

**To:** Antelope Valley Partners for Health (AVPH), First 5 LA

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USC Children's Data Network

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**Subject:** Home Visiting Linkage

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### Project Background

The Children's Data Network (CDN) at the University of Southern California collaborated with Antelope Valley Partners for Health (AVPH) to develop a project that would lead to the probabilistic linkage of home visiting service records to birth, death, and child protective service (CPS) records.

The project had two specific aims.

1. Linkage Feasibility. The first aim was to assess the feasibility of linking home visiting records from Los Angeles County to other sources of administrative data. This involved documenting the completeness of the home visiting records, in terms of both linkage and analytic fields; assessing the quality of matches that could be produced using linkage algorithms customized and trained on records from California; and developing a strategy for constructing longitudinally linked, analytic files for future research and evaluation.
2. Characterizing Families. The second aim was to document how birth, death, and CPS record data could be used to better characterize families receiving home visiting services compared to other families with infants born at the same hospitals during the same window, but who did not receive home visiting services.

Data Sources included:

- Vital birth records for all births occurring in 2015 and 2016 in Antelope Valley Hospital (i.e., the designated birthing hospital);
- Welcome Baby (WB) and Healthy Families America (HFA) home visiting and bedside screening records for clients with an infant born in 2015 and 2016; and
- Child protection records from 2015 through 2017.

## Results

### *Aim 1: Assess the Feasibility of Linking Home Visiting Records*

The first aim was to test the feasibility of linking home visiting records to other administrative data sources.

#### ***Record Universe***

Child-level records (with accompanying parent and family information) for WB and HFA home visiting clients were provided for linkage and analysis. Only children born to mothers who consented to a bedside screen and were then referred to WB or HFA services were included in the dataset. For this reason, we are only able to compare families screened and connected to home visiting services to the larger population of families with babies born in Antelope Valley Hospital; not to all families screened. Likewise, the data are limited to only those individuals screened and connected to WB and HFA, the data do not include individuals who may have been screened and connected to other home visiting programs (e.g., Parents as Teachers). Please see Appendix A for an overview of Home Visiting programs operating in Antelope Valley.

#### ***Information Collected***

At the hospital, through a consent and screening process with mothers, a variety of information, including personally identifiable information (PII), is collected. These data are not collected for research purposes. Rather, they are collected as part of the administration of the WB and HFA programs, including documenting service eligibility.

Data include:

- PII (e.g., Names, birthdates, and address(es) of the infant, mother, and father)
- Sociodemographic information (e.g., mothers' age, nativity, years in US, language, ethnicity, marital status, education, employment status, household income, other income indicators (e.g., number of people supported by household income, annual household income level, insurance), secondary caregiver, secondary caregiver ethnicity, gravidity, and parity);
- Health and risk behaviors (e.g., mother smoking during pregnancy, tobacco smoking in home, prenatal services, breastfeeding, and infant feeding issues);
- Maternal emotional health and support (e.g., Patient Health Questionnaire (PHQ-2/9), maternal mental health, history of domestic violence (DV), history/current depression, and risk of symptoms of postpartum depression);
- Newborn risk (e.g., NICU admission, receiving phototherapy, infant death, and stillbirth); and
- Family needs and strengths (e.g., strength of maternal bond with infant, history of child abuse and neglect (CAN), history of excessive alcohol or other drug use, social support and involvement of secondary caregiver/father, home environment and safety, mental illness, past and current trauma including DV and CAN).

Please see Appendices B and C for forms completed at the hospital screening.

Protocol stipulates that all mothers are asked all questions. For that reason, missingness was treated as “no.” However, the high levels of missingness for many analytic questions, and especially among those that touched upon sensitive topics (e.g., child maltreatment, infant death, and past incarceration), highlight the potential value of data linkage as a way of augmenting self-report data.

Compared to the analytic data elements, PII fields used to match these records to birth, death, and CPS records had very low levels of missingness.

Please refer to Appendix D. Missingness Appendix for more detailed information by variable.

### ***Record Linkage and Match Quality***

In order to achieve the aims of the project, AVPH shared information for the study population (i.e., Clients who received a bedside screen for home visiting services for all birth occurring in calendar year 2015 and 2016<sup>1</sup>) in two separate files. File 1, containing all Personally Identifiable Information (PII) available for clients, was used solely for linkage purposes. All direct identifiers were stripped out once linkage was complete. File 2 contained all analytic fields relevant to assessing the feasibility of using linked home visiting data for future research and evaluation projects.

PII in File 1 were linked using an open source, probabilistic, machine-learning record linkage software trained using administrative records from California. All linkages were conducted on a non-networked workstation in the CDN's restricted Data Lab. PII from home visiting records (organized around the focal child born in 2015 or 2016) were imported into SQL database tables. Birth record data was similarly organized – and then restricted to only those births occurring in Antelope Valley Hospital.

- Home Visiting – Birth Linkage. A total of 98.9% of home visiting records were successfully matched to vital birth records. Specifically, only 21 of the 1,908 children in the home visiting file did not match to a birth record.
- Home Visiting – Death Linkage. Home visiting records were also linked to vital death records, but the number of deaths was too low to report per the terms of our data use agreements.
- Home Visiting – CPS Linkage. *Although currently available records offer a very short / partial picture of CPS involvement, home visiting records were linked to child welfare records through the third quarter of 2015 as part of this initial feasibility project. Overall, 11.7% of children (222) matched to a CPS record. Future work will expand this linkage and will include comparisons to other children born in the same hospital.*

The completeness of the PII in the home visiting records and the match rates to the other data sources (especially birth record) suggest that the data collected by AVPH can be successfully matched with a high degree of confidence to other administrative data sources.

### ***Aim 2: Characterize Families Receiving Home Visiting Services***

The second aim was to better characterize families receiving home visiting services relative to families with infants born at the same hospital during the same window.

### ***Results***

As shown in Table 1, there were 259,144 births recorded in LA County, and 10,338 births in Antelope Valley Hospital in 2015 and 2016. Of all the babies who were born in Antelope Valley Hospital, 1,885 (18.2%) had mothers who were screened and consented to home visiting services, and 835 (8.1% of all births, 44.3% of those who were screened and consented) received at least one Welcome Baby (WB) or Healthy Families America (HFA) home visit.

LA vs. AVPH. Compared to Los Angeles County overall, a higher proportion of births in Antelope Valley Hospital were to:

- Black mothers (19.6% vs 7.1%)
- Teen mothers (8.0% vs 4.6%);

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<sup>1</sup> With the exclusion of records for Children Bureau clients, which were stripped from the files ahead of delivery to the CDN per the data sharing agreement.

- Mothers with no established paternity (15.3% vs 6.9%);
- Mothers with missing/none or third trimester prenatal care (7.0% vs 5.6%);
- Mothers whose births were covered by public insurance (63.3% vs 49.5%);
- Mothers for whom this was at least the third birth (37.7% vs 28.2%);
- Mothers with no high school diploma (20.8% vs 17.4%);
- Mothers who were born in the United States (80.1% vs 57.2%); and
- Mothers who reported perinatal smoking (5.9% vs 0.7%).

AVPH vs. Screened / Consented Mothers. Compared to all babies born in AV Hospital in 2015 and 2016, a significantly higher proportion ( $p < .05$ ) of infants with mothers who consented to a home visiting screen:

- Had mothers who were Hispanic / Latino (61.6% vs 53.0%), with significantly lower proportions of infants with mothers who were white (15.0% vs 23.6%);
- Had teen moms (9.8% vs 8.0%);
- Had no established paternity (17.1% vs 15.3%);
- Were funded by public insurance (69.9% vs 63.3%);
- Had mothers with one total child ever born (40.8% vs 32.7%), with significantly lower proportion of mothers with three or more children ever born (31.9% vs 37.7%);
- Had mothers with no high school diploma (23.5% vs 20.8%); and
- Had mothers who were born outside of the United States (25.3% vs 19.9%).

AVPH vs. Home Visit. Compared to all babies born in AV Hospital in 2015 and 2016, a significantly higher proportion ( $p < .05$ ) of infants with mothers who received at least one home visit:

- Had mothers who were Hispanic / Latino (68.3% vs 53.0%), with significantly lower proportions of infants with mothers who were white (11.4% vs 23.6%);
- Were funded by public insurance (71.9% vs 63.3%);
- Had mothers with one total child ever born (38.7% vs 32.7%)
- Had mothers who were born outside of the United States (34.5% vs 19.9%); and
- Had mothers who reported no perinatal smoking (96.6% vs 94.1%).

Risk of Child Protection Involvement. The most recent extract of statewide child protection records available to the CDN only permitted linkage for children with a birthdate in 2015, and only provided one year of follow-up (i.e., until 2016). For that reason, we opted to calculate rates of child protection involvement for babies born in Antelope Valley between 2010 and 2015 for context (Figure 1). In addition, using insights generated from prior linkages between birth and child protection records, we risk-stratified infants born in LA County in 2015 based on information on their birth record that has been shown to be correlated with future child protection involvement (Table 2). When we applied this method to AV births, we found that babies born in Antelope Valley Hospital were more than twice as likely to be in the highest risk group compared to babies born in Los Angeles County (24.1% vs 9.7%). This relatively high proportion of infants falling into the highest risk category indicates a higher level of riskiness among infants born in Antelope Valley. We saw evidence of this skew toward higher levels of risk among the infants in the consented to screen and received at least one home visit groups, where 22.8% and 17.8% fell into that highest level of risk, compared to the 9.7% for all LA County births. We did notice, however, that substantial proportions of infants with mothers who consented to screening and who received home visiting services did not fall into the riskiest categories, suggesting that data linkage and risk stratification could enhance the process by which families are prioritized for screening and services.

Next, in an effort to better characterize the population who received at least one home visit in relation to those screened, we examined differences in the sociodemographic and health information collected at screening (Table 3).

In addition, we examined information available on the birth record by program. As shown in Table 4, of the 835 infants who received at least one home visit, 663 (79.4%) received Welcome Baby (WB) and 172 (20.6%) received Healthy Families America (HFA). Of the two, WB is the lower intensity program, offering families a light-touch home visiting experience. The mother's score on the hospital's Bridges for Newborns Screening Tool (Appendix B) is used to indicate the most appropriate program. Mothers scoring 50 or more are offered HFA. Not all accept this referral, however; some opt to participate in WB instead. An analysis of the demographic characteristics of WB and HFA participants indicate:

- Hispanic / Latino mothers comprised more than half of all clients in both programs (70.6% WB, 59.6% HFA);
- Mothers under the age of 20 comprised 5.7% of WB and 20.9% of HFA; and
- The vast majority of clients in both programs had public insurance (68.6% WB, 84.3% HFA).

The results also show that higher risk mothers, in general, were more often triaged to HFA. Specifically, a higher proportion of HFA clients (compared to WB clients):

- Reported perinatal smoking (7.6% vs 2.3%, respectively);
- Had no high school diploma (32.6% vs 20.5%, respectively);
- Did not have established paternity (25.0% vs 11.0%); and
- Received no, late (third trimester), or missing prenatal care (9.9% vs 5.1%).

We also found that higher proportions of clients served by HFA fell into the highest level of risk when stratified by birth risk score. This suggests that the Bridges Screening Tool is helping the hospital match clients to the appropriate program, among mothers who consent to be screened. Although we are unable to present the details of this stratification due to low cell sizes, we are able to report that of the 428 infants who received at least one home visit and whose records were able to be risk stratified (i.e., born in 2015), 353 received a WB home visit and 75 received an HFA home visit. While 13.0% of the infants in the WB group had risk scores that placed them in the riskiest decile for future child protection system involvement, that percentage was 40.0% for infants in the HFA group.

### ***Key Findings and Recommendations***

This initial data linkage generated useful information about the quality and completeness of home visiting client records and the CDN's ability to integrate them with other service records. The results also demonstrated the value of this linked file in conducting within- and between-group analyses to better characterize families receiving home visiting services in terms of their health, sociodemographic, program characteristics, and cross-sector service interactions, and how they related to other families with infants born at the same hospital during the same window, but who did not consent to a bedside screen for home visiting services.

First, we demonstrated that it is possible to link administrative home visiting and birth records to generate a file of sufficient quality to answer questions important to policy and program development. We were able to link records and use that file to characterize infants with mothers who consented to a home visiting screening and who received at least one home visit in relation to the universe of children born in Antelope Valley and LA County. Specifically:

- Nearly all home visiting records were successfully matched to a vital birth records; 11.7% (222 children) matched to a CPS record.
- Nearly one quarter (24.1%) of all babies born in Antelope Valley Hospital fell into the highest risk decile (10%) of future child protection system involvement. In fact, babies born in the Antelope Valley were more than twice as likely to be in the highest risk group compared to babies born in Los Angeles County (9.7%), indicating babies born in Antelope Valley are, as a group, 'riskier' in terms of future child protection system involvement.

Second, the results suggest that administrative data linkage and risk stratification could enhance the process by which families are prioritized for screening and services. Notably, the findings suggest the current recruitment process is not engaging the highest risk families for screening and services. We found that the proportion of babies whose mothers consented to screen fell into the highest risk decile (22.8%), and this rate was consistent with that of all babies born in Antelope Valley. Seeing as the screen should be the point at which ‘riskier’ families are identified and prioritized for home visiting services, we would expect to see higher proportions of infants who received at least one home visit falling into the highest risk decile. However, a *smaller* proportion (17.8%) of the infants in the home visiting group fell into that highest risk category. Similarly, families in the home visiting group, as compared to those screened, had *lower* levels of risk in the areas of depression, financial stress, and abuse/maltreatment among others. For this reason, it may be premature to make comparisons between the full population of births and those who consented to be screened and/or those who received services. In addition, this finding highlights the need for alternative recruitment and referral protocols, including community-based methods of engagement, in addition to those offered within the hospital setting.

Third, we were able to identify clear next steps that would enhance the value of a linked data file to evaluate the effectiveness of home visiting services at a population level and form a more complete picture of what happened before, during and after a client received Home Visiting services. Specifically, expanding the study window to include additional historical birth cohorts would increase small cell sizes and provide a more generous follow-up period, permitting reporting on important outcomes such as death and child protection involvement. Linking home visiting records to child protection and death records would be incredibly valuable given the work to expand and strengthen HV programs in LA County, and provide information critical to evaluating precision, dosage, and cost-effectiveness of HV services. Finally, collecting screening, in addition to assessment, information would provide a level of detail that could explicate differences in uptake and engagement and, as such, inform the development of alternative recruitment and referral strategies.

In conclusion, this feasibility study generated important information that will form a foundation for future linkages that will enhance our understanding of children and families across Los Angeles County.

## Tables and Figures

Table 1. Client Characteristics 2015-2016

	All Birth Records for Los Angeles County (N=259,144)		All Birth Records for Antelope Valley Hospital (N=10,338)		Consented to Screening (N=1,885)		$\chi^2$ p-value	Received At Least One Home Visit (n=835)		$\chi^2$ p-value
	n	col%	n	col%	n	col%		n	col%	
<i>Maternal Race/Ethnicity</i>										
White	49,784	19.2%	2,444	23.6%	288	15.0%	p < 0.001*	95	11.4%	p < 0.001*
Black	18,509	7.1%	2,027	19.6%	369	19.2%		151	18.1%	
Hispanic	147,369	56.9%	5,481	53.0%	1,187	61.6%		570	68.3%	
Asian/Other	43,482	16.8%	386	3.7%	41	2.2%		19	2.3%	
<i>Maternal Age at Birth</i>										
under 20	12,010	4.6%	825	8.0%	184	9.8%	p < 0.001*	74	8.9%	p = 0.509
20-25	56,120	21.7%	3,489	33.7%	691	36.7%		271	32.5%	
26+	191,014	73.7%	6,024	58.3%	1010	53.6%		490	58.7%	
<i>Paternity</i>										
Established	259,835	93.1%	8,755	84.7%	1,563	82.9%	p = 0.018*	719	86.1%	p = 0.240
Missing	19,309	6.9%	1,583	15.3%	322	17.1%		116	13.9%	
<i>Prenatal Care</i>										
First Trimester	215,828	83.3%	6,767	65.5%	1,227	65.1%	p = 0.891	570	68.3%	p = 0.195
Second Trimester	28,768	11.1%	2,845	27.5%	525	27.9%		214	25.6%	
Third Trimester, None, Missing	14,548	5.6%	726	7.0%	133	7.1%		51	6.1%	
<i>Use of Public Insurance</i>										
No	130,788	50.5%	3789	36.7%	568	30.1%	p < 0.001*	235	28.1%	p < 0.001*
Yes	128,356	49.5%	6549	63.3%	1,317	69.9%		600	71.9%	
<i>Sex of Child</i>										
Male	132,980	51.3%	5,200	50.3%	957	50.8%	p = 0.597	434	52.0%	p = 0.295
Female	126,164	48.7%	5,138	49.7%	928	49.2%		401	48.0%	
<i>Total Children Ever Born</i>										
1	101,736	39.3%	3,376	32.7%	770	40.8%	p < 0.001*	323	38.7%	p < 0.001*
2	84,048	32.5%	3,064	29.6%	514	27.3%		214	25.6%	
3+	73,001	28.2%	3,897	37.7%	601	31.9%		298	35.7%	
<i>Maternal Education</i>										
No High School Diploma	43,946	17.4%	2,139	20.8%	442	23.5%	p = 0.001*	192	23.0%	p = 0.095
High School Degree or GED	207,997	82.6%	8,158	79.2%	1440	76.5%		643	77.0%	
<i>Maternal Nativity</i>										
US Born	148,168	57.2%	8,281	80.1%	1408	74.7%	p < 0.001*	547	65.5%	p < 0.001*
Foreign Born	110,976	42.8%	2,057	19.9%	477	25.3%		288	34.5%	
<i>Maternal Smoking</i>										
No	252,939	99.3%	9,725	94.1%	1,782	94.5%	p = 0.329	807	96.6%	p = 0.001*
Yes	1,755	0.7%	611	5.9%	103	5.5%		28	3.4%	

Note:  $\chi^2$  was used to assess the pairwise differences between the population of births for AV Hospital and 1) the population with mothers who consented to a screen and 2) who received at least one home visit by covariates. The resulting p-values are reported. \* denotes a statistically significant difference (p < 0.05).

Table 2. 2015 Birth Risk Scores

	All Birth Records for Los Angeles County		All Birth Records for Antelope Valley Hospital		Consented to Screening		Received At Least One Home Visit	
	(N=130,226)		(N=5,189)		(N=942)		(n=428)	
	n	col%	n	col%	n	col%	n	col%
At-Risk Birth Score								
1	15429	11.8%	127	2.4%	26	2.8%	18	4.2%
2	14420	11.1%	206	4.0%	33	3.5%	11	2.6%
3	13563	10.4%	302	5.8%	57	6.1%	26	6.1%
4	12,153	9.3%	337	6.5%	41	4.4%	16	3.7%
5	12,639	9.7%	406	7.8%	70	7.4%	31	7.2%
6	11,804	9.1%	546	10.5%	100	10.6%	56	13.1%
7	12,063	9.3%	530	10.2%	105	11.1%	57	13.3%
8	12,867	9.9%	703	13.5%	144	15.3%	70	16.4%
9	12,675	9.7%	779	15.0%	151	16.0%	67	15.7%
10	12,613	9.7%	1,253	24.1%	215	22.8%	76	17.8%



Table 3. Differences among Screened for Services vs those who Received Services

	Consented to Screening		Received At Least One Home Visit		$\chi^2$ p-values
	(N = 1,885)		(n=835)		
	N	col %	n	col%	
<i>English as Primary Language</i>					
No	304	16.1%	207	24.7%	p < 0.001*
Yes	1,581	83.9%	631	75.3%	
<i>Mother's History of/ Current Physical/ Emotional Abuse</i>					
No	1,523	80.8%	692	82.9%	p = 0.041*
Yes	362	19.2%	143	17.1%	
<i>Mother's Trauma Past/ Current (Domestic Violence, Child Abuse, etc.)</i>					
No	121	6.4%	53	6.4%	p = 0.910
Yes	1,764	93.6%	782	93.7%	
<i>Financial Difficulties</i>					
No	1,421	75.4%	648	77.6%	p = 0.046*
Yes	464	24.6%	187	22.4%	
<i>Level of Employment</i>					
Full Time	245	13.5%	105	13.1%	p = 0.363
Part Time	98	5.4%	50	6.2%	
Leave of Absence/Unemployed	1,472	81.1%	649	80.7%	
<i>CalWORKs</i>					
No	1,445	76.7%	663	79.4%	p = 0.274
Yes	440	23.3%	172	20.6%	
<i>CalFresh (Food Stamps)</i>					
No	1,151	61.1%	538	64.4%	p = 0.007*
Yes	734	38.9%	297	35.6%	
<i>Homeless Assistance</i>					
No	1,879	99.7%	833	99.8%	p = 0.588
Yes	6	0.3%	2	0.2%	
<i>WIC</i>					
No	532	28.2%	194	23.2%	p < 0.001*
Yes	1,353	71.8%	641	76.8%	
<i>SSI/SDI</i>					
No	1,780	94.4%	793	95.0%	p = 0.362
Yes	105	5.6%	42	5.0%	
<i>Breastfeed (fully or partially)</i>					
No	153	8.1%	48	5.7%	p = 0.029*
Yes	1,732	91.9%	787	94.3%	
<i>Depression Screening PHQ-2 Completed</i>					
Answered All No (no risk)	1,652	87.6%	754	90.3%	p = 0.002*
Answered with at least a 1 (possible risk)	233	12.4%	81	9.7%	
<i>Depression Screening PHQ-9 Score</i>					
Minimal/None (including those in No Risk category on PHQ-2)	1,722	91.4%	779	93.3%	p = 0.047*
Mild	86	4.6%	37	4.4%	
Moderate/Severe	77	4.1%	19	2.3%	
<i>Social Support and Involvement of the Secondary Caregiver</i>					
No	254	13.5%	139	16.6%	p < 0.001*
Yes	1,631	86.5%	696	83.4%	
<i>Home Environment/ Safety</i>					
No	115	6.1%	50	5.7	p = 0.855
Yes	1,770	93.9%	785	94.4	
<i>Mental Illness (mother)</i>					

No	118	6.3%	50	6.0%	p = 0.069
Yes	1,767	93.7%	785	94.0%	

Note:  $\chi^2$  was used to assess the pairwise differences between the population with mothers who consented to a screen and who received at least one home visit by covariates. The resulting p-values are reported. \* denotes a statistically significant difference ( $p < 0.05$ ).

Figure 1. Percentage of Infants Born in AV Hospital between 2010-2015 Reported to Child Protective Services During Infancy

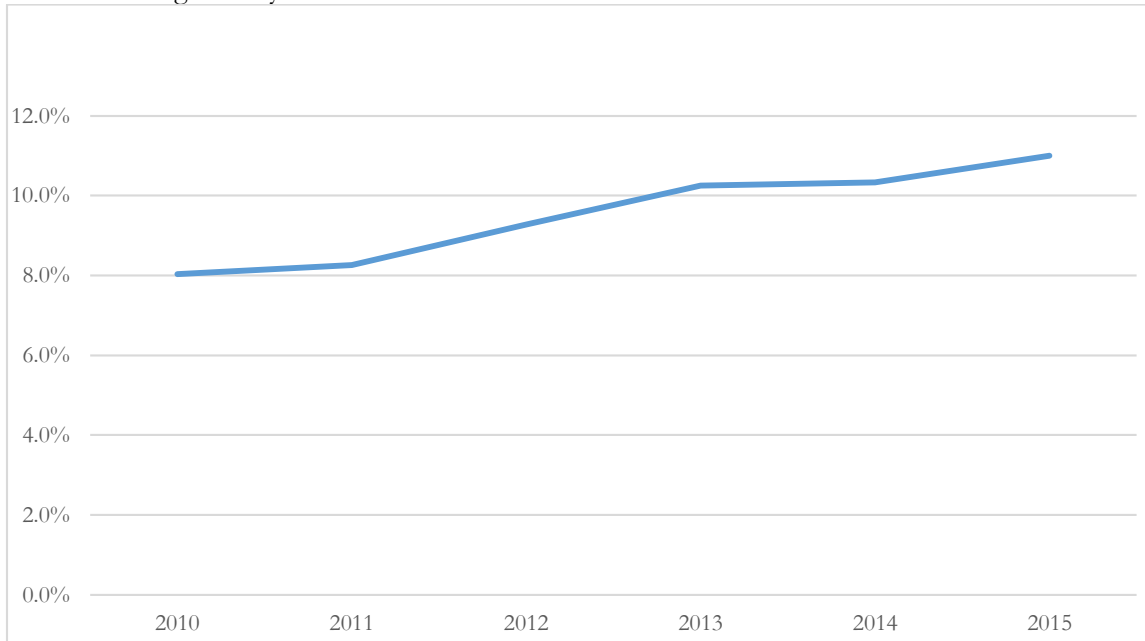


Table 4. 2015/2016 Client Characteristics across HV programs

	Welcome Baby		Healthy Families America	
	(n=663)	col%	(n=172)	col %
<i>Maternal Race/Ethnicity</i>				
White	71	10.7%	24	14.0%
Black	106	16.0%	45	26.3%
Hispanic	468	70.6%	102	59.6%
Asian/Other	18	2.7%	--	--
<i>Maternal Age at Birth</i>				
under 20	38	5.7%	36	20.9%
20-25	211	31.8%	60	34.9%
26+	414	62.4%	76	44.2%
<i>Paternity</i>				
Established	590	89.0%	129	75.0%
Missing	73	11.0%	43	25.0%
<i>Prenatal Care</i>				
First Trimester	468	70.6%	102	59.3%
Second Trimester	161	24.3%	53	30.8%
Third Trimester, None, Missing	34	5.1%	17	9.9%
<i>Use of Public Insurance</i>				
No	208	31.4%	27	15.7%
Yes	455	68.6%	145	84.3%
<i>Sex of child</i>				
Male	340	51.3%	94	54.7%
Female	323	48.7%	78	45.3%
<i>Total Children ever Born</i>				
1	251	37.9%	72	41.9%
2	170	25.6%	44	25.6%
3+	242	36.5%	56	32.6%
<i>Maternal Education</i>				
No High School Diploma	136	20.5%	56	32.6%
High School Degree or GED	527	79.5%	116	67.4%
<i>Mother Smoked During Pregnancy</i>				
No	648	97.7%	159	92.4%
Yes	15	2.3%	13	7.6%
<i>Nativity</i>				
US Born	413	62.3%	134	77.9%
Foreign Born	250	37.7%	38	22.1%

## **Appendix List**

- A. Overview of Home Visiting Programs Operating in Antelope Valley
- B. Welcome Baby Hospital Intake/Visit 2015-2016 (Including Bridges for Newborns Screening Tool)
- C. Patient Health Questionnaires (PHQ-2 and 9)
- D. Missingness Appendix

## Appendix A.

### Overview of Home Visiting Programs Operating in Antelope Valley

#### *Healthy Families America (HFA)*

Healthy Families America was established in 1992. The program provides home visiting services for at risk mothers struggling with various hardships including single parenthood, low income salaries, child history of abuse, substance abuse, mental health, and domestic abuse. Children are enrolled prenatally or within the first three months of birth. HFA provides screenings and assessments to evaluate the family's risk for child maltreatment, home visiting services, and screenings for child development and maternal depression. HFA strives to lower child maltreatment; enhance parent-child interactions and children's social-emotional well-being; increase school readiness; support child physical health and development; support positive parenting; support family economic self-sufficiency; increase access to healthcare and community services; reduce juvenile delinquency; reduce family violence; and reduce child injuries and emergency department use (Healthy Families America, 2015).

In Antelope Valley hospitals, children can participate in the program once or twice a week for 6 months based on their need, which is identified by a risk level of 1-4. Unlike other HFA programs, families in AV cannot enroll prenatally and can participate in the program for a maximum of 36 months.

Studies that have examined HFA across the United States have produced mixed results. Several studies have critiqued the program and have questioned its effectiveness. The Coalition for Evidence-Based Policy examined evaluations of HFA programs in Alaska, Hawaii, San Diego (HFSD), and New York (HFNY). Hawaii Healthy Start, Healthy Families Alaska, and HFSD found few effects on child and parent outcomes (Duggan et al., 2004; Duggan et al., 2007; Landsverk et al., 2002). HFNY had positive initial effects on child outcomes. Mothers engaged in significantly fewer acts of serious physical abuse, minor physical aggression, and psychological aggression. First-time mothers under age 19 were less likely to use harsh parenting behaviors and mothers experiencing psychological disorders were less likely to engage in serious abuse or neglect (DuMont et al., 2008). However, these outcomes were insignificant by the end of year two (Coalition for Evidence-Based Policy, 2009; DuMont et al., 2008). Overall, they found HFA to have little program effect on maltreatment reports (Coalition for Evidence-Based Policy, 2009; Duggan et al. 2004; Duggan et al., 2007; DuMont et al., 2008; Landsverk et al., 2002). It is important to note that HFNY included pregnant women whereas Hawaii and HFSD limited the studies to postpartum women (DuMont et al., 2008; Duggan et al., 2004; Landsverk et al., 2002).

In contrast, 33 evaluations of HFA sites showed positive effects on birth outcomes and breastfeeding, some effects on children's cognitive development, mixed results on well-child visit rates, and little or no positive effects on immunization rates or linkages to healthcare providers. Many of the cross-sectional studies yielded lower maltreatment rates in home-visiting families than expected (Harding et al., 2007). Five other HFA studies also showed significant results in reducing child maltreatment, physical punishment, yelling, and improved use of non-violent discipline. Among women enrolled prenatally, HFA also reduced the rate of low birth weight infants. Low birth weight is associated with higher infant mortality (Healthy Families America, 2015). Healthy Families Arizona found significant results in the following outcomes: violent parenting behavior, parenting attitudes and practices, parenting support, mental health and coping, and maternal outcomes (LeCroy & Krysik, 2011). Another study conducted in Arizona showed that HFA mothers had higher rates of breastfeeding than the control group (LeCroy & Davis, 2016).

One study found that parents who completed an HFA program in western North Carolina showed significant positive changes in parenting attitudes and practices related to child maltreatment. Their children were less likely to experience social, emotional, and behavioral changes than their peers. However, these results do not

apply to the 60% of families that enrolled and failed to complete the program (Cullen, Ownbey, & Ownbey, 2010).

### **Welcome Baby Program (WB)**

Welcome Baby, established in 2009, is a program funded by First 5 LA. It is a home visiting program for all pregnant women and new moms in Los Angeles County. WB follows moms during pregnancy and throughout their babies' first nine months. WB provides an in-hospital visit, a personal Parent Coach, information and support on breastfeeding and home safety, an in-home appointment with a nurse within the first few days of birth, referrals to additional resources, and baby- and mom-friendly items such as nursing pillows (First 5 LA, 2018). To be eligible for the services, the clients must reside in L.A. County and deliver or plan to deliver at one of the thirteen participating Welcome Baby hospitals. Families that live in a Best Start community can enroll prenatally (up to 38 weeks) or at the hospital.

The Urban Institute and UCLA have conducted several studies on the effects of WB. Mothers who participated in WB were 40%-60% more likely than a control group to breastfeed their babies at four months postpartum (Benatar et al., 2012). From the 24-Month Child & Family Survey they found positive and significant outcomes in positive parenting and child development, specifically communication skills and social competence (Benatar et al., 2014). These outcomes remained significant at 36 months postpartum. (Sandstrom et al., 2015) However, rates for physical punishment and obesity were still high at 24 months. (Benatar et al., 2014) At the 36-month checkpoint, new positive children outcomes were revealed, including: greater communication skills, greater social competence, greater engagement and attention, greater personal-social skills, lower BMI, and higher rates of dental insurance. Several outcomes that were significant at 12- and 24-months faded at 36 months, including higher quality home environments (Sandstrom et al., 2015). Overall, these results show that children involved in WB exhibit positive outcomes.

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