

## Integrated Childhood Development Services in Nicaragua

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### Abstract

The PAININ Program in Nicaragua represents an example of an integrated approach to early child development that appears to have shown significant positive results in terms of child development. The process of development of the project in three separate phases allowed it to be informed by data and to be reflective of the unique conditions in the country. The development of the model illustrates the key conclusions in *The Lancet* Series of articles about the importance of investing early, with the most disadvantaged children, using families as partners, and taking an inter-sector approach.

A growing body of research on Early Childhood Development (ECD) outside the developed world calls attention to the powerful, detrimental and cumulative effects of poverty on all aspects of early childhood, from inadequate parenting, to poor health, nutrition and living environments, to poor parental education and job opportunities (see, for example, Paxon and Schady, 2005 for Ecuador; Behrman et al., 2004 on the Integrated Child Development Project in Bolivia). These studies illustrate the significant differences in initial conditions that children, families and communities face. In many instances, children suffer from protein and micronutrient deficiencies, in addition to learning difficulties and inadequate health outcomes. The need for integrated interventions thus takes on considerable relevance and urgency if ECD is to meet its promise to start children off on the right foot and have lasting effects into the future. Yet the availability of resources for funding ECD programs in developing regions tends to be lower than investments found across the OECD. Similarly, investments in infrastructure for centers and in the training of staff are lower than in other sectors.

To meet these needs, the Comprehensive Childcare Program in Nicaragua (hereafter referred to as PAININ, its Spanish acronym) was developed. First implemented in 1996 with support from the Inter-American Development Bank (IDB), PAININ introduced an innovative and comprehensive ECD model in Nicaragua that consolidated

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services previously provided separately (e.g., preschool education; weighing and referral/counter-referrals to the health care system) and integrated them with new services (e.g., early childhood education). PAININ delivered these services through nongovernmental organizations strongly rooted in their respective communities and targeted them to children under the age of six in the poorest 35 municipalities in the country. PAININ has since evolved into an integrated ECD program reaching 66 municipalities, including six on the Atlantic Coast where the population is largely Miskito. To date, more than 90% of children aged 0–3 years receiving some form of ECD do so through service providers contracted through PAININ and coverage of PAININ preschools, although geographically concentrated in the poorest and more remote areas, reach 13% of the 3- to 5-year age group nationally.

This paper describes the context within which PAININ was created and the realities to which it responds. It then chronicles the evolution of the PAININ program and its menu of services, including the adaptation of the program to indigenous and Afro-descendant populations and children with special education needs. In doing so, it highlights lessons learned and points to the results achieved. PAININ largely meets criteria associated with effective ECD programs. It provides services directly to children and parents, targets disadvantaged and young children, and integrates early stimulation with nutrition supplements and health referrals (Engle et al., 2007). In addition, PAININ offers insight into how integrated ECD programs can be structured and implemented within a context of severe poverty and resource restrictions, thus providing concrete evidence that being poor is no excuse for poor service delivery. It is in this regard that some of the most compelling lessons emerge.

## **Early Childhood Education in Nicaragua**

PAININ responded to a context in which poverty was widespread and social services failed to reach a large portion of the population. Key statistics on the state of early childhood were alarming. Of the approximately 900,000 children under 6 years of age in Nicaragua (about 22% of the population), more than half (55%) lived in poverty. Of all children under 5 years of age, 33% suffered some form of malnutrition; 67% had a vitamin A deficiency; and 28% were anemic. Maternal mortality stood at 110 for every 100,000 live births, with rates of infant mortality reaching 58 per 1,000 births. Preventable illnesses such as diarrhea, intestinal infections, malnutrition and respiratory ailments accounted for 46% of infant deaths. On average, 8% of children under the age of 3 years received early education. Children attended school for 4.5 years; few completed the primary cycle (41% in urban areas; 7% in rural areas). Nearly one-third of children repeated first grade, and less than 15% of the preschool age cohort enrolled at this level. Studies undertaken at the time called attention to the need to invest in early childhood as a means for improving the efficiency of both the health and education sectors and indicated that, at least in the education, the gains made through increased efficiency would more than offset investments made within 10 years (Garguilo and Crouch, 1994).

### **Integrating Childhood Services: PAININ I**

At the time PAININ I was designed in the mid-1990s, a considerable supply of services targeting high-risk children and families existed across the country. Yet it remained

extremely fragmented, leaving many children and families in isolated and marginal areas unattended and allowing for duplication of services in more easily accessible areas. For example, programs such as the school biscuit, glass of milk and maternal-child health initiatives administered and executed by the ministries of education (MECD) and health (MINSA), respectively, often served the same beneficiaries. In many instances, these same beneficiaries received duplicate services from the more than 50 non-governmental organizations supporting children and families at risk throughout the country. At a policy level, although two high-level agencies were created and charged with coordination, advocacy and promotion of the Convention on the Rights of Children and the execution of social welfare projects (National Commission for the Promotion and Defense of the Rights of Children and the Nicaraguan Fund for Children, respectively), they lacked the capacities needed to create a comprehensive and coordinated system of early childhood care and development. This was a first objective of PAININ.

The PAININ approach integrated early stimulation, health, nutrition and day-care services and coordinated their delivery within a common policy framework and through networks of community centers (hereafter referred to by their Spanish acronym, CICO) and non-governmental organizations serving young children and low-income mothers. The system it created was supported by information, training, monitoring and evaluation, and resource-channeling mechanisms, all of which allowed services to be targeted and coordinated in such a way that coverage was increased and duplication was reduced. In addition, PAININ introduced basic service standards and provided training and detailed instructional manuals to providers to ensure that services were delivered in accordance with such norms. The services it financed had a single, predetermined design and providers were paid upon receipt for eligible expenditures.

Services were provided through two different modalities: center-based, which served more densely populated areas; and mobile services, used in remote areas with a maximum of 30 households. Center-based (CICO) services included early stimulation (ages 0–3 years) and preschool (ages 3–6 years), as well as oversight of growth and development and referrals to the health system. They were staffed by educators, each of whom was required to have completed sixth grade and be 18 years of age. Mobile services were structured around “community base homes,” from which outreach teams of mother-volunteers were trained and equipped with didactic materials and supplies. Each mother-volunteer was responsible for delivering in-home early stimulation and parenting skills to 4 to 5 families.

Institutionally, PAININ was overseen by the Ministry of the Family (MIFAMILIA) which, as of 1998, assumed all responsibilities for issuing policies and rules related to childcare and protection. MIFAMILIA applied all PAININ standards, while outsourcing the provision of services to qualified providers. This structure allowed for the effective coordination between ministries and service providers and thus for economies of scale to be created along the ECD production function. For example, PAININ created a unique curriculum supported by didactic materials for early childhood education; these materials are now being used in MECD projects and by local and international NGOs.

The PAININ delivery model was evaluated at the end of the program’s first phase in 1999 (Castro & Castro, 1999; Zúñiga, 2001). It documented a positive effect on the growth and development of children in the program. When compared with a control

group, nutritional deficiencies in beneficiary children dropped by 80% and the percentage of children with severe malnutrition declined from 5.6% to 1.4%. The number of PAININ children at the at-risk threshold (defined by MINSA's development index) declined by 13.8%. Improvements in child-rearing practices were also noted, with the percent of beneficiary parents indicating that they played with their children or went for walks with them increasing by four percentage points over the control group. Effects not contemplated in PAININ's original design were noted as well. For example, net enrollment in primary school in beneficiary areas increased due to local efforts to refer children to the school system and to increase the number of children registered in the civil record.

Despite the successes of PAININ's first stage, the program's monitoring and evaluation data identified three main areas in which greater efficiency could be achieved: (a) tighter targeting mechanisms; (b) more local participation in the provision of services; and (c) more flexibility in aligning program benefits with local needs. The design of PAININ I, despite including a general criterion of poverty, did not specify precise targeting standards or provide resources to apply such standards. Consequently, many CICOs it created were located in the inner city, while the poorest population in Nicaragua remained concentrated in rural areas. Of the 31 CICOs in the first stage, only one was carried out in an Atlantic Coast region.

## **Enhancing Quality: PAININ II**

To remedy these issues, significant innovations were introduced in the program's design and operating mechanisms during its second phase, including (a) a detailed and transparent targeting protocol to identify localities with high rates of childhood vulnerability (defined as households with undernourished children or children not attending preschool); (b) protocols for the oversight and promotion of growth and development for children under five and counseling on nutrition, hygiene, and reproductive health for mothers; (c) performance-based payment mechanisms for service providers; (d) testing and consolidation of the mobile early education system for remote rural areas; (e) development of a monitoring and evaluation system containing records of all beneficiaries; and (f) implementation of a graduate program in comprehensive childcare to produce a critical mass of professionals working in the municipalities covered by PAININ, as well as a community diploma program in collaboration with the University of the Autonomous Regions of the Nicaraguan Caribbean Coast (URRACAN) to train childcare specialists in participating NGOs and mother-volunteers providing early stimulation.

With these changes, PAININ took on a more decentralized execution structure. The particular menu of services delivered stemmed from the individual needs of each participating community. Supervision of services fell to the children's commission in each respective municipality. Coverage expanded from 35 to 66 municipalities, including six on the Atlantic coast where all inputs were provided in the local language and demand for services targeted to the 0- to 3-years of age group increased. MIFAMILIA retained its oversight responsibilities and coordination between ministries was further strengthened and new economies of scale were created. For example, the protocols applied by PAININ for the oversight and promotion of growth and development for children under five were the same as those used by MINSA in its Community Health and Nutrition Program

(PROCOSAN) for children from 0 to 23 months. PAININ also developed materials, approved by MINSAs, to extend this same methodology to the monitoring of children from 24 to 59 months not served by PROCOSAN.

Other results of phase two should be interpreted with caution.<sup>1</sup> When compared to children in control group communities, PAININ results included a net increase of 42.7 percentage points in the attendance rate in early education programs (ages 0–6 years),<sup>2</sup> a net increase of 13.3 percentage points in preschool education attendance, and a net increase of 17.7 percentage points in first grade enrollment of 6 year olds who completed PAININ. In healthcare, results were noteworthy as well. There was a net increase of approximately 13 percentage points in prenatal exams by pregnant women during the first trimester, although no significant impact was observed on the percentage of women attending all exams; a net increase of 5.6 percentage points in referrals/visits to clinics; and a substantial decrease in visits to hospitals or private centers (see ESA Consultores, 2005).<sup>3</sup>

### **Expanding Services: PAININ III**

Despite an increase in preschool enrollment rates from 13% in 1991 to 37% in 2005, coverage throughout Nicaragua remained relatively low when compared to neighboring countries like Costa Rica and El Salvador where the gross enrollment in 2005 was 69% and 51% respectively. At the time PAININ III was prepared, it was estimated that over 181,000 children—half of the 3- to 5-year age group—did not attend preschool. The expansion of preschool thus figured prominently among the objectives of the program's third phase.

An analysis of access to preschool programs where PAININ was working found that significant deficiencies were present in remote rural areas. In the majority of these areas, services offered by the program remained limited to early stimulation for the 0- to 3-years of age group. To both expand these services and incorporate the 4- to 5-years of age group, a mobile preschool model initially developed by UNICEF was adapted and validated through a pilot experience in three remote municipalities. Under this model, educators travel to outlying areas delivering early stimulation and preschool twice weekly to children aged 0 to 5 years. Services are provided either in the morning or afternoon, as the schedule of parents permits. In an effort to maintain a uniform level of quality in the services offered by PAININ, educators working under this model must have the same credentials as those working in the CICOs. Once fully implemented, it is estimated that

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<sup>1</sup> Limitations of these data include the loss of households between the baseline measurement and the final evaluation and some “contamination” of data that occurred as PAININ was implemented. Neither the control nor experimental group sample was to be modified during program implementation. However, as implementation progressed (after baseline measurement), PAININ did intervene in 5 of the 16 “control group” communities, while excluding 3 of the 32 “experimental group” communities.

<sup>2</sup> “Educación inicial” is targeted towards children 0 to 6 years of age. This designation includes both early stimulation (ages 0–3 years) and preschool (ages 3–6 years).

<sup>3</sup> The evaluation also found an increase in the percentage of beneficiary children who were regularly weighed under the OPGD protocol, as well as an increase in the percentage of beneficiary children with a vaccination record, especially in the mobile program. It is important to note, however, that increases in these two indicators were also observed in the control group. The net impact of the program with respect to these indicators thus was determined to be insignificant. See ESA Consultores, 2004.

preschool coverage and attendance rates will more than double, from 22,000 to 56,000 children and 25% to 55% in beneficiary communities, respectively.

Another adjustment included in the third phase of the program was the introduction of a set of instruments designed for children with special needs. Data from the 2003 National Disability Survey found prevalence of disability in the departments served by PAININ to be significantly above national averages for the 0- to 6-years of age group. For example, the prevalence of auditory problems in children in these departments was up to ten times the national average, while the prevalence of children with visual impairments was four times the national average. A diagnostic evaluation carried out in a sample of five municipalities confirmed this, and found that the most common disabilities in children in program-financed preschools were motor-skill problems, followed by mental disorders, auditory deficiencies and visual impairments. This same evaluation found that children with disabilities often stay at home while their siblings attend a CICO. With respect to the services provided, many educators indicated that they lack the skills needed to provide quality services to children with special education needs.

To encourage parents to enroll children with special needs in PAININ and to improve the services offered, a set of specialized tools have been developed and validated. These include the adaptation of the pedagogical models for early stimulation and preschool education, training guides for parents and educators, and mechanisms to improve the prevention and detection of debilitating childhood illnesses. It is estimated that by the time PAININ III enters its second year of execution in 2008, approximately 3,000 children with special needs will receive services supported by this new set of instruments.

Although the evaluation of PAININ II revealed significant and positive impacts, particularly with regard to the use of education services, it also identified areas for further improvement. Foremost among these was the continued high level of anemia in beneficiary children and pregnant and lactating women, a worrisome finding because children need iron and other micronutrients to function and grow normally. Program-related surveys further revealed that the lack of impact may be due to a tendency of older and male members of beneficiary households to consume the food packages.

In response to and based on evidence from various countries—including Guyana, Bolivia, and India—PAININ III will replace the food packages with nutritional supplements for children between 6 and 36 months, and pregnant and lactating women. The nutritional supplement will be provided in the form of sprinkles<sup>4</sup> to all of the 87,000 children beneficiaries, as well as to approximately 13,000 lactating and pregnant women. The impact from the nutritional supplements is expected to be significant and to have measurable effect on the level of anemia in the beneficiary group. An experimental impact evaluation will provide important results and information for future interventions in the area of nutrition.

## **Conclusions and Lessons Learned**

The data available points to the success the PAININ program has had in increasing the accessibility of preschool and basic health care services. Although these data do not

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<sup>4</sup> Sachets containing iron (12.5 mg), vitamin A (300 mg), folic acid (120 mg), vitamin C (30 mg) and Zinc (5 mg) in powder form.

capture changes in cognitive, socio-emotional and motor development, PAININ offers important lessons on how to cost-effectively deliver childhood services to poor and marginalized populations. Foremost among these is the maximization of resources through the integration of services and avoiding duplication. Prior to PAININ, services were fragmented among a wide spectrum of providers, leaving many families unattended. It merits noting that PAININ only operates in those communities where MECD does not offer preschool services. The results speak volumes: prior to PAININ, preschool coverage in rural areas reached a quarter of that in urban areas, by the end of PAININ II coverage in rural areas exceeded that in urban areas.

The PAININ experience clearly demonstrates that national standards are essential to ensuring that services are delivered with a uniform level of quality. Early childhood and preschool education follow a single set of standards, apply a standard curriculum and use the same supporting materials, all of which were jointly developed by MIFAMILIA and MECD. They were later adopted by the National Commission on Early Childhood Education in which, among others, MINSA and the Municipal Commissions on Childhood and Adolescence are members. While these parameters ensure minimum quality, PAININ's success emerges from the adaptation of its services to individual community realities and the special needs of some children. This is perhaps most clearly seen in the Atlantic Coast where childhood development needs are greatest and compensatory measures are needed at all points of program delivery, from the technical capacity of the NGOs to pedagogical instruments (e.g., bilingual materials and contextualized curriculum).

The PAININ experience makes the case that the delivery of quality services is not dependent on specialized infrastructure. Significant increases in coverage were achieved in remote areas through mobile services delivered by local educators and community volunteers. This community-based approach relies on the delivery of services through local NGOs that are able to leverage collaboration of the beneficiary households. This is a particularly effective arrangement, because the cost of establishing a center-based presence in these remote communities was prohibitive for MECD.

Although it is too early to assess the sustainability of the program, it is expected that the community diploma program will contribute to creating a critical mass of local ECD specialists. This in turn is expected to enhance program sustainability in the long-term.

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