LEARNING OBJECTIVES

- Identify key risk factors associated with poor birth outcomes
  - Individuals
  - Communities/systems
- Identify social determinants of health for birth outcomes
- Identify geographic variation in WIC services
OVERVIEW

- Background Studies
  - Infant Mortality
  - Premature Birth

- Social & Environmental Determinants of Health

- Description of WIC mothers
  - Population differences
  - Geographic differences

- Discussion of WIC services
BACKGROUND: FRESNO COUNTY INFANT MORTALITY

- 87% increase in infant mortality among African Americans from 2007 to 2013

- Collaboration between First 5 Fresno, California and the Central Valley Health Policy Institute
3.13 times a higher infant mortality rate for African Americans than white residents in Fresno County (2013)

- 8.1 per 1,000 live births for white residents
- 25.3 per 1,000 live births for African American residents

Persons enrolled in Medi-Cal are nearly at 50% higher risk than mothers who are privately insured
INFANT MORTALITY RATES, FRESNO COUNTY

Fresno County Zip Codes, 2013

City of Fresno Zip Codes, 2013

Infant Mortality Rate by Zip Code

- 0.0 - 7.99
- 8.0 - 9.99
- 10.0 - 11.99
- 12.0 - 21.13

Map created on November 2, 2015 at HealthyCity.org (c) 2011 Advancement Project. All Rights Reserved.
PREDICTORS OF INFANT MORTALITY

Risk
- Previous premature birth
- African American
- Maternal age older than 35 years
- Inter-pregnancy interval less than 33 months

Protectant
- Enrolled in WIC
- 4-year college degree for women older than 22 years of age
QUALITATIVE FINDINGS

African American Women Focus Groups
- Lack of transportation, flexible jobs, education opportunities, unsafe neighborhoods (day-to-day challenges)
- Little to no social support, community is a source of judgement
- Socio-economic differences in quality of care and experiences at clinics

Health and Human Services Professional Interviews
- Economic uncertainty
- Lack of transportation
- Cultural barriers (staff does not reflect population)
- Reduction in funding
PREMATURE BIRTH

- Premature birth < 37 gestational weeks

- Mothers aged 15 to 40 who reside in one of the San Joaquin Valley counties (Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare)

- Birth between 2009 - 2013
DATA AND APPROACH

- Individual-level data
  - Birth Statistical Master Files

- Community-level data
  - Census.gov
  - CalEnviroScreen
  - Regional Opportunity Index

- Approach
  - Apply statistical methods to identify individual and community characteristics that are strongly associated with specific health outcomes
PREDICTORS OF PREMATURE BIRTH

Individual

• Black/African American (risk)
• Medi-Cal (risk)
• Smoker (risk)
• Hypertension (risk)
• Short Inter-pregnancy Interval (risk)
• 4-year Degree (protectant)
• Enrolled in WIC (protectant)

Community

• Economic Opportunity (Protectant)
• Poverty (risk)
• Diesel Particulate Matter (risk)
WIC BENEFICIAL TO BIRTH OUTCOMES

- Adjusting for community and individual-level factors, WIC is a protectant factor against premature birth, low-birth weight, and infant mortality
WHAT ARE THE SOCIAL DETERMINANTS OF HEALTH?

Discuss the following in a group:

1. What are the social determinants of health?

2. How do the social determinants of health contribute to birth outcomes?

3. How do you contribute to health outcomes? How does your organization contribute to health outcomes?
SOCIAL DETERMINANTS OF HEALTH (SDOH)

Place, Economic and Social History. Individual and Structural Racism, Classism

Current & Cumulative Exposure to Living Conditions, Resource Access, and Civic Voice Inequities

Health Inequities by Class, Race/Ethnicity, Gender and Age

Overall Lower Survival and Health

Individual Health Behavior and Service Use
SDOH FOR YOUNG WOMEN

Place, Economic and Social History, Individual and Structural Racism, Classism

Current & Cumulative Exposure to Living Conditions, Resource Access, and Civic Voice Inequities

Health Inequities by Class, Race/Ethnicity, Gender and Age

Birth Outcome

Individual Health Behavior and Service Use
Disparities and Inequities

Disparity

- The quantity that separates a group
- Is there a difference in health status rates between population groups?

Inequity

- The unjust distribution of health determinants, outcomes, and resources regardless of social standing
- Is the disparity in rates due to differences in social, economic, environmental or healthcare resources?
DISCUSSION OF DISPARITIES AND INEQUITIES

1. What is a major disparity in your organization?
   - Who do you serve?

2. What is a major inequity in your organization?
   - Where are your facilities located?
   - What services does each facility provide?
SOCIAL DETERMINANTS OF HEALTH AND WIC

- Demographic information of WIC mothers
- Where do WIC mothers live?
- Which determinants of health exist in these communities?
- What are the predictors of WIC births?
## WIC Mothers of the San Joaquin Valley

### Percentage of WIC Mothers Birth Race/Ethnicity by Age

<table>
<thead>
<tr>
<th>Indicator</th>
<th>19 and younger</th>
<th>20 to 29</th>
<th>30+</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>13%</td>
<td>65%</td>
<td>22%</td>
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<tr>
<td>Hispanic/Latina</td>
<td>16%</td>
<td>57%</td>
<td>27%</td>
</tr>
<tr>
<td>African American</td>
<td>18%</td>
<td>61%</td>
<td>20%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>11%</td>
<td>63%</td>
<td>26%</td>
</tr>
<tr>
<td>Other</td>
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<td>62%</td>
<td>19%</td>
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<tr>
<td>Total</td>
<td>16%</td>
<td>59%</td>
<td>26%</td>
</tr>
<tr>
<td>Indicator</td>
<td>Medi-Cal</td>
<td>Private</td>
<td>Other Payer</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>White</td>
<td>67%</td>
<td>23%</td>
<td>10%</td>
</tr>
<tr>
<td>Hispanic/Latina</td>
<td>82%</td>
<td>12%</td>
<td>5%</td>
</tr>
<tr>
<td>African American</td>
<td>77%</td>
<td>13%</td>
<td>9%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>76%</td>
<td>20%</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>70%</td>
<td>17%</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>79%</td>
<td>15%</td>
<td>6%</td>
</tr>
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</table>
Percentage of WIC Mothers Birth Race/Ethnicity by Birth Outcome

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Low-birth weight</th>
<th>premature birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>Hispanic/Latina</td>
<td>6%</td>
<td>9%</td>
</tr>
<tr>
<td>African American</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>7%</td>
<td>9%</td>
</tr>
</tbody>
</table>
GEOGRAPHIC VARIATION OF WIC BIRTHS

Percentile Rank of WIC Births by Zip Code of Mother’s Residence

0 - 64
65 - 74
75 - 84
85 - 100

Note. Fresno City Limits
PREDICTORS OF WIC BIRTHS

- 20% of variation in WIC births is accounted for by zip codes

- What does this mean?

- This means that we learn a significant amount of information by learning a mother’s zip code:
  - Level of poverty
  - Culture
  - Economic opportunity
  - Social circumstance
PREDICTORS OF WIC BIRTHS

Individual

- Race/Ethnicity
- Mother’s Age
  - Varied by community
- Insurance Coverage

Community

- Poverty
DISCUSSION #1

1. Are services being provided systematically across facilities? If not, why not?

2. Does this contribute to health disparities/inequities?
DISCUSSION #2

1. What type of referrals are being made and do you refer mothers every time?

2. What are the qualifications for the referral?
1. Does your facility employ women who represent the community that is being served?
CONCLUSION

- WIC services play an important role in the social determinants of health and for the trajectory of the life course
THANK YOU!