Abstract
The purpose of this study was to determine the usefulness of academic detailing for increasing hospital referrals to an early childhood intervention program. Academic detailing is an outreach strategy for changing prescribing or referral practices. Two individuals trained to implement the intervention each contacted primary referral sources at one of two regional Level III hospitals, providing them with concise oral and written information about the program and procedures for making referrals. One detailer implemented the full procedure while the second detailer partially implemented the procedure by not making any follow-up contacts. The full implementation procedure was found more effective for increasing the number of referrals from these primary referral sources.

Introduction
The purpose of the study described in this Snapshots was to investigate the effectiveness of a modified academic detailing procedure for increasing referrals to an early intervention program from primary referral sources. Academic detailing is characterized by brief, repeated, face-to-face, informal educational outreach visits to primary referral sources by knowledgeable professionals to provide them information to change prescribing or referral practices (Clow, Dunst, Trivette, & Hamby, 2005). The procedure has been used extensively with physicians and other health care professionals for changing different aspects of their medical practices (O’Brien et al., 1997; Soumerai & Avorn, 1990; Trowbridge & Weingarten, 2001). The usefulness of the procedure for influencing referrals for early childhood intervention was the focus of the study described in this paper.

The study was conducted at the Tracking, Referral and Assessment Center for Excellence (TRACE). The major purpose of TRACE is to identify and promote the use of evidence-based practices for improving child find, referral, early identification, and eligibility determination of infants, toddlers, and preschool children with disabilities or developmental delays eligible for IDEA Part C early intervention or Part B (619) preschool special education (Dunst & Trivette, 2004; Dunst, Trivette, Appl, & Bagnato, 2004).

Findings from studies investigating the key characteristics of academic detailing for changing prescribing and referral practices indicate that four sets of factors are especially important: (1) building and establishing rapport with primary referral sources; (2) highlighting and repeating a focused message about the benefits of making a referral; (3) using concise written information that describes the benefits of making a referral; and (4) making follow-up visits to reinforce referrals, answer questions, and provide additional information (Dunst, 2005). These key features were used to develop and implement the outreach procedure described in this Snapshots for evaluating its usefulness for increasing hospital referrals to an early childhood intervention program.

Academic detailing differs from other outreach methods and procedures (see e.g., Berman & Melner, 1992) in a number of ways. First, visits to primary referral sources are brief (less than 10-15 minutes) and informal. Second, the focus of the visits are on the benefits of making a referral and the credibility of the program and staff to whom referrals are made. Third, the persons conducting the outreach (academic detailers) are knowledgeable about the early childhood intervention program and the services it provides and are able to answer any question posed by a primary referral source.
Method

Primary Referral Sources

Key staff in the referral process at two Level III regional hospitals were first identified in order to focus the outreach efforts of the academic detailers. Based on previous experiences and conversations with staff at each of the two hospitals, those individuals responsible for making referrals to local community service providers, including early childhood intervention programs, were identified and targeted as the focus of the intervention. This included six different individuals at each hospital. The primary referral sources were all nurses in one hospital and social workers and nurses in the other hospital.

Procedure

The outreach strategy was implemented by two individuals who each conducted the intervention in different hospitals. Both individuals made brief unscheduled visits to the primary referral sources, described the early childhood intervention program and referral procedures, provided the primary referral sources written descriptions about the program as well as referral forms, and answered questions posed by the primary referral sources. One of the two academic detailers made follow-up visits to the primary referral sources on three occasions 2 to 3 months after the initial contacts. The procedures with and without follow-up visits were considered full and partial implementations, respectively, and were designed to determine the need for ongoing contacts as a condition for influencing referrals.

Both staff received training prior to implementing the interventions using the scripts in Appendix A (both full and partial implementation) and Appendix B (full implementation only). Table 1 summarizes the steps and key characteristics of the initial and follow-up visits. A program description specifically targeted to the primary referral sources was prepared for the study (Appendix C). The flyer included descriptions of the services provided by the program; the children whom the program serves; the names, qualifications, and professional disciplines of the program staff; and the reasons why primary referral sources would refer children to the program. The referral form was prepared in a format already familiar to the primary referral sources (Appendix D) and included space for recording child, family, and primary referral source background information; the reason(s) for referral; and the services prescribed or recommended.

Outcome

The outcome constituting the focus of the study was the number of referrals made to the early intervention program from the primary referral sources at the two hospitals. The number of referrals from the hospitals were documented for 10 months prior to the beginning of the study, during the 1 to 3 months of intervention (depending on the intervention condition), and for 3 months after the interventions were completed.

Data Analysis

The cumulative number of referrals during the 10 months prior to the intervention, during the intervention, and during the 3 months following the completion of the intervention was examined to discern patterns of, and changes in, referral rates. An interrupted time series design was used to compare and contrast patterns of referrals (regression coefficients) during the different study conditions. A Kruskall-Wallis nonparametric between-group test was used to compare the effectiveness of the full vs. partial implementation of the outreach strategy.

Results

Figure 1 shows the cumulative number of referrals by the primary referral sources at the two hospitals. The arrows on the graph are the times face-to-face contacts by the academic detailers were made with the primary referral sources at each of the hospitals. In both cases, referrals increased at the time of, or shortly after, the intervention was implemented. Results indicated that the full implementation produced more referrals than the partial
implementation. When contacts with the primary referral sources were discontinued, no additional referrals were made by staff at either hospital.

Table 2 shows the regression coefficients for the interrupted time series design analysis and the between-condition F-test results. In both sets of analyses, the regression coefficients for the intervention phases were statistically different than those for the baseline and return-to-baseline phases of the study, confirming the contention that the intervention was effective in influencing referrals. Both a between-regression coefficient comparison, \( F(2, 9) = 68.52, p < .0001 \), and a nonparametric Kruskall-Wallis Test, \( \chi^2(1) = 9.58, p < .01 \), confirmed the fact that the full implementation was more effective in increasing referrals compared to the partial implementation.

**Discussion**

Findings from this study showed that a simple, rather straightforward approach to influencing referrals to early childhood intervention by primary referral sources was relatively effective where the effectiveness of the procedure was enhanced by repeated follow-up contacts with Level III hospital staff. Academic detailing research was used as the basis for designing and implementing the outreach intervention. A pragmatic factor also guided the selection of the outreach strategy constituting the focus of investigation. Primary referral sources in general and hospital staff more specifically are very busy professionals who do not have a lot of time to devote to more intense training and lengthy conversations with early childhood intervention program personnel as part of their routine, day-to-day practices. It was for this reason that academic detailing was considered an approach that held promise for improving child find and for increasing referrals to early childhood intervention programs.

The particular version of academic detailing used in the study was highly focused. A credible messenger provided a credible message in brief face-to-face contact with a primary referral source, leaving targeted information about the early childhood intervention program and how to make a referral to the program. The interested reader is referred to Dunst (2005) for a more detailed description of the key characteristics of academic detailing and its implications for increasing referrals to early childhood intervention. The lesson learned from this study, as well as other research and practice at TRACE (Trivette, Rush, Dunst, & Shelden, 2006), is that ongoing and frequent contact is a necessary and sufficient condition for maintaining referrals for early intervention. This is a finding that has emerged from almost every study and set of analyses we have conducted.

**Acknowledgments**

Appreciation is extended to Abigail Underwood for typing, Teresa Imfeld for editing, and Kaki Roberts for final layout of the manuscript.

**References**


**Authors**

Carl J. Dunst, Ph.D., is Co-Principal Investigator of the Tracking, Referral and Assessment Center for Excellence (TRACE) and Research Scientist at the Orelena Hawks Puckett Institute in Asheville, North Carolina (dunst@puckett.org). Carol M. Trivette, Ph.D., is Co-Principal Investigator of the Tracking, Referral, and Assessment Center for Excellence (TRACE) and Research Scientist at the Orelena Hawks Puckett Institute, Morganton, North Carolina. M’Lisa Shelden, Ph.D., P.T., is Director of the Family, Infant and Preschool Program in Morganton, North Carolina (mlisa.shelden@ncmail.net). Dathan Rush, CCC-SLP, is Associate Director of the Family, Infant and Preschool Program in Morganton, North Carolina (dathan.rush@ncmail.net).
Appendix A

Key Characteristics of Initial Contacts with Primary Referral Sources

Introduction

Hi. My name is _____________. I’m a nurse from (Program Name/Location) (Give the person your business card).

Agency's Purpose

As you may know, (Program Name) provides therapy and early childhood intervention services to infants, toddlers, and preschoolers with disabilities or developmental delays.

Reason for Contact

The reason I stopped by to see you is to share information with you about (Program Name) and the services we provide, as well as to give you copies of our referral forms (Give the person a referral packet. Open the packet and give the person one of the program flyers).

What Agency Does

Point to column on flyer—“(Program Name) Specializes In”—and say:

(Program Name) now offers an expanded number of services including pediatric physical therapy, speech therapy, occupational therapy, nursing, and early childhood special education. We also conduct multidisciplinary developmental evaluations.

Who Agency Works With

Now point to the “(Program Name) Works With” column on flyer.

(Program Name) works with children with a variety of disabilities and developmental conditions. These include autism, cerebral palsy, Down’s syndrome, and a number of other conditions that are listed on the program description.

Unique Features Relevant to the Referral Source

Turn the flyer over and point to the bottom of the page, “Why Primary Referral Sources Choose (Program Name).” Some important points about (Program Name) are:

• We have no waiting list,
• our services are based on the most current research available,
• we will follow up with you to let you know that we received your referral, and
• our services are provided at times and locations that are convenient for your patients.

Emphasize Staff Qualifications

Point to the “Highly Qualified” box at the top of the page.

We have a highly qualified and experienced staff. Our staff includes physical therapists, speech-language pathologists, occupational therapists, nurses, psychologists, and early childhood educators. We are the most comprehensive program in our area serving infants and toddlers with disabilities. What questions can I answer about (Program Name)? (Answer any questions.)

Provide Referral Forms and Program Description

Take out one of the referral forms from the packet and hand it to the person then say:

For your convenience, I included several of (Program Name)’s referral forms in the packet. Referrals can be mailed or faxed to our main office (Point to fax number on referral form). After receiving a referral, one of our referral coordinators will contact the family within 24 hours.

We will follow up with you on any referral you make to (Program Name) by sending you a letter to let you know that we have received the referral and contacted the family.

Closing

Thank you for your time. We look forward to working with you in providing quality services to your patients and their families.
Appendix B

Follow-up Contacts with Primary Referral Sources

Follow-up with Referral Sources NOT YET Making Referrals

Introduction
Hi. This is ______________ from (Program Name/Location). I visited with you a couple of weeks ago and left you copies of our program description and referral forms. Since we haven't received any referrals from you yet, I wanted to get back in touch with you to see what questions you have or any information you might need that would help you make the decision to refer to (Program Name). (Answer any questions.)

Reinforce Program Strengths
(Program Name) would certainly like to have the opportunity to work with you in serving your patients who may need therapy or early childhood educational services. As I mentioned before, we have no waiting list and our services are provided at times and locations that are convenient for your patients.

Closing
Please be sure to contact me if you have any additional questions or need extra program descriptions or referral forms. We also have a brochure that describes our program specifically for parents. If you would like, I would be happy to bring some by for you to give to families or to leave in your waiting area. It was good to speak with you. Thank you again for the referrals.

Follow-up with Referral Sources Who Have Made Referrals

Introduction
Hi. This is ______________ from (Program Name/Location). I visited with you a couple of weeks ago and left you copies of our program description referral forms. We have received ____ (actual number of referrals received) referrals from you and I wanted to personally thank you for the opportunity to serve your patients.

Feedback and Follow-up
I wanted to make sure you received our letter confirming the fact that we received the referral and see if you had any questions for me. (Answer any questions.)

Closing
Please be sure to contact me if you have any questions or need additional program descriptions or referral forms. We also have a flyer that describes our program specifically for parents. If you would like, I would be happy to bring some by for you to give to families or to leave in your waiting area. It was good to speak with you. Thank you again for the referrals.
Appendix C

Family, Infant and Preschool Program Description

Comprehensive supports for infants, toddlers and preschoolers with disabilities or developmental delays and their families

FIPP specializes in:

- Pediatric physical therapy
- Pediatric occupational therapy
- Pediatric speech-language therapy
- Early childhood special education
- Multidisciplinary developmental evaluations
- Early intervention
- Service coordination
- Early childhood education
- Preschool readiness activities
- Early childhood literacy programs
- Child socialization groups
- Parent/child enrichment programs
- Family social activities
- Information about disabilities and child development
- Information about child discipline
- Information about parenting activities
- Information about community resources
- Parent/family support

FIPP works with children, birth to school age, who have:
- Autism and related disorders
- Behavioral disorders
- Biological risk factors
- Cerebral palsy
- Developmental delays
- Disruptive behavior
- Down syndrome
- Environmental risk factors
- Failure to thrive
- Feeding/swallowing disorders
- Genetic disorders
- Gross/fine motor delays
- Hearing impairments
- Low birth weight
- Orthopedic disabilities
- Premature birth conditions
- Seizure disorders
- Sensory processing difficulties
- Social skills/peer problems
- Speech-language impairment
- Spina bifida
- Traumatic brain injury
- Vision impairments

FIPP works with children and families in:
- Alexander
- Buncombe
- Burke
- Caldwell
- Catawba
- Cleveland
- Lincoln
- McDowell
- Rutherford
- Other Western North Carolina Counties As Requested
Highly qualified and experienced professional staff

**FIPP Director**
M’Lisa Shelden, Ph.D., PT, Physical Therapy and Special Education, University of Oklahoma

**FIPP Research Director**
Carl J. Dunst, Ph.D., Developmental Psychology, Vanderbilt University, Tennessee

**FIPP Associate Director**
Dathan Rush, M.A., CCC-SLP, Speech-Language Pathology, Oklahoma State University

**Physical Therapy**
Laura Hansen, M.S., PT, Physical Therapy, University of Oklahoma
Karen Sprouse, M.S., PT, Physical Therapy, University of Texas

**Speech-Language Pathology**
Nicole Roper, M.A., CCC-SLP, Speech-Language Pathology, Appalachian State University, North Carolina, and Ed.D., Child and Youth Studies, Nova Southeastern University, Florida
Jill Bartholomew, M.S., Speech-Language Pathology, Appalachian State University, North Carolina

**Occupational Therapy**
Christina Glen, B.S., OTR, Occupational Therapy, University of Illinois at Chicago

**Nursing**
Teresa Duncan, B.S.N., R.N., Nursing, Lenoir-Rhyne College, North Carolina

**Psychology**
Frances Davis, M.A., Developmental Psychology, University of North Carolina-Greensboro
Don Mott, M.A., Psychology, University of Nebraska-Lincoln

**Education**
Karen Clark, B.A., Special Education, University of North Carolina-Charlotte
Jeff Haslam, M.A., Psychology, Appalachian State University, North Carolina
Karen Holbert, M.A., Special Education, Temple University, Pennsylvania, and MSW, Social Work, University of North Carolina-Chapel Hill
Jennifer Johnson, B.A., Education, Western Carolina University, North Carolina
Linda Lowery, M.A., Education, Lenoir-Rhyne College, North Carolina
Sarah Sexton, M.Ed., Special Education, Bank Street College, New York
Pam Shue, M.Ed., Special Education, Temple University, Pennsylvania
Jada Swartz, M.A., Education, Appalachian State University, North Carolina
JoAnn Wells, B.A., Early Childhood Education, Lenoir-Rhyne College, North Carolina
Linda Wilson, M.A., Special Education, Appalachian State University, North Carolina
Loretta Yoder, B.A., Interdisciplinary Studies (K-6), Virginia Intermont College

Why physicians choose FIPP for their patients:

- Rapid response to requests for multidisciplinary evaluations and services
- Practices based on the most current research available
- Nationally and internationally recognized program
- No waiting list for FIPP services
- Timely confirmation of receipt of referrals and feedback about patient progress
- Highly qualified and experienced staff
- North Carolina’s first and only nationally certified family support program
- Services provided at times and locations convenient to families

Family, Infant and Preschool Program
A Community-Based Program of the
J. E. B. Riddle Developmental Center, Morganton, NC
Serving Western North Carolina

© Tracking, Referral and Assessment Center for Excellence

800-822-3477
828-433-2661
Please visit us online at www.fipp.org
### Appendix D

**Family, Infant and Preschool Program Referral Form**

<table>
<thead>
<tr>
<th>PARENTAL FAMILY CONDITIONS</th>
<th>DIAGNOSED CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age &lt; 15 years</td>
<td>Potential high risk</td>
</tr>
<tr>
<td>Maternal PKU</td>
<td>Developmental delay</td>
</tr>
<tr>
<td>Mother HIV positive</td>
<td>Atypical development</td>
</tr>
<tr>
<td>Maternal use of anticonvulsant, antineoplastic or</td>
<td>Chromosomal anomaly/genetic disorder</td>
</tr>
<tr>
<td>anticoagulant drugs</td>
<td>Metabolic disorder</td>
</tr>
<tr>
<td>Parental blindness</td>
<td>Infectious disease</td>
</tr>
<tr>
<td>Parental substance abuse</td>
<td>Neurological disease</td>
</tr>
<tr>
<td>Parental mental retardation</td>
<td>Congenital malformation</td>
</tr>
<tr>
<td>Parental mental illness</td>
<td>Metabolic disorder</td>
</tr>
<tr>
<td>Difficulty in parent-infant bonding</td>
<td>Infectious disease</td>
</tr>
<tr>
<td>Difficulty in providing basic parenting</td>
<td>Neurological disease</td>
</tr>
<tr>
<td>Lack of stable housing</td>
<td>Congenital malformation</td>
</tr>
<tr>
<td>Lack of familial and social support</td>
<td>Metabolic disorder</td>
</tr>
<tr>
<td>Family history of childhood deafness</td>
<td>Toxic exposure</td>
</tr>
<tr>
<td>Maternal hepatitis B</td>
<td>Vision disorder</td>
</tr>
<tr>
<td>High-risk pregnancy</td>
<td>Hearing disorder</td>
</tr>
<tr>
<td>History of abuse or neglect of parent</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NEONATAL CONDITIONS</th>
<th>REFERRALS (Please check all services or supports requested by the family or prescribed as needed at this time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth weight &lt; 1500 grams</td>
<td>__ Special Child Services</td>
</tr>
<tr>
<td>Gestational age &lt; 32 weeks</td>
<td>__ Pediatric physical therapy</td>
</tr>
<tr>
<td>Respiratory distress (mechanical ventilator &gt; 6 hours)</td>
<td>__ Pediatric occupational therapy</td>
</tr>
<tr>
<td>Asphyxia</td>
<td>__ Pediatric speech-language therapy</td>
</tr>
<tr>
<td>Hypoglycemia (&lt; 25 mg/dl)</td>
<td>__ Early childhood special education</td>
</tr>
<tr>
<td>Hyperbilirubinemia (&lt; 20 mg/dl)</td>
<td>__ Multidisciplinary developmental evaluations</td>
</tr>
<tr>
<td>Intercranial hemorrhage</td>
<td>__ Early intervention</td>
</tr>
<tr>
<td>Neonatal seizures</td>
<td>__ Service coordination</td>
</tr>
</tbody>
</table>

Child’s Last Name: ____________________________  First Name: ____________________________  MI: ____________________________

Date of birth: ____________________________

Race/ethnicity: [ ] Caucasian [ ] African-American [ ] Latino/Hispanic
[ ] Native American/Native Alaskan [ ] Asian/Pacific Islander

Parental Information (If parent is not legal guardian, please list who has legal custody and how they can be contacted):

Name: ____________________________

Parent/guardian telephone number: ____________________________

Home Address: ____________________________

Directions to child’s home: ____________________________

REFERRALS

Fax (828) 438-6457 or mail completed form to Family, Infant and Preschool Program, 300 Enola Road, Morganton, NC 28655

Serving Alexander, Buncombe, Burke, Caldwell, Catawba, Cleveland, Lincoln, McDowell, Rutherford, and other counties in Western North Carolina

11/11/04