



Geo-mapping Children’s Vulnerability in Santa Cruz County

Project Overview

First 5 Santa Cruz County requested Applied Survey Research to perform a spatial analysis of areas where families with young children may be vulnerable to child maltreatment, low literacy, and challenges in the areas of positive parenting. The outcome of the analysis includes a series of Geographical Information Systems (GIS) maps and the source data to support decision making as part of the First 5 Commission’s strategic planning efforts.

Research Questions

The maps were designed to answer two central questions:

1. Where in the county are young children and their parents/guardians who are most vulnerable to challenges in the areas of positive parenting techniques, child maltreatment and/or low literacy?
2. Which areas in the county have multiple risk factors?

Population Map

Prior to reviewing indicator information, a map is displayed to illustrate the number of children in each zip code. The following table shows these population data by zip code.

Santa Cruz County Population Children and Families by Zip Code

Santa Cruz County	Zip Code	Number of Children Ages 0 – 5	Number of Families with Related Children Ages 0 - 5
Aptos	95003	1,464	1,117
Ben Lomond	95005	399	320
Boulder Creek	95006	664	503
Brookdale	95007	57	40
Capitola	95010	525	414
Davenport	95017	53	33
Felton	95018	492	370
Freedom	95019	489	332
Mount Hermon	95041	2	2
Santa Cruz	95060	2,609	1,948
Santa Cruz	95062	2,356	1,836

Santa Cruz County	Zip Code	Number of Children Ages 0 – 5	Number of Families with Related Children Ages 0 - 5
Santa Cruz	95064	155	128
Santa Cruz	95065	550	402
Scotts Valley	95066	1,172	859
Soquel	95073	594	456
Watsonville	95076	8,249	5,551

Source: U.S. Census 2000

Indicators of Vulnerability

Ten indicators were used to answer the above questions about risk status in the County. These indicators were determined by Commission interest, availability of data and potential to answer the research questions. In addition, a Combined Risk was calculated from these 10 indicators.

The ten indicators are outlined below:

Income and Employment

1. Percent of children ages 0 to 5 who lived below the federal poverty threshold (U.S. Census 2000).
2. Percent of all families with children ages 0 to 5 whose income was below the self-sufficiency standards (Wider Opportunities for Women and Californians and Equal Rights Advocates 2000 and U.S. Census 2000).
3. Percent of children ages 0 to 5 with parents who were both unemployed (in a two parent family) or a single unemployed parent in a single parent family (U.S. Census 2000).
4. Percent of total births that were paid by Medi-Cal. (Santa Cruz County Health Services Agency, 2004).

Births to Young Parents

5. Percent of total women ages 15 to 19 who had births. (Santa Cruz County Health Services Agency, 2004 and U.S. Census 2000).

Child Welfare

6. Percent of families with at least one child age 0 to 5 that have had at least one referral to CWS.
7. Percent of families with at least one child age 0 to 5 that have had a substantiated child abuse case.
8. Percent of families with at least one child age 0 to 5 that have had an allegation of emotional abuse due to a child witnessing domestic violence (Santa Cruz County Human Resources Agency, 2004 and U.S. Census 2000).

Education and English Literacy

9. Percent of adults over 25 who had less than a high school diploma (U.S. Census 2000).

10. Percent of households that were linguistically isolated. A linguistically isolated household is one in which no member 14 years old or over speaks English very well (U.S. Census 2000).

Data Analysis

Every indicator was analyzed by zip code. In each zip code, one of four levels of risk was assigned. The four levels are: 1=low risk, 2= medium low risk, 3=medium high risk, and 4= very high risk. For example, births to teens were analyzed in each zip code. The zip code of 95706 was determined to be in the highest level of risk with over 6% of teens having births; therefore this zip code received a score of 4 in this indicator.

Combined Risk

Combined Risk was also calculated for each zip code, based on the risk level of all 10 indicators in it, relative to the other zip codes. A few steps were taken to calculate the Combined Risk.

1. First, within each indicator, the zip codes were ranked according to the percentage for that indicator. For example, for the Linguistic Isolation indicator, the zip code 95041 had the lowest percentage of Linguistic Isolation with a percentage of 0%, and 95019 had the highest percentage of linguistic isolation, with 16%. Therefore, since there are 16 zip codes in this analysis, 95041 was ranked 1st, and 95019 was ranked 16th for that indicator.
2. After each zip code was given a ranking within each of the 10 indicators, these 10 rankings were summed within each zip code, to determine the total Combined Risk Index for that zip code. For example, the zip code 95041 had the lowest Combined Risk Index of 15.5, after the 10 indicator rankings were summed. By this process of summing the ranks, the total impact of all 10 indicators within a zip code can be expressed, relative to the other zip codes.

Finally, after a Combined Risk Index was assigned to each zip code, the zip codes were divided into four levels of risk (1=low, 2= medium low, 3=medium high, and 4=very high/extreme), in the same way that the individual indicators were divided into risk levels.

Additional Maps

Elementary schools that had indicators with low performance were also mapped to display areas that may be in need of school readiness support. These factors are: low Academic Performance Index (API), high percentage of English Language Learners, and low percentage of third graders who are proficient in English Language Arts.

The rate of crime and the number of domestic violence calls were also mapped to display jurisdictions that had higher reports and calls in comparison to other jurisdictions.

Limitations

This research had three central limitations that are important to highlight. One is that Census 2000 is the most recent population data available at the zip code level and therefore is used for all population calculations. However, many of the indicators use data from the year 2004. For example, percent of teens that had births were calculated by using the number of teenagers in each zip code in 2000 and the number of births in each zip code in the year 2004. It is also important to note that

other indicators of risk may have more relevance but data were not available at the zip code level required for geographic mapping. Lastly, census tract detail was only available for U.S Census data and was not available for other data sources, therefore census tract mapping was not possible for indicators using data from other sources.

Map Notes

General Notes

Data by zip codes is not equal to Santa Cruz County data totals:

- 95004 (Aromas) was not included in the map data because the zip code lies in Santa Cruz, Monterey, and San Benito Counties.
- 95033 (Los Gatos) was not included in the map because more of the zip code was in Santa Clara County than in Santa Cruz County.
- 95076 (Watsonville) was included in the map. Some of the zip code extends into Monterey County.

Income and Employment

1. Children Ages 0-5 Living Below the Federal Poverty Threshold (U.S. Census, 2000):

- Percent of children 0 – 5 below the federal poverty level.

2. Self-Sufficiency Standards (Wider Opportunities for Women and Californians and Equal Rights Advocates, 2000 and U.S. Census, 2000):

- Average family size was determined by zip code. The average family size ranged from 3 – 4 people.
- We defined family size as a two-parent household based on the fact that 10 out of the 16 zip codes had over 75% of families as two-parent households.
- For a 3-person family, the 2000 self-sufficiency standard for 2 adults and 1 preschooler was used (\$45,267 total household income). Using the census breakdowns for income, any 3-person family making less than \$45,000 was considered to be below self-sufficiency.
- For a 4-person family, the 2000 self-sufficiency standard for 2 adults, 1 preschooler, and 1 school-age child was used (\$52,243 total household income). Using the census breakdowns for income, any 4-person family making less than \$50,000 was considered to be below self-sufficiency.

3. Parent Unemployment (U.S. Census, 2000):

- Percent of children ages 0 – 5 with parents who are both unemployed (in a two parent family) or a single unemployed parent in a single parent family.

4. *MediCal Births (Santa Cruz County Health Services Agency, 2004):*

- Birth data are from 2004, but population data used to calculate the percentage are based on 2000 census data.
- 95001 (Aptos P.O. Box) is combined with 95003 (Aptos). 95077 (Watsonville P.O. Box) is combined with 95076 (Watsonville).

Births to Young Women (Ages 15 to 19)

5. *Births to Young Women (Santa Cruz County Health Services Agency, 2004):*

- Birth data are from 2004, but population data used to calculate the percentage are based on 2000 census data.
- 95001 (Aptos P.O. Box) combined with 95003 (Aptos). 95077 (Watsonville P.O. Box) is combined with 95076 (Watsonville).

Child Welfare

6. *Child Abuse Referrals (Santa Cruz County Human Resources Agency, 2004 and U.S. Census, 2000):*

- This indicator illustrates the relationship between the number of families with at least one child that is between the ages of 0 to 5 and referrals to child welfare services. Please note that these referrals are not of unique families, meaning that several referrals could be for one family.
- Child abuse referral data are from 2004, but population data used to calculate the percentage are based on 2000 census data.
- Population data used to calculate percentage were based on families with at least one related child in the home under the age of 6. Families with unrelated children under the age of 6 were not included because data were not available.
- The zip code field is not a mandatory field in CWS/CMS so often that field is blank. This number is captured in the No Zip column. 210 referrals with children ages 0 - 5 had no zip code.
- Referrals are commonly listed under the mother's zip code, even if she lives outside of the county. This number is captured in the MISC Out-of-County column. 29 referrals with children ages 0 – 5 were out of county.
- 95061 (3 referrals) and 95063 (1 referral) were not included because they are P.O. box zip codes within Santa Cruz. There are multiple zip codes for Santa Cruz and it cannot be determined which zip code to add the numbers to.
- 95004 (3 referrals) was **not** included in the map data because the zip code lies in Santa Cruz, Monterey, and San Benito Counties.

7. *Substantiated Child Abuse Referrals (Santa Cruz County Human Resources Agency, 2004 and U.S. Census, 2000):*

- The percent of families with at least one child who is between the ages of 0 to 5 that had a substantiated child abuse case per zip code.