



Colorado NFP

Evaluation Report 12

Program Initiation (January 2, 2000) through June 30, 2012

September 30, 2012

Nurse-Family Partnership
National Service Office
1900 Grant Street, Suite 400
Denver, CO. 80203-4304
Phone: 866.864.5226, 303.327.4240
Fax: 303.327.4260
www.nursefamilypartnership.org

© Copyright 2012 Nurse-Family Partnership. All rights reserved.

LEAVE PAGE BLANK

Introduction or Cover Letter from Program Quality Director

September 30, 2012

Dear University of Colorado:

The National Service Office Program Quality Department is pleased to provide the 2012 Nurse-Family Partnership (NFP) Annual Evaluation Report for Colorado. This report catalogs the ongoing and cumulative work of Colorado Nurse Home Visitors, Supervisors and Consultants to support the NFP goals of:

- Improved prenatal outcomes,
- Improved child health and development, and
- Improved family sufficiency for high risk first time mothers and their children

Since the 2011 report, there have been two revisions to the NFP Data Collection Forms to meet the requirements of the Affordable Care Act Maternal, Infant, and Early Childhood Home Visiting program (MIECHV) and to respond to requests from the field. These changes will be apparent in the report.

The NSO Program Quality Department has reviewed all tables and calculations to ensure the most accurate report based on the available data. Below is a description of changes that are part of the 2012 Annual Report. As the reader reviews the report, there will be additional footnotes or explanations for these changes.

- NFP updated its forms with the release in September of 2011. In general, NFP did not change existing questions, but added new questions. If there are new variables such as those options that were appended to existing question then they would be excluded from calculations.
 - One change of note is related to how the client reports language. The previous Primary Language question had “English”, “Spanish” and “Other”; all three options are still available, along with additional check boxes (Russian, Mandarin, etc.). All languages other than English and Spanish are still reported under “Other.”
- NFP completed a second update and revision of nine data collection forms in June of 2012. To meet the need of the MIECHV program, the revised forms were available for use by NHV beginning June 1; however, the forms were not fully programmed into ETO until August 20, 2012. If agencies used the new forms to record surveys completed before June 30, 2012, some answers may appear as missing in this report due to the changes in mapping the data.
 - Most notable in the report will be the revisions in June 2012 to the education and income demographic questions. These changes include additional choices to meet the MIECHV needs.

Please feel free to contact the Program Quality team or me for any questions at molly.ofallon@nursefamilypartnership.org or 303-327-4248.

Sincerely,

Molly O’Fallon, RNC, CS
Director, Program Quality

Table of Contents

Executive Summary	8
Colorado Performance Against NFP National Averages	8
Characteristics of Colorado NFP Client	9
Program Implementation	9
Program Outcomes	9
Descriptions of Colorado Agencies Implementing NFP	11
Characteristics of NFP Staff	12
Referrals to the Colorado NFP	13
Caseload Enrollment	14
Client Characteristics at Intake	15
Maternal Health Characteristics	17
Household Information	17
Fatherhood Information	18
Maternal Experience of Intimate Partner Violence	18
Program Implementation	19
Gestational Age at Program Entry	19
Number and Duration of Completed Home Visits	20
Location of Visits	21
Content of Home Visits	22
Alternative Encounters	23
Referral to Services	24
Reasons Clients Dropped from the Program	25
Program Risk Factors and Outcomes	28
Pregnancy Health and Outcomes	28
Change in Maternal Health Behaviors	28
Change in Experience of Violence	30
Infant Health Outcomes	30
Birth Outcomes – Preterm Births and Low Birth Weight	30
Preterm Births	30
Low Birth Weight	31
Developmental Delays	33
Immunizations	34
Lead Testing	34

Colorado NFP Evaluation Report 12
September 30, 2012

Breastfeeding35

Maternal Live Course Development35

Subsequent Pregnancies35

Education36

Workforce Participation38

Marital Status39

Use of Government Assistance Programs40

References..... 41

Appendix A: Nurse-Family Partnership Overview42

Appendix B: Nurse-Family Partnership Objectives44

Appendix C: Organizational Chart.....47

Appendix D: Colorado Quarterly Summary Tables48

List of Tables and Figures

Table 1. Description of Colorado Agencies Implementing NFP.....	11
Table 2. Characteristics of Colorado NFP Staff.....	12
Table 3. Referral through June 30, 2012.....	13
Table 4. Referrals from Selected Sources.....	13
Table 5. Client Status by Year of Enrollment.....	14
Table 6. Characteristics of Client at Program Intake.....	15
Table 7. Client Education at Program Intake.....	16
Table 8. Client Economic Factors at Program Intake.....	16
Figure 1. Predominant General Maternal Client Health Problems Reported at Program Entry.....	17
Table 9. Client Household Composition.....	17
Table 10. Frequency of Contact with Father of Child.....	18
Figure 2. Experience of Intimate Partner Violence Collected at Intake.....	18
Figure 3. Gestational Age at Enrollment.....	19
Table 11. Number and Duration of Completed Nurse Home Visits during Pregnancy phase.....	20
Table 12. Number and Duration of Completed Nurse Home Visits during Infancy phase.....	20
Table 13. Number and Duration of Completed Nurse Home Visits during Toddler phase.....	21
Table 14. Location of Visits.....	21
Table 15. Average Percentage of Visit Time Spent on Program Domains.....	22
Table 16. Alternative Contacts with Clients and Families.....	23
Table 17. Client Referrals to Outside Services.....	24
Table 18. Client Referrals to Outside Services Overall.....	25
Table 19. Client Attrition during Pregnancy.....	25
Table 20. Client Attrition during Infancy.....	26
Table 21. Client Attrition during Toddlerhood.....	27
Table 22. Client's Health during Pregnancy.....	28
Table 23. Government Assistance Use during Pregnancy.....	28
Table 24. Change in Maternal Health Habits among Colorado NFP Clients: Program Intake and 36 weeks of Pregnancy, Program Intake and 12 Months of Infancy.....	29
Table 25. Change in Maternal Health Habits among National NFP Clients: Program Intake and 36 Weeks of Pregnancy, Program Intake and 12 Months of Infancy.....	29
Table 26. Change in the Experience of Violence between Program Intake and 36 Weeks of Pregnancy.....	30
Table 27. Percentage of Preterm Infants by Client's Race and Ethnicity.....	31
Table 28. Percentage of Preterm Infants by Age of the Client at Infant Birth.....	31
Table 29. Percentage of Low Birth Weight Infants by Client's Race and Ethnicity.....	32
Table 30. Percentage of Low Birth Weight Infants by Age of the Client at Infant Birth.....	32
Table 31. Other Infant Health Characteristics.....	33
Table 32. Ages and Stages.....	33
Figure 4. Percent of Infants Assessed by Nurses as being Current with Immunizations*.....	34
Table 33. Lead Testing by Child Age.....	34
Figure 5. Occurrence of Breastfeeding.....	35
Figure 6. Subsequent Pregnancies by 6, 12, 18 and 24 months Postpartum.....	36
Table 34. Subsequent Pregnancies by 12 and 24 Months Postpartum by Age of the Client at Enrollment.....	36
Table 35. Education Status over Time for Colorado NFP Clients with No High School Diploma or GED at Intake.....	36
Table 36. Education Status over Time for National NFP Clients with No High School Diploma or GED at Intake.....	37

Colorado NFP Evaluation Report 12
September 30, 2012

*Table 37. Education Status over Time for **National NFP** Clients with No High School Diploma or GED at Intake*37

Figure 7. Enrollment in School over Time for those with a High School Diploma or GED at Intake.....37

Figure 8. Percentage Working over Time among those 18 Years or Older at Intake.....38

Figure 9. Percentage Working over Time among those 17 Years or Younger at Intake.....38

Figure 10. Number of Months Worked Postpartum39

Figure 11. Percentage Married by Phase39

*Figure 12. Percentage of **Colorado NFP** Clients Using Government Assistance between Program Intake and 24 Months of Toddler Age*.....40

*Figure 13. Percentage of **National NFP** Clients Using Government Assistance between Program Intake and 24 Months of Toddler Age*.....40

Executive Summary

This is the twelfth annual Colorado NFP evaluation report for the Nurse-Family Partnership (NFP), based on the intervention model developed and tested by Dr. David Olds and colleagues (see Appendix A). Multiple counties coordinate the implementation of this program in the State of Colorado. This report presents analysis of cumulative data available from program initiation January 2, 2000 through June 30, 2012, and covers the pregnancy, infancy, and toddler phases of the program.

Throughout the report, indicators of program implementation, maternal and child health and functioning for Colorado NFP clients are compared to the national sample of Nurse-Family Partnership clients.

Colorado Performance Against NFP National Averages

Colorado NFP performs well against the national averages in the following areas of program implementation and program outcomes, including:

- Clients entering the program by 16 weeks pregnancy;
- Clients receive more visits in each program phase;
- Content of home visits closely matches program guidelines;
- Retention of clients during the pregnancy phase;
- Lower preterm birth rates overall;
- Comparable rates of low birth weight infants overall;
- Clients who received at least one referral to outside services;
- Clients who initiate breast feeding, as well as those who are still breastfeeding at infant age 6 months and 12 months; and
- Workforce participation at program completion.

Colorado NFP has achieved statistically significant reduction in:

- Smoking during pregnancy,
- Marijuana use during pregnancy,
- Alcohol use during pregnancy, and
- Experience of violence during pregnancy.

Colorado is lower than the national NFP averages in the following areas:

- Clients entering the program by the end of 28 weeks gestation (9% lower); and
- Clients who received their first prenatal visit with a health care provider within the first trimester (1% lower) (Figure 3 and Table 22).

Details about each of these areas of performance can be found below, and in the body of this report. The Colorado partners responsible for administering the NFP program continually monitor progress toward the national averages and objectives, both at the site and state level. Colorado NFP employs a continuous quality improvement and technical assistance loop to improve performance where needed. A diagram outlining the partners and their respective roles and responsibilities is included as Appendix C.

Characteristics of Colorado NFP Client

- 15,047 women ever enrolled as of June 30, 2012: median age 19; 49% completed high school/GED; median education 10 years for non-high-school graduations; 79% unmarried; 80% unemployed; 71% Medicaid recipients. (Tables 6, 7, 8)
- Race/Ethnicity: 44% Hispanic, 49% non-Hispanic White; 4% multiracial/other, 4% African American/Black, 3% Native American, 0% Asian. (Table 6)
- 11,701 children have been served since inception.
- 2,237 families were active on June 30, 2012.
- 1,639 children were active on June 30, 2012.
- 4,163 clients have graduated from the program.

Program Implementation

- For Colorado NFP 45% of clients entered the program by 16 weeks of pregnancy, a rate equal to the national NFP average of 45%. A total of 85% of Colorado NFP clients were enrolled by 28 weeks gestation compared to 94% of NFP clients nationwide. Colorado Statue and Rules allow NFP program to enroll women up to the end of the first month of the baby's life. This feature of the Colorado program impacts NFP sites ability to achieve the NFP objective of enrolling 100% of clients prior to the end of the 28th week of gestation (see Appendix B for a description of Nurse-Family Partnership Objectives). Early enrollment allows nurse home visitors more time to work with clients on health-related behaviors known to improve pregnancy outcomes and to build relationships with clients. (Figure 3)
- Program guidelines prescribe a certain schedule of visits that a client should receive. Colorado NFP clients received a higher percentage of those visits as compared to national NFP clients. Percentages of expected visits complete (Tables 11, 12, 13):
 - Pregnancy: 69.6% (61% national NFP);
 - Infancy: 52.6% (46% national NFP); and
 - Toddlerhood: 32.5% (27% of national NFP).
- Colorado NFP has matched the program guidelines for content of home visits of the five program content domains, only life course development during Toddlerhood is less than NFP program objectives (16% vs. 18-20% Objective). (Table 15)
- Attrition rates:
 - Pregnancy: 13% (15.5% national NFP) (Table 19)
 - Infancy: 32.8% (33.4% national NFP) (Table 20)
 - Toddlerhood: 16.3% (16% national NFP) (Table 21)

Program Outcomes

- A statistically significant reduction of 20% in smoking during pregnancy (16% national NFP) (Table 24).
- A 62% reduction in marijuana use during pregnancy.
- A 32% reduction in alcohol use during pregnancy.
- An 80% reduction in experience of violence during pregnancy. (Table 26)

Colorado NFP Evaluation Report 12
September 30, 2012

- 10.7% preterm birth rate (11.3% national NFP); rates of predominant ethnic groups were:
 - 9.1% for Hispanics (9.7% national NFP),
 - 9.9% for Whites (10.8% national NFP), and
 - 10.3% for multiracial/others (10.2% national NFP). (Table 27)
- 10.1% low birth weight rate (9.9% national NFP); rates for predominant ethnic groups were:
 - 9.7% for Hispanics (8.6% national NFP),
 - 10.0% for White (8.5% national NFP), and
 - 9.5% for multiracial/others (8.9% national NFP).
- Language development is no longer reported by NFP. Please see Table 32 for ASQ scores.
- At 12 months of infant age, 85% of infants were fully immunized (86% national NFP). By 24 months of child's age, 90% were fully immunized (91% national NFP). Full immunization rates were tracked beginning October 1, 2006. (Figure 4)
- 92% of clients initiated breastfeeding (79% national NFP); 35% of clients were breastfeeding at 6 months (28% national NFP); 20% of clients were breastfeeding at 12 months of infancy (17% national NFP). (Figure 5)
- At 12 months postpartum, 11% of clients reported a subsequent pregnancy (12% national NFP). 30% of clients reported subsequent pregnancies within 24 months of birth of their child (30% national NFP). (Figure 6)
- Of those who entered the program without a high school diploma or GED, 25% completed their diploma/GED by program completion (26% national NFP) and 13% were continuing their education beyond high school (14% national NFP); an additional 19% were still working toward their diploma/GED (21% national NFP). (Tables 36, 37)
- 75% of Colorado NFP clients 18 years or older at intake (73% national NFP) and 62% of those 17 years or younger (60% national NFP) were working at program completion. (Figures 8, 9)
- Clients worked an average of 6 months during the first postpartum year (5.7 national NFP), and 8 months during the second postpartum year (7.7 national NFP). (Figure 10)

Part I: Introduction

Descriptions of Colorado Agencies Implementing the NFP

Table 1 presents information on the agencies implementing the NFP program in Colorado including program start dates, and counties served as of June 30, 2012.

Table 1. Description of Colorado Agencies Implementing the NFP

Implementing Agency	First Visit Date	Counties Served by NFP	Target Enrollment
Boulder County Public Health	September - 2002	Boulder	100
Denver Health & Hospital Authority	February - 2000	Denver	100
Eagle County Health and Human Services	November - 2008	Eagle	50
El Paso County Department of Health and Environment	February - 2001	El Paso, Teller	250
Family Visitor Programs NFP	March - 2003	Eagle, Garfield, Pitkin	100
Intermountain NFP	April - 2001	Chaffee, Clear Creek, Gilpin, Lake, Summit, Park	132
Kit Carson	March - 2011	Kit Carson	50
Larimer County NFP	November - 2000	Larimer	200
Mesa County Health Department	September - 2000	Mesa	200
NFP Partners for Healthy Families	December - 1998	Jefferson, Broomfield	175
Northwest Colorado NFP	May - 2001	Jackson, Moffat, Rio Blanco, Routt	50
Prowers County Public Health	August - 2001	Baca, Bent, Kiowa, Prowers	50
Pueblo Community Health Center	March - 2001	Pueblo, Huerfano	125
Region 10 Nurse-Family Partnership	May - 2001	Delta, Gunnison, Hinsdale, Montrose, Ouray, San Miguel	75
San Juan Basin Health Department	February - 2000	Archuleta, Dolores, La Plata, Montezuma, San Juan	108
San Luis Valley NFP	June - 2001	Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache	125
St. Anthony Health Foundation	October - 2005	Denver, Adams, Jefferson	200
Tri-County NFP	March - 2000	Adams, Arapahoe, Douglas	300
Weld County Department of Public Health and Environment	May - 2001	Weld	150
		Total Targeted Enrollment	2540

Characteristics of NFP Staff

Data on the background characteristics of the nurse home visitors and supervisors for the NFP in Colorado were available for 222 staff members, including 33 supervisors and 189 nurse home visitors. Education, nursing experience and demographic information are presented in Table 2.

Table 2. *Characteristics of Colorado NFP Staff*

	Supervisors (N=33)	Nurse Home Visitors (N=189)
Average number of years in nursing	30	14
% with maternal/child health experience	85%	74%
% with public or community health experience	82%	60%
Median number of years of supervisory experience	7	4
Race		
White	88%	80%
African American/Black	0%	2%
Asian/Pacific Islander	0%	1%
Unknown	12%	17%
Ethnicity		
Hispanic	3%	11%
Non-Hispanic	88%	79%
Unknown	9%	10%

Part II: Colorado State NFP Program

Referrals to the Colorado NFP

Table 3 provides information on the referrals to Colorado NFP entered into the Efforts to Outcomes (ETO™) system. Eligible referrals are clients who meet national and local NFP criteria.

Table 3. Referrals through June 30, 2012

	Colorado NFP		National NFP	
Eligible Referrals	38,074		219,711	
Referrals not located	8,553		63,669	
Referrals not meeting program criteria	5,525		47,729	
Referrals with disposition unknown	0		1	
Total Number of Referrals	52,110		330,823	
Eligible referrals not enrolled due to full caseloads	13,741 / 38,074	36%	33,823 / 219,711	15%
Eligible referrals for whom program had space	24,354		186,027	
Eligible referrals declining enrollment	9,767 / 24,354	40%	63,331 / 186,027	40%
Eligible referrals enrolled	14,497 / 24,354	60%	121,874 / 186,027	60%

Eligible referrals are those that meet national and local NFP criteria

Clients may have multiple referrals

This table does not include open referrals

Table 4 presents information on the sources of referrals to the Colorado NFP.

Table 4. Referrals from Selected Sources

Referral Source	Colorado NFP				National NFP			
	All Referrals		Referrals Enrolled in NFP		All Referrals		Referrals Enrolled in NFP	
WIC	11,865	36.9%	1,802	22.0%	44,553	21.1%	12,794	18.4%
Pregnancy Testing Clinic	1,910	5.9%	641	7.8%	31,325	14.8%	7,819	11.3%
Healthcare Provider / Clinic	7,758	24.2%	2,575	31.5%	73,204	34.6%	23,980	34.5%
School	617	1.9%	363	4.4%	8,774	4.1%	4,662	6.7%
NFP Client (current or past)	387	1.2%	275	3.4%	3,259	1.5%	2,301	3.3%
Other home visiting program	1,001	3.1%	388	4.7%	6,899	3.3%	2,303	3.3%
Medicaid	5,996	18.7%	1,074	13.1%	11,133	5.3%	2,409	3.5%
Self	209	0.7%	145	1.8%	3,366	1.6%	2,209	3.2%
Other (includes other human service agency)	2,398	7.5%	926	11.3%	29,155	13.8%	11,091	16.0%

**Data collection on Referral Source began October 1, 2006.*

Caseload Enrollment

Table 5 shows the number of clients enrolled in the Colorado NFP each year and their participation status as of June 30, 2012.

Table 5. Client Status by Year of Enrollment

Enrollment Year	Total Enrolled	Currently Active		Left Program Early		Graduated	
2000	314	0	0%	221	70%	93	30%
2001	973	0	0%	661	68%	312	32%
2002	952	0	0%	607	64%	345	36%
2003	921	0	0%	594	64%	327	36%
2004	1,090	0	0%	715	66%	375	34%
2005	1,410	0	0%	895	63%	515	37%
2006	1,292	0	0%	839	65%	453	35%
2007	1,318	0	0%	803	61%	515	39%
2008	1,448	0	0%	908	63%	540	37%
2009	1,579	28	2%	951	61%	600	39%
2010	1,452	595	41%	788	92%	72	8%
2011	1,518	926	61%	581	98%	13	2%
2012	773	688	89%	82	96%	3	4%
Total	15,040	2,237	15%	8,645	67%	4,163	33%

*Clients enrolled in later years have not been in the program long enough to have the opportunity to graduate and have had less time to drop from the program.
Clients from closed sites are not included
2012 data is through June 30*

Client Characteristics at Intake

Demographic information gathered for evaluative purposes includes a variety of characteristics about participants, other family members, and their households. This information is provided by the participant, who may or may not know all of the information being requested, particularly if the participant is a young teen.

In October 2010, the categories for race changed to match Federal race and ethnicity categories. Previously, “White not Hispanic” and “Hispanic” were choices for race. Hispanic origin is now captured separately under ethnicity and is not listed in the race category. This effects clients who previously identified themselves as being of Hispanic race, their race will now be missing unless they had previously selected another race in addition to Hispanic. In addition, clients previously identified as Asian or African American/Black, their race will be the same but their ethnicity could be missing.

Table 6. Characteristics of Clients at Program Intake

	Colorado NFP	National NFP
Number Enrolled	15,047	146,557
Demographics Characteristics		
First-time mothers	99%	99%
Unmarried	79%	83%
Age of client (median years)	19	19
Percent in each age category		
Less than 15	1%	2%
15-17	19%	21%
18-19	24%	27%
20-24	37%	36%
25-29	11%	10%
30+	7%	5%
Ethnicity		
Hispanic or Latina	44%	23%
Not Hispanic or Latina	49%	64%
Ethnicity declined	0%	1%
Ethnicity Unknown	6%	12%
Race		
White	48%	42%
American Indian or Alaska Native	3%	4%
Asian	0%	0%
Black or African American	4%	23%
Multiracial/other	4%	5%
Race declined	4%	3%
Race unknown	37%	23%
Primary Language*		
(n=)	8,360	83,390
English	73%	78%
Spanish	18%	8%
Other	2%	2%
Unknown	6%	11%

**Data collection on Primary Language began on October 1, 2006, so the percentages are based only on clients enrolled after October 1, 2006.*

Percentages are based on records for which information is available

Table 7. Client Education at Program Intake

	Colorado NFP			National NFP		
	17 years or younger	18 years or older	Overall	17 years or younger	18 years or older	Overall
Number of Clients	3,917	11,313	15,214	43,629	103,737	146,635
Completed high school or GED	4%	64%	49%	4%	65%	47%
High school diploma	3%	60%		3%	62%	
GED*	1%	4%		1%	3%	
Median number of years education**	9	10		9	10	

*Data collection for this item began October 1, 2006

**Includes only clients who have not completed high school and do not have a GED
Only includes clients who have a date of birth and education information at intake.

Table 8. Client Economic Factors at Program Intake

	Colorado NFP	National NFP
Annual household income (median)	\$16,000	\$16,000
Use of Government Assistance		
WIC	69.97%	72.89%
Medicaid	71.02%	69.24%
Food Stamps	13.25%	20.52%
TANF	3.35%	6.50%
Private insurance*	0.75%	1.23%
For those working at intake		
17 years and younger working full-time	3%	2%
18 years and older working full-time	17%	16%

*Data collection for private insurance coverage began on October 1, 2006.

Household income categories changed in 2010

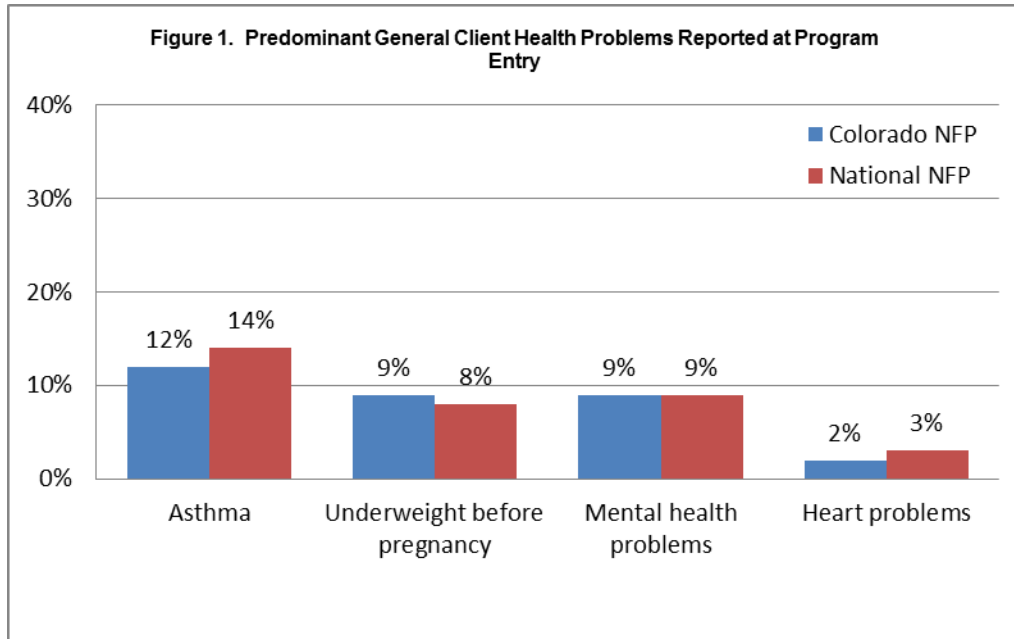
Median reflects the midpoint of the median category

"For those working at intake" denominator includes those who work full and part time

Maternal Health Characteristics

The client's general health is an important component of a healthy pregnancy and is assessed by nurse home visitors at entry into the program. The distribution of the predominant client health problems at intake are noted in Figure 1.

Figure 1. Predominant General Client Health Problems Reported at Program Entry



*Underweight before pregnancy is a BMI of less than or equal to 18.5

Household Information

Information on household composition or the living situation of clients is shown in Table 7.

Table 9. Client Household Composition

	Colorado NFP	National NFP
Lives in independent home (household composition**):		
Lives alone	4.8%	5.2%
Lives with husband/partner	0.9%	0.8%
Lives with mother	10.7%	14.3%
Lives with others	82.3%	77.4%
Lives in group home/shelter*	0.9%	1.7%
Confined to institutional facility (residential treatment facility / incarcerated)*	0.3%	0.3%
Homeless*	0.2%	0.4%

*These options for living arrangements were added in October 2006; percentages for these items will therefore appear lower than percentages for other items

**Choices are not exclusive as of October 2010 (clients may choose more than one category)

Fatherhood Information

Clients are asked at intake to report how frequently they see the biological father. This information is presented in Table 10.

Table 10. Frequency of Contact with Father of Child

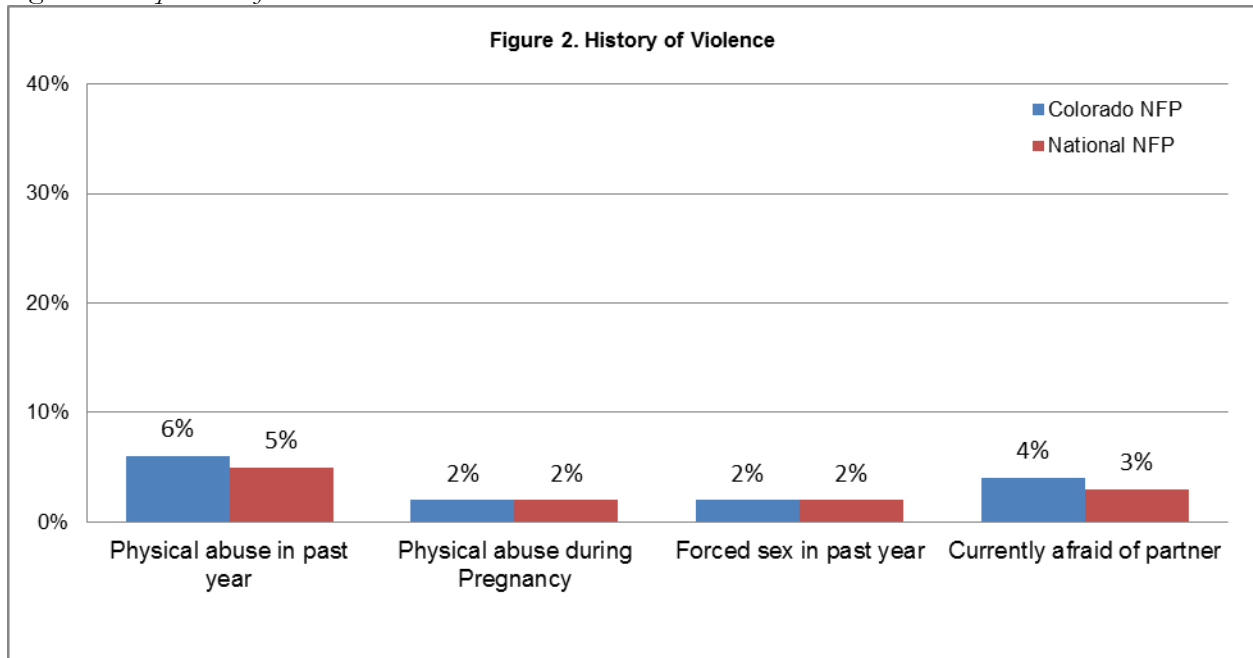
	Colorado NFP	National NFP
Contact with father of child	(n=14,355)	(n=138,934)
At least once a week	16%	15%
Not at all	7%	8%
Less than once a week	9%	11%
Daily	68%	66%

Maternal Experience of Intimate Partner Violence

Nurse home visitors assess at intake the extent to which clients have experienced intimate partner (partner, ex-partner, boyfriend or ex-boyfriend) violence in the last year. Previously, this information was collected for various times in the clients' lives and reflected emotional and physical abuse from any source. The abuse of clients from sources other than an intimate partner is no longer included in the report.

Intimate partner violence information is presented in Figure 2. It should be noted that data are based on self-reported information which may not be divulged until the nurse/client relationship has developed and is more trusting. This should be taken into consideration when interpreting this data.

Figure 2. Experience of Intimate Partner Violence Collected at Intake



*Beginning in October 2010, the scope of the questions changed. Previously, clients reported abuse by anyone; current reporting is regarding partner only. Where percentages match, height of bars in the chart is reflective of rounding to nearest whole number.

Program Implementation

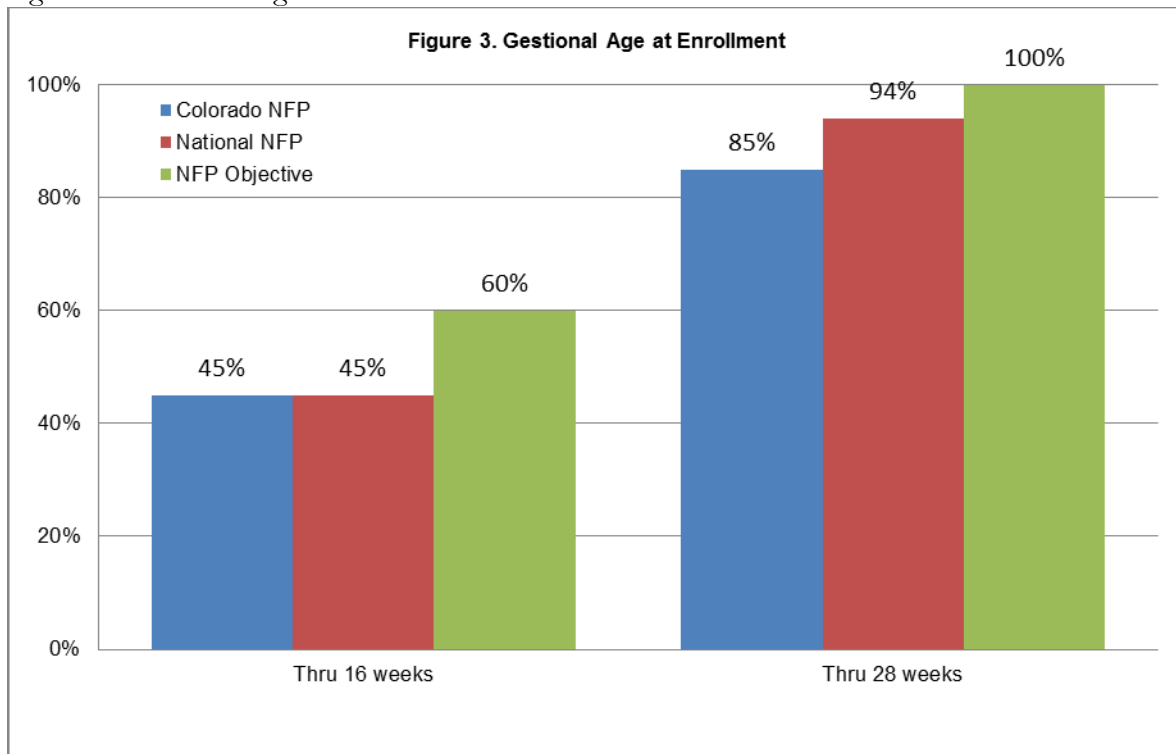
A critical feature of this evaluation has to do with whether the program is being conducted with fidelity to the model on which it is based. The analysis of fidelity as related to client participation and interaction is considered from the following standpoints:

- The number of weeks pregnant the client is when she enters the program.
- The quantity of the program received by clients (frequency and duration of visits).
- The construct of visitation (i.e., the amount of time nurses spend on the different content domains as instructed in program guidelines).
- The percentage of families who drop out of the program early for various reasons.

Gestational Age at Program Entry

Figure 3 presents information on when Colorado NFP clients entered the program with respect to gestational age and compares it to national data for NFP clients and to NFP Objectives. Program implementing agencies are encouraged to strive towards the NFP Objective of having 60% of clients enrolled by the 16th week of pregnancy and the remainder enrolled by the 28th week of pregnancy. Early enrollment allows nurse home visitors more time to work with clients on health-related behaviors known to improve pregnancy outcomes and to build relationships with clients.

Figure 3. Gestational Age at Enrollment



*Enrolled at 28 weeks includes those enrolled at 16 weeks

*Data based on clients for whom Gestational Age at Intake is available

Number and Duration of Completed Home Visits

The NFP Objective for percentage of expected visits completed is the long range benchmark against which implementing agencies should compare their performance. Information is presented separately for those participants who began the phase and those who completed the program phase. National NFP data and NFP Objectives are provided for comparison purposes.

Table 11. Number and Duration of Completed Nurse Home Visits during Pregnancy phase

	Colorado NFP		National NFP		NFP
	Number	Average	Number	Average	Objective
Pregnancy					
Clients who began phase	14,552		139,982		
Completed visits	119,008	8.2	1,112,940	8.0	
Expected visits	170,887		1,822,591		
Percentage of Expected Visits Completed		69.64%		61.06%	65%
Attempted Visits†	12,204		123,906		
Average Visit Length (minutes)		71.9		74.3	60
Clients who completed pregnancy phase	12,307		112,830		
Completed visits	116,160	9.4	1,073,429	9.5	
Expected visits	132,142		1,374,540		
Percentage of Expected Visits Completed		87.91%		78.11%	

†An attempted visit is one in which the nurse tried to make a visit, but for some reason was unable to conduct the visit (e.g., client was not home when nurse arrived, or client refused visit when nurse arrived). If a family calls to cancel a scheduled visit, this is not considered an attempted visit.

Pregnancy phase includes intake to birth

Table 12. Number and Duration of Completed Nurse Home Visits during Infancy phase

	Colorado NFP		National NFP		NFP
	Number	Average	Number	Average	Objective
Infancy					
Clients who began phase	12,307		112,830		
Completed visits	174,680	14.2	1,399,529	12.4	
Expected visits	332,289		3,046,410		
Percentage of Expected Visits Completed		52.57%		45.94%	65%
Attempted Visits†	24,576		205,642		
Average Visit Length (minutes)		69.5		71.9	60
Clients who completed infancy phase	6,938		60,714		
Completed visits	136,489	23.6	1,081,390	21.4	
Expected visits	187,326		1,636,578		
Percentage of Expected Visits Completed		72.84%		66.08%	

†An attempted visit is one in which the nurse tried to make a visit, but for some reason was unable to conduct the visit (e.g., client was not home when nurse arrived, or client refused visit when nurse arrived). If a family calls to cancel a scheduled visit, this is not considered an attempted visit.

Infancy phase includes birth through 11 months

Colorado NFP Evaluation Report 12
September 30, 2012

Table 13. Number and Duration of Completed Nurse Home Visits during Toddler phase

	Colorado NFP		National NFP		NFP
	Number	Average	Number	Average	Objective
Toddler					
Clients who began phase	11,112		99,896		
Completed visits	79,354	7.1	591,425	5.9	
Expected visits	244,464		2,197,712		
Percentage of Expected Visits Completed		32.46%		26.91%	65%
Attempted Visits†	13,540		97,087		
Average Visit Length (minutes)		69.3		71.2	60
Clients who completed toddler phase	4,338		36,947		
Completed visits	67,049	15.5	482,570	13.1	
Expected visits	95,436		812,834		
Percentage of Expected Visits Completed		70.26%		59.37%	

†An attempted visit is one in which the nurse tried to make a visit, but for some reason was unable to conduct the visit (e.g., client was not home when nurse arrived, or client refused visit when nurse arrived). If a family calls to cancel a scheduled visit, this is not considered an attempted visit.

Toddler phase includes 12 through 24 months

Location of Visits

Also of interest is the location of a visit. Table 14 presents this information, looking at the percentage of clients who had at least one visit at each of various locations. Clients may have been visited one time at home and one time at another location, such as school, and would therefore be included in both locations.

Table 14. Location of Visits

	Colorado NFP			National NFP		
	Pregnancy	Infancy	Toddlerhood	Pregnancy	Infancy	Toddlerhood
Percent of Clients Visited at various Locations:						
Client's home	94%	98%	97%	95%	98%	98%
Family/friend's home	17%	28%	22%	13%	21%	17%
Doctor/clinic	9%	12%	6%	7%	10%	6%
School	5%	5%	4%	4%	4%	3%
Employment	3%	6%	6%	2%	3%	3%
Other	23%	44%	39%	18%	32%	25%

Content of Home Visits

The content of the home visitation program is based upon the visit-to-visit guidelines that are designed to promote knowledge and skills in the five domains of maternal, child, and family functioning. The proportion of visit time spent on each of these five domains varies depending on the developmental stages and challenges most families encounter during pregnancy, infancy (0 to 12 months), and toddlerhood (13 to 24 months). During the pregnancy phase of the program, the client's health is of primary concern. After the baby is born, the focus shifts to parenting through development of the maternal role while continuing to emphasize and plan for the client's future through time spent on the other domain areas.

The focus of each home visit is agreed upon by the client and nurse home visitor at the preceding visit to allow for individualization related to the client's and family members' needs. The five program content domains are:

- Personal health of the client
- Environmental health
- Client's life-course development
- Maternal role
- Relationships with friends and family.

Table 15 illustrates the average percentage of time devoted to each of the content domains by phase for Colorado NFP and the national NFP sample, and provides the NFP Objectives.

Table 15. Average Percentage of Visit Time Spent on Program Domains

		Colorado NFP	National NFP	NFP Objective
Pregnancy	n=	14,552	139,982	
Personal health		38%	39%	35-40%
Environmental health		9%	10%	5-7%
Life-course development		13%	13%	10-15%
Maternal role		26%	24%	23-25%
Friends & family		14%	13%	10-15%
<i>Percent of planned content covered</i>		93%	93%	
Infancy	n=	6,938	60,714	
Personal health		16%	17%	14-20%
Environmental health		10%	11%	7-10%
Life-course development		16%	16%	10-15%
Maternal role		44%	42%	45-50%
Friends & family		14%	14%	10-15%
<i>Percent of planned content covered</i>		91%	93%	
Toddlerhood	n=	6,938	60,714	
Personal health		16%	17%	10-15%
Environmental health		10%	11%	7-10%
Life-course development		16%	16%	18-20%
Maternal role		44%	42%	40-45%
Friends & family		14%	14%	10-15%
<i>Percent of planned content covered</i>		91%	92%	

**The percentages of time devoted to program domains are averages based on all clients who have or should have completed the respective phase and had at least one reported visit during that phase.*

Alternative Encounters

Nurse home visitors report information on all encounters with clients and family. Although the most frequent encounter is through home visits, there are times when other encounters (such as telephone contacts) that cover program content occur. Table 16 summarizes this information by phase for both Colorado NFP and NFP clients nationwide.

Table 16. *Alternative Contacts with Clients and Families*

	Colorado NFP			National NFP		
	Pregnancy	Infancy	Toddlerhood	Pregnancy	Infancy	Toddlerhood
Number of participants with phone contacts	3,384	4,781	1,846	27,506	35,094	14,840
Total number of phone calls	7,152	14,411	6,014	61,708	112,865	45,567
Mean number of calls per client	2.1	3.0	2.8	1.8	3.2	3.1
Range of number of calls per client	(1-24)	(1-45)	(1-68)	(1-78)	(1-159)	(1-113)
Average time per call in minutes	14	14	14	15	16	17
Percent of calls with:						
Client	83%	83%	85%	77%	77%	80%
Husband/partner	0%	0%	0%	0%	0%	0%
Father of Child	1%	1%	0%	1%	1%	1%
Other Family Member	4%	5%	6%	5%	5%	5%
Time devoted to program domains						
Personal health	54%	27%	21%	55%	27%	22%
Environmental health	7%	7%	9%	9%	8%	10%
Life-course development	14%	14%	21%	13%	14%	20%
Maternal role	14%	41%	36%	14%	42%	38%
Friends & family	12%	13%	17%	10%	11%	13%

The percentages of time devoted to program domains are averages based on all clients who have or should have completed the respective phase and had at least one reported telephone contact during that phase.

Mean and range apply only to clients who have had at least one Alternative Encounter (not all clients)

Referral to Services

Nurse home visitors report on the number and type of referrals made to families in the program. This information is collected whenever a referral is made and is shown in Table 17.

Table 17. Client Referrals to Outside Services

	Pregnancy		Infancy				Toddler			
			0-6 months		6-12 months		12-18 months		18-24 months	
Government Assistance										
TANF	1,239	4.5%	833	3.3%	420	3.1%	331	3.1%	204	2.5%
Medicaid - Client	2,826	10.2%	1606	6.3%	867	6.4%	763	7.0%	533	6.6%
Medicaid - Child	278	1.0%	2089	8.2%	943	6.9%	1233	11.4%	737	9.1%
Food Stamps	1,543	5.6%	973	3.8%	558	4.1%	451	4.2%	305	3.8%
Social Security	57	0.2%	146	0.6%	43	0.3%	32	0.3%	27	0.3%
Unemployment	66	0.2%	37	0.1%	21	0.2%	29	0.3%	14	0.2%
SCHIP**	109	0.4%	80	0.3%	58	0.4%	83	0.8%	68	0.8%
WIC	4,675	17.0%	2502	9.9%	779	5.7%	668	6.2%	502	6.2%
Crisis Intervention										
Domestic Violence	217	0.8%	269	1.1%	243	1.8%	185	1.7%	111	1.4%
Child Abuse	--	--	9	0.0%	7	0.1%	5	0.0%	5	0.1%
Mental Health Services										
Mental health services	1,386	5.0%	1585	6.2%	1032	7.6%	788	7.3%	549	6.8%
Smoking cessation	751	2.7%	173	0.7%	103	0.8%	91	0.8%	50	0.6%
Alcohol abuse	45	0.2%	31	0.1%	21	0.2%	31	0.3%	16	0.2%
Drug abuse	66	0.2%	29	0.1%	22	0.2%	19	0.2%	29	0.4%
Health Care Services										
Client**	1,351	4.9%	1232	4.9%	457	3.4%	343	3.2%	332	4.1%
Child**	120	0.4%	1195	4.7%	622	4.6%	579	5.3%	445	5.5%
Developmental Referral**										
Client**	73	0.3%	97	0.4%	63	0.5%	51	0.5%	99	1.2%
Child**	--	--	--	--	--	--	--	--	--	--
Education										
GED/Alternative HS**	693	2.5%	673	2.7%	387	2.8%	284	2.6%	204	2.5%
Education beyond HS**	283	1.0%	423	1.7%	369	2.7%	294	2.7%	272	3.4%
Other Services										
Child care	495	1.8%	1211	4.8%	736	5.4%	548	5.1%	433	5.3%
Job training	664	2.4%	591	2.3%	484	3.6%	327	3.0%	254	3.1%
Housing	2,110	7.7%	1211	4.8%	873	6.4%	682	6.3%	438	5.4%
Transportation	347	1.3%	219	0.9%	105	0.8%	64	0.6%	39	0.5%
Injury prevention	864	3.1%	582	2.3%	622	4.6%	299	2.8%	173	2.1%
Childbirth education	3,507	12.7%	23	0.1%	10	0.1%	7	0.1%	15	0.2%
Lactation services**	664	2.4%	1201	4.7%	46	0.3%	17	0.2%	13	0.2%
Charitable services**	1,581	5.7%	1126	4.4%	685	5.0%	533	4.9%	397	4.9%
Legal services**	363	1.3%	525	2.1%	427	3.1%	317	2.9%	277	3.4%
Other	7,514	27.2%	6055	23.8%	3552	26.1%	2732	25.2%	2145	26.4%

*The numbers (n) represent the number of referrals made to a specific type of service. The percentages represent the distribution of referrals among different services.

** Data Collection began for this October 2006.

-- No longer asked

Table 18. Client Referrals to Outside Services Overall

	Colorado NFP	National NFP
Percent of clients receiving at least one referral	76.8%	54.7%
Average number of referrals per client	6.0	6.3

Reasons Clients Dropped from the Program

There are many reasons why clients may leave the program prior to their child's second birthday. These reasons and the percent of clients leaving the program are noted in Table 19, Table 20 and Table 21 below.

On October 1, 2006, NFP programs began collecting more detailed data on reasons for attrition, including all the reasons listed below under "Declined Participation". Because data collection for these items began at a later time point, the percentages of clients leaving the program for these reasons may appear smaller when looking at cumulative data. (Those clients who have not received any visits or telephone encounters for more than 180 days are also considered to have dropped from the program.)

For comparison purposes, attrition rates for the national NFP sample by phase are also provided. Retention of clients is a common problem for all prevention programs. All NFP implementing agencies are encouraged to strive for rates of 10% or less during pregnancy, 20% or less during infancy, and 10% or less during the toddler phase. Please see Appendix B for more information on the objectives for attrition.

Table 19. Client Attrition during Pregnancy

	Colorado NFP		National NFP	
Pregnancy (n=)*	14,368		137,703	
Miscarriage / fetal death	238	1.7%	2,511	1.8%
Moved out of service area	613	4.3%	4,577	3.3%
Unable to locate	316	2.2%	4,513	3.3%
Excessive missed visits	110	0.8%	2,650	1.9%
Maternal death	1	0.0%	13	0.0%
Unable to serve	17	0.1%	241	0.2%
Declined participation** (prior to 10/1/2006)	313	2.2%	3,788	2.8%
Declined participation for one of the following reasons†:				
Returned to work or school	47	0.3%	509	0.4%
Pressure from family members	31	0.2%	239	0.2%
Refused new nurse	18	0.1%	217	0.2%
Dissatisfied with the program	16	0.1%	147	0.1%
Client received what she needs from the program or receiving services from another program	86	0.6%	798	0.6%
Client incarcerated / out of home placement	1	0.0%	15	0.0%
Other	0	0.0%	0	0.0%
No visits for > 180 days	60	0.4%	1,026	0.7%
Total attrition during pregnancy	1,874	13.0%	21,370	15.5%

*n equals clients who have started the phase

**This reason contains only data through September 30, 2006

†Data collection began October 1, 2006 for the nine categories under Declined Further Participation

Pregnancy phase includes intake to birth

Colorado NFP Evaluation Report 12
September 30, 2012

Table 20. Client Attrition during Infancy

	Colorado NFP		National NFP	
Infancy (n=)*	12,854		121,687	
Infant death	70	0.5%	589	0.5%
Moved out of service area	1,561	12.1%	8,618	7.1%
Unable to locate	875	6.8%	9,681	8.0%
Excessive missed visits	314	2.4%	6,632	5.5%
Maternal death	3	0.0%	31	0.0%
Unable to serve	40	0.3%	526	0.4%
Declined participation** (prior to 10/1/2006)	600	4.7%	6,493	5.3%
Declined participation for one of the following reasons†:				
Returned to work or school	211	1.6%	1,646	1.4%
Pressure from family members	28	0.2%	177	0.1%
Refused new nurse	78	0.6%	933	0.8%
Dissatisfied with the program	13	0.1%	104	0.1%
Client received what she needs from the program or receiving services from another program	218	1.7%	1,640	1.3%
Client incarcerated / out of home placement	9	0.1%	52	0.0%
Other	0	0.0%	1	0.0%
No visits for > 180 days	114	0.9%	2,702	2.2%
Total attrition during Infancy	4,218	32.8%	40,627	33.4%

*n equals clients who have started the phase

**This reason contains only data through September 30, 2006

†Data collection began October 1, 2006 for the nine categories under Declined Further Participation

Infancy phase includes birth through 11 months

Colorado NFP Evaluation Report 12
September 30, 2012

Table 21. Client Attrition during Toddlerhood

	Colorado NFP		National NFP	
Infancy (n=)*	11,389		105,275	
Infant Death	4	0.0%	46	0.0%
Moved out of service area	657	5.8%	3,125	3.0%
Unable to locate	452	4.0%	4,068	3.9%
Excessive missed visits	158	1.4%	2,704	2.6%
Maternal death	1	0.0%	15	0.0%
Unable to serve	13	0.1%	274	0.3%
Declined participation** (prior to 10/1/2006)	196	1.7%	2,326	2.2%
Declined participation for one of the following reasons†:				
Returned to work or school	121	1.1%	758	0.7%
Pressure from family members	3	0.0%	44	0.0%
Refused new nurse	63	0.6%	584	0.6%
Dissatisfied with the program	4	0.0%	22	0.0%
Client received what she needs from the program or receiving services from another program	76	0.7%	493	0.5%
Client incarcerated / out of home placement	5	0.0%	18	0.0%
Other	0	0.0%	0	0.0%
No visits for > 180 days	57	0.5%	1,883	1.8%
Total attrition during toddlerhood	1,851	16.3%	16,792	16.0%

*n equals clients who have started the phase

**This reason contains only data through September 30, 2006

†Data collection began October 1, 2006 for the nine categories under Declined Further Participation
Toddler phase includes 12 through 24 months

Program Risk Factors and Outcomes

An important part of this program is improving the health and wellbeing of the clients and children enrolled in the program and monitoring any changes that occur. Various outcomes and risk factors are noted in the tables below.

Pregnancy Health and Outcomes

Table 22. Client's Health during Pregnancy

	Colorado NFP	National NFP
Percent with first prenatal visit with Health Care Provider in:		
First trimester	84%	86%
Second trimester	15%	13%
Third trimester	1%	1%
Percent underweight before pregnancy	17%	18%
Percent with adequate weight gain	80%	74%
Domestic violence		
Physically abused	8%	7%
Forced to have sexual relations	3%	3%
Afraid of partner / someone else	7%	4%

Underweight is a BMI of less than or equal to 18.5

Adequate weight gain is defined as 25 lbs.

Table 23. Government Assistance Use during Pregnancy

	Colorado NFP	National NFP
Percent receiving Medicaid during pregnancy*	81%	83%

*Data collection began October 1, 2006

Change in Maternal Health Behaviors

Prenatal use of tobacco, alcohol and other drugs has been associated with various adverse birth outcomes such as low birth weight, preterm delivery, and spontaneous abortion. Assessments of personal health habits, including smoking and the use of alcohol, are conducted periodically: shortly after enrollment, at 36 weeks of pregnancy, and at 12 months of infancy. Because health habits are measured at different time periods, it is possible to consider changes in these behaviors as intervening outcomes.

Cigarette use is defined as “one or more cigarettes in the previous 48 hours.” For all other substances, use is defined as “one or more times over the previous 14 days.”

Table 24 provides information about the maternal health habits of Colorado NFP clients between intake and 36 weeks of pregnancy and between intake and one year infancy with information being compared for those with data at *both* time points. As is common for programs addressing substance use during pregnancy, a client may return to previous substance use or other detrimental health habits after the birth of her baby. It is not feasible to examine change in behavior over time if that behavior is underreported at intake. An additional consideration is the likelihood of increased reporting by the client as the relationship with the nurse home visitor develops. This can result in an apparent increase when in fact the use at intake was underreported. Please note that the relative percent change cannot be calculated when no participants reported a certain health habit at intake.

Table 25 presents this maternal health habit data for NFP clients nationwide.

Table 24. *Change in Maternal Health Habits among Colorado NFP Clients: Program Intake and 36 weeks of Pregnancy, Program Intake and 12 Months of Infancy*

Pregnancy	N	Frequency of client behavior at intake	Frequency of client behavior at 36 weeks of pregnancy	Percent changed
Cigarette smoker	10,182	1,314	1,047	-20%
Marijuana use	10,199	213	80	-62%
Alcohol use	10,193	220	149	-32%
Cocaine use	10,199	9	3	-67%
Other drug use	10,188	8	5	-38%

Infancy	N	Frequency of client behavior at intake	Frequency of client behavior at one year of infancy	Percent changed
Cigarette smoker	5,684	707	1,156	64%
Marijuana use	5,708	108	141	31%
Alcohol use	5,708	152	1,180	676%
Cocaine use	5,706	3	6	100%
Other drug use	5,699	7	7	0%

Based on the number of clients who answered the question at both time points

Table 25. *Change in Maternal Health Habits among National NFP Clients: Program Intake and 36 Weeks of Pregnancy, Program Intake and 12 Months of Infancy*

Pregnancy	N	Frequency of client behavior at intake	Frequency of client behavior at 36 weeks of pregnancy	Percent changed
Cigarette smoker	79,513	10,694	9,016	-16%
Marijuana use	71,034	1,036	440	-58%
Alcohol use	80,512	1,000	726	-27%
Cocaine use	70,950	59	48	-19%
Other drug use	70,909	74	59	-20%

Infancy	N	Frequency of client behavior at intake	Frequency of client behavior at one year of infancy	Percent changed
Cigarette smoker	34,979	4,550	7,564	66%
Marijuana use	35,236	476	810	70%
Alcohol use	35,666	488	5,348	996%
Cocaine use	35,101	25	34	36%
Other drug use	35,092	40	46	15%

Based on the number of clients who answered the question at both time points

Change in Experience of Violence

Data on violence are collected from clients at program intake and at 36 weeks of pregnancy. Change in the experience of physical abuse and in fear of a partner or other individual are presented in Table 26. Violence data are based on self-reported information which may not be divulged until the nurse/client relationship has developed and is more trusting. The potential underreporting of this information should be considered when looking at changes in violence rates over time.

Table 26. *Change in the Experience of Violence between Program Intake and 36 Weeks of Pregnancy*

	N	Frequency at intake	Frequency at 36 weeks of pregnancy	Relative Change
Colorado NFP				
Physical abuse	9,666	630	124	-80%
Fear of partner / other	9,511	434	219	-50%
National NFP				
Physical abuse	66,924	4,702	1,246	-74%
Fear of partner / other	66,347	2,442	1,266	-48%

*Based on the number of clients who answered the question at both time points
Beginning October 2010, the scope of the questions changed. Previously clients reported abuse by anyone.
Currently, reporting is regarding their partner.*

Infant Health Outcomes

Birth Outcomes – Preterm Births and Low Birth Weight

Gestational age and weight at birth are measures of infant health, with birth before 37 weeks gestation considered preterm, and weight less than 2,500 grams considered low birth weight.

Preterm Births

Reduction of preterm births is considered the best way to reduce infant illness, disability and death.⁸ Table 27 illustrates the rates of preterm births for Colorado NFP and the national NFP sample, and provides NFP Objectives.

The NFP Objective for preterm births is consistent with the target goal set in Healthy People 2020 Objectives⁸ for the percentage of preterm births among all women of childbearing age. Whereas it is a national goal to eliminate disparities in health outcomes among populations, health statistics for women from minority and low income populations served by the NFP substantiate the existence of disparities in rates of preterm and low birth weight infants by race and ethnicity. Thus, the progress that NFP Implementing Agencies can realistically achieve toward the goals may vary based on the racial composition of the population served. To help Implementing Agencies monitor their progress toward the longer term target goal for 2020, we have established intermediate objectives for NFP implementing agencies that reflect the racial/ethnic distribution of the NFP clients served (see Appendix B). Table 27 also illustrates the rate(s) of preterm births for the predominant racial and ethnic group(s) within Colorado NFP.

Table 28 illustrates the rates of preterm births based on the client’s age at the time of her infant’s birth.

Table 27. Percentage of Preterm Infants by Client's Race and Ethnicity

Client's Race/Ethnicity	Colorado NFP	National NFP	NFP Objective
Total	10.7%	11.3%	11.4%
Ethnicity			
Hispanic or Latina	9.1%	9.7%	
Not Hispanic or Latina	10.3%	11.4%	
Ethnicity declined	18.5%	8.4%	
Ethnicity unknown	37.4%	15.5%	
Race			
White	9.9%	10.8%	
African American / Black	11.2%	12.7%	
Asian	8.3%	8.5%	
Native American / Alaska Native	11.0%	10.9%	
Native Hawaiian / Pacific Islander	0.0%	9.0%	
Multiracial / other	10.3%	10.2%	
Race declined	11.8%	9.4%	
Race unknown	11.6%	11.7%	

Race and ethnicity data collected prior to 10/20/2010 has been reassigned to newer categories which are not directly comparable. Clients who have been classified as belonging to the old "Hispanic/Latina" racial category are now categorized as having "Hispanic or Latina" Ethnicity, and their race will equal "Missing". Clients formerly classified as "White Non-Hispanic" now show up with a race of White and ethnicity of "Not Hispanic or Latina". Clients previously identified as American Indian, African-American or Asian/Pacific Islander retain the same race but will be reported as ethnicity of "Missing".

-- Sample size too small to calculate reliable percentage

Table 28. Percentage of Preterm Infants by Age of the Client at Infant Birth

Client's Age at Infant Birth	Colorado NFP Preterm Births		National NFP Preterm Births
	Number of Premature Infants by Client's Age	Percent of Preterm Births by Client's Age	Percent of Preterm Births by Client's Age
Less than 15 years	38	13%	12%
15-17 years	248	9%	10%
18-19 years	295	11%	11%
20-24 years	406	11%	11%
25-29 years	151	13%	14%
30 years or older	79	11%	15%

Includes only clients for whom age at birth can be calculated

Low Birth Weight

Birth weight is also used as an indicator of infant health, with the occurrence of infant death and/or disability highly correlated with low birth weight (less than 2,500 grams/5.5 lbs.). Table 29 demonstrates the percentage of low birth weight infants for Colorado NFP and the National NFP sample, and provides NFP Objectives. The overall rate is provided along with the rate(s) for the predominant ethnic group(s) within Colorado NFP. Table 30 illustrates the percentages of low birth weight infants based on the client's age at the time of her infant's birth.

Table 29. Percentage of Low Birth Weight Infants by Client's Race and Ethnicity

Client's Race/Ethnicity	Colorado NFP	National NFP	NFP Objective
Total	10.1%	9.9%	7.6%
Ethnicity			
Hispanic or Latina	9.7%	8.6%	
Not Hispanic or Latina	10.4%	10.3%	
Ethnicity declined	22.2%	10.0%	
Ethnicity unknown	8.9%	9.8%	
Race			
White	10.0%	8.5%	
African American / Black	14.6%	14.0%	
Asian	4.2%	10.5%	
Native American / Alaska Native	6.8%	7.3%	
Native Hawaiian / Pacific Islander	25.0%	10.4%	
Multiracial / other	9.5%	8.9%	
Race declined	12.5%	9.4%	
Race unknown	9.7%	9.0%	

Race and ethnicity data collected prior to 10/20/2010 has been reassigned to newer categories which are not directly comparable. Clients who have been classified as belonging to the old "Hispanic/Latina" racial category are now categorized as having "Hispanic or Latina" Ethnicity, and their race will equal "Missing". Clients formerly classified as "White Non-Hispanic" now show up with a race of White and ethnicity of "Not Hispanic or Latina". Clients previously identified as American Indian, African-American or Asian/Pacific Islander retain the same race but will be reported as ethnicity of "Missing".

-- Sample size too small to calculate reliable percentage

Table 30. Percentage of Low Birth Weight Infants by Age of the Client at Infant Birth

Client's Age at Infant Birth	Colorado NFP Low Birth Weight (<2500 g) Infants		National NFP Low Birth Weight (<2500 g) Infants
	Number of LBW Infants by Client's Age	Percent of LBW Infants by Client's Age	Percent of LBW Infants by Client's Age
Less than 15 years	29	10%	10%
15-17 years	250	9%	9%
18-19 years	303	11%	10%
20-24 years	362	10%	10%
25-29 years	123	10%	11%
30 years or older	78	11%	14%

Includes only clients for whom age at birth can be calculated

Low birth weight is highly correlated with certain adverse infant health outcomes and a greater use of resources immediately following delivery. Those infants with marginal low birth weight (2,268 – 2,500 grams/5.0-5.5 lbs.) use fewer resources and are at less risk for future health problems than infants below five pounds (less than 2,268 grams). Table 31 provides the percentage of low birth weight infants who were of marginal low birth weight.

Table 31. Other Infant Health Characteristics

	Colorado NFP	National NFP
Percentage of LBW Infants who were 5.0-5.5 lbs	43%	38%
Percentage of LBW Infants who were less than 5.0 lbs	57%	62%

Developmental Delays

The Ages and Stages Questionnaire (ASQ) and the Ages and Stages Questionnaire: Social-Emotional (ASQ-SE) is administered at several time points during the child's first two years. Scores on these assessments will provide the nurse home visitor with a framework for monitoring or referring the child for further evaluation. Children who are identified as having a developmental or physical delay are not subsequently assessed. Collection of this data began in October 2006. It is important to note that ASQ scores are entered into ETO on a delayed basis: the 4-month scores are added to the 6-month data collection form, resulting in a slight lag in data entry.

Table 32. Ages and Stages

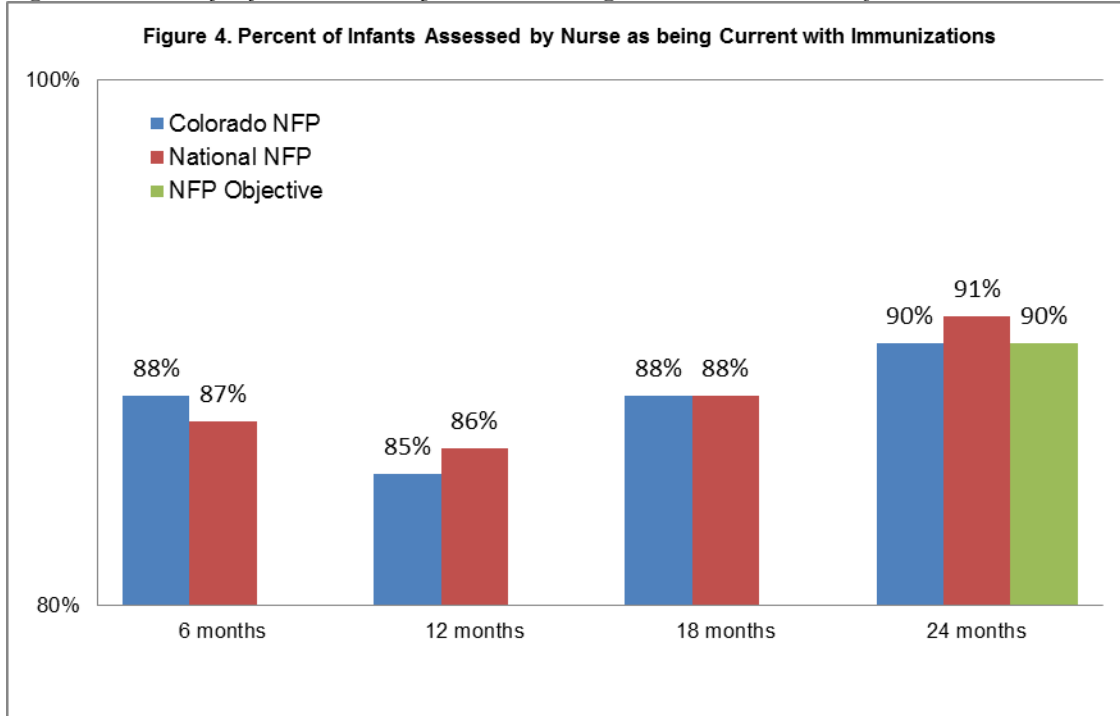
	ASQ							
	4 months		10 months		14 months		20 months	
Children who were assessed	4,491	97%	3,696	96%	3,055	97%	2,734	96%
Children needing a referral (total)	246	5%	344	9%	120	4%	183	7%
Communication	35	1%	29	1%	23	1%	97	4%
Gross motor	141	3%	243	7%	73	2%	33	1%
Fine motor	47	1%	69	2%	17	1%	59	2%
problem solving	45	1%	60	2%	24	1%	27	1%
Personal-social	57	1%	31	1%	18	1%	36	1%
	ASQ-SE							
	6 months		12 months		18 months		24 months	
Percent of children assessed	4,113	89%	3,431	89%	2,823	90%	2,557	90%
Percent needing referral	122	3%	83	2%	99	4%	72	3%

Data collection began with children who were born after October 1, 2006.

Immunizations

Figure 4 provides a summary of the percentages of Colorado NFP infants fully immunized at 6, 12, 18 and 24 months of age based on locally recommended immunization schedules. Rates are provided for the Colorado NFP children, the national NFP sample, and the NFP Objective for 24 months.

Figure 4. Percent of Infants Assessed by Nurses as being Current with Immunizations*



Because of a revision in the immunization data collection question, only data collected since October 1, 2006 is included in this figure.

Lead Testing

Information on lead tests for infants and toddlers in the program, as well as the results of that testing, is collected at 6, 12, 18 and 24 months of age. The percentage of children of a certain age who have been tested is noted in the table below, as is the percentage of those children who tested positive for lead poisoning.

Table 33. Lead Testing by Child Age

	6 months		12 months		18 months		24 months	
Children tested for lead exposure								
Colorado NFP	205	2.7%	1,031	17.5%	1,492	32.5%	1,536	38.7%
National NFP	2,096	3.8%	11,136	26.5%	15,126	50.0%	14,856	56.0%
Positive Result								
Colorado NFP	6	2.9%	21	2.0%	25	1.7%	20	1.3%
National NFP	41	2.0%	275	2.5%	375	2.5%	337	2.3%

Breastfeeding

Figure 5 illustrates breastfeeding rates reported at 6, 12, 18 and 24 months of infant age for the Colorado NFP sample along with rates reported among NFP clients nationwide. Breast milk is considered the ideal form of infant nutrition, with the practice of breastfeeding demonstrating wide-ranging benefits for infants' general health, immune systems, and development⁷. Table 34 presents information on exclusive breastfeeding.

Figure 5. Occurrence of Breastfeeding 2012

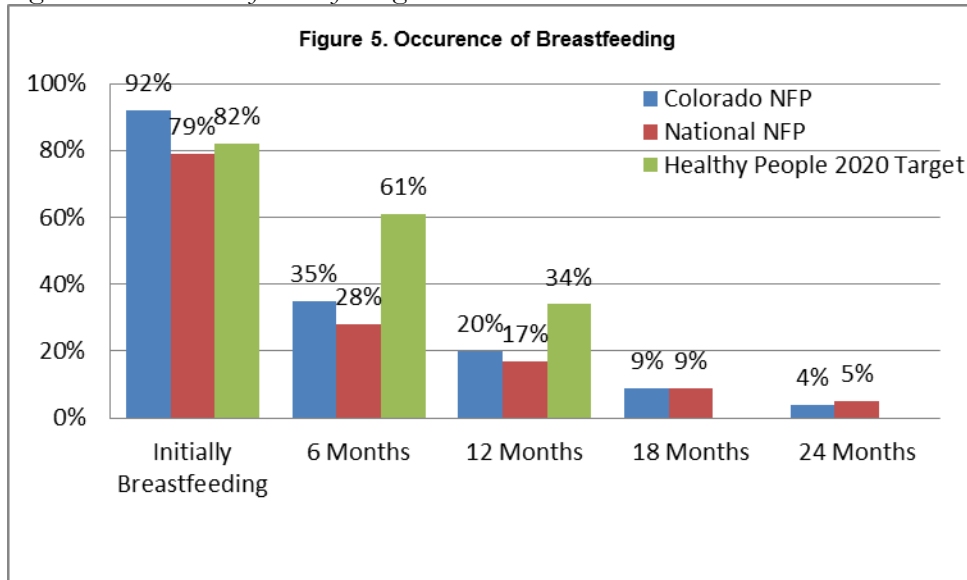


Table 34. Exclusive Breastfeeding[†]

	Colorado NFP	National NFP
Median age when infant no longer exclusively breastfed*	10 weeks	8 weeks
Percent of infants exclusively breastfed until at least 6 months	7%	5%

[†] Data collected beginning October 1, 2006.

*As reported at 6 months

Maternal Life Course Development

Subsequent Pregnancies

The NFP focuses on helping clients achieve life course developmental goals through the planning of future pregnancies, completion of their education, procurement of employment, and development of stable partner relationships. The timing and number of subsequent pregnancies has important implications for a client's ability to stay in school, find work, and/or find appropriate child care.

Figure 6 indicates rates of subsequent pregnancies among Colorado NFP, the national NFP and the NFP Objective by 24 months after the birth of the first child.

Figure 6. Subsequent Pregnancies by 6, 12, 18 and 24 months Postpartum

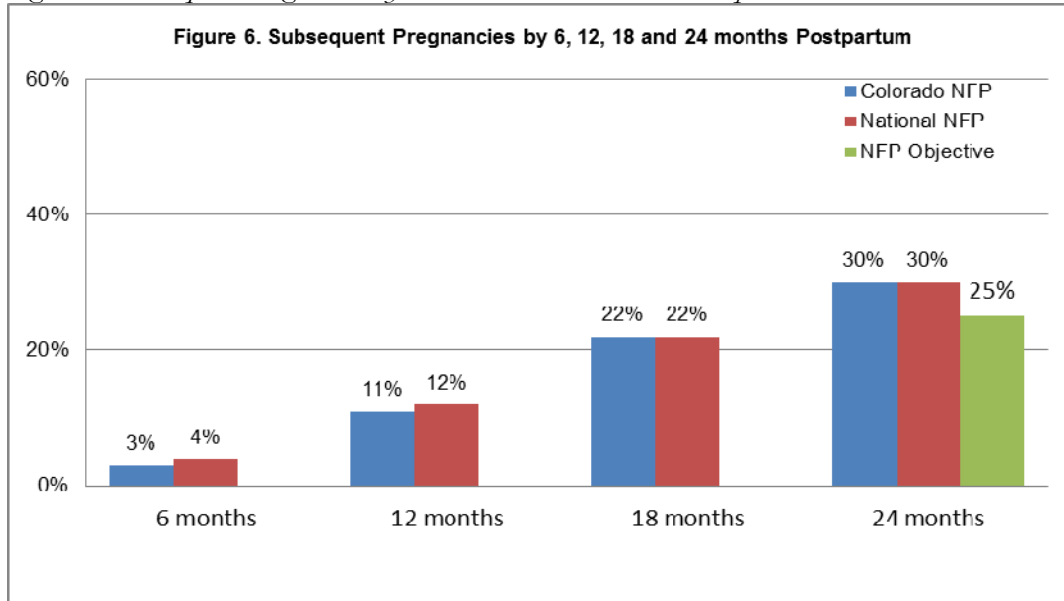


Table 35. Subsequent Pregnancies by 12 and 24 Months Postpartum by Age of the Client at Enrollment

	Subsequent Pregnancies by 1 Year Postpartum				Subsequent Pregnancies by 2 Years Postpartum			
	Colorado NFP		National NFP		Colorado NFP		National NFP	
Less than 15 years	9	6%	142	9%	20	5%	277	7%
15-17 years	197	13%	1756	12%	372	10%	3233	8%
18-19 years	243	16%	1915	13%	433	11%	3589	9%
20-24 years	295	14%	1863	11%	551	11%	3752	8%
25-29 years	56	8%	423	8%	156	10%	1002	8%
30 years or older	43	10%	185	7%	92	10%	438	7%

Education

Education status and enrollment in school are also factors to consider when looking at clients' life course development. Nurse home visitors work with clients to set educational and career goals, including completion of a high school diploma or GED. Table 36 tracks those clients who entered the program *without* a high school diploma or GED in terms of diploma/GED completion and school enrollment. Table 37 provides this information for national NFP clients.

Table 36. Education Status over Time for **Colorado NFP** Clients with No High School Diploma or GED at Intake

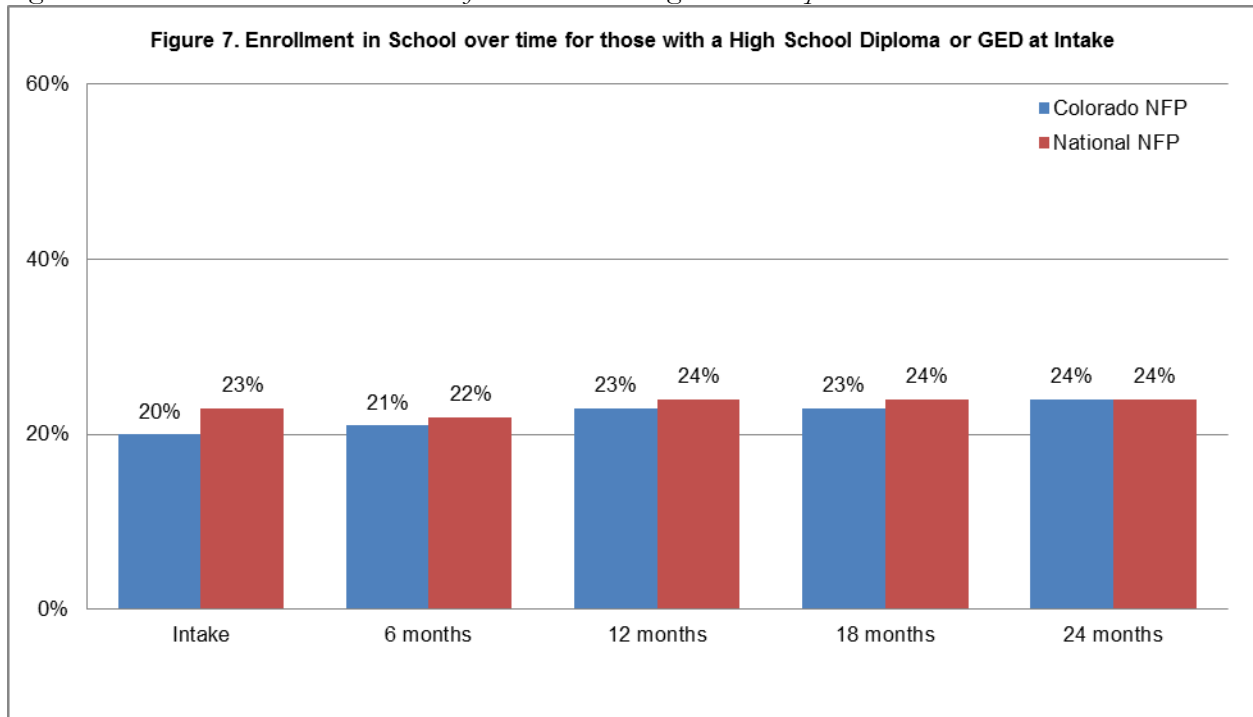
	Intake	6 months	12 months	18 months	24 months
n=	6,575	3,430	2,675	2,047	1,769
Diploma/GED and enrolled in school	0%	5%	8%	10%	13%
Diploma/GED but not enrolled in school	0%	12%	17%	23%	25%
No diploma/GED and enrolled in school	49%	37%	29%	23%	19%
No diploma/GED but not enrolled in school	51%	45%	45%	43%	42%

Table 37. Education Status over Time for **National NFP** Clients with No High School Diploma or GED at Intake

	Intake	6 months	12 months	18 months	24 months
n=	66,290	27,520	20,739	14,730	12,730
Diploma/GED and enrolled in school	0%	6%	9%	12%	14%
Diploma/GED but not enrolled in school	0%	13%	18%	22%	26%
No diploma/GED and enrolled in school	58%	41%	33%	27%	21%
No diploma/GED but not enrolled in school	41%	38%	39%	38%	38%

Figure 7 tracks enrollment in school beyond high school for those clients who entered the program with a high school diploma or GED.

Figure 7. Enrollment in School over Time for those with a High School Diploma or GED at Intake



Workforce Participation

Participation in the workforce is another area that is tracked as an indicator of the client's life course development. Figure 8 and Figure 9 note the percentage of clients in the workforce over time broken down by age for both Colorado NFP and the national NFP.

Figure 8. Percentage Working over Time among those 18 Years or Older at Intake

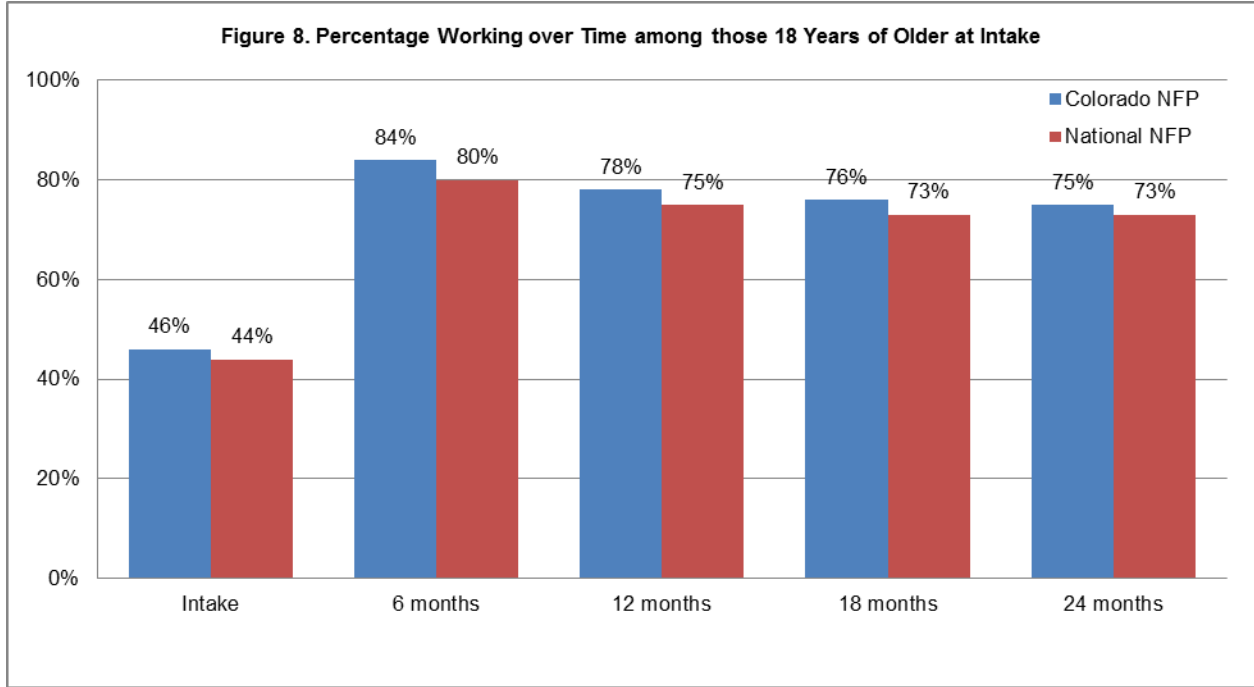
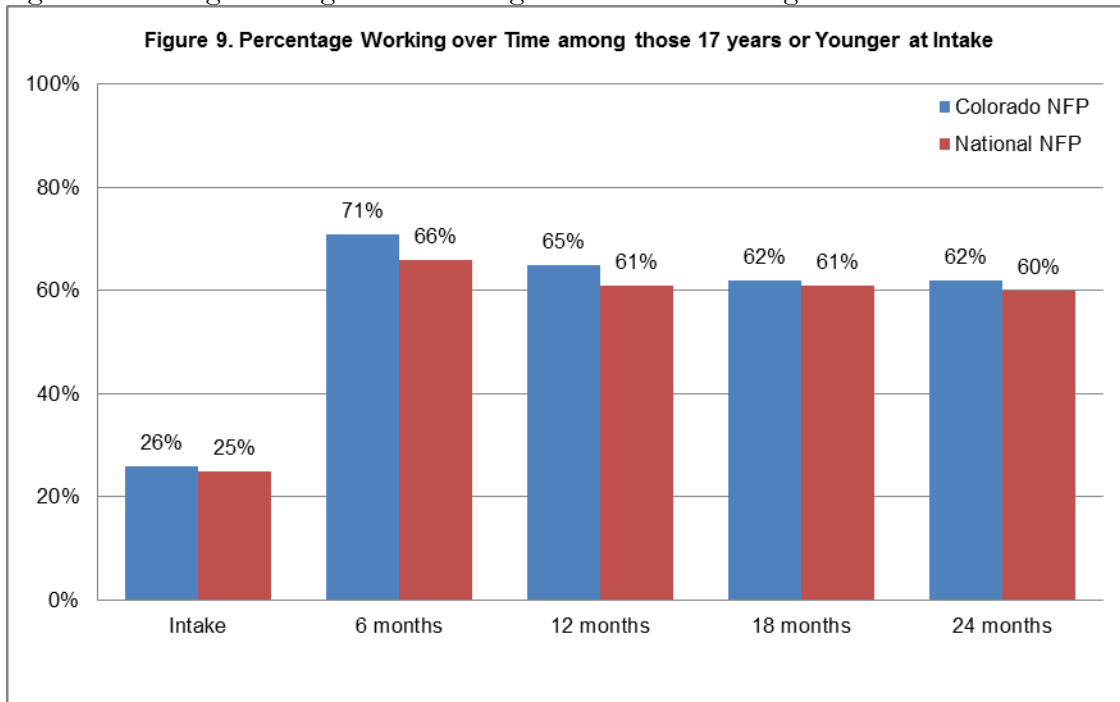
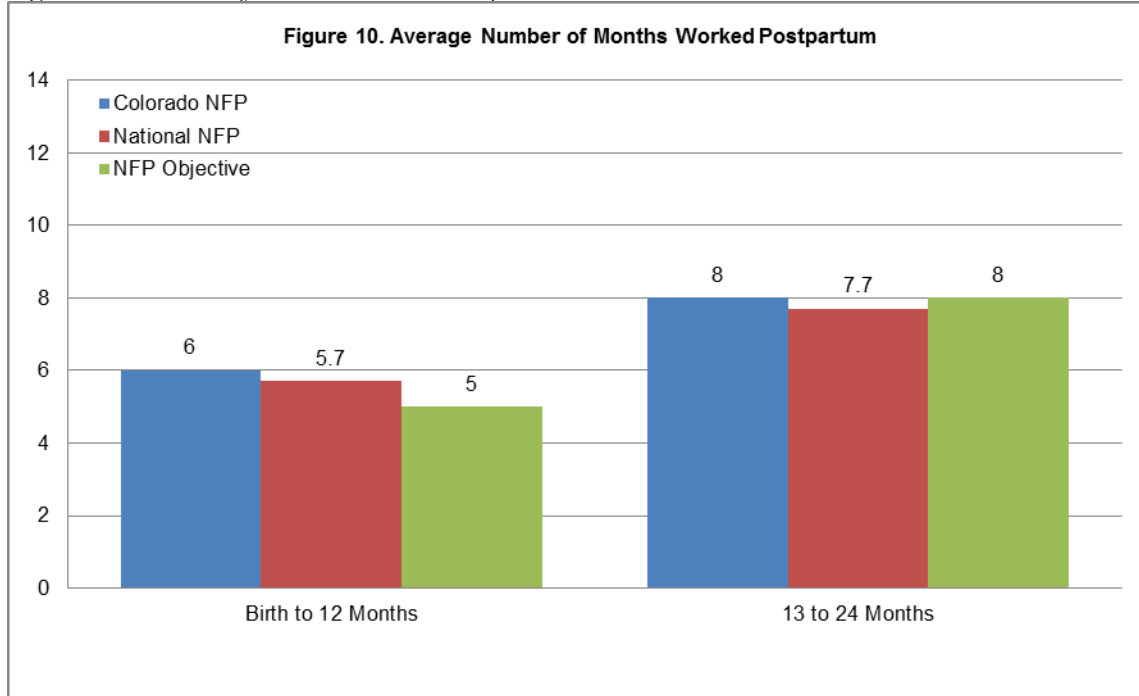


Figure 9. Percentage Working over Time among those 17 Years or Younger at Intake



For those clients who reported working at 12 and 24 months of infant age, the number of months they worked during the first (0-12 months) and second (13-24 months) postpartum years is tracked. The average number of months Colorado NFP clients worked is noted in Figure 10, along with the national NFP rates and NFP Objectives.

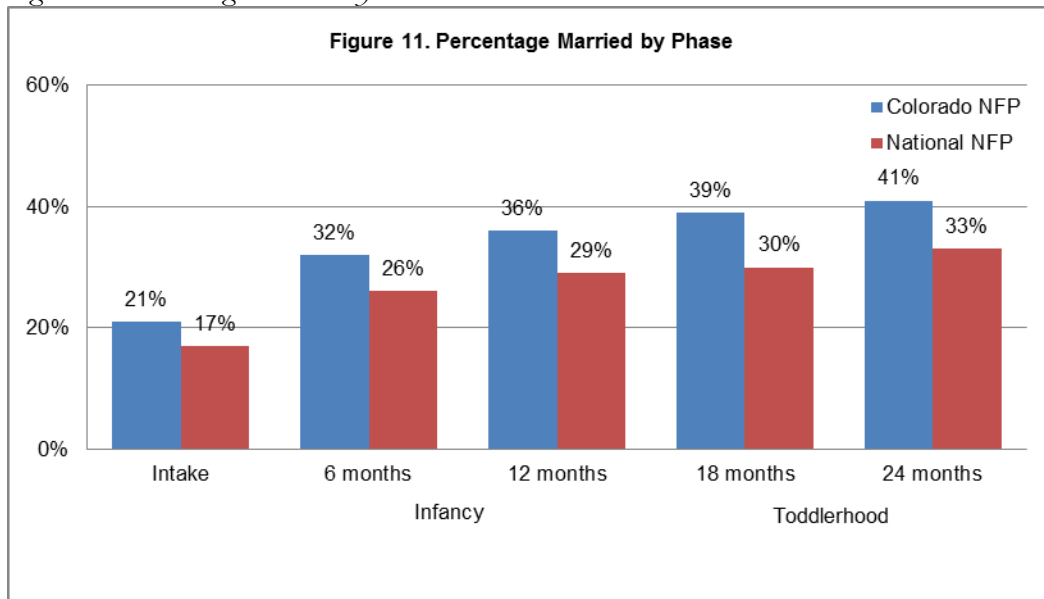
Figure 10. Number of Months Worked Postpartum



Marital Status

Marital Status of clients is assessed at program intake and every six months after the birth of the client's baby. Marriage is an important indicator of stable partner relationships which have important benefits for the family's economic and psychological health. Figure 11 demonstrates the percentage of clients who were married from intake to 24 months of infant age.

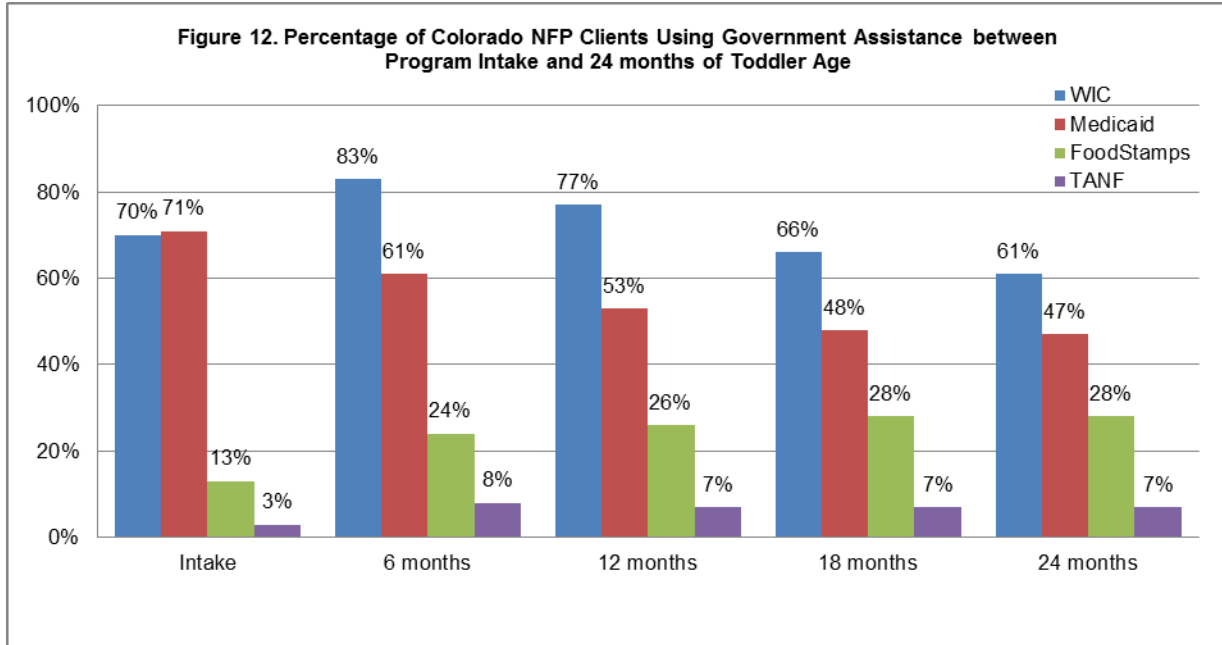
Figure 11. Percentage Married by Phase



Use of Government Assistance Programs

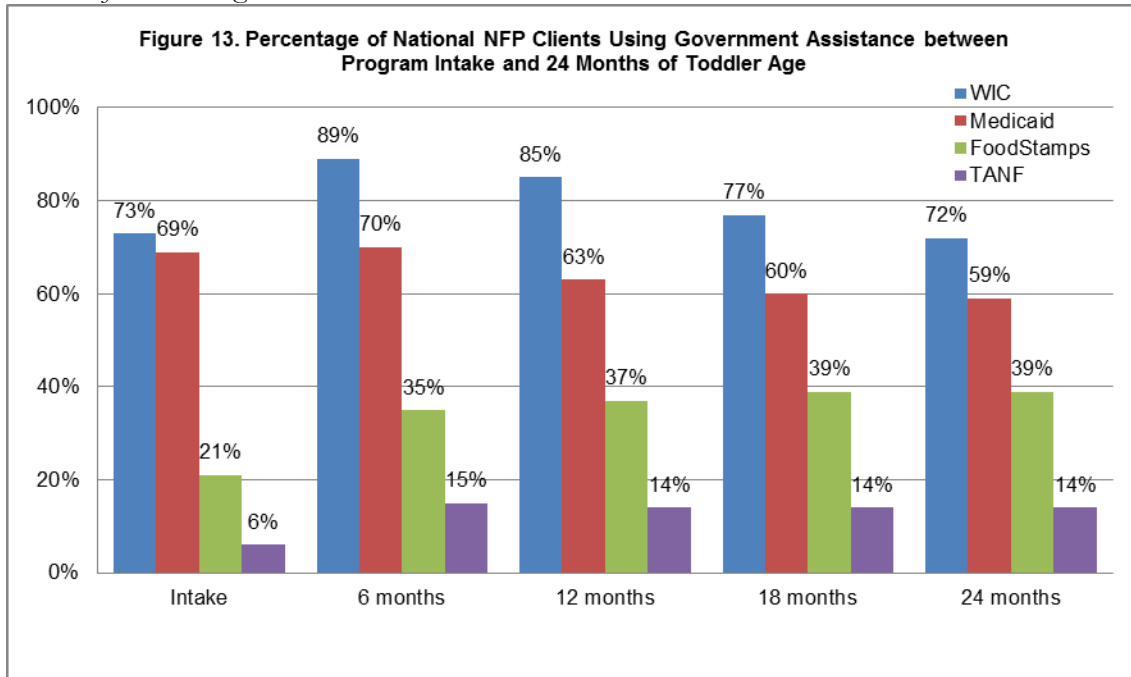
Colorado NFP clients were asked to report their use of publicly supported government assistance programs at intake and at 6, 12, 18 and 24 months of child age. This information is presented in Figure 12 below and rates for NFP clients nationwide are provided in Figure 13.

Figure 12. Percentage of **Colorado NFP** Clients Using Government Assistance between Program Intake and 24 Months of Toddler Age



* Medicaid use is reported for client only

Figure 13. Percentage of **National NFP** Clients Using Government Assistance between Program Intake and 24 Months of Toddler Age



* Medicaid use is reported for client use only

References

1. Olds, D., Henderson, Jr., C., Kitzman, H., Eckenrode, J., Cole, R., & Tatelbaum, R. The promise of home visitation: The results of two randomized trials. *Journal of Community Psychology*. 1998;26:5-21.
2. Olds, D.L., Eckenrode, J., Henderson, Jr., C.R., Kitzman, H., Powers, J., Cole, R., Sidora, K., Morris, P., Pettitt, L.M., & Luckey, D. Long-term effects of home visitation on maternal life course and child abuse and neglect: Fifteen-year follow-up of a randomized trial. *JAMA (Journal of American Medicine)*. 1997;278:637-643.
3. Olds, D., Henderson, Jr., C.R., Cole, R., Eckenrode, J., Kitzman, H., Luckey, D., Pettitt, L.M., Sidora, K., Morris, P., & Powers, J. Long-term effects of nurse home visitation on children's criminal and antisocial behavior: 15-year follow-up of a randomized trial. *JAMA (Journal of American Medicine)*. 1998;280:1238-1244.
4. Kitzman, H., Olds, D.L., Henderson, Jr., C.R., Hanks, C., Cole, R., Tatelbaum, R., McConnochie, K.M., Sidora, K., Luckey, D.W., Shaver, D., Engelhardt, K., James, D., & Barnard, K. Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing: A randomized controlled trial. *JAMA (Journal of American Medicine)*. 1997;278: 644-652.
5. Olds, D., Henderson, Jr., C., Phelps, C., Kitzman, H., & Hanks, C. Effects of prenatal and infancy nurse home visitation on government spending. *Medical Care*. 31: 155-174 February 1993.
6. Karoly, L.A., Greenwood, P.W., Everingham, SS., Hoube, J., Kilburn, M.R., Rydell, C.P., Sanders, M., & Chiesa, J. Investing in Our Children: What We Know and Don't Know About the Costs and Benefits of Early Childhood Interventions. Rand Corporation, 1998.
7. U.S. Department of Health and Human Services. Healthy People 2020: Objectives, Early and Middle Childhood (EMC-1) Washington, DC: <http://www.healthypeople.gov/2020/topicsobjectives2020/default.aspx>.
8. Fenson, L., Pethick, S., Renda, C., & Cox, J.L. (2000). Short-form versions of the MacArthur Communicative Development Inventories, *Applied Psycholinguistics*, 21, 95-115.
9. Moore, Kristin Anderson, Jekielek, Susan M., and Emig, Carol. Marriage from a Child's Perspective: How Does Family Structure Affect Children, and What Can We Do about It? Annie E. Casey Foundation *Research Brief*, June 2002.

Appendix A: Nurse-Family Partnership Overview

Federal, state, and local governments and a variety of private efforts have attempted for several decades to create interventions that would prevent or at least reduce the incidence of low birth weight and preterm infants, child abuse and neglect, crime, welfare dependency, and other severe social and health problems. These attempts included several models of nurse home visitor programs and some programs based in the social welfare system. Our society, nonetheless, still faces persistent rates of child and family poverty, births to adolescents, infant mortality, and juvenile crime. Many of these problems can be traced directly to the behavior of mothers and fathers and conditions in the family home.

One program of prenatal and infancy home visitation by nurses, the Nurse-Family Partnership, developed and tested by Dr. David Olds and colleagues, addresses many of the programmatic and clinical deficiencies found in programs tested earlier. Clinical trials of this program in Elmira, New York; Memphis, Tennessee; and Denver, Colorado have produced a variety of positive outcomes for low-income clients and their children.¹⁻⁶

The Program Model

NFP nurse home visitors work with women and their families in their homes during pregnancy and through the first two years of the child's life to accomplish three goals:

- Improve pregnancy outcomes by helping women alter their health-related behaviors, including reducing use of cigarettes, alcohol, and illegal drugs,
- Improve child health and development by helping parents provide more responsible and competent care for their children, and
- Improve families' economic self-sufficiency by helping parents develop a vision for their own future, plan future pregnancies, continue their education and find work.

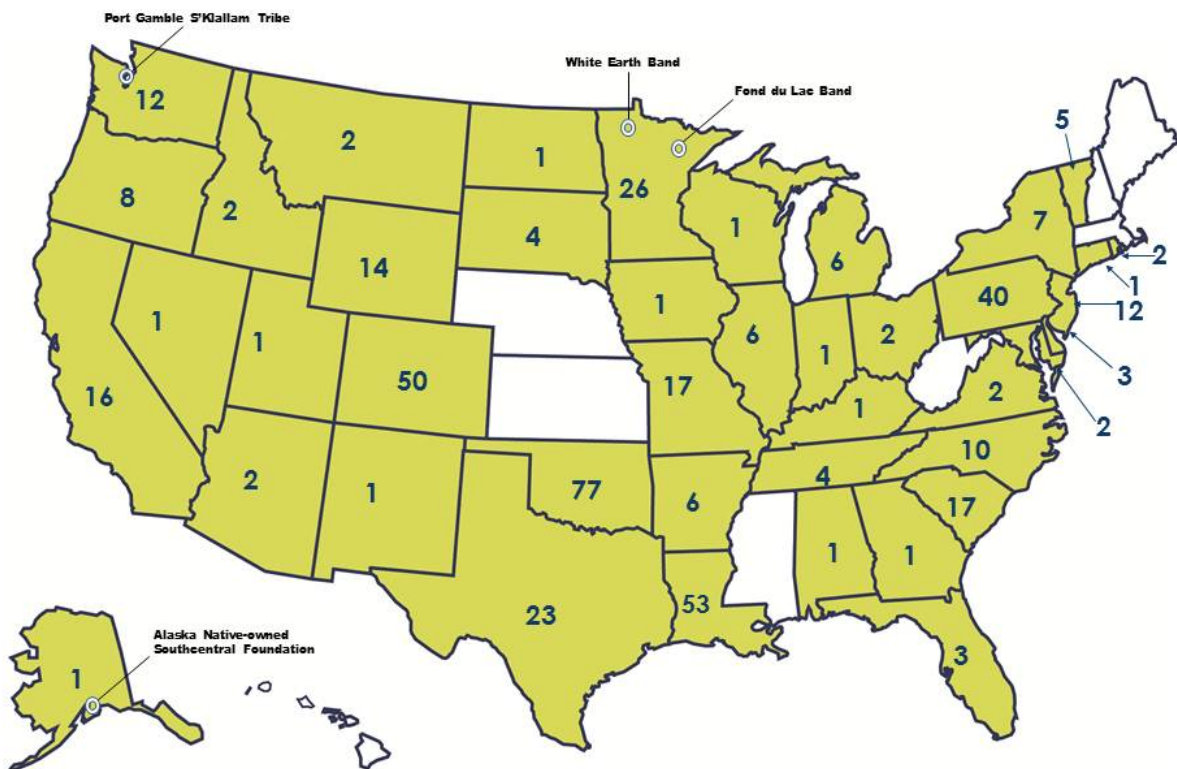
The model being replicated has a number of key features that differentiate it from other home visitation programs:

- A firm foundation in theories of development and behavioral change and methods to reduce specific risks for poor maternal and child outcomes,
- Focus on low-income women bearing first children,
- A clinical foundation in health,
- Use of registered nurses with bachelor degrees,
- Initiation of visits during pregnancy and continuing involvement with families for two years postpartum, and
- Use of detailed visit-by-visit protocols to guide the nurses in their work with families.

Dissemination of the Nurse-Family Partnership

The NFP is working with communities to implement this program across the country. The map below highlights the states with active NFP programs and the number of counties served in those states. Additional information about the Nurse-Family Partnership can be found on the website at <http://www.nursefamilypartnership.org>.

Current NFP Counties as of September 30, 2012



Appendix B: Nurse-Family Partnership Objectives

Nurse-Family Partnership objectives help implementing agencies track fidelity to the NFP program model and monitor outcomes related to common indicators of maternal, child, and family functioning. The objectives are drawn from the program's research trials, early dissemination experiences, and current national health statistics (e.g., National Center for Health Statistics, Centers for Disease Control and Prevention; Healthy People 2020). The objectives provide guidance for quality improvement efforts and are long-term targets for implementing agencies to achieve over time.

These are the first iteration of objectives for guiding program performance. The National Service Office will continue to review national trends emerging in Efforts to Outcomes (ETOTM), as well as changes in national indicators of relevant maternal, child, and family functioning, to identify areas where the objectives may need to be modified. Equally important will be implementing agencies' own experiences in working with the objectives. Actual experience will inform any updates to the objectives so that they will be useful in improving performance of the NFP model, both nationally and in every implementing agency.

Objectives Concerning Fidelity to Program Model

Program is reaching the intended population of low-income, first-time clients:

1. 75% of eligible referrals are enrolled in the program.
2. 100% of enrolled women are first-time clients (no previous live birth).
3. 60% of pregnant women are enrolled by 16 weeks gestation or earlier.

Program attains overall enrollment goal and recommended caseload:

4. A caseload of 25 for all full-time nurses within 8-9 months of program operation.

Program successfully retains clients in program through child's second birthday:

5. Cumulative program attrition is 40% or less through the child's second birthday.
6. 10% or less for pregnancy phase.
7. 20% or less for infancy phase.
8. 10% or less for toddler phase.

Although attrition rates may exceed the target objectives defined above when nurse home visitors are first learning the program model (i.e., initial three year program cycle), we believe that program staff needs to attempt with care to develop strategies to fully engage clients in the program through the child's second birthday. In examining current rates of attrition among our national sample of NFP clients, we note considerable variability among programs, with an overall average of about 65% attrition through the child's second birthday (15% pregnancy, 33% infancy, and 17% toddler). Thus, we have established an intermediate objective of reducing attrition nationally by 12-15% over the next five years.

To encourage progress toward this intermediate goal, we encourage individual implementing agencies to work toward reducing client attrition by 2-3% each year, targeting those reasons why clients drop out of the program early that are likely to be most amenable to change (e.g., declined further participation, missed appointments, failure to notify agency of address changes, etc.)

Nurse home visitors maintain established frequency, length, and content of visits with families:

9. Percentage of expected visits completed is 80% or greater for pregnancy phase.
10. Percentage of expected visits completed is 65% or greater for infancy phase.
11. Percentage of expected visits completed is 60% or greater for toddler phase.
12. On average, length of home visits with clients is a minimum of 60 minutes.
13. Content of home visits reflects variation in developmental needs of clients across program phases:

Average Time Devoted to Content Domains during Pregnancy	
Personal Health	35-40%
Environmental Health	05-07%
Life Course Development	10-15%
Maternal Role	23-25%
Family and Friends	10-15%

Average Time Devoted to Content Domains during Infancy	
Personal Health	14-20%
Environmental Health	07-10%
Life Course Development	10-15%
Maternal Role	45-50%
Family and Friends	10-15%

Average Time Devoted to Content Domains during Toddlerhood	
Personal Health	10-15%
Environmental Health	07-10%
Life Course Development	18-20%
Maternal Role	40-45%
Family and Friends	10-15%

Objectives Concerning Maternal and Child Outcomes

Reduction in smoking during pregnancy:

14. 20% or greater reduction in the percentage of women smoking from intake to 36 weeks pregnancy.
15. On average, a 3.5 reduction in the number of cigarettes smoked per day between intake and 36 weeks pregnancy (among women who smoked 5 or more cigarettes at intake).

Percentages of preterm and low birth weight infants demonstrate progress toward Healthy People 2020 objectives:

16. Preterm birth rate of 11.4%.
17. Low birth weight (LBW) rate of 7.8%.

The national target objectives listed above are for all women, irrespective of risk. Clients enrolled in the NFP typically are at higher risk for having preterm and low birth weight infants because, on average, they are younger, low income, less educated, first-time clients drawn from diverse racial and ethnic populations. While it is a national goal to eliminate disparities in health outcomes, women from economically disadvantaged and/or minority populations currently demonstrate higher rates of preterm and low birth weight infants. Thus, the progress that NFP

agencies can achieve realistically in reaching Healthy People 2020 objectives may vary based on the composition of the population served.

Child health and development:

18. Completion rates for all recommended immunizations are 90% or greater by the time the child is two years of age

Maternal life-course development:

19. Rate of subsequent pregnancies within two years following birth of infant is 25% or less

20. Mean number of months women (18 years or older) employed following birth of infant is:

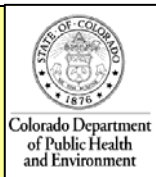
- 5 months from birth to 12 months
- 8 months from 13 to 24 months

Appendix C: Organizational Chart

The Colorado Nurse-Family Partnership Program

In Colorado, the Nurse-Family Partnership program is supported by the Nurse Home Visitor Program funds from the Colorado Department of Public Health and Environment. The Nurse Home Visitor Program is managed by a four-part team including the Colorado Department of Public Health and Environment, the National Center for Children, Families and Communities/University of Colorado Denver, Nurse-Family Partnership National Service Office and Invest in Kids. This team is referred to as the Colorado Nurse-Family Partnership Coordination Team. The team is available to help all local sites with any questions or issues that may arise. Below you will find information that will guide you in deciding who to contact for specific situations.

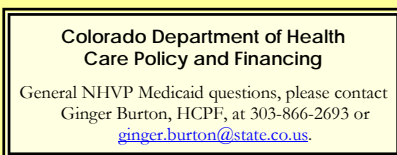
For questions or issues related to:



Fiscal Agent

Annual state tobacco appropriation, annual grant application and funding selection process, contracts including funding conditions, please contact Mary Martin, Home Visitation Program Director, at 303-692-2321 or mary.w.martin@state.co.us

Finances/budgets including invoicing/Medicaid estimates, please contact NHVP Fiscal Officer, at 303-692-2431.



Nurse Consultation, Site Development & Program Advocacy

Updates to implementing agency contact information and other misc. Administrative items, please contact Stephanie Madrid, Administrative Assistant at 303-839-1808 x 106 or smadrid@iik.org

Community awareness and involvement, advocacy and lobbying, development and/or expansion of implementing agencies, please contact Michelle Neal, Nurse Consultant, at 303-839-1808 x 101 or mneal@iik.org

Implementing the NFP curriculum, interpretation and use of the data, resources for nurses and clients, please contact Michelle Neal, Nurse Consultant, at 303-839-1808 x 101 or mneal@iik.org
www.iik.org



Nurse Education

To schedule participants for NFP education sessions and order NFP curriculum materials, please contact Georgette McMichael at 303-327-4248 or georgette.mcmichael@nursefamilypartnership.org

For all inquiries of the National Service Office, please contact Cheryl Williams, Western Nurse Consultation Manager, at 303-865- 8390 or cheryl.williams@nursefamilypartnership.org.
www.nursefamilypartnership.org

NCCFC

National Center for Children, Families and Communities

The Nurse Home Visitor Act required the University of Colorado Denver to designate an entity to assist the State Board of Health in selecting, evaluating and monitoring sites. NCCFC is this entity and subcontracts these responsibilities to the NFP National Service Office and Invest in Kids.
www.nccfc.org

Appendix D: Colorado Quarterly Summary Tables Through 6/30/12