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### Interventions to Support Teen Mothers in California and Reduce the Disparities related to the effects of Teen Pregnancy

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**Interventions to Support Teen Mothers in California  
and Reduce the Disparities related to the effects of Teen Pregnancy**

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MPH:683 Integrated Learning Experience

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## Abstract

The US teen birth rate has slowly been declining; however, teenage pregnancy is still prevalent. In 2018 the US teen birth rate was 17.4 births per 1,000 girls aged 15-19 years, totaling 179,871 births (National Vital Statistic Report). California's most recent birth rate was 13.6 births per 1,000 girls aged 15-19 years in 2020 (CDC, 2020). Few studies focus on teen mothers' health, life needs, and outcomes as a result of adolescent pregnancy and subsequently, adolescent parenting. Additionally, few studies have looked at the cultural differences and views of adolescent pregnancy and parenting within the Hispanic population, which are greatly impacted by the teen births. This paper includes a literature review of the scholarly published articles, national data, organizational webpages and other publicly available resources to identify existing resources and interventions related to adolescent parenting services and to identify effective evidence-based strategies that can inform practical interventions. The Socio-Ecological Model, a behavior change model which states that an individual influences and is influenced by the people, places, relationships and experiences within their environment, and therefore, interventions need multi-level action planning to achieve substantial health behavior change, was applied to review existing interventions and resources identified at each level of the Model. Familial attitudes, financial and emotional support, and other social and structural assistance can affect the adolescent mother's ability to improve their own life outcomes related to education, health, and self-efficacy. Recommendations at each level are provided with emphasis on individual feedback for informing quality services, relationship building and understanding cultural differences, community partnerships to improve efficiency of local services, and policies that include adolescents in creating improved sexual health education.

Keywords: adolescent mothers, adolescent parenting, teen parenting, teen services, education, adolescent mothers health, health disparities, Hispanic population

## Introduction

In the last few decades, the US teen birth rate has slowly been declining, however, teen pregnancy is still prevalent. In 2018 the US teen birth rate was 17.4 births per 1,000 girls aged 15-19 years, totaling to 179,871 births (National Vital Statistic Report). California's birth rate was 13.6 births per 1,000 girls aged 15-19 years in 2020 (CDC, 2020). Many studies have observed the health risk for mother and child, but few focus on teen mothers' health and life needs and outcomes as a result of teen pregnancy and subsequently, teen parenting. While scarce, the existing evidence shows the importance of addressing educational, health and psychosocial outcomes of teen mothers, especially those from low-income households or disadvantaged neighborhoods (Assini-Meytin et al., 2018; Killoren et al., 2015; Cox et al., 2005). In addition, few studies have looked at the cultural differences and views of adolescent pregnancy and parenting within the Hispanic population, which are greatly impacted by the teen births, and the effects of familial attitudes, financial and emotional support, and other assistance that can affect the teen mother's ability to improve outcomes related to education, health, and self-efficacy (Killoren et al., 2015).

This paper will examine the existing interventions and resources in California to identify effective and more importantly, desired, strategies to support parenting teen mothers achieve their own personal goals and improve overall health outcomes. In addition, this paper will provide recommendations to help address the gaps in services assisting teen mothers in continuing their educational goals, improving socioeconomic status, decreasing health risks, and improving personal physical, mental and emotional wellbeing.

## Background

California continues to be a top-ranking state with one of the highest teen birth rates in the nation. Teen birth rates are described as the number of births per 1,000 girls aged 15-19 years

(CDC, 2020). Growing research shows the disparities in health outcomes of minority groups, and teen births remain prevalent for Black, Hispanic, Asian and Native American adolescent girls. In 2018, the teen birth rate in California was 13.6 births per 1,000 girls in this age group, in which 23% of those adolescent girls are of Hispanic background, and the birth rate of Hispanic girls of this age range is 23.5 births per 1,000 girls (MIHA 2022).

Teen pregnancy has an adverse impact on both infant and mother. Studies have reported the effects of teen pregnancy on birth outcomes, such as an association with preterm birth and low birthweight, which in turn are associated with neonatal mortality (Gibbs et al., 2012). These outcomes can partially be attributed to biological immaturity, but also to the other health predictors such as socioeconomic status and race/ethnicity. Another study examined adolescent mothers experiencing high rate of repeat pregnancies and adverse birth outcomes, in which 1 in 5 adolescent mothers, were reported more likely to “experience preterm delivery, receive welfare, and have children with emotional and behavioral problems compared to adolescent mothers who do not have repeat teen births” (Manlove, 2011).

Aside from health risks and outcomes, few studies examine the other important factors that influence adolescent mothers’ development such as educational attainment and in turn, socioeconomic status in depth (Harding et al. 2020). In addition, it has been observed that without adequate support in childcare, transportation, parenting teens often miss days from school due to their children's illness, medical appointments, or other needs (McDonell et al., 2007). These are important factors to investigate, especially since 23% of mothers who gave birth between the ages of 15-19 years also lived in high poverty neighborhoods in California (MIHA 2022). Living in high poverty neighborhoods or having low socioeconomic status also affects diet and lifestyle, access to prenatal care, and tobacco use (Ibrahimi et al., 2021).

Another important factor that is lacking in research are the health outcomes of adolescent parents relating to mental health, and as a result self-efficacy or perceived abilities in transitioning into adulthood. Pregnant and parenting adolescents are more likely than their peers to have experienced adverse childhood experiences including disruptive home environments (having a parent in prison, being a victim of or being exposed to physical or sexual abuse), and as a result are at a greater risk for depression than their nonpregnant/parenting peers (Tebb & Brindis, 2022). Depression before, during, and after pregnancy can be assessed, however, since there are various contributing factors and degrees to which mental health can affect an individual, specialized services targeted at mental health can contribute greatly to adolescent mothers' overall health and wellbeing, and ultimately their perceived ability to transition into motherhood and adulthood.

This study aims to review the existing resources that support this population and to provide recommendations to better address the parenting mothers' needs, specifically education attainment goals, health, and overall wellbeing and self-efficacy in their own adolescent development.

*Socio-ecological Model*

**Socio-Ecological Model:  
A Framework for Understanding How to Support Parenting Teens**



When creating and designing effective programs for improving health outcomes, we can use behavior change theories to inform our approach. The Socio-Ecological Model is built on the construct that an individual influences and is influenced by the people, places, relationships and experiences within their environment, and therefore, interventions need multi-level action planning to achieve substantial health behavior change (McKenzie et al., 2016). The Socio-Ecological Model Framework will be used in this paper to further elaborate on the factors that influence the availability and quality of services for parenting teens as well as the existing structured and unstructured supports and interventions at each level. Each of the levels, Individual, Interpersonal/Relationship, Organizational, Community and Policy will be described. Organizational and Community will be discussed as one in this paper, to support the idea that different segmented groups within a community work better in collaboration, rather than in parallel. In order to address the gaps in services for teen parents, it is important to consider the



impact of each of these levels on their own, as well as their interactions with and on each other to better create interventions that can address the target population as a whole.

*Individual Level*

The individual level addresses individual factors such as age, knowledge, beliefs, attitudes, behaviors, biological aspects, etc. At the individual level, there is an opportunity to understand what personal development means to this population, their perspectives of the importance of prioritizing self-improvement, educationally, health-wise and psychosocially, and their knowledge and confidence with transitioning into parenthood and adulthood. This paper will identify effective strategies and best practices for considering these factors when addressing the needs of adolescent mothers.

*Interpersonal/Relationships Level*

At the Interpersonal/Relationship level, it's important to provide personal and individualized services to pregnant or parenting adolescents that are rooted in strong relationships with healthcare and social services professionals. Professionals who interact with this population must recognize the vulnerability associated with their age, life circumstances, and the transition to parenthood which are all high-stress life events. Additionally, this level identifies the types of relationships teen mothers have with individuals within their support system, and how they can create and maintain healthy relationships. This paper will identify effective strategies on how to best create and foster these valuable relationships in every environment such as clinics/hospitals, schools, families, and other community resources.

*Organizational/Community Level*

At the Organizational/Community level, the focus is on the organizational initiatives that can make an impact and reach pregnant and parenting adolescents at the local level. In California

## INTERVENTIONS SUPPORTING TEEN PARENTS IN CA TO REDUCE RELATED HEALTH DISPARITIES

there are several initiatives that pregnant and parenting adolescents can access such as the California Work Opportunity and Responsibility to Kids (CalWorks) and Cal-Learn, which are both provided under the state's Department of Social Services. CalWorks is a public assistance program available and run by each individual county in California, that provides eligible families with money to help with housing, food, and other necessary expenses. All pregnant and parenting teens under the age of 19 who receive aid from CalWorks are required to participate in Cal-Learn. The goal of Cal-Learn is "to encourage pregnant and parenting teens to graduate from high school or its equivalent, become independent, and form healthy families" through case management services, supportive services (child care, transportation, educational expenses) and monetary bonuses based on school attendance and grades. Both are accessible to those who are eligible, however, going through the thorough application process is required and can deter individuals from accessing services needed immediately.

Aside from these larger scale programs, we can also review local and community-based services. San Diego County, for example, had a birth rate of 11 births per 1,000 girls in 2018, in which 72% of girls were Hispanic. In San Diego, there are programs like the San Diego Youth Services Teen Options organization that supports pregnant and parenting teens with counseling, parenting classes, and on-site childcare, however, eligibility requirements specify that "participants must have current or history of a drug or alcohol problem" and must enroll before their 18th birthday. San Diego Unified School district also hosts the California School-Age Families Education (Cal-SAFE) Program, and provides similar services, however, operates more as a referral network and connects students with more flexible education placement options in the district. Only two schools are listed within the district. While the community is fortunate to have these programs, they may not be physically accessible or they may not be enrolled in the

San Diego Unified School district. In this case, having more community-based options spread throughout the county could help reach more pregnant and adolescent teens. This paper will provide effective strategies for how community-based programs can operate efficiently, work in collaboration with one another, and reach parenting mothers who may struggle with accessing services.

### *Policy Level*

Policy level initiatives and changes can make the most impact on pregnant and parenting adolescents. Policies can make large scale laws that can provide affordable and accessible reproductive health services, obstetrics, and infant care services. Policies relating to federally funded programs such as the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) and other necessities can also alleviate income-based deficits that newborns require, such as food, diapers, and child care support. This paper will examine the previous and existing policies that affect adolescent mothers and make recommendations on best practices that can create accessible, inclusive, and comprehensive services.

In order to identify desirable and effective strategies for supporting adolescent mothers to achieve their own personal goals and improve overall health outcomes, this paper will examine the existing interventions and resources within the state of California. In addition, this paper will address the gaps in services to best assist parenting teen mothers in continuing educational goals, improving socioeconomic status, decreasing health risks, and improving personal wellbeing and mental health.

## Methods

A scoping review was conducted on the scholarly published articles, national data, organizational webpage and other publicly available resources to identify existing resources and interventions related to adolescent parenting services and to identify effective evidence-based strategies that can inform practical interventions.

The literature review was conducted using the Scopus and Pubmed databases with the following keywords: ( teen AND mother AND services AND education )

adolescent AND pregnancy AND parenting AND services AND intervention AND mexican OR hispanic AND California AND ( LIMIT-TO ( AFFILCOUNTRY , "United States" ) )

Articles were chosen based on relevance to pregnant and parenting adolescents focusing on the mother only. Articles focusing solely on teen pregnancy and teen pregnancy prevention were excluded. A secondary search included the keyword: “California” to identify studies conducted on California communities with high rates of adolescent pregnancy and teen mothers. Relevant articles were also found through the recommended, cited and “article cited by” features on Scopus. California statistics were found on the California Department of Public Health (CDPH) website and national data were found on the Center for Disease Control and Prevention (CDC) website. California and national policy as well as state and federal programs relating to the target population were found via google search.

Information regarding a local community non-profit organization, Learn4Life Charter School’s Helping Our Parenting-students Excel (HOPE) Program was obtained during the author’s internship with Learn4Life as part of her Master’s in Public Health program fieldwork requirement.

## Results and Recommendations

The Socio-Ecological Model was used to organize interventions and resources that were identified during the search with recommendations provided at each separate level.

### *Socio-Ecological Model*

#### *Individual Level*

Addressing adolescent parenting at the Individual level, the voices of each individual must be heard clearly. Cox et al. (2005) conducted a qualitative study using focus groups to examine the perceptions of medical care, social services, and psycho-educational services among 16 teen mothers who were of African American, Latina and Haitian descent living in New England. Results of this study showed that these teen mothers sought more comprehensive health services in a teen-focused hospital setting and trusted this setting more compared to private practicing doctors. Participants shared about wanting more specific information regarding the fetal and infant development, as well as what to expect with pregnancy and raising a child. Many participants also expressed wanting specific information about exercise during pregnancy, which could help prepare them for the delivery and help with accepting about their changing body, feeling depressed and wanting to stay active to boost self-esteem. Additionally, participants shared wanting consistency with doctors for their children, as well as social services for themselves to support their need of finding housing, jobs, childcare, education and a way to pay for college, and food.

Cox et al. (2005) demonstrated an understanding of what services affected their specific population and the goals they want to achieve, and as a result were better informed on the youth preferences for prenatal and teen parenting services. This strongly exemplifies the importance of looking at the individual needs within a community, and also outlines the value of mental health,

relationships with healthcare professionals, and comprehensive social services on improving health outcomes for parenting adolescents.

Another study by Assini-Meytin et al., (2018) looked at the perceived identity of adolescent mothers and the association between psychosocial maturity and socioeconomic trajectories. They found that among teen mothers, perceiving themselves to be older than others of their age is a major component in assuming adult roles toward their education and financial independence, which ultimately may impact their socioeconomic attainment. While only two studies have researched the perception of psychosocial maturity and associated socioeconomic trajectory, (Assini-Meytin et al., 2018; Benson et al., 2012), both studies highlight the importance of perceived maturity, independence, and transition to adulthood which is worth further investigation towards informing support for parenting mothers.

#### *Individual Level Recommendations*

Case studies and focus groups provide rich and meaningful information regarding available, accessible and useful services as well as duplicate services and gaps in services (Purington et al., 2020). Recommendations for existing and future interventions are to prioritize gathering data from local feedback on the health literacy, desired services for pregnant and parenting adolescents, and perceived readiness and transition into adulthood. At the individual level, public health and healthcare professionals can utilize focus groups and in-depth interviews within their local communities to better understand what pregnant and parenting adolescents are typically seeking regarding health and social services and how to best support them through the transition into parenthood. Recommendations for further elaboration and focus on the Hispanic population regarding the psychosocial maturity could also contribute to the cultural differences and perceptions of adolescent parenthood within this highly affected group.

*Interpersonal/Relationships Level*

Addressing adolescent parenting at the Interpersonal/Relationships level requires examination of social support from family, friends, and other individuals in their environment. A study done by McDonnell et al. (2007) demonstrates a strong evidenced-based practice through an intensive program in South Carolina for parenting teens living in distressed communities. The Intensive program, called the Pathways Program, provided participants with case management, support groups, family group decision making, life skills education and training, leadership development and related services for low-income teen parents. One significant result of the study was a reduction in subsequent pregnancies among participants, which was not observed in previous studies. McDonnell et al. outline the strengths of providing services rooted in mentorship and building trust to provide quality and valued services for adolescent mothers.

Additionally, in Cox et al.'s study, adolescent mothers who participated in the parenting focus groups found value in meeting with other girls their age, sharing in the same experiences, discussing stressors, and having other girls to relate to and "not feel so alone" (2005). They also valued the social worker with whom they were able to build a relationship with during the program, which helped with emotional well-being during and after pregnancy. Cox et al.'s findings provide strong evidence for the importance of fostering these types of relationships for parenting adolescents and provide a safe space as they navigate their transition into parenthood.

*Cultural Lifestyle*

Some studies have sought to understand how cultural beliefs, attitudes and traditions affect teen pregnancy rates and teen parenting norms, which has shown varying results among different Latinx subgroups. For example, in one study, foreign-born Latinas who were not currently pregnant showed more positive attitudes towards teenage childbearing and "greater pregnancy wantedness" compared to US-born Latinas (Unger et al., 2000). This perceived

positivity towards adolescent pregnancy may contribute to the high birth rates examined among the Hispanic and Latin populations in the US.

In a 2015 study, Killoren et al. examined the cultural context of teen pregnancy among Mexican American adolescent mothers to inform culturally sensitive intervention programs towards improving their outcomes, and on a larger scale, reduce the incidence of teen pregnancy among at-risk adolescents within this population. The authors also outlined three observed cultural orientations: 1.) acculturation in which individuals adapted to the mainstream U.S. culture, 2.) enculturation in which individuals retained the culture of origin, and 3.) bicultural in which individuals demonstrated behaviors associated with both Latino and American culture. The authors used in-depth interviews to investigate family values, gender role attitudes, support received and support needed, educational expectations and overall parenting efficacy at 10 months postpartum.

One notable outcome of this study describes the mother's changing expectations of pursuing educational goals post-partum, and saw that encultured adolescents had the least positive attitudes toward teen pregnancy and had the lowest educational expectations at 10 months postpartum compared to other adolescents, Authors attribute this to the limited economic resources and family support, which increased their likelihood of low educational expectations.

Another important outcome of this study describes the reported level of self-efficacy of the participants. Authors found that the acculturated adolescents with positive attitudes toward teen pregnancy reported the highest levels of parenting efficacy compared to adolescents in the other profiles. They also had the highest relative family income and high levels of pregnancy support compared to those in other profiles. Authors demonstrate the importance of having a



diverse source of support, such as economic and social, during pregnancy for adolescent mothers.

*Interpersonal/Relationship Level Recommendations*

Recommendations for programs, interventions, and services within a given community are to emphasize the importance of relationship building for adolescent parents, whether that is within their own social circle or with those providing the services they seek. Social workers, healthcare professionals, and other community organization members must understand the value of building and maintaining these relationships in order to improve the emotional and social support adolescent mothers need. It is also important to understand cultural attitudes towards informing the services that can best support adolescent mothers. When looking specifically at Mexican-origin and other Hispanic communities, emphasis on the social relationships and family dynamics, as well as household income, should all be considered when creating quality community services that provide education counseling to improve educational attainment outcomes and parenting workshops to improve parenting self-efficacy.

*Organizational/Community Level*

Through the author's internship with a non-profit charter school, Learn4Life, information regarding the HOPE program was collected through a project assessing the needs of San Diego County based on local teen birth rates. The HOPE program supports parenting high school students to complete their high school diploma while also receiving specialized support for life skills, child development, health, food and nutrition and financial planning. Most notably, parenting students are able to learn in a classroom designed to be child-friendly, in which students can continue their studies while their children play, rest, and learn together with other parenting students' children. This reduces the burden of finding child care, whether it be due to

finances or trusted care of their child, in order for parenting students to focus on and pursue their education. The rooms are designed for small classroom sizes, allowing individualized attention for both students and children. The HOPE program also partners with local community resources to provide parenting students with diapers, clothing, formula, childcare and other necessities. Data was organized by region to identify San Diego county's highest birth rates from 2018-2020 to inform the need for extension of services for adolescent parents in future years (see Appendix A, Table 1-3, Figure 1-3).

Purington et al. (2020) describe the unrealistic nature of parenting teens obtaining necessary services from one one single school or health service provider, and the challenges they face with accessing disjointed services across multiple sectors. The authors conducted a study on Pathways to success (Pathways), a network of services, funded by the federal Office of Population Affairs Pregnancy Assistance Fund in New York aiming to “create and improve supportive systems that promote academic achievement and health for young families.” The partnership included a school district serving a “racially, ethnically, and socioeconomically diverse student body” with an estimated 630 female high school students in this district giving birth each year. Purington et al. identified how the different networks of supports could work in collaboration, instead of in isolation, towards understanding how systems-level change can be implemented, maintained, and replicated.

Through in-depth interviews of focus group participants, key informants, and program coordinators, key findings of Purington et al.'s study related to valuable yet inaccessible services, such as family support services (FSP) that would provide child care and early childhood education to allow parents to continue their high school education and the school-based health centers (SBHC) which provided primary and mental health services. Participants describe

coordination and communication as one of the largest barriers for pregnant and parenting students. They faced challenges accessing and utilizing important services in their school community, stating a disconnect between the two complementary services, despite their locations in the same hallways at participating schools in the district. As a result, students felt unaware of services intended to help them continue in school, and were uncertain of how the two services were connected. Through various needs assessments and evaluations, the Pathways program coordinator identified strategies such as professional development team-building training focused on communication, team culture and trust among group members which led to an increase in communication (now daily) between the FSP and SBCH, improvements with student referrals and overall access to services.

At the Organizational/Community level, there may also be differences in what large scale, federally funded organizations implement when assisting adolescent mothers. In Cox et al.'s (2005) study, many participants explained their dissatisfaction with WIC and the lack of nutritious options available to them, which contributed to the challenge of maintaining healthy eating habits. The parenting teens expressed frustration with the lack of diverse food options, especially being unable to find the foods recommended to them by hospital staff. Suggestions from participants included having the hospitals provide vouchers for local markets to obtain healthy food options for them and their newborns.

#### *Organizational/Community Level Recommendations*

Regular evaluation and understanding of the adolescent pregnancy prevalence within a community like San Diego County, provides evidence for the need of programs like HOPE. The HOPE Program is a great example of what schools can implement in the classroom towards improving education outcomes for adolescent parents. Recommendations for providing other

community-based services, as seen in the HOPE program, like childcare and child education, counseling, and basic necessities, reduces the challenges adolescent parents face when choosing to focus and prioritize their education. Other recommendations for community organizations and local clinics are to create partnerships through liaisons or program coordinators across all related and associated services to build an efficient network of communication and referral systems and identify gaps in services. Additionally, community organizations, including federally funded organizations like WIC, and local clinics should create partnerships with local grocery stores and farmers markets to provide reasonable and affordable nutritious food items to adolescent mothers and their infants.

#### *Policy Level*

The literature is lacking in recent and up to date research on policies relating to interventions for adolescent mothers. Several policy-related articles date back to the 80's and 90's and mostly investigated teen pregnancy prevention and the potential for different approaches to prevention such as abstinence only, contraception and other comprehensive sex education in schools (Mitchell and Brindis, 1987; Roemer and Paxman, 1985). While decades in the making, it successfully paved the way for what is currently in place, as of 2017, in 30 of the US states, including California. Wacker and Gabrell (1994) and (Aber et al., (1995) looked at interventions providing teen parents who were already receiving welfare assistance with more specialized services that included case management, parenting workshops, child care assistance, and education and training opportunities. Aber et al. details the start of the Teenage Parent Welfare Demonstration, which began the “welfare-to-work” program movement adopted by several states in the coming years. Programs like these need to provide long-term services towards seeing long-term solutions that develop necessary life skills. As a result, teen mothers

can better maintain healthy relationships, manage stress, and improve communication which all play a role in pursuing education and career goals while managing a family.

### *Policy Level Recommendations*

A more recent comprehensive review of U.S. pregnancy prevention strategies was conducted in 2020, and while still addressing prevention, outlines recommendations that also apply to adolescent parenting services. Brindis et al. recommends (1) improving the “content, quality, and sustainability” of sexual health education, (2) youth-centered program planning that recognizes and supports adolescents’ role as program leaders, (3) utilization of technology to improve health literacy, (4) improving access to clinical and health services through other delivery options such as telehealth, and (5) creating and implementing programs that recognize and actively address structural racism, health equity, and inclusion. These five recommendations encapsulate solutions to individual, interpersonal and community level barriers that all work together under the reform of policies that actively address each level’s concerns. Policies that follow these recommendations consider the individual factors, the importance of building and maintaining meaningful relationships within the interpersonal and community levels, and the quality of services and resources accessible in adolescents’ communities.

## **Public Health Implications and Discussion**

Having a systems-level approach considers all the factors that influence the development of adolescent mothers as they transition into adulthood and parenthood. More specific services tailored to education, parenting, and life skills will greatly increase the self-efficacy needed to succeed as adolescent mothers. With the high prevalence of teen pregnancy and parenting affecting different ethnic groups, there is a large need for cultural competency within the healthcare and social services systems to improve services at the community level. Future studies

should investigate the long term effects of community-based interventions for adolescent mothers. Additionally, only the Hispanic and Mexican-origin population were examined in this study, with more research needed on other groups to better understand the role of cultural attitudes and values across the nation, and within rural vs. urban communities to better inform community services.

### Socio-Ecological Model: Recommendations at Each Level



#### *Improving the Systems Level Approach*

For community organizations and public programs, it will be beneficial to create cohesion between all associated entities. Many communities have existing programs with varying services, which make it difficult for parenting teens to identify and understand what is offered versus what they desire. Purington et al. (2020)’s example of having a designated coordinator who oversees the collaboration between partnered programs, program coordinators and services will create efficiency and smooth referral transitions for individuals seeking services. The coordinators will also be knowledgeable in all services offered to avoid duplicate

services and redirect funding and attention to other important services. Coordinators will also support with program evaluations and understanding what services are being more widely used and may need more funding, staffing, or expansion to other parts of a given area.

Purington et al. (2020) exemplified the importance of building communication and trust early on among all associated organizations, through team-building training and sharing list of services for full transparency and efficiency among referrals. Their evaluation of the Pathways program's systems-level approach also considered sustainability among interpersonal program relationships. Designating regular communication via phone call or in-person meetings will also allow for up to date information, allowing organizations to review any changes/updates to services, staffing shortages, or other logistics that may affect parenting teens' ability to access services.

### ***Improving Education and Self-Efficacy Outcomes***

Killoren et al. (2015), Cox et al. (2005), McDonnell et al. (2007), and Purington et al. (2020) all emphasized the importance of surveying the local community to better understand the desired services and barriers parenting teens face within their local communities, as well as understanding the health literacy of the population. Across the board, education supports, childcare, and mental health services were all important, and unmet in each of the studies. However, parenting teens who did report utilizing any of these services emphasized their ability to pursue educational goals and could not have self-managed without them.

In addition, school districts can collaborate with local community colleges to assist parenting teens with transitioning into higher education through specialized bridge programs. Two of the studies focused on programs or school districts that collaborated with local community colleges towards improving educational and career developing skills parenting teens

struggle to access on their own (citation). School-based programs can create bridge programs with local community colleges and trade schools to provide a wider array of options if traditional university education is desired.

### ***Incorporating Cultural Competency***

Killoren et al. (2015) sheds light on the importance of understanding cultural values, attitudes and beliefs, especially as it relates to family, adolescent pregnancy and gender roles. These may differ significantly from the traditional Western views and can inform public health professionals, healthcare workers, and community members of how to best approach a community with a large Hispanic population, or other minority group. An emphasis on the social relationships and family dynamics, as well as household income, should all be considered when creating quality community services that provide education counseling to improve educational attainment outcomes and parenting workshops to improve parenting self-efficacy for all adolescent parents.

### ***Limitations***

The literature reviewed in this paper focused primarily on adolescent mothers, and did not include or explore the effects of adolescent parenting on fathers or cohabitating adolescent parents. Additionally, all of the studies examined followed adolescent mothers for short periods of time, either during pregnancy and after birth, and up to 24 months postpartum. Lastly, while Hispanic and Mexican-origin cultural attitudes and cultures were examined, this may not be generalizable to the larger population of minority groups, and only shows the potential for observed differences in various pregnant and parenting adolescents of other ethnicity groups. Further research is needed in each of these areas to create a larger picture of the gaps in services



needed for adolescent fathers, cohabitating adolescent parents, and other affected minority groups.

## Conclusion

Adolescent mothers require a diverse set of services to ensure their long-term success as they transition into parenthood and adulthood. Public health and healthcare professionals need to prioritize implementing programs in communities that are low income, there is a high rate of adolescents exposed to adverse childhood experiences, communities with a large Hispanic population that has mixed attitudes and values towards adolescent pregnancy based on cultural differences. Recommendations for existing and future programs are as follows:

- At the Individual level, recommendations for programs and interventions are to prioritize local feedback of desired services, health literacy and perceived readiness and transition into both adulthood and parenthood. Further elaboration and focus on the Hispanic population regarding psychosocial maturity will contribute to understanding the cultural differences and perceptions of adolescent parenthood within this group.
- At the Interpersonal level, recommendations are to focus on the importance of relationship building for adolescent parents and to improve self-efficacy through parenting workshops towards improving emotional and social support adolescent mothers need.
- At the Community level, school districts can prioritize implementing classrooms that have childcare and child education, and counseling. Additionally, community organizations, local clinics, federally funded organizations, and local farmers'

markets need to create partnerships to build an efficient network of communication and referral systems.

- At the Policy level, policymakers should improve the content and quality of sexual health education and should include youth in programming planning. Policymakers should also use technology to improve health literacy and improve access to clinical and health services through other delivery options such as telehealth. Policymakers also need to create and implement programs that recognize and actively address structural racism, health equity, and inclusion.

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## Appendix A: Hope Program

Table 1: 2018

County	"Births to Girls 15-19"	"Population of Girls 15-19"	Birth Rate (per 1,000 population)
<b>Central</b>	<b>221</b>	<b>14,644</b>	<b>15.1</b>
East	169	13,533	12.5
North Central	63	20,761	3.0
North Coastal	199	15,488	12.8
North Inland	180	18,711	9.6
<b>South</b>	<b>257</b>	<b>16,141</b>	<b>15.9</b>
Unknown	<5	-	-

Table 1: 2018 Birth rates for San Diego County region, highlighting the two regions with the highest birth rates.

Figure 1:

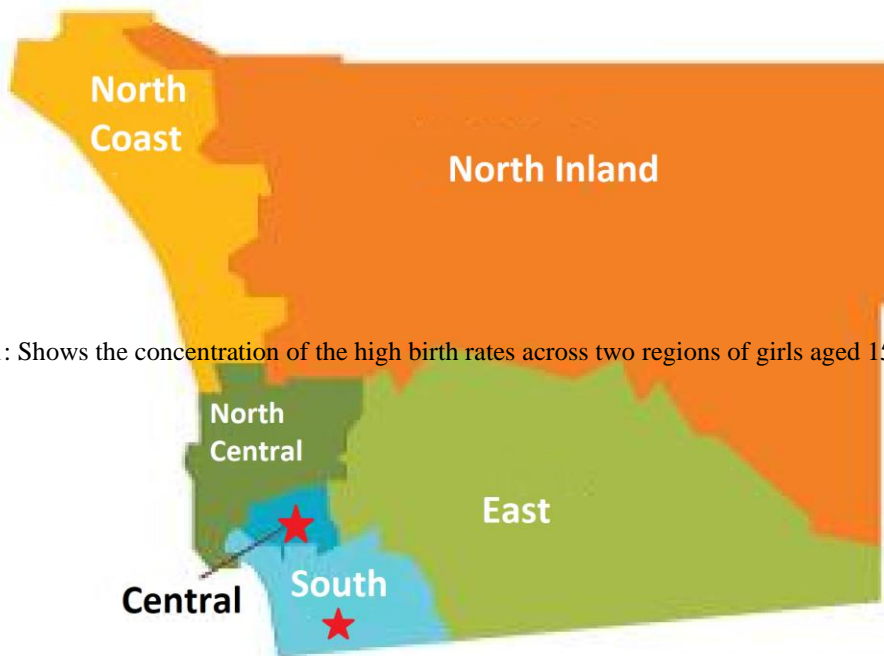


Figure 1: Shows the concentration of the high birth rates across two regions of girls aged 15-19 years.

Table 2: 2019

County	"Births to Girls 15-19"	"Population of Girls 15-19"	Birth Rate (per 1,000 population)
<b>Central</b>	<b>201</b>	<b>14,743</b>	<b>13.6</b>
East	129	13,506	9.6
North Central	61	20,613	3.0
<b>North Coastal</b>	<b>200</b>	<b>15,488</b>	<b>12.9</b>
North Inland	179	18,742	9.6
<b>South</b>	<b>208</b>	<b>16,207</b>	<b>12.8</b>
Unknown	8	-	-

Table 2: 2019 Birth rates for San Diego County region, highlighting the three regions with the highest birth rates.

Figure 2:

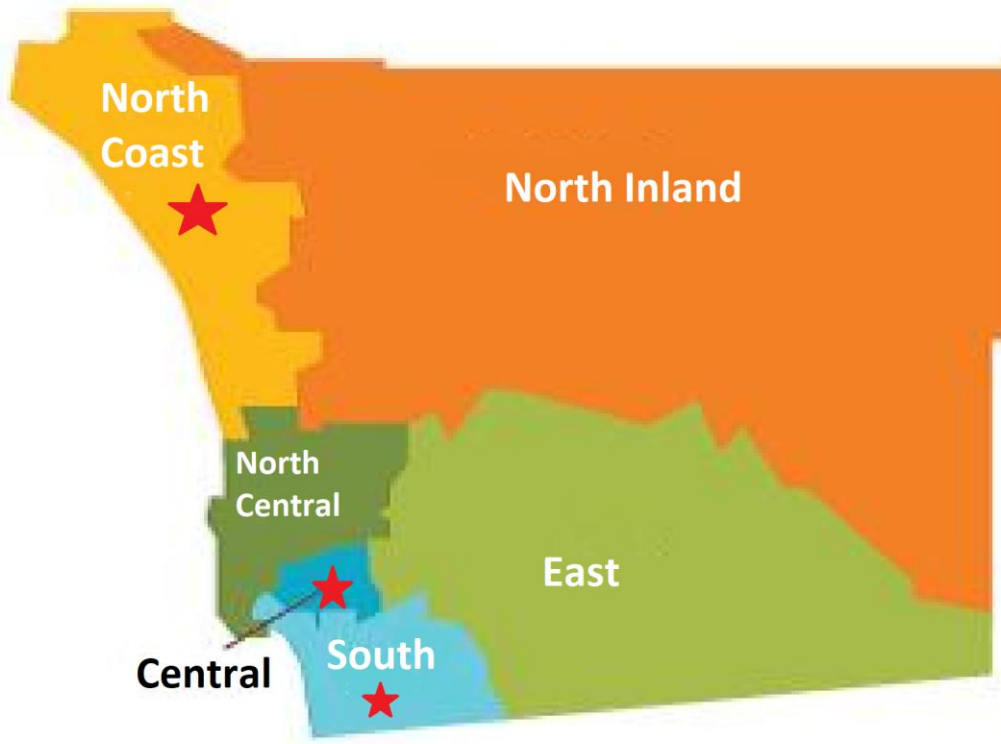


Figure 2: Shows the concentration of the high birth rates across three regions of girls aged 15-19 years.

INTERVENTIONS SUPPORTING TEEN PARENTS IN CA TO REDUCE RELATED HEALTH DISPARITIES

Table 3: 2020

County	"Births to Girls 15-19"	"Population of Girls 15-19"	Birth Rate (per 1,000 population)
<b>Central</b>	<b>184</b>	<b>15,086</b>	<b>12.2</b>
East	147	13,351	11.0
North Central	52	20,511	2.5
North Coastal	172	15,423	11.2
North Inland	142	18,764	7.6
<b>South</b>	<b>204</b>	<b>16,388</b>	<b>12.4</b>
Unknown	<5	-	-

Table 3: 2020 Birth rates for San Diego County region, highlighting the two regions with the highest birth rates.

Figure 3:

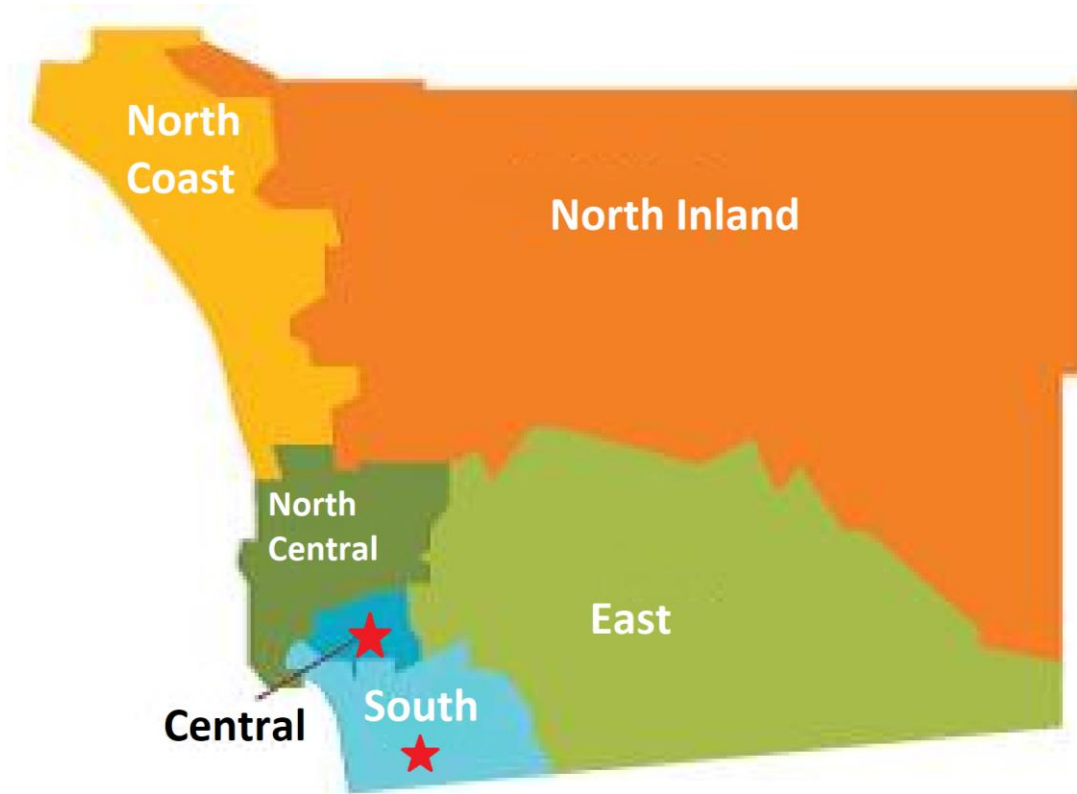


Figure 2: Shows the concentration of the high birth rates across two regions of girls aged 15-19 years.



## Appendix B: MPH Competencies

### CEPH Foundational Competencies

Competency	
<b>Evidence-based Approaches to Public Health</b>	
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software as appropriate	
4. Interpret results of data analysis for public health research, policy and practice	Existing research, interventions and programs were examined to identify recommendations to improve services for adolescent parents.
<b>Public Health &amp; Health Care Systems</b>	
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings	
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels	
<b>Planning &amp; Management to Promote Health</b>	
7. Assess population needs, assets and capacities that affect communities' health	Needs of San Diego County were assessed through evaluation of teen birth rates across all regions to support the HOPE Program.
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	
9. Design a population-based policy, program, project or intervention	
10. Explain basic principles and tools of budget and resource management	
11. Select methods to evaluate public health programs	
<b>Policy in Public Health</b>	
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence	

INTERVENTIONS SUPPORTING TEEN PARENTS IN CA TO REDUCE RELATED HEALTH DISPARITIES

13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	
14. Advocate for political, social and economic policies and programs that will improve health in diverse populations	Recommendations include improving policies related to sexual health education and accessible health services that include youth and address health equity and inclusion.
15. Evaluate policies for their impact on public health and health equity	Policies relating to health education and other supplemental programs are evaluated, as they pertain to adolescent parents.
<b>Leadership</b>	
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making	
17. Apply negotiation and mediation skills to address organizational or community challenges	
<b>Communication</b>	
18. Select communication strategies for different audiences and sectors	
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	Presentation for the public health community based on this paper
20. Describe the importance of cultural competence in communicating public health content	Emphasis was on understanding the cultural values and attitudes towards adolescent pregnancy and parenting within the Hispanic population.
<b>Interprofessional Practice*</b>	
21. Perform effectively on interprofessional teams	
<b>Systems Thinking</b>	
22. Apply systems thinking tools to a public health issue	The Socio-Ecological Model applied to the literature review and evaluation of interventions, with recommendations at each level and as a whole.

**MPH - Community and Public Health Practice Competencies**

Competency	
1. Evaluate the uses of different asset identification methods in helping communities address public health and environmental issues.	Studies were examined to identify effective strategies for supporting adolescent parents.
2. Analyze how issues of power, race and ethnicity, sex and gender identify, and socioeconomic factors affect the development, implementation, and evaluation of community-based projects.	
3. Develop a research project proposal using mixed methods to address a public health problem	
4. Apply project management strategies to improve the quality of programs and services in public health settings	
5. Identify environmental health risks in vulnerable communities and examine strategies to reduce exposures	