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Carl J. Dunst and Mary Beth Bruder
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FEATURED ARTICLE

Early Intervention Service Coordination Models and Service Coordinator Practices

CARL J. DUNST

Orelena Hawks Puckett Institute

MARY BETH BRUDER

University of Connecticut Health Center

The relationship between three different service coordinator models (dedicated and independent, dedicated but not independent, and blended) and the use of nine different service coordinator practices was examined in a study of families of infants and toddlers enrolled in the IDEA Part C early intervention program. Results showed that service coordinators provided children and families fewer services when using a dedicated and independent model and that the same service coordinators had less frequent contact with families and early intervention staff compared to service coordinators working in the context of the other two service coordination models. Strengths and limitations of the different service coordination models are discussed.

The purpose of this study was to determine if different approaches to service coordination were related to the breadth and depth of service coordinator practices. More specifically, we examined whether the use of different service coordination models influenced the extent to which service coordinators provided or mediated nine different services, supports, and resources to infants and toddlers with disabilities or delays and their families enrolled in the Individuals with Disabilities Education Act Part C early intervention program (IDEA, 2004). The study was conducted as part of the Research and Training Center (RTC) on Service Coordination (Bruder, 2005; Bruder et al., 2005). The RTC has three primary purposes: (a) study and describe current models of service coordination, (b) identify practices and outcomes associated with different service coordination models, and (c) promote adoption and service coordination models that evidence indicates

optimize positive benefits to infants and toddlers and their families.

The roots of service coordination can be traced to the casework practices of social workers in the early part of the 20th century (Dunst & Trivette, 1989). These practices became popular in the 1970s and 1980s when *case management* emerged in response to the fragmented and uncoordinated development of human services programs (see e.g., Weil & Karls, 1985). Case management was one service included in the 1986 Amendments to the Education of the Handicapped Act that authorized the establishment of an early intervention program for infants and toddlers. The term case management was changed to *service coordination* as part of the reauthorization of IDEA in 1990. Service coordination refers to the “activities carried out by a service coordinator to assist and enable the eligible child and his or her family to receive the rights, procedural safeguards,

and services that are authorized to be provided under the state's early intervention program" (Bruder, 2005, p. 35). Both parents and practitioners consider service coordination an important component of early intervention (Dunst & Bruder, 2002).

In the 20 years since service coordination was mandated as an IDEA Part C service, it is surprising how little has been written about different approaches to service coordination and especially the influences different models have on program practices or child and family outcomes. For this reason, a research and training center was funded by the Office of Special Education Programs (OSEP) to examine different aspects and features of service coordination.

Service Coordination Models

Numerous attempts have been made to articulate the different service coordination models used by states and local infant/toddler programs and providers (e.g., Bruder, 2005; Dunst & Trivette, 1989; Harbin et al., 2004; Harbin & West, 1998; Martinson, 1999; National Early Childhood Technical Assistance Center, 2003; Roberts, Behl et al., 2005). A review and synthesis of the different models finds three major approaches to service coordination, with two approaches having variant features (Bruder, 2005): (a) dedicated and independent, (b) dedicated but not independent, and (c) blended.

In the dedicated and independent model of service coordination (hereafter referred to as the *dedicated model*), "the role of the service coordinator is dedicated to service coordination only, and the agency providing service coordination is independent from service provision" (Bruder, 2005, p. 34). The dedicated but not independent model (hereafter referred to as the *intra-agency model*) means that the service coordinator provides only service coordination but works for the same agency or program providing early intervention services. In the *blended model*, the service coordinator provides both service coordination and early intervention services. Harbin et al. (2004) found that 47% of all states and territories used a combination of models, 27%

used a dedicated model, and the remaining 26% used a model other than a dedicated approach to service coordination.

The service coordination models examined in this study are similar to those described by Harbin and West (1998) and Roberts et al. (2005). The dedicated and independent model was identical or very similar to that described by Roberts et al. (2005) as an independent model and was almost identical to models described by Harbin and West (1998) as independent and either dedicated or nondedicated. The intra-agency model was identical to the dedicated but not independent model described by Harbin and West (1998). The blended model was identical to the blended model described by Harbin and West (1998) and overlapped considerably with the models described by Roberts et al. (2005) as combined roles or one-stop shopping.

Service Coordination Practices

Identifying the roles, tasks, and practices constituting the focus of service coordination has been an explicit goal of the RTC on Service Coordination (Bruder, 2005; Bruder et al., 2005; Dunst & Bruder, 2002). Focus groups, delphi surveys, and interviews with parents, service coordinators, early intervention practitioners and providers, and program administrators throughout the U.S. were used to identify service coordination practices deemed most important (see Bruder et al., 2005). Sixty-seven (67) service coordinator practices were identified and organized subsequently into nine categories: (a) individualized family services plan (IFSP) development and oversight, (b) oversight and monitoring of early intervention service provision, (c) coordination and facilitation of early intervention services, (d) family participation and decision making regarding IFSPs and service provision, (e) provision of information to families about early intervention and related services, (f) provision of information to families about child learning opportunities, (g) planning for and assistance with the transition from early intervention to preschool services, (h) information about and assistance in obtaining

child health care, and (i) information about and assistance in obtaining child care.

In one of the few studies examining the relationship between Part C early intervention service coordination models and service coordinator practices, Roberts et al. (2005) found that service coordinators using a dedicated model had fewer contacts with families. These investigators also found that these same families reported more difficulty contacting their service coordinator, and found their service coordinators less helpful compared to service coordinators using a blended or one-stop shopping model. Corroborating evidence from other studies of early intervention program participants indicates that different approaches to service coordination and integration are associated with variations in service coordinator practices and roles (Dinnebeil, Hale, & Rule, 1999; Jung & Baird, 2003; Nolan, Young, Hebert, & Wilding, 2005; Park & Turnbull, 2003; Summers et al., 2001). Research conducted in other human services programs also indicates that different approaches to service coordination are related to differences in service coordinator practices (e.g., Chamberlain & Rapp, 1991; Dunst, Trivette, Gordon, & Starnes, 1993; Mueser, Bond, Drake, & Resnick, 1998). What is not known are the specific service coordinator practices that are associated with the particular service coordination models currently being used by states. The study described in this paper was conducted to answer the question: Are different service coordination models (Bruder, 2005; Bruder et al., 2005) associated with different service coordinator practices?

METHOD

Participants

Parents and other caregivers were recruited by early intervention providers and programs using mailing lists obtained from state infant/toddler program coordinators. Invitations were sent to randomly selected programs in those states where the Part C coordinators provided mailing lists. The goal was to insure parent participation in as many states as

possible. Interested providers distributed surveys to program participants who returned the surveys to the investigators in postage-paid envelopes. We were not able to calculate a return rate because we did not know or could not determine how many program staff receiving surveys distributed them to program participants. Surveys were returned by families in 46 states. Participation was voluntary and no incentives were offered. All participants signed informed consent letters.

The sample for the analyses reported in this paper included 299 parents and other primary caregivers of IDEA Part C early intervention program participants for which the service coordination model could be determined from information provided on the surveys. There were an additional 47 respondents for whom we could not determine the service coordination model because of insufficient or contradictory information.

Table 1 shows the background characteristics of study participants. Parents were, on average, about 33 years of age, and had completed an average of about 14 years of formal schooling. The majority of the parents were either married or living with a partner, and about half of the survey respondents reported that they worked outside the home either full- or part-time. Eighty five (85) percent of the respondents reported their ethnicity as Caucasian or White; the remaining respondents indicated that they were Latino or Hispanic, African American, Asian, American Indian, or another ethnicity. The demographic characteristics of this sample were similar to that of children and families involved in early intervention programs throughout the U.S. (Hebbeler, Spiker, Mallik, Scarborough, & Simeonsson, 2003).

The children, on average, were about 2 years of age at the time respondents completed the surveys. Based on information provided by the parents, the largest majority (70%) of the children had identified disabilities and the remaining 30% had developmental delays or were considered at risk for

Table 1
Background Characteristics of Study Participants

Participant Characteristics	Dedicated (<i>n</i> = 88)		Intra-agency (<i>n</i> = 103)		Blended (<i>n</i> = 108)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Child age (months)	26.34	9.42	26.21	10.56	25.81	9.56
Respondent age (years)	33.70	6.21	34.14	6.33	33.30	6.50
Respondent education ^a	14.85	2.59	14.44	2.24	14.18	2.49
Child disability/delay ^b		98%		99%		97%
Married/living with partner		92%		90%		94%
Working outside home		48%		42%		41%

Note. ^a= Years of formal schooling completed; ^b= States' eligibility definitions.

delays due to a variety of factors (e.g., prematurity, in utero drug exposure).

Survey

Participants completed an investigator-developed survey that included both closed- and open-ended questions to discern the service coordination model. Respondents were asked the name of the agency or program for which the service coordinator worked, the name of the agency or program providing early intervention services to the respondent's child and family, and whether any early intervention program staff or provider working with the respondents' child or family was the assigned service coordinator. The combination of program or agency, service coordinator role/responsibilities, and early intervention staff roles/responsibilities was used to assign respondents to one of the three service coordination models (dedicated, intra-agency, blended) constituting the focus of investigation. The distribution of participants according to each model (see Table 1) was similar to that found in other national studies. For example, Harbin et al. (2004) found that 27% of states use a dedicated model, and we found that 29% of the survey respondents were assigned to this same model.

Respondents were asked to indicate on a 5-point scale how often the service coordinator working with the respondents' child/family had contact with his or her family, ranging from *less than twice a year* (1) to *at least*

once a week (5); and how often the service coordinator had contact with other early intervention program staff or providers, ranging from *a couple of times a year* (1) to *at least once a week* (5). Respondents could choose a *don't know* category to indicate that they were not aware if the service coordinator met with or had contact with other early intervention staff. In those cases where the service coordinator was also an early intervention practitioner, respondents indicated how frequently the service coordinator/practitioner interacted with other early intervention staff serving the child and family.

The survey also included a *type of service coordination* section that asked respondents to indicate the extent to which service coordinators provided the nine services constituting the focus of the investigation (IFSP oversight, early intervention services oversight, service provision, family decision making, information provision, child learning, transition planning, health care information/assistance, and child care information/assistance). Two practice items were included for each type of service coordinator activity. Each item was rated on a 5-point scale ranging from *never true* (1) to *always true* (5) that the service coordinator engaged in the practice. The sum of the two ratings for each practice and the sum of all practice items (total scale score) were used as the dependent measures in the analyses.

Construct validity of service coordinator practice items was ascertained through convergent and discriminant validity analyses (Campbell & Fiske, 1959) of the data from the study sample. The average correlation among the items measuring the same practice was .68 ($SD = 0.10$; convergent validity) and the average correlation between items measuring different practices was .29 ($SD = 0.08$; discriminant validity).

Data Analyses

The extent to which the service coordination model was associated with service coordinator practices and frequency of contact with the respondent and early intervention staff was assessed in three ways. First, a series of ANOVAs were performed with service coordinator model (dedicated vs. intra-agency vs. blended) as the independent variable and the nine service coordinator practices scores and the total practices score as the dependent measures. Differences for pairwise service coordinator model comparisons were tested using Bonferroni protected post-hoc *t*-tests and Cohen's *d* effect sizes. Second, chi-square tests were used to ascertain the relationship between service coordinator model and frequency of contact between the service coordinator and both the survey respondent and early intervention staff. Third, two Frequency of Contact x Type of Service Coordination Model ANOVAs were performed with the total practices score as the dependent measure; one for service coordinator contact with the respondents' families and one for service coordinator contact with early intervention staff.

RESULTS

Tables 2–3 show the results for the between-service-coordinators models ANOVAs and the pairwise model tests. Statistically significant between-model differences were found for seven of the nine subscale scores and for the total scale score. Follow-up tests indicated that for all practices involving service coordinator roles and responsibilities other than provision of information about and

assistance in obtaining child care and health care, respondents assigned to the dedicated model indicated that the service coordinators working with their families used the practices less often compared to service coordinators for either the intra-agency or blended models. The differences were noteworthy given that the effect sizes for the dedicated versus intra-agency and dedicated versus blended models averaged .53 (for the seven of nine statistically significant subscales).

The relationship between service coordinator models and contact with respondents' families and early intervention staff are shown in Table 4. Analyses indicated that the blended model was associated with more frequent service coordinator contacts with both families and early intervention staff and the dedicated model was associated with considerably less service coordinator contact with families and early intervention staff. More surprising was the large percentage of respondents who reported not knowing how much contact service coordinators had with the early intervention staff.

Frequency of contact between service coordinators and families and early intervention staff was used to divide the sample into three groups: *weekly*, *monthly*, and *less than monthly* contact with families, and *weekly/monthly*, *less than monthly*, and *don't know* for contact with the early intervention staff. The Between Service Coordinator Model x Frequency of Contact ANOVAs produced statistically significant model x frequency of contact interactions for both service coordinator contact with respondents' families, $F(2, 289) = 5.16$, $p < .01$, and contact with the early intervention staff, $F(2, 289) = 8.44$, $p < .001$. The interactions are shown graphically in Figure 1. In both analyses, the less frequent the contact between service coordinators and families and early intervention staff, the fewer services were provided to program participants. In only one condition (weekly contact between the service coordinator and family) did the service coordinator practices scores not differ according to service coordinator model.

Table 2*Service Coordinator Practices Across Service Coordination Models*

Service coordination practices	Service Coordination Model					
	Dedicated (D)		Intra-agency (I)		Blended (B)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Early intervention services oversight	8.17	2.00	9.16	1.35	9.16	1.65
IFSP oversight	8.01	2.21	8.76	1.58	9.10	1.67
Service provision	7.66	2.31	8.63	1.76	8.48	1.85
Family decision making	7.34	2.41	8.21	1.97	8.61	2.02
Information provision	6.99	2.58	8.12	2.08	8.34	2.17
Child learning opportunities	6.13	2.78	7.33	2.34	8.13	1.95
Transition planning	5.96	3.02	7.03	2.93	7.28	3.07
Health care information/assistance	5.66	2.98	6.10	2.85	5.52	3.09
Child care information/assistance	4.31	2.86	5.25	3.07	5.02	3.01
Total scale score	60.12	17.46	68.60	13.56	69.64	14.72

Note. IFSP = Individualized family services plan.

DISCUSSION

Findings showed that (a) dedicated models of service coordination were associated with fewer reported practices compared to intra-agency and blended models, and (b) dedicated service coordinators had significantly less

contact with program participants compared to service coordinators who also provided early intervention (blended model). This finding is almost identical to that found by Roberts et al. (2005). In both our study and the Roberts et al. study, the majority of program participants reported twice as many

Table 3*F Tests for Service Coordinator Practices Across Models*

Service coordination practices	Between model <i>F</i>	Bonferroni post-hoc <i>t</i> -tests			Cohen's <i>d</i>		
		D vs. I	D vs. B	I vs. B	D vs. I	D vs. B	I vs. B
Early intervention services oversight	10.70****	**	**	ns	.59	.59	.00
IFSP oversight	8.76***	*	**	ns	.41	.60	.19
Service provision	6.41**	**	*	ns	.49	.42	-.07
Family decision making	8.79***	*	**	ns	.41	.60	.19
Information provision	9.41****	**	**	ns	.50	.60	.10
Child learning opportunities	17.30****	**	**	*	.51	.85	.34
Transition planning	5.03**	*	**	ns	.36	.44	.08
Health care information/assistance	1.07	ns	ns	ns	.15	-.04	-.19
Child care information/assistance	2.45†	ns	ns	ns	.31	.24	-.07
Total scale score	10.78****	**	**	ns	.54	.59	.07

Note. IFSP = Individualized family services plan; D=dedicated; I=independent; B=blended. † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$; **** $p < .0001$.

Table 4

Percentage of Respondents Reporting Service Coordinator Contact with Their Families and Early Intervention Providers

Service coordinator contacts	Service Coordination Model		
	Dedicated	Intra-agency	Blended
<i>Contact with family</i>	$\chi^2(8) = 55.54, p < .0001$		
At least 1× a week	11.4	18.4	47.2
1 or 2× a month	47.7	57.3	45.3
Every 2 to 3 months	30.7	21.4	6.5
Every 3 to 6 months	4.5	1.0	1.0
Less than 2× a year	5.7	1.9	0.0
<i>Contact with early intervention staff</i>	$\chi^2(10) = 40.15, p < .0001$		
At least 1× a week	1.2	4.9	23.1
Monthly	19.8	18.4	26.0
Every couple of months	19.8	13.6	6.7
Every 3 to 6 months	14.0	11.7	10.6
Couple of times a year	4.7	4.9	1.0
Don't know	40.7	46.6	32.7

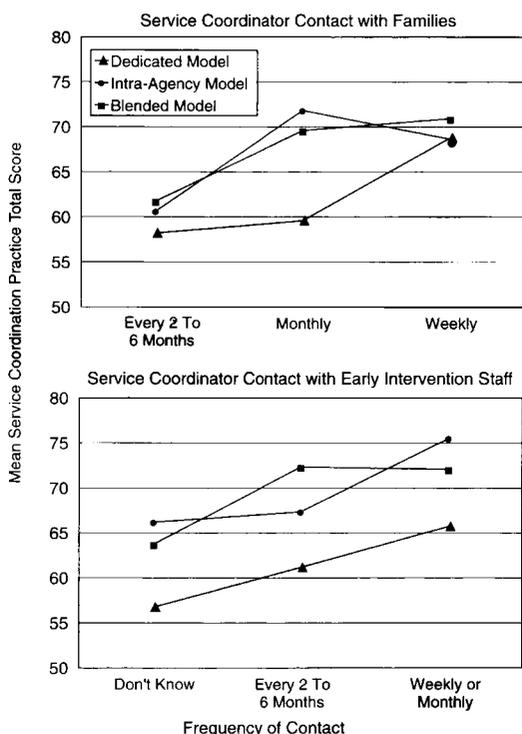


Figure 1. Relationship between frequency of contact between service coordinators and both families and early intervention staff and service coordinator practices.

contacts by blended compared to dedicated service coordinators. Relatively frequent contact is important because it is difficult to be helpful if a service coordinator is not available to a family (Dunst et al., 1993; Roberts, Behl et al., 2005; Trivette, Dunst, Boyd, & Hamby, 1995). This is clearly reflected by the finding that the fewer service coordinator contacts with families, the fewer service coordinator practices the study respondents reported. Moreover, in as much as relatively frequent contact between service coordinators and program participants is a necessary condition for practitioners and families to develop the kind of relationship setting the occasion for provision of needed services, supports, and resources (McBride & Peterson, 1997; Trivette et al., 1995; Trivette, Dunst, & Hamby, 1996), the lack of contact between dedicated service coordinators and program participants is most likely an impediment to this occurring.

The main finding from the study is the pattern of differences in reported practices according to service coordinator model. In 8 of 10 analyses, dedicated service coordinators used significantly fewer practices compared

to service coordinators using the other two models. More specifically, for the seven Part C infant/toddler program practices involving integration and provision of early intervention services to early intervention program participants and their families, the dedicated service coordination model proved less effective in ensuring the use of parent and professionally valued practices (Bruder et al., 2005). This conclusion is supported by both the primary analyses reported above and additional analyses of the scope of use of the practices constituting the focus of investigation. Each practice item was rated on a 5-point scale ranging from *never true* to *always true* that the service coordinator used the practice with the survey respondents. Using practices rated *mostly true* (4) and *always true* (5) as a standard for ascertaining consistent use of a practice, just over half the practices (54%) used by dedicated service coordinators reached the criterion. In contrast, nearly three quarters (70%) of the practices used by blended model service coordinators reached the criterion.

The reasons why dedicated service coordination models are associated with less use of valued practices is complex (Bruder, 2005; Bruder et al., 2005). At least one explanation can be gleaned from a social system perspective of service coordination (e.g., Fine, 1985). In the dedicated service coordination model, three systems must be integrated or interfaced: the program or agency for which the service coordinator works, the program or agency that provides early intervention, and the family. In both the intra-agency and blended models, only two systems need to be integrated or interfaced: the program or agency providing both service coordination and early intervention and the family. Some years ago, Elmore (1979–1980) noted that “one can demonstrate without much trouble that any policy will fail, simply by counting the number of discrete clearances and decisions, assigning a probability to each, and multiplying them seriatim” (p. 608). Something akin to this might be operating using a dedicated service coordination model.

Matters might become worse in those states using dedicated service coordination models where early intervention services are procured by contracting with individual providers and not an early intervention program. This practice might require the need to integrate activities among five, six, or more systems. Both common sense and empirical evidence tells us that this cannot work effectively or efficiently. This is especially likely to be the case where service coordinators have case loads of 50 to 75 families, which seems to be true for dedicated models (Roberts, Behl et al., 2005). Large caseloads coupled with the necessity of managing service provision by practitioners from many different agencies cannot but impede service coordinators’ ability to provide or mediate services as intended by IDEA. The problem is likely compounded in states that set limits on how often service coordinators can have contact with families. In those cases, institutional constraints would be expected to interfere with service coordinators’ abilities to develop the kind of relationships with families necessary to ensure provision of needed services, supports, and resources.

The fact that a dedicated (independent) model of service coordination is less efficient than other models is bolstered from the findings showing that when service coordinators work for the same program or agency providing early intervention but do not provide early intervention (dedicated but not independent model), there are practically no differences in the reported use of valued practices when compared to blended models. Again, this seems to be the case because there are fewer systems, agencies, and programs that need to be coordinated. Common sense tells us that walking down the hall to talk to a colleague or jointly planning interventions among coworkers is more efficient than having to drive across town to meet with a practitioner from another program.

The development of state early intervention policies, models, and practices has more often than not been done in the absence of any evidence about the foundations or

consequences of different decisions and courses of action. Results like those reported in this paper can be useful for making informed decisions, and especially for avoiding and inadvertently setting barriers to the provision of the kinds of practices valued by parents and professionals and as required by federal law. As found in this study, the more disconnected the service coordination/early intervention services interface, the more likely a fragmented system of services will ensue. The disassociation between dedicated service coordinators and program participants deserves additional comment in light of many states' movement toward adoption of dedicated service coordination models in an effort to make this particular service unbiased and free from (perceived) conflict of interest. In so doing, however, it seems that states have created an institutional barrier to service coordination based on faulty, nonevidence-based logic. The result might be a dysfunctional system of early intervention that fosters a disconnected rather than integrated service delivery system. At a minimum, the relationship between different service coordination models and practices deserves further investigation in light of the results reported in this paper. Findings from other analyses we have conducted indicated that one should consider choices about models and practices carefully (Bruder & Dunst, 2005a, 2005b).

In survey studies, like the one reported in this paper, there is always the possibility that the sample is not representative of all families being served by Part C early intervention programs; therefore, the findings might be biased. This would especially be the case in those instances where providers selectively distributed surveys to families for participation. The likelihood that the findings are biased due to sampling procedures are mitigated by the fact that the parent and family background variables of the sample showed no systematic statistical relationship with any of the service coordinator practices measures. Consequently, the contention that the findings are systems-related and not respondent-related seem justified.

According to Kagan and Neville (1993), service coordination and integration are characterized by nobility of intent, tenacity of purpose, but ineffectiveness of implementation. The early intervention field has a responsibility to examine continually the consequences of its systems for children and their families, and to use this information subsequently to improve early intervention policies and practices. Service coordination is one practice sorely in need of reexamination. Evidence-based findings can and should inform this reexamination.

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*Correspondence regarding this article should be addressed to **Carl Dunst**, Orelena Hawks Puckett Institute, 18A Regent Park Boulevard, Asheville, NC 28806. E-mail: dunst@puckett.org*