasonable attempts will be made to retrieve these data from the original researchers. Overall and differential attrition will be accounted for in the quality assessment and sensitivity analyses.

#### *Measures of Treatment Effect*

A standardized mean difference effect size will be computed for the continuous outcome variables. For this review, a corrected Hedges'  $g$  will be computed by dividing the difference between group means by the pooled and weighted standard deviation of the groups. Specifically, Hedges'  $g$  corrects for a bias (overestimation) that occurs when the uncorrected standardized mean difference effect size is used on small samples. The combined effect size for each outcome will be computed as a weighted mean of the effect size for each study, with the weight being the inverse of the square of the standard error. Thus, a study is given greater weight for a larger sample size and more precise measurement, both of which reduce standard error. We will compute a 95% confidence interval for each combined effect size to test for statistical significance; if the confidence interval does not include zero, we will reject the null hypothesis that there is no difference between the group means.

Odds ratios will be computed for the dichotomous outcome variables. Based on the assumption of proportional odds, odds ratios can be compared between variables with different distributions, including very rare and more frequent occurrences. Specifically, the odds of an event (e.g., reunification) will be calculated for each group by dividing the number of events (i.e., reunified) by the number of non-events (i.e., not reunified). An odds ratio then will be calculated by dividing the odds of the kinship care group with the odds of the foster care group. In addition, 95% confidence intervals will be computed and reported for the dichotomous effect size estimates.

#### *Assessment of Heterogeneity*

The consistency of results will be assessed using the  $I^2$  statistic ([Higgins 2002](#); [Higgins 2003](#)). If there is evidence of heterogeneity ( $p$  value from test of heterogeneity  $< 0.1$  coupled with an  $I^2$  value of 25% or greater), we will consider sources according to pre-specified subgroup and sensitivity analyses (see below), but will not calculate an overall effect size estimate. If the primary studies are judged to be substantially heterogeneous even within these sub-groupings, only a descriptive analysis will be conducted.

#### *Data Syntheses*

As heterogeneity is to be expected with similar interventions provided under different circumstances and by different providers, the data syntheses will use a random effects model. If a study reports multiple effect sizes (e.g., grades, behavior problems), the results will be included in the meta-analysis for each outcome. If a study reports effect sizes for multiple samples (e.g., male, female), the results will be aggregated for the main effects meta-analyses before being used for the subgroup meta-analyses.

#### *Sensitivity Analyses*

Sensitivity analyses will be conducted to explore the impact of the quality dimensions on the outcomes of the review. The following planned comparisons will be made.

Studies that use matching or covariates will be compared to studies that do not control for confounders. Studies with outcomes measured by caregiver or teacher reports will be compared to studies with outcomes measured by self-reports. Studies with low overall or differential attrition will be compared to studies with high overall or differential attrition.

#### *Subgroup Analyses*

Should sufficient data exist, we plan subgroup analyses to examine different effects of the intervention (if any) by gender, ethnicity, and age at placement.

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## **Potential conflict of interest**

Marc Winokur, Amy Holtan, and Deborah Valentine have no vested interest in the outcomes of this review, nor any incentive to represent findings in a biased manner.

## **Other references**

### **Additional references**

#### **AIHW 2006**

Australian Institute of Health and Welfare. Child protection Australia 2004-2005.. Retrieved July 23, 2006 from [www.aihw.gov.au/publications/cws/cpa04-05/cpa04-05.pdf](http://www.aihw.gov.au/publications/cws/cpa04-05/cpa04-05.pdf) 2006.

#### **Ainsworth 1998**

Ainsworth F, Maluccio AN. Kinship care: False dawn or new hope? *Australian Social Work* 1998;51(4):3-8.

#### **Ayala-Quillen 1998**

Ayala-Quillen BA. The Adoption and Safe Families Act of 1997 kinship care report: An analysis of key areas. *Protecting Children* 1998;14(3):12-14.

**Berrick 1994**

Berrick JD, Barth RP. Research on kinship foster care: What do we know? Where do we go from here? *Children and Youth Services Review* 1994;16:1-5.

**Berrick 1998**

Berrick JD. When children cannot remain home: Foster family care and kinship care. *Future of Children* 1998;8(1):72-87.

**Broad 2005a**

Broad B. Family and friends care, or kinship care, for children and young people who can no longer live with their parents. In: *International Conference of Children and Youth in Emerging and Transforming Societies*. Oslo, Norway, 2005, June.

**Broad 2005b**

Broad B. *Improving the health and well-being of young people leaving care*. Dorset, England: Russell House Publishing, 2005.

**Cuddeback 2004**

Cuddeback GS. Kinship and family foster care: A methodological substantive synthesis of research. *Children and Youth Services Review* 2004;26:623-639.

**CWLA 1994**

Child Welfare League of America. *Kinship care: A natural bridge*. Washington, DC: Author, 1994.

**DFES 2005**

Department for Education and Skills. *Children looked after in England (including adoption and care leavers): 2004-2005*. Retrieved on July 23, 2006 from [www.dfes-uk.co.uk/](http://www.dfes-uk.co.uk/) 2005.

**Dubowitz 1994**

Dubowitz H. Kinship care: Suggestions for future research. *Child Welfare* 1994;73:553-564.

**Geen 2000**

Geen R. In the interest of children: Rethinking federal and state policies affecting kinship care. *Policy & Practice* 2000;58(1):19-27.

**Geen 2004**

Geen R. The evolution of kinship care policy and practice. *The Future of Children* 2004;14:131-149.

#### **Gibbs 2000**

Gibbs P, Muller U. Kinship foster care moving to the mainstream: Controversy, policy, and outcomes. *Adoption Quarterly* 2000;4(2):57-87.

#### **Gleeson 1999**

Gleeson JP. Kinship care as a child welfare service. What do we really know? In: JP Gleeson & CF Hairston, editor(s). *Kinship care: Improving practice through research*. Washington, DC: CWLA Press, 1999.

#### **Goerge 1994**

Goerge R, Wulczyn F, Fanshel D. A foster care research agenda for the '90s. *Child Welfare* 1994;73:525-549.

#### **Higgins 2002**

Higgins J, Thompson S. Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine* 2002;21(11):1539-1558.

#### **Higgins 2003**

Higgins J, Thompson S, Deeks J, Altman D. Measuring inconsistency in meta-analyses. *BMJ Clinical Research* 2003;327(7414):557-560.

#### **Higgins 2005**

Higgins JPT, Green S editor(s). *Cochrane handbook for systematic reviews of interventions* 4.2.5. In: *The Cochrane Library*, Issue 3, 2005. Chichester, UK: John Wiley & Sons, Ltd., 2005.

#### **Juni 2001**

Juni P, Altman DG, Egger M. Systematic reviews in health care: Assessing the quality of controlled clinical trials. *BMJ Clinical Research* 2001;323(7303):42-46.

#### **Leos-Urbel 2002**

Leos-Urbel J, Bess R, Geen R. The evolution of federal and state policies for assessing and supporting kinship caregivers. *Children and Youth Services Review* 2002;24:37-52.

#### **Moher 1999**

Moher D, Cook D, Eastwood S, Olkin I, Rennie D, Stroup D. Improving the quality of reports of meta-analyses of randomised controlled trials: The QUOROM statement. *Lancet* 1999;354:1896-1900.

#### **NAW 2005**

National Assembly of Wales. Adoptions, outcomes, and placements for children looked after by local authorities: Year ending 31 March 2005. Retrieved July 23, 2006 from [www.dataunitwales.gov.uk/eng/pss.asp?cat=201&year=2005](http://www.dataunitwales.gov.uk/eng/pss.asp?cat=201&year=2005) 2005.

#### **Scannapieco 1999**

Scannapieco, M, Hegar RL. Kinship foster care in context. In: RL Hegar, M Scannapieco, editor(s). *Kinship foster care: Policy, practice, and research*. New York: Oxford University Press, 1999:1-13.

#### **SENS 2005**

Scottish Executive National Statistics. Statistics publication notice: Health and care series: Children's social work statistics 2004-05. Retrieved July 23, 2006 from [www.scotland.gov.uk/Publications/2005/10/2791127/11278](http://www.scotland.gov.uk/Publications/2005/10/2791127/11278) 2005.

#### **USDHHS 2006a**

U.S. Department of Health and Human Services. The AFCARS report. Retrieved July 23, 2006 from [www.acf.hhs.gov/programs/cb](http://www.acf.hhs.gov/programs/cb) 2006.

#### **USDHHS 2006b**

US Department of Health and Human Services. *Child Maltreatment 2004*. Washington, DC: US Government Printing Office, 2006.

#### **Wilson 1996**

Wilson DB, Chipungu SS. Introduction. Special edition: Kinship care. *Child Welfare* 1996;75:397.

#### **Zuravin 1999**

Zuravin SJ, Benedict M, Stallings R. The adult functioning of former kinship and nonrelative foster care children. In: RL Hegar & M Scannapieco, editor(s). *Kinship foster care: Policy, practice, and research*. New York: Oxford University Press, 1999.

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