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Sustaining Successful Efforts to Increase Home Visiting Referrals

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Sustaining Successful Efforts to Increase Home Visiting Referrals
Thornburg Early Childhood Education Grant Year 4 Report
August 2020

Theresa Cruz, PhD
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Leona Woelk, MA
Introduction

Background

Adverse Childhood Experiences (ACEs), such as abuse and neglect, and family violence, mental health, and substance abuse issues, can result in persistent negative health, behavioral health, and social outcomes. Social determinants of health, such as poverty and neighborhood violence, are also associated with ACEs. Evidence-based early childhood home visiting (ECHV) programs are a primary prevention strategy that has shown to be effective in preventing ACEs, as well as promoting family stability and economic well-being.

Strengthened coordination among ECHV programs and medical homes is a research priority of the Home Visiting Research Network, as well as a recommendation by the American Academy of Pediatrics and others to improve pediatric health outcomes and home visiting program retention rates. However, research has shown that coordination between medical providers and ECHV remains limited, with conflicting goals and priorities between medical providers and home visiting programs, lack of understanding among healthcare providers of the value of ECHV, and insufficient time and staffing within clinical settings as common barriers.

These findings are consistent with ECHV research conducted by the University of New Mexico Prevention Research Center (UNM PRC) in 2016-2017 with healthcare providers in Bernalillo County, and in 2018-2019 with healthcare providers in rural and smaller urban parts of the state. The aim of the research was to identify the types of barriers affecting home visiting referrals experienced by healthcare providers in New Mexico. In addition to the barriers listed above, New Mexico providers also identified other factors that reduced their ability and inclination to refer, including lack of internal referral processes, trust and privacy concerns, lack of home visiting feedback, stigma, limited skills in promoting home visiting, as well as other perceived obstacles.

In 2017-2018, the UNM PRC developed and implemented systems-level strategies to help address barriers to home visiting referrals identified by Bernalillo County healthcare providers in its first year of ECHV research. These strategies included provider education, messaging, provider engagement, and technology. In 2019-2020, the UNM PRC expanded its efforts to increase healthcare provider referrals in New Mexico by promoting increased collaboration between local healthcare and home visiting providers statewide, broadening the reach of its healthcare provider education to encompass counties outside of Bernalillo, and continuing to disseminate UNM PRC intervention materials to healthcare providers and potential home visiting partners, with a specific focus on rural healthcare providers.

Purpose

The purpose of UNM PRC’s work in 2019-2020 was to adapt the previously-developed systems-level strategies for increasing healthcare provider referrals to ECHV programs to rural communities, and to evaluate the process and outcomes. The process evaluation describes how the intervention was developed and implemented. The outcome evaluation examines 2016-2019 data regarding ECHV referrals and participation.
Methods

Process evaluation methods

The UNM PRC team utilized Trello project management software to track program implementation of the four strategies being used in Bernalillo County and other areas of the state. This included location, participation, and feedback on the implementation activities. Bi-monthly team meetings were held to plan activities, assess implementation, and discuss next steps.

Outcome reporting methods

The UNM PRC collected referral data from the Director of Prevention Services at the UNM CDD. Referrals made using the BCHVWG-developed and UNM PRC-disseminated common referral form were tracked. The referral handler provided counts of referrals received during a specific time period to the UNM PRC research team.

The UNM PRC research team also requested HV referral data from NM CYFD under the Inspection of Public Records Act (IPRA) to obtain referral information from the NM CYFD database for fiscal years 2017, 2018, and 2019. For example, FY 2019 comprised referrals reported received from July 2018 through June 2019. The available data analyzed in this section are through FY19 (June 30, 2019). Furthermore, data received from CYFD-funded programs (see Table 1) included information on all service areas and did not reflect one county alone.

Below is a table describing the availability of ECHV and early head start programs for every county. Observations that were missing referral source information and had an enrolment date outside the fiscal year were not included in this analysis. The FY 2020 data were not available at the time of the request. The UNM PRC team received complete data on only 32 (56.5%) of the 62 CYFD-funded programs that operated anytime within the last 4 fiscal years.

Table 1. List of counties, total number of early childhood home visiting programs as of FY 2019, and availability of NM CYFD program data per year.

<table>
<thead>
<tr>
<th>County Location</th>
<th>No. of Home Visiting Programs</th>
<th>No. of CYFD-funded Programs</th>
<th>Description of Available HV Program Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernalillo</td>
<td>17</td>
<td>7</td>
<td>5 programs, all years 1 program, FY 2017-2019 data 1 program, only FY 2018 &amp; FY 2019</td>
</tr>
<tr>
<td>Catron</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Chaves</td>
<td>3</td>
<td>2</td>
<td>1 program, only FY 2019 data</td>
</tr>
<tr>
<td>Cibola</td>
<td>7</td>
<td>3</td>
<td>None</td>
</tr>
<tr>
<td>Colfax</td>
<td>2</td>
<td>1</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Curry</td>
<td>2</td>
<td>2</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>De Baca</td>
<td>1</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Doña Ana</td>
<td>10</td>
<td>5</td>
<td>1 program, all years 1 program, FY 2016 &amp; FY 2017 1 program, FY 2016-2018 2 programs, FY 2018 &amp; FY 2019</td>
</tr>
</tbody>
</table>
The team also asked for data from privately and federally funded HV programs to assess for changes to the number of referrals they received. As of July 2020, none of the privately or federally funded HV programs provided data.

### Results

**Process evaluation**

**Area 1: Collaborating with partners to improve the statewide referral system**

**State and local ECHV partners**

The UNM PRC continued discussions with both state-level ECHV leadership and local coalitions and programs to promote collaborative and equitable opportunities to increase healthcare provider referrals to ECHV programs. These efforts have included discussing use of and sharing a template for a common referral form, as well as elaborating on the need for a statewide centralized intake system for ECHV in New Mexico to help streamline and simplify referral processes.

<table>
<thead>
<tr>
<th>County</th>
<th>Programs</th>
<th>Years Available</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eddy</td>
<td>1</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Grant</td>
<td>2</td>
<td>2</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Guadalupe</td>
<td>1</td>
<td>1</td>
<td>1 program, only FY 2018 data</td>
</tr>
<tr>
<td>Harding</td>
<td>1</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Hidalgo</td>
<td>1</td>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>Lea</td>
<td>3</td>
<td>3</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Lincoln</td>
<td>2</td>
<td>1</td>
<td>1 program, FY 2018 &amp; FY 2019</td>
</tr>
<tr>
<td>Los Alamos</td>
<td>1</td>
<td>1</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Luna</td>
<td>3</td>
<td>1</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>McKinley</td>
<td>12</td>
<td>2</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Mora</td>
<td>1</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Otero</td>
<td>3</td>
<td>2</td>
<td>None</td>
</tr>
<tr>
<td>Quay</td>
<td>4</td>
<td>3</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Rio Arriba</td>
<td>8</td>
<td>5</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Roosevelt</td>
<td>2</td>
<td>2</td>
<td>None</td>
</tr>
<tr>
<td>Sandoval</td>
<td>10</td>
<td>2</td>
<td>None</td>
</tr>
<tr>
<td>San Juan</td>
<td>9</td>
<td>3</td>
<td>1 program, FY 2017 &amp; FY 2018</td>
</tr>
<tr>
<td>San Miguel</td>
<td>1</td>
<td>1</td>
<td>1 program, only FY 2019 data</td>
</tr>
<tr>
<td>Santa Fe</td>
<td>5</td>
<td>2</td>
<td>2 programs, all years</td>
</tr>
<tr>
<td>Sierra</td>
<td>3</td>
<td>3</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Socorro</td>
<td>2</td>
<td>1</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Taos</td>
<td>4</td>
<td>1</td>
<td>1 program, all years</td>
</tr>
<tr>
<td>Torrance</td>
<td>3</td>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>Union</td>
<td>1</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Valencia</td>
<td>4</td>
<td>1</td>
<td>1 program, FY 2018 &amp; FY 2019</td>
</tr>
</tbody>
</table>
At the state-level, the UNM PRC met twice times with Cabinet Secretary Groginsky of the New Mexico Early Childhood Education & Care Department (ECECD) to discuss the need for a dedicated centralized intake process for ECHV. The UNM PRC also discussed ECHV centralized intake with ECECD staff including Mayra Acevedo, Division Director for Family Support & Intervention at the ECECD, Mariana Padilla, Director of the New Mexico Children’s Cabinet, and Marisol Atkins, Coordinator of the New Mexico Home Visiting Collaborative at the Los Alamos National Laboratory Foundation. Additionally, the UNM PRC advocated for a sustainable ECHV centralized intake system in a presentation to the Health and Human Services Committee of the State Legislature.

The UNM PRC also promoted use of a common referral form and centralized intake processes during presentations to early childhood collaboratives and coalitions, including the statewide New Mexico Home Visiting Collaborative; the McKinley County Early Childhood Coalition; the Doña Ana County Early Coalition; and ENMRSH Inc., which provides early childhood services to Curry, De Baca, Roosevelt, Guadalupe, and Quay counties. The UNM PRC shared referral and centralized intake resources with other early childhood programs and partners as well, including the Navajo Nation Department of Diné Education (Growing in Beauty Early Intervention and First Things First Home Visiting programs); Holy Cross Medical Center First Steps and Tiwa Babies Home Visiting Programs (Taos); San Juan Regional Medical Center; the UNM Family Development Program; and the NewMexicoKids Resource & Referral Program.

The Home Visiting Referral Quality Improvement Initiative (THRIVE)

In 2019-2020, the UNM PRC, along with the New Mexico Home Visiting Collaborative and the Binational Breastfeeding Coalition, collaborated with Envision New Mexico on THRIVE, a Quality Improvement (QI) initiative. Envision New Mexico is housed within the Department of Pediatrics at the UNM Health Sciences Center. It provides coaching and technical assistance to implement systems-level changes to support sustainable quality improvement processes in clinical and healthcare settings.

Funded by the W. K. Kellogg Foundation, THRIVE is focused on QI processes to increase healthcare provider referrals to ECHV programs. It will be implemented at three pilot sites – one in Doña Ana County, and two in rural areas of New Mexico. Target populations for the project include rural, Native American, Spanish-speaking and/or immigrant households. THRIVE is collaborating with local ECHV programs to identify potential clinical sites that meet THRIVE criteria, which include being interested in increasing ECHV referrals; working with target populations; and having the ability to participate in a 4-6 month-long QI process. To date, THRIVE has met with ECHV programs in McKinley County, Taos County, Curry County, and Doña Ana County, and is poised to approach recommended clinical sites to gauge project interest.

The UNM PRC’s roles on the project are to: provide project coordination; act as a liaison to local ECHV programs and healthcare providers with whom the UNM PRC has developed relationships; provide content expertise on ECHV and the ECHV system in New Mexico; and assist with integrating UNM PRC-developed materials (e.g., common referral form; provider tip sheet) into the QI change packet.

Area 2: Expanding provider education

During the last year, the UNM PRC team conducted educational opportunities about home visiting for healthcare providers and staff at El Pueblo Health Center in Sandoval County as well as the UNM Nurse Midwifery program. The team was also invited to present at additional provider meetings that were
changed or postponed due to the pandemic. For example, the UNM PRC will present at Grand Rounds for the Department of Obstetrics and Gynecology in September 2020.

The UNM PRC research team is also engaging in discussions to present information about home visiting and how to refer to healthcare providers and staff at the UNM Hospital’s primary care and maternal health clinic at Eubank, medical facilities and clinics within Presbyterian Medical Services (PMS), and the community clinics affiliated with First Choice Community Healthcare. Healthcare providers working for the Socorro General Hospital and the San Juan County Regional Medical Center have also been directly contacted and informed about the research findings.

In order to develop relationships and establish collaboration with different early childhood advocacy groups within NM, the team also presented an overview of the research project to various home visiting programs working in different counties, such as ENMRSH, Inc., Northwest NM First Born, Gallup-McKinley County Home Visiting, NAPPR Tribal Home Visiting, and PMS home visiting program in Lea and Eddy Counties. The research team also continued engagement with groups that they worked with in the past, such as the Bernalillo County Home Visiting Work Group and the NM Pediatric Society. The team formed new relationships and started collaborative work with the Doña Ana County Early Childhood Coalition, the McKinley County Early Childhood Coalition, the NM Statewide Home Visiting Collaborative, and the NM Breastfeeding Task Force.

**Area 3: Disseminating intervention materials**

The UNM PRC disseminated project materials when presenting to the coalitions, partners, and healthcare provider groups described above. In addition, materials were provided to policy-makers (e.g., Health and Human Services Committee members of the NM Legislature), other decision-makers (e.g., Secretary Groginsky), and the national HomVEE program. These include research findings, the Centralized Intake brief report, the Early Childhood Home Visiting Video we developed last year, the common referral form, and the healthcare provider tip sheet.

The team also had abstracts accepted to present our HV research findings at three professional conferences including the American Public Health Association’s 2020 Annual Meeting, the NM Public Health Association’s 2020 Meeting, and the Wylder Lecture Series for pediatric care providers in NM. We will present virtually at APHA in October. The Wylder Lecture series was postponed until August 2021. We have also submitted a manuscript focused on our research findings to a professional journal and are awaiting review and response.

**Outcomes Reporting**

**Referral data from NM CYFD**

The CYFD-funded programs operating in FY 2016 experienced a 7.0% increase in incoming referrals, from 1,885 in FY 2016 to 2,026 in FY 2017. Comparing FY 2017 and FY 2018, the CYFD-funded programs also had increased referrals by 19%, from 2,026 to 2,419. Then, for FY 2019, there was a 168% increase with 6,488 incoming compared with FY 2018’s 2,419 referrals.

Sources of incoming referrals were categorized into hospitals, private healthcare providers, self-referral, other HV agencies, and others. The other category consisted of public health agencies, protective services, early intervention programs, schools, breastfeeding support agencies, judicial and law
enforcement, religious organizations, and other organizations that may not fit under any previously identified category. The distribution of referrals by referral source is shown below.

**Figure 1. Number of incoming early childhood home visiting referrals by year and source of referral.**

Self-referral was the most common single source of referral followed by healthcare providers/healthcare facilities. Self-referrals saw a 96% increase in referrals between FY 2018 and FY 2019, while the healthcare providers and facilities category increased by 161%. The “Other” category, which includes multiple agencies and organizations, saw a 265% increase in referrals from FY 2018 and FY 2019.

**FY 2016.** Among the 1,885 referrals received in FY 2016, the most common single source of referrals were self-referrals, occurring in 486 (25.8%) cases. The second most common single source for referrals was healthcare providers and facilities at 320 (17.0%).
**Figure 2A. Distribution of referrals received by source of referrals, FY 2016 (n = 1,885).**

In FY 2017, the most common single source for the 2,026 referrals were self-referrals, which was 446 (22.0%) cases. The second most common single source for referrals was from healthcare providers or healthcare facilities at 423 (20.1%).

**Figure 2B. Distribution of referrals received by source of referrals, FY 2017 (n = 2,026).**
**FY 2018.** For FY 2018, the most common single source for the 2,419 received referrals were self-referrals (637, 26.3%) followed by healthcare providers and facilities at 439 (18.2%).

*Figure 2C. Distribution of referrals received by source of referrals, FY 2018 (n = 2,419).*

**FY 2019.** Among the 6,488 referrals received in FY 2019, the single referral source category with the highest number of referrals was self-referrals at 1,251 (19.3%) followed by healthcare providers at 1,146 (17.7%).

*Figure 2D. Distribution of referrals received by source of referrals, FY 2019 (n = 6,488).*
Incoming referrals from healthcare settings

Analyzing data using the common referral form

The UNM Center for Disease and Disability (UNM CDD) currently processes ECHV referrals for Bernalillo County. During the 9-month period from August 30, 2019, through May 21, 2020, UNM CDD received 224 referrals using the common referral form. (Note: this number does not reflect the total number of referrals received by the UNM CDD, as they also receive ECHV referrals directly from clinics and Managed Care Organizations). Most of these (65.2%) were generated by UNM Hospital. This represents a 31.6% increase compared with the 9-month period from December 2018 – June 2019. Of these referrals, 26 (11.6%) were enrolled in either UNM CDD Parents As Teachers or Nurse Family Partnership home visiting programs, while information on 198 (88.4%) were provided to other home visiting providers in Bernalillo or surrounding counties (e.g., Youth Development, Inc., CHI St. Joseph’s, Peanut Butter & Jelly, etc.) as appropriate.

Analyzing referral data from NM CYFD

Among the CYFD-funded programs with complete data, 17.0% (320) of the 1,885 incoming referrals recorded in FY 2016 were made by healthcare providers, hospitals, and medical clinics. In FY17, 21.0% (423) of the 2,026 referrals were documented as coming from hospitals and healthcare providers, an increase from the year before (see Figure 3). For FY 2018, the number of referrals from healthcare providers increased slightly to 439 (18.1%). And lastly, during FY 2019, a substantial increase was seen in the number of referrals, including those from healthcare providers where the number increased 2.6 times to 1146 (see Figure 3).

Figure 3. Referrals to home visiting services from healthcare providers and facilities, FY 2016-2019.

Participation and retention in ECHV programs

Information on the number of unfilled openings for HV services per program, whether the family engaged was new, and the reasons for ending HV participation were not provided. However, NM CYFD did provide information on the length of participation per family engaged. These data can help with identifying the potential areas for improving participation in HV services and increasing program retention.
Referral data from NM CYFD

During FY 2016, the average length of service was 5.2 months, with a range of 0 to 83 months. For the 2,026 incoming referrals in FY 2017, average service length was 4.62 months, with a range of 0 to 101. For FY 2018, the average service length was 4.8 months, with a range of 0 to 113 months. Average length of service changed minimally during the first 3 years of this analysis. However, for FY 2019, average length of service increased to nearly 8 months, with a range of 0 to 136 months.

Service length in months in the dataset were also categorized into less than or equal to 6 months, 7 to 12 months, and greater than 12 months. Below is a figure illustrating the differences in service length distribution across the years.

A majority of the families each year participated for ≤ 6-months, with 72.3% in FY 2016, 76.9% in FY 2017, and 75.9% in FY 2018. There was a decrease of 9 percentage points between FY 2018 and FY 2019, with 69.7% of families participating ≤ 6 months. Approximately 19% of families each year participated between 7 and 12 months in duration. Only 8.5% of families in FY 2016, 4.1% of families in FY 2017, and 5.0% of families in FY 2018 participated for 12 months or more. However, in FY 2019, the proportion of families participating 12 months or more doubled to 10.9%. In general, minimal change has occurred in the length of participation, except between FY 2018 and FY 2019.

Figure 4. Length of participation in early childhood home visiting among families by year, FY 2016-2019.

Assessing the impact of comprehensive intervention on home visiting referrals

Beginning in the fall of 2018, the UNM PRC successfully worked with the UNM Hospital newborn nursery to establish a system for regular referrals to early childhood home visiting services. The team had also identified opportunities for collaboration with home visiting programs and healthcare facilities in counties other than Bernalillo.
The statewide implementation of intervention strategies focused on Bernalillo County and counties identified as not having their needs met for home visiting services in 2018. These counties were Curry, Doña Ana, McKinley, and San Juan counties. Therefore, starting in fall 2018, the team connected with ECHV programs located and operating in these counties and collaborated in tailoring and implementing the strategies to the providers in their communities and the families they serve.

For every year, counties were categorized as having HV programs and healthcare providers that did not receive the comprehensive intervention, having programs and providers that received some of the intervention strategies, and HV programs and healthcare providers who received all components of the comprehensive intervention. During FY 2016, none of the counties had received the intervention. In FY 2017, strategies were only being partially implemented in Bernalillo County. Starting in FY 2018, the implementation strategies were being implemented in Bernalillo County and some of the strategies were being implemented in Curry, Doña Ana, McKinley, and San Juan counties.

**Impact on referrals from healthcare providers**

The number of referrals from healthcare providers and facilities increased 1.61 times from FY 2018 to FY 2019 (see Figure 5). The increase was greatest (2.07 times) among those programs where all intervention strategies were being implemented. Among the programs based in counties receiving some strategies and no strategies, the increase was similar (1.44 times and 1.47 times, respectively).

**Figure 5. Number of healthcare provider referrals to early childhood home visiting received by level of intervention, FY 2016 to 2019.**

The relationship between receiving intervention strategies and healthcare provider referrals was analyzed using logistic regression. The p-values and 95% confidence intervals are reported in Table 6. Statistical significance was set at ≤ 0.05.

During FY 2017, having received some of the strategies was associated with 1.3 times higher odds of getting healthcare provider referrals compared to home visiting programs in counties that did not receive any of the strategies. However, this relationship was not statistically significant.
Table 6. Comparison of the associations between home visiting programs receiving varying levels of intervention and healthcare provider referrals for FY 2016, FY 2017, FY 2018, and FY 2019.

<table>
<thead>
<tr>
<th>Presence of comprehensive intervention</th>
<th>Not referred by healthcare provider</th>
<th>Referred by healthcare provider</th>
<th>Total</th>
<th>Odds Ratio (p-value, 95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2016 (n = 1,885)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1,565 (83.0%)</td>
<td>320 (17.0%)</td>
<td>1,885</td>
<td></td>
</tr>
<tr>
<td>FY 2017 (n = 2,026)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1,338 (79.9%)</td>
<td>337 (20.1%)</td>
<td>1,675</td>
<td>1.0 (0.98-1.69)</td>
</tr>
<tr>
<td>Yes, some strategies</td>
<td>265 (75.5%)</td>
<td>86 (24.5%)</td>
<td>351</td>
<td>1.29 (p = 0.067, 95% CI 0.98-1.69)</td>
</tr>
<tr>
<td>FY 2018 (n = 2,419)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>922 (77.0%)</td>
<td>276 (23.0%)</td>
<td>1,198</td>
<td>1.0 (0.18-0.33)</td>
</tr>
<tr>
<td>Yes, some strategies</td>
<td>795 (93.1%)</td>
<td>59 (6.9%)</td>
<td>854</td>
<td>0.25 (p = 0.000, 95% CI 0.18-0.33)</td>
</tr>
<tr>
<td>Yes, all strategies</td>
<td>263 (71.7%)</td>
<td>104 (28.3%)</td>
<td>367</td>
<td>1.32 (p = 0.039, 95% CI 1.01-1.72)</td>
</tr>
<tr>
<td>FY 2019 (n = 6,488)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>2,385 (77.8%)</td>
<td>682 (22.2%)</td>
<td>3,067</td>
<td>1.00 (0.17-0.25)</td>
</tr>
<tr>
<td>Yes, some strategies</td>
<td>2,420 (94.4%)</td>
<td>144 (5.6%)</td>
<td>2,564</td>
<td>0.21 (p = 0.000, 95% CI 0.17-0.25)</td>
</tr>
<tr>
<td>Yes, all strategies</td>
<td>537 (62.7%)</td>
<td>320 (37.3%)</td>
<td>857</td>
<td>2.08 (p = 0.000, 95% CI 1.77-2.45)</td>
</tr>
</tbody>
</table>

In FY 2018, the home visiting programs in counties that received only some strategies were found to have 3 times statistically lower odds of receiving healthcare provider referrals than programs in counties who were not receiving any intervention. Bernalillo County home visiting programs, where the entire intervention was being implemented, had 1.3 times statistically higher odds of receiving referrals from healthcare providers compared to programs in counties that do not receive any strategies.

In FY 2019, home visiting programs in counties that received some strategies were again found to have lower odds of obtaining referrals from healthcare providers. However, Bernalillo County home visiting programs, which continued to receive all four strategies, had twice the odds of receiving healthcare provider referrals compared with programs in counties that received no intervention.

Impact on participation and retention in HV programs

During FY 2017, the proportion of families participating in home visiting for ≤ 6 months was similar between CYFD-funded programs in Bernalillo County and programs in other counties (see Figure 7). The proportion of families that participated between 7 to 12 months was higher among home visiting participants in Bernalillo County-based programs where the intervention was being implemented (21.4%) than among families who participated in programs located in counties not receiving any of the intervention strategies (18.2%). However, participation for longer than 12 months was less than 1% for families in HV programs in Bernalillo County, while it was nearly 5% for families being served by programs based in counties outside Bernalillo.

In FY 2018, a majority of families participating in home visiting programs were engaged for less than 7 months. Families being served by programs not receiving the intervention and by programs receiving
some of the intervention strategies had a higher proportion of families participating for 7 months or more, 26.2% and 23.5% respectively, compared to Bernalillo County at 21.3% of families.

In FY 2019, a 31.5% of families being served in counties that did not receive the strategies and 30.4% of families being served in counties that received some of the strategies participated in home visiting for 7 months or more. One quarter of families being served in Bernalillo County, which received all the intervention strategies, participated for 7 months or more.

**Figure 7. Number of referrals to early childhood home visiting received by length of participation and level of intervention, FY 2016 to 2019.**

**Discussion**

The UNM PRC continued to work with partners to implement systems strategies to increase healthcare provider referrals to early childhood home visiting programs. Overall, healthcare provider referrals increased 258% from FY2016 (320 families) to FY 2019 (1146 families). The proportion of referrals from the healthcare setting has remained stable over the four years, between 17% and 21%. Although the majority of participating families participated for 6 months or less across the 4 years, the proportion completing more than 6 months increased in FY 2019.

The number of referrals from healthcare providers and facilities increased 1.61 times from FY 2018 to FY 2019. The increase was greatest (2.07 times) among those programs where all intervention strategies were being implemented. Among the programs based in counties receiving some strategies and no strategies, the increase was similar (1.44 times and 1.47 times, respectively). Although Bernalillo County,
where all of the strategies were being implemented, did have higher odds of healthcare provider referrals, this was not seen among counties where only some of the strategies were being implemented.

When initiating implementation of the comprehensive intervention to counties other than Bernalillo County, the team identified counties who presented with a high unmet need for home visiting despite having local home visiting services present. The counties the team focused on were Bernalillo, Curry, Dona Ana, McKinley, and San Juan counties. Other counties were seen to have more referrals coming from healthcare providers and longer length of participation from enrolled families. For the counties the team focused on, some improvements were seen, however other factors could have greatly impacted these outcomes. This could be because we specifically focused on counties with the greatest need, or because these counties only received partial implementation. Greater intensity implementation and inclusion of all strategies in these communities may be needed to overcome disparities.

Additionally, similar to Bernalillo County, at least 9 home visiting programs are serving families in Dona Ana, McKinley, and San Juan counties. As evidenced in prior research, the lack of a centralized referral system could influence the ability of healthcare providers to refer and to continue referring. Furthermore, the southeastern part of New Mexico, where Curry County is included, has continued to have limited openings for home visiting services. This area is also the region most affected by the healthcare professional shortage. Hence, any increase in healthcare provider referrals will be largely limited by the presence of healthcare providers and facilities in the area.

**Limitations**

The analysis of referral outcomes was limited by missing referral data on some CYFD-funded programs, and all of the privately and federally funded HV programs. For each year, approximately 11% of the program referral data from NM CYFD are missing information on referral source and had to be removed from the analysis. The results of this analysis could be different if the missing referral data were available.

Analysis of secondary data precludes the ability to collect additional variables of interest. Additionally, lack of standardized training for home visiting programs may result in differences in how data are entered into the system.

**Future Directions**

Moving forward, it is critical to pursue a comprehensive centralized intake and referral system where healthcare providers can send patients with confidence that they will be matched with the early childhood home visiting program that is the best fit for them. It is also important to evaluate utilizing a more intensive implementation of all strategies to increase healthcare provider referrals in the areas of New Mexico with the greatest unmet needs.

**Conclusion**

Implementation of multiple systems strategies to increase healthcare provider referrals to early childhood home visiting programs is associated with an increase in referrals. In communities where only some strategies have been implemented this increase was not observed. There is still a need for
establishing a comprehensive centralized intake and referral system and for increased intensity and number of strategies implemented in rural areas of New Mexico and areas with the highest unmet need.

References

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