Central Jersey Family Health Consortium
Continuous Quality Improvement
Data Report 2013

Prepared by

Mei-Chia Fong, PhD
Manager of Data and Evaluation

Angela Centellas
Data and Evaluation Analyst

Robyn D’Oria, MA, RNC, APN
Executive Director

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The authors gratefully acknowledge the assistance of Velva Dawson, MPA, and Diana Robinson, MA, for editorial assistance in the preparation of this report.

Graphics and Design
Angela Centellas & Mei-Chia Fong
Eileen Allen, MSN, RN, FN-CSA
Monmouth County
Prosecutor's Office

Michael Blatt
Preferred Behavioral Health of New Jersey

Carla Boyle, RN
Robert Wood Johnson University Hospital

Alyce Brophy, RN, MPH
Community Visiting Nurse Association

Patricia Cash
Interfaith Hospitality Network of Ocean County

Kathleen Cook, RN
Robert Wood Johnson University Hospital-Hamilton

Carlos Cordero, MSW, LCSW
Eric B. Chandler Health Center

Yesenia Duarte
Visiting Nurse Association of Central New Jersey Community Health Center

Arthur Factor, MD
Highland Park Pediatrics

Wayne Fellmeth, MD, FAAP
Hunterdon Pediatric Associates

Cindy Ferraro, MSN, RNC, APN
Somerset Medical Center

Kathleen Fisher, RN
Family Planning Center of Ocean County

Margaret Fisher, MD
Monmouth Medical Center

Donna Fitzpatrick, RN
Kimball Medical Center

Angie Gaeta
L.E.A.P., Inc./Early Head Start

Fran Gallagher, MEd
American Academy of Pediatrics/New Jersey Pediatric Council on Research and Education

Deborah Gash, MS, RN, CS
Middlesex County Health Department

Sara Gogan, RN
VNA of Central Jersey

Tamar Gottlieb
Yad Rachel

Michael Graff, MD
Jersey Shore University Medical Center

Pam Graziaidei, MSN, RN
Capital Health System

Gabriele Hallbauer, RN
CentraState Medical Center

David Henry
Monmouth County Regional Health Commission

Jennifer Hollander, RN
University Medical Center of Princeton at Plainsboro

Eileen Horton, MSN, MSM, RN
Capital Health System

Antonia Lewis
New Jersey Health Care Quality Institute

Deborah Mahoney, RN
Raritan Bay Medical Center

Kelly Mitchell
Ocean County Department of Human Services

Laurie Navin
March of Dimes New Jersey Chapter

Dana O’Connor, RN
Long Beach Island Health Department

Barbara Ostfeld, PhD
Robert Wood Johnson Medical School, Rutgers University

Jennifer Rocheskey, RN
Southern Ocean Medical Center

Kristine Rovell, RNC, MSN
Riverview Medical Center

Lisa Schelesinger, RN
Community Medical Center

Jean Shafto, RN
Ocean Medical Center

Marta Silverberg, MA, MBA, FACHE
Monmouth Family Health Center

Robin Simmons, RN, BSN
Plainfield Health Center

Sharon Stechna, MD
Robert Wood Johnson Medical School, Rutgers University

Denise Stevens
Prevention First

Stephen S. Schuster, MD, FACOG
Center for Health Education Medicine and Dentistry

Liz Walter
Long Branch Concordance

Janet White-Hunt
Jewish Renaissance Foundation

Lisa Wilson
Long Branch Concordance

Nancy Tham, MD
Ocean Health Initiatives

Sharlene Wolfe, MS, RN
Saint Peter’s University Hospital

John Worobey, PhD
School of Environmental and Biological Sciences, Rutgers University

Ardath Youngblood, RN
Hunterdon Medical Center
Karen Adamczyk, BSN, RNC-NIC  
Capital Health

Elena Ashkinadze, MS, CGC  
Rutgers-Robert Wood Johnson Medical School

Diane M. Attardi, MD, FAAP  
The Children's Hospital at Monmouth Medical Center

Eduardo Bautista, MD  
Jersey Shore University Medical Center

Renee Booze-Westcott  
NJ Department of Health

Jennifer Bradle, RN, MSN  
Riverview Medical Center

Katharine E. Donaldson, WHNP-BC, APN, C, MSN, C-EFM  
Capital Health

Margaret M. Estlow, RN, MSN, PNP, BC  
Capital Health System Magnet III

June R. Matthews-Gray, MSN, RN  
Children’s Futures, Inc.

Margaret Gray  
New Jersey Department of Health

Donna Jagger, RNC, IBCLC, RLC  
Community Medical Center

Melanie Jones, LCSW  
Ocean Health Initiatives

Mary M. Knapp, MSN, RN  
New Jersey Department of Health

Lisa Kay Hartmann  
Department of Children and Families

Marian F. Lake, RNC, MPH, CCRC  
Saint Peter’s University Hospital

Pamela Larson, RNC  
Solutions Pregnancy and Health Center

Robin McRoberts, MBA, MS, RD  
Visiting Nurse Association of Central New Jersey/Women Infant and Children Food and Nutrition Services

Lisa Morrell, RN-NIC, MSN  
CentraState Medical Center

Martha Niedrach, RNC, MSN, PCNS  
Meridian At Home

Beverly A. Poelstra, MD  
Rutgers-Robert Wood Johnson Medical School

Kimberly Ray, MSW, LSW  
Monmouth Medical Center

Kirby Rekedal, MD, Co-Chair  
The Children's Hospital at Monmouth Medical Center

Karen Rothenberg, RN-BC, BSN  
Jersey Shore University Medical Center

Marlene Schwebel, JD, APN  
Co-Chair  
Rutgers-Robert Wood Johnson Medical School

Susan Shen-Schwarz, MD  
Saint Peter's University Hospital

Deb Toresco, BSN, RNC  
Somerset Medical Center

Barry Weinberger, MD  
Rutgers-Robert Wood Johnson Medical School

Patricia Whyte, CNM  
Monmouth Medical Center

Roselyn Young, MSN, RNC-OB, C-EFM  
Jersey Shore University Medical Center-Maternal Child Services
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Central Jersey Family Health Consortium:
Ensuring a Legacy of Health One Family at a Time

Central Jersey Family Health Consortium

Central Jersey Family Health Consortium, Inc. (CJFHC), was originally organized through funding from the Robert Wood Johnson Foundation in 1988. Established in 1992, CJFHC is a leading private non-profit 501(C)3 organization licensed by the New Jersey Department of Health and part of a regionalized maternal and child health (MCH) system. CJFHC serves the central New Jersey region – which includes Hunterdon, Mercer, Middlesex, Monmouth, Ocean and Somerset Counties and the Plainfield portion of Union County. We have 17 member hospitals in 2013, including: Capital Health Regional Medical Center, Capital Health Medical Center-Hopewell, CentraState Medical Center, Community Medical Center, Hunterdon Medical Center, Jersey Shore University Medical Center, Kimball Medical Center, Monmouth Medical Center, Ocean Medical Center, Raritan Bay Medical Center, Riverview Medical Center, Robert Wood Johnson University Hospital, Robert Wood Johnson University Hospital at Hamilton, Somerset Medical Center, Southern Ocean Medical Center, Saint Peter’s University Hospital, and University Medical Center of Princeton at Plainsboro. These member hospitals provide the data that is provided within this report. Initial data provided is of a summary nature followed by more specific data based on priority areas identified by the New Jersey Department of Health and the CJFHC Regional Needs Assessment. Below is a summary portfolio of vital statistics of 2012 and 2013.

Birth Profile By Year, 2012-2013

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Births</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Births</td>
<td>29,770</td>
<td>30,007</td>
</tr>
<tr>
<td>Live Births</td>
<td>29,590</td>
<td>29,812</td>
</tr>
<tr>
<td>Total Deliveries</td>
<td>29,066</td>
<td>29,262</td>
</tr>
<tr>
<td><strong>Deaths</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fetal Deaths</td>
<td>180</td>
<td>195</td>
</tr>
<tr>
<td>Neonatal Deaths</td>
<td>64</td>
<td>68</td>
</tr>
<tr>
<td>Perinatal Mortality Rate</td>
<td>8.20</td>
<td>8.76</td>
</tr>
</tbody>
</table>
In addition to our member hospitals, Consortium members also include seven Federally Qualified Health Centers: Eric B. Chandler, Henry J. Austin, Jewish Renaissance Medical Center, Monmouth Family Health Center, Visiting Nurse Association of Central Jersey Community Health Center, Ocean Health Initiatives, and Center for Health Education, Medicine and Dentistry (CHEMED). Consortium membership also extends to approximately 200 general members, including healthcare providers, community-based agencies, and interested consumers of healthcare services from the Central Region. The Board of Trustees consists of 48 members representing hospitals, professionals, and the community. Our mission is to improve the health of women of childbearing age, infants, and children in the region through the collaborative efforts of member hospitals, providers, and consumers.

Legislative Awareness
The CJFHC is integral in providing information to its members in regard to new and/or current state and federal mandates. Examples of their role include interpretation and dissemination of information regarding these mandates, and education of staff, community partners and individuals. The Consortium also serves in an advocacy role by raising awareness regarding impending legislation. The Consortium facilitates the development of policies and procedures related to new and changing regulations. Through membership in the Consortium, Maternal Child Health concerns and issues are voiced collectively, which creates a stronger voice on behalf of the women and children in our region.

Data and Quality Improvement
The Consortium coordinates a variety of state mandated activities related to Maternal Child Health data collection. The primary database used is the Electronic Birth Certificate (EBC). Consortium staff provide technical support to each of our member hospitals for the EBC. It is this data that we compile and analyze annually to publish the Continuous Quality Improvement and Data Report. This document guides much of related activity within our region. It is used for grant applications both internally and by our members, for our hospitals during Magnet application, as well as for other program implementation. Data is examined throughout the year by the Interdisciplinary Case Review Team and the Continuous Quality Improvement committee. The information from the EBC provides outcome data and allows CJFHC, hospitals, and community agencies to assess the effectiveness of programs in the community as well as guide them for future planning purposes.

Promoting a Regionalized Standard of Care
The CJFHC promotes obstetric, neonatal, and pediatric standards of care by providing quality comprehensive education throughout the Consortium region. Standards of care are identified through professional associations such as American Congress of Obstetricians and Gynecologists (ACOG), Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN), and National Association of Neonatal Nurses (NANN) among others and are promoted via educational programs to all nursing staff as well as to obstetric and pediatric staff and other health care professionals. Access to regional standards of care and evidence-based practice can reduce liability exposure to hospitals, agencies, and the individual practitioner.
Centralized Repository of Education
Networking opportunities are promoted for all OB and pediatric health care professionals through the Consortium's region-wide education programs. These education programs are provided in a variety of ways, including but not limited to grand rounds, unit based in-services, half-day and full-day conferences, and self study modules. Examples include: AWHONN Fetal Heart Monitoring courses, breastfeeding and postpartum depression education, and perinatal addictions screenings. Access to high quality educational opportunities at a local level encourages healthcare professionals to attend these programs because of the close proximity to their homes as well as the affordable cost of the programs. This is especially important since New Jersey nurses are required to complete 30 hours of education for licensure renewal. It also encourages staff to fulfill their requirements for certification in their individual specialties. By doing so they are more proficient in their area of expertise which enhances care and the quality of the staff, thereby reducing risk to patients.

Cost Effectiveness of Educational Opportunities
Through regionalized educational programming, the cost of per-person rates is minimal. By leveraging resources, we are able to provide education addressing the most pertinent issues in care.

Augmentation of Hospital Provided Education
While realizing hospital based education is limited today due to fiscal constraints, there is still a need at times for education to take place on site. Additional resources are available to our member hospitals, such as specialized equipment which can be used to augment educational programming available for use both on site or at Consortium offices and allows OB/Pediatric services to utilize their limited educational dollars on other activities.

Improved Relationships and Patient Safety
Consortium programs are provided to a variety of healthcare practitioners. Joint physician/nurse education is encouraged throughout Consortium programming to promote a team approach to care, increase employee satisfaction and improve patient safety. The increase in satisfaction may lead to a decrease in turnover of staff, ultimately reducing the financial burden inherent in high staff turn over. In addition, joint education amongst all healthcare professionals has proven to promote risk reduction and decreased liability for hospitals.

Community Collaboration
There are a variety of community-building activities that are performed by CJFHC which enhance or increase resources available to women and their families in our region. One example is the coordination of Maternal Child Health Networks in each county. Maternal Child Health Networks help to support our hospitals’ missions by identifying community needs as well as addressing the needs of diverse populations. The networks provide a mechanism to offer regionalized programs that support community health initiatives as well as effectively distribute available resources. The presence of the Consortium in the community through each Coalition exposes the community to a variety of staff, thereby increasing consumer trust and confidence in the organization as well as its members, i.e., hospitals. By being present in the community, and providing education and resources, we can help to ensure a healthier community which potentially can decrease the cost to hospitals, while marketing other Consortium activities and/or hospital services.

Networking
Networking is one of the key benefits of Consortium membership. Sharing of best practices across hospital systems and among community members helps to enhance the quality of care delivered to our women and children. Provision of evidence-based guidelines by individuals, and shared by the members, reinforces best practices. In addition, resource utilization is maximized by members through informal and formal communication facilitated by the Consortium. A variety of meetings are held to unite various stakeholders from our hospitals, community agencies, and the community at large. An example of this includes the sharing of Joint Commission on Accreditation of Healthcare Organizations (JCAHO) visit results, such as concerns regarding safety and compliance with standards, which helps to decrease risk region-wide.
Regional Statistics:  
The Central Region at a Glance

CHAPTER HIGHLIGHTS

- Central New Jersey accounts for a third (32.2%) of the total Jersey population.
- About 20% of the region’s population is foreign-born.
- A quarter (25.55%) of the region’s population speak a different language other than English at home.
- Approximately 42.6% of the region’s female residents are in child bearing age (between 15 and 44 years old).
- Middlesex County has the highest rates of uninsured women and children.
- The region’s average household income exceeds state and national average, but there are considerable discrepancies across counties.
- Mercer and Ocean Counties have highest proportion of population in poverty (10.8% and 10.2%, respectively); Hunterdon has the lowest (3.8%).
- Most counties in the region fall behind state and national average on indicators of access to healthy food.

<table>
<thead>
<tr>
<th>Estimated Regional Population and Population Change*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunterdon</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Population (2013 est.)</td>
</tr>
<tr>
<td>% change (Apr 1, 2010 - Jul 1, 2013)</td>
</tr>
<tr>
<td>% Children under 5 (2012 est.)</td>
</tr>
<tr>
<td>% Female (2012 est.)</td>
</tr>
</tbody>
</table>

*Information based on the most recent Census data at the time of writing.
Population Characteristics

CENTRAL NEW JERSEY POPULATION CHARACTERISTICS AT A GLANCE

Estimates from 2010 Census indicate that Central Jersey account for a third (32.2%) of the total Jersey population. In 2013, the region contained 1,029,618 households and 2,869,254 residents wherein roughly 51.2% were females. The mean age of the region’s population is about 40.5 (2012 American Community Survey). Persons between 18 to 64 years old represent 62.4% of the population, and persons under 18 years old represent 23.4%. Two-thirds (65.6%) of the region’s residents are non-Hispanic White; 13.3% are Hispanic/Latino; 11.4% are Asian; 9.5% are Black; 0.4% are American Indian or Alaska Native. Yet, the ethnic composition differs considerably across counties. Nearly 20% of the region’s residents were foreign-born. Middlesex County has the highest proportion of foreign-born residents (30.3%) and Ocean County the lowest proportion (7.9%). A quarter (25.55%) of the regional population speak a different language other than English at home. Middlesex County has the highest rate of speaking a different language at home (41.2%), Somerset (29.5%) and Mercer (27.5%) have the next highest rates.

Based on 2012 American Community Survey, the mean age of female Central Jersey residents is 41.7. Ocean County has the oldest female median age (44.9) whereas Middlesex has the youngest (38.4). About 42.6% of the region’s female residents are in child bearing age (15 to 44). Middlesex and Mercer Counties have the highest proportions of females within this age range (41.5% and 40.6%, respectively), followed by Somerset (36.8%), Monmouth (35.5%), and Hunterdon (33.2%). Ocean County has the lowest (31.9%) proportion.

SOCIOECONOMIC STATUS (SES)

Census data suggest that New Jersey is the second wealthiest state in the nation, and Central Jersey exceeds the state average on several SES indicators although there are significant discrepancies by counties. Between 2008 to 2012, the region’s estimated average household income was $83,906, roughly 17% higher than the state average ($71,637) and 58% higher than national average ($53,046). The region’s homeownership rate is 73.34%, also higher than state (66.2%) and national (65.5%) average. Nearly two-fifths (38.3%) of the region’s residents aged 25 and over report having attained a Bachelor’s or more advanced degree, compared to 35.4% statewide and 28.5% nationwide. About 7.9% of the region’s population live below poverty level, compared to 9.9% state rate and 14.9% national rate. Within Central Jersey, Mercer, Ocean, and Middlesex have the highest proportions of population in poverty (10.8%, 10.2%, and 8%, respectively). Hunterdon, Somerset, and Monmouth have the lowest proportions (3.8%, 4.5%, and 6.3% respectively).

Median Household Income by County, 2008-2012
Health Insurance Coverage and Physical Environment

HEALTH INSURANCE COVERAGE

Lack of health insurance is strongly associated with unmet medical needs due to cost. It increases the risk for lack of or delayed primary and preventive care. Recent data from National Center for Health Statistics (NCHS) indicate that in 2011, uninsured persons are more than twice as likely to not obtain or delay needed health care (NCHS 2013). In Central Jersey, estimates from 2008 to 2012 American Community Survey suggest the following county-level rates of uninsured women between 18 to 44 years old are as follows: Hunterdon (8.07%); Mercer (14.25%); Middlesex (16.78%); Monmouth (15.6%); Ocean (14.92%); and Somerset (12.28%). Across counties, women between 35 to 44 years old exhibit the lowest uninsured rates. In Hunterdon, Middlesex, and Ocean, women between 18 to 24 have the highest uninsured rates. In Mercer, Monmouth, and Somerset, women between 25 to 34 have the highest uninsured rates.

For children below 18 years old, the uninsured rates are as follows: Hunterdon (2.1%); Mercer (4.7%); Middlesex (7.3%); Monmouth (4.0%); Ocean (4.3%); and Somerset (3.3%). In most counties, uninsured rates are higher for children between 6 to 17 years old compared to children under 6. Somerset is the only county where the uninsured rate is slightly higher for children under 6 than children between 6 to 17 (3.5% compared to 3.17%). Across counties, the highest child uninsured rate is found in Middlesex for children between 6 to 17 (8.2%).

PHYSICAL ENVIRONMENT

A clean and safe environment with accessibility to recreational space and healthy food is vital for a community’s well-being (Community Commons 2014). Central New Jersey has good air quality, with less than 1% of days exceeding the National Ambient Air Quality Standard, exceeding both state and nation measures. However, Central Jersey falls behind on indicators of access to healthy food. With the exception of Hunterdon County, rates of population with low food access in all other counties of Central Jersey are higher (above 30%) than both state and national average (both below 30%). In addition, rates of grocery stores per 100,000 population for Hunterdon, Middlesex, Monmouth, Ocean, and Somerset are all below 30%.

Rates of fast food restaurants per 100,000 population are high in most counties of Central Jersey (statewide rate is 75.54%, and nationwide rate is 71.97%). Monmouth, Somerset, Middlesex, and Mercer have the highest rates (83.12%; 82.86%; 78.78%; 76.12%, respectively). Ocean and Hunterdon have the lowest rates (70.59% and 74.80%, respectively). Healthcare providers and educators are advised to be aware of social environmental influence on dietary patterns and food consumption.

In terms of access to recreation and fitness facilities, statewide rate of establishments per 100,000 population is higher than nationwide (13.89% to 9.44%). In our region, Somerset, Monmouth, and Hunterdon have the highest rates (21.64%; 16.97%; and 16.36%). Mercer, Middlesex, and Ocean have the lowest rates (12.55%; 9.88%; and 8.85%).
# Maternal Characteristics: Who is Giving Birth in Central New Jersey?

## CHAPTER HIGHLIGHTS

- In 2013, there were 29,066 women that gave birth in Central New Jersey.
- Largest numbers of birth were to women residing in Ocean and Middlesex Counties (accounting for 25.3% and 23% of regional total, respectively).
- 55.1% of the region’s deliveries were to White women.
- 22.3% were to Hispanic women.
- 9.5% were to Black women.
- 42% of the region’s deliveries were to women with a college or higher degree.
- 40% are to foreign-born women, a significant 5% increase from 2012.
- 26.9% of these women reported receiving Medicaid, 27.4% reported receiving Supplemental Nutrition Program for Women, Infants and Children (WIC), and 21.9% (N = 6,368) reported receiving both.

### Total Births by County

<table>
<thead>
<tr>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>699</td>
<td>3,980</td>
<td>6,838</td>
<td>5,744</td>
<td>7,531</td>
<td>2,398</td>
</tr>
<tr>
<td>2012</td>
<td>732</td>
<td>4,120</td>
<td>7,224</td>
<td>5,890</td>
<td>7,495</td>
<td>2,452</td>
</tr>
</tbody>
</table>

### Live Births by County

<table>
<thead>
<tr>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>695</td>
<td>3,958</td>
<td>6,796</td>
<td>5,702</td>
<td>7,487</td>
<td>2,389</td>
</tr>
<tr>
<td>2012</td>
<td>728</td>
<td>4,093</td>
<td>7,169</td>
<td>5,856</td>
<td>7,449</td>
<td>2,442</td>
</tr>
</tbody>
</table>

### Total Deliveries by County

<table>
<thead>
<tr>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>684</td>
<td>3,889</td>
<td>6,683</td>
<td>5,579</td>
<td>7,388</td>
<td>2,338</td>
</tr>
<tr>
<td>2012</td>
<td>718</td>
<td>4,020</td>
<td>7,043</td>
<td>5,710</td>
<td>7,345</td>
<td>2,390</td>
</tr>
</tbody>
</table>
MATERNAL AGE

In 2013, the age of women giving birth in Central New Jersey ranged from 13 to 54, wherein births to teen mothers (under 20 years old) accounted for a small proportion (3.4%). In 2013, the average age of women giving birth within the region is 29.87, slightly but significantly older than the 2012 regional average maternal age of 29.74. The highest proportion of births occurred to women aged 30 to 34 years old (33.4%), followed by: 25 to 29 (26.5%); 35 to 39 (17%); 20 to 24 (15.6%); 40 and over (4%); and 15 to 19 years (3.4%). Trend data demonstrate similar proportional distribution of births by maternal age groups in the region since 2010.

TEEN BIRTHS

Data from the Electronic Birth Certificate (EBC) show a consistent and statistically significant (i.e., non-random) decrease in the region’s teen births since 2009. Most of the region’s teen births occurred to mothers between 15 to 19 years old. From 2012 to 2013, births occurred to mothers under 15 years old decreased from n = 16 (.05% out of total deliveries of the year) to n = 9 (below 0.01%). Proportion of teen mothers between 15 and 19 out of total regional deliveries decreased from n = 1,089 (3.7%) in 2012 to n = 992 (3.4%) in 2013.

From 2012 to 2013, regional EBC data indicate that Middlesex County had the highest number of teen births (n = 609), accounting for over a quarter (28.7%, proportion calculated with inclusion of teen births wherein maternal residential county were missing) of the region’s total teen births. The next three counties of highest teen births are: Mercer County (n = 470; 22.1% of regional total), Ocean County (n = 441; 20.8%), and Monmouth County (n = 348; 16.4%). Hunterdon and Somerset exhibit the lowest number of teen births (n = 20 and 0.9% of regional total; and n = 133 and 6.26%, respectively). Meanwhile, across counties, Middlesex and Mercer are at the greatest risk of having young teen mothers under 15 years old. The data suggest that Middlesex and Mercer Counties should be prioritized areas for interventions or preventive measures that designed for reducing the region’s teen births rates.
BIRTHS by MATERNAL AGE by COUNTY

While most births in Central New Jersey occurred to women between 30 and 34 years old, in Ocean County, most births occurred to women between 25 and 29 years old, accounting for over 30% of the county’s total births. Mercer, Middlesex, Monmouth, and Somerset exhibited similar patterns of proportional distribution of births by maternal age, wherein the second and third largest birthing groups are women between 25 and 29, followed by women between 35 and 39. In comparison, in Hunterdon County, women aged 35 to 39 are the second largest birthing group, while women aged 25 to 29 comprise the third largest group. In Ocean County, the pattern is again different, wherein women between 20 and 34 represent the second largest birthing group, and women between 20 and 24 represent the third largest group. Differences in birthing age group patterns are statistically significant. Medical professionals and health care providers are encouraged to be aware of different needs by maternal age and adopt age-group appropriate strategies to improve maternal and infant health outcomes.

2013 Number of Births by Maternal Age Groups

<table>
<thead>
<tr>
<th>Age group (% of total deliveries in County)</th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 15 (%)</td>
<td>0 (0%)</td>
<td>1 (0%)</td>
<td>3 (0%)</td>
<td>1 (0%)</td>
<td>2 (0%)</td>
<td>1 (0%)</td>
</tr>
<tr>
<td>15 - 19 (%)</td>
<td>5 (.7%)</td>
<td>227 (5.8%)</td>
<td>265 (4%)</td>
<td>164 (2.9%)</td>
<td>210 (2.8%)</td>
<td>72 (3.1%)</td>
</tr>
<tr>
<td>20 - 24 (%)</td>
<td>56 (8.2%)</td>
<td>661 (17%)</td>
<td>943 (14.1%)</td>
<td>680 (12.2%)</td>
<td>1,661 (22.5%)</td>
<td>223 (9.5%)</td>
</tr>
<tr>
<td>25 - 29 (%)</td>
<td>147 (21.5%)</td>
<td>930 (23.9%)</td>
<td>1,828 (27.4%)</td>
<td>1,375 (24.6%)</td>
<td>2,224 (30.1%)</td>
<td>539 (23.1%)</td>
</tr>
<tr>
<td>30 - 34 (%)</td>
<td>276 (40.4%)</td>
<td>1,242 (31.9%)</td>
<td>2,288 (34.2%)</td>
<td>2,031 (36.4%)</td>
<td>2,035 (27.5%)</td>
<td>882 (37.7%)</td>
</tr>
<tr>
<td>35 - 39 (%)</td>
<td>161 (23.5%)</td>
<td>678 (17.4%)</td>
<td>1,096 (16.4%)</td>
<td>1,060 (19%)</td>
<td>1,041 (14.1%)</td>
<td>493 (21.1%)</td>
</tr>
<tr>
<td>40 + (%)</td>
<td>39 (5.7%)</td>
<td>150 (3.9%)</td>
<td>260 (4.8%)</td>
<td>268 (4.8%)</td>
<td>215 (2.9%)</td>
<td>128 (5.5%)</td>
</tr>
<tr>
<td>Total N (%)</td>
<td>684 (100%)</td>
<td>3,888 (100%)</td>
<td>6,683 (100%)</td>
<td>5,579 (100%)</td>
<td>7,388 (100%)</td>
<td>2,338 (100%)</td>
</tr>
</tbody>
</table>

MARITAL STATUS by MATERNAL AGE

A recent meta-analysis report indicates that unmarried women are at greater risk of delivering babies of low birth weight, preterm birth, and small for gestational age (Shah, Zao, & Ali 2011). Data from 2012-2013 Central New Jersey EBC show a moderate positive correlation between maternal age and marital status ($\gamma = .37, p = .000$), suggesting that older women are more likely to report being married at the time of giving birth. However, the strength of association between maternal age and marital status decreased slightly by 8% from 2012 to 2013 (from $\gamma = .38$ to $\gamma = .36$). In 2013, within women reporting married at the time of delivery, nearly 40% were between 30 and 34 years old, followed by women between 25 and 29 (25.8%), and then by women between 35 and 39 (20.5%).

In comparison, within women reporting not married at the time of delivery, those between 20 to 24 years old accounted for the largest proportion (30.1%), followed by women between 25 to 29 (28.3%) and those between 30 to 34 (19.6%). Whereas over 50% of all birthing mothers in the region reported married at the time of delivery, the rates varied considerably across counties. Mercer County had the lowest rate of women reporting married (56.3%) and Hunterdon County had the highest (81.9%).

2013 Maternal Marital Status by County

<table>
<thead>
<tr>
<th></th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not married</td>
<td>124</td>
<td>1,700</td>
<td>2,194</td>
<td>1,809</td>
<td>1,701</td>
<td>567</td>
</tr>
<tr>
<td>(% within County)</td>
<td>(18.1%)</td>
<td>(43.7%)</td>
<td>(32.8%)</td>
<td>(32.4%)</td>
<td>(23.0%)</td>
<td>(24.3%)</td>
</tr>
<tr>
<td>Married</td>
<td>560</td>
<td>2,188</td>
<td>4,489</td>
<td>3,770</td>
<td>5,687</td>
<td>1,771</td>
</tr>
<tr>
<td>(% within County)</td>
<td>(81.9%)</td>
<td>(56.3%)</td>
<td>(67.2%)</td>
<td>(67.6%)</td>
<td>(77.0%)</td>
<td>(75.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>684</td>
<td>3,888</td>
<td>6,683</td>
<td>5,579</td>
<td>7,388</td>
<td>2,338</td>
</tr>
<tr>
<td>(% within County)</td>
<td>(100.0%)</td>
<td>(100.0%)</td>
<td>(100.0%)</td>
<td>(100.0%)</td>
<td>(100.0%)</td>
<td>(100.0%)</td>
</tr>
</tbody>
</table>
BIRTHS BY MATERNAL RACE

In 2013, about 55% of all births in CJFHC member hospitals were born to White mothers, 9.5% were born to Black mothers, 22.3% were to Hispanic mothers, and 11.1% were to Asian mothers. While regional percentages of births by maternal race has remained quite comparable since 2010, there are significant county-level differences. In Mercer County, 22.4% of total births in 2013 were to Black mothers and 27.4% were to Hispanic mothers. In Middlesex County, 33.5% of total births in 2013 were to Hispanic mothers, 24.4% were to Asian mothers. Likewise, in Somerset County, 23.5% of total births in 2013 were to Hispanic mothers, and 23.6% were to Asian mothers. Over 60% of births in Hunterdon, Ocean, and Monmouth were to White mothers. Medical providers and health care professionals are recommended to take on a culturally responsive approach (e.g., be aware of differences in lifestyles and values associated with cultural backgrounds) to strategically enhance maternal and infant health.

NATIVITY

In 2013, approximately one-third (33%, n=9,743) of births in Central New Jersey were to foreign-born mothers, wherein a majority (62.5%) were women between 25 to 34 years old. Compared to 2012, regional rate of births to foreign-born mothers decreased significantly by 1.7%. Trend data since 2010 indicate a slight but steady annual decline in births to foreign-born mothers within the region.

There are also significant differences in maternal nativity by counties. Middlesex County exhibited the highest proportion of births to foreign-born mothers (54.7%), followed by Somerset (47.4%) and Mercer (38.5%). The lowest proportion of births to foreign-born mothers was found in Ocean County (17.5%), followed by Hunterdon (21.5%) and Monmouth (26.1%).

Comparisons based on 2013 data between U.S. born and foreign-born mothers in CJFHC region show some significant differences. While foreign-born mothers are more likely to be unmarried and have a lower than high school education, proportions of teen mothers and preterm births are higher among their U.S. born peers. However, there are no significant differences between U.S. born and foreign-born mothers in rates of obtaining prenatal care and of delivering babies of low birth weights.
EDUCATIONAL ATTAINMENT

Education is highly associated with health-related quality of life. Of the 29,066 mothers giving birth in Central New Jersey in 2013, most (26.8%) reported having obtained a high school diploma or equivalent. Only a small proportion (10.1%) reported having an education less than high school diploma. About one-fifth of the mothers reported having some college (20.5%) while another fifth (20.2%) reported receiving an advanced degree or training beyond college. Mothers reported having obtained a college degree accounted for 22.5%. The distribution of maternal educational level is very similar to 2012 data, with less than 1% difference in each degree category.

There are again significant county-level differences in maternal educational attainment. Hunterdon County has the highest maternal educational level, wherein 60.3% of mothers reported having a college or beyond degree. Somerset, Middlesex, and Monmouth also have a high proportion of highly educated mothers with a college or beyond degree (56.1%, 45.9%, and 45.9%, respectively). In contrast, most mothers in Ocean and Mercer have achieved a high school diploma (34.2% and 25.5%, respectively). Meanwhile, compared to other counties, Mercer has a higher proportion of mothers having an education lower than a high school diploma (17.5%, compared to below 15% of other counties).

EMPLOYMENT STATUS

From 2010 to 2013, over 60% of births in CJFHC region were born to mothers employed during their pregnancy. While specific rates vary slightly each year, there are no significant annual differences in recent years. In 2013, 62.7% of births were born to employed mothers, compared to 63.1% in 2012. Hunterdon County and Somerset County exhibit the highest maternal employment rates (75.6% and 69.4%, respectively). Monmouth County has the lowest maternal employment rate (59.5%). Rates for other counties vary around 62%.

Maternal employment status varies significantly by maternal race, educational attainment, and marital status. White mothers have the highest employment rate (71.5%), followed by Black mothers (63.8%) and Asian mothers (61.3%). Hispanic mothers have the lowest employment rate (46.8%). Employment rate is positively correlated with marital status ($\gamma = .34; p < .000$). Married women have 1.75% higher employment rate than unmarried women.
In 2013, 27.4% of mothers giving birth in CJFHC region hospitals participated in the Supplemental Nutrition Program for WIC, a slight (.1%) decrease from 2012. WIC participation varied significantly by maternal race. Hispanic mothers reported the highest rate of participation (55.6%), followed by Black mothers (43.1%). The rate for White mothers was 20.8%, and for Asian mothers was only 6.9%.

WIC participation also differed significantly by counties. Across CJFHC region, Ocean County and Mercer County showed the highest rates of WIC participation (44% and 37.7%, respectively). The lowest rates were found in Hunterdon County and Monmouth County (8.7% and 18.4%, respectively).

Additionally, participation in the WIC program varied by maternal age, marital status, foreign-born status, and educational level. Overall, mothers who are younger, unmarried, foreign-born, and of lower educational level had a higher rate of WIC participation. Teen mothers below 20 years old exhibited the highest rate of WIC participation among all age groups (62%, compared to the second highest rate 53.7% found within mothers between 20 and 24).

About 28.8% of mothers that gave birth in CJFHC region were Medicaid beneficiaries in 2013, a slight but significant increase of 1.6% from 2012. Medicaid beneficiaries were proportionally associated with maternal race, age, marital status, employment status, and education level. Maternal characteristics of being a Hispanic or Black, under 30 years of age, unmarried, unemployed, and have a less than college education were related to greater likelihood of receiving Medicaid.
Health During Pregnancy: 
Prenatal Care, Substance Use, and Other Maternal Risk

CHAPTER HIGHLIGHTS

- 29,770 births occurred in Central New Jersey in 2013.
- Within CJFHC region, over 80% of mothers began prenatal care in the first trimester.
- Rate of prenatal care during the first trimester has been quite consistent around 83% since 2011.
- Within CJFHC region, less than 1% of mothers who gave birth in 2012 and 2013 reported not receiving any prenatal care. Rate of no prenatal care does not differ significantly across counties.
- In 2013, among all mothers who reported using tobacco during pregnancy, most (55.1%) were Whites.
- Across race groups, Black mothers had the highest rate of tobacco use during pregnancy (6.7%).
- Less than 1% of mothers reported drinking alcohol during pregnancy in 2012 and 2013. Among mothers who reported drinking alcohol during pregnancy, most (61.5%) were Whites.
- The rate of gestational diabetes has increased since 2010, affecting nearly 6% of pregnant women in Central New Jersey.

First Trimester Prenatal Care

<table>
<thead>
<tr>
<th></th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>90.4%</td>
<td>77.9%</td>
<td>85.5%</td>
<td>84.8%</td>
<td>79.0%</td>
<td>91.2%</td>
<td>83.4%</td>
</tr>
<tr>
<td>2012</td>
<td>89.6%</td>
<td>76.1%</td>
<td>85.4%</td>
<td>84.2%</td>
<td>81.5%</td>
<td>91.2%</td>
<td>83.6%</td>
</tr>
</tbody>
</table>

Tobacco Use During Pregnancy

<table>
<thead>
<tr>
<th></th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>2.6%</td>
<td>5.7%</td>
<td>2.3%</td>
<td>3.4%</td>
<td>3.3%</td>
<td>1.5%</td>
<td>3.3%</td>
</tr>
<tr>
<td>2012</td>
<td>4.0%</td>
<td>5.8%</td>
<td>1.8%</td>
<td>4.4%</td>
<td>4.1%</td>
<td>1.8%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Diabetes (pre-existing and gestational) During Pregnancy

<table>
<thead>
<tr>
<th></th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>7.6%</td>
<td>6.3%</td>
<td>8.1%</td>
<td>5.3%</td>
<td>3.2%</td>
<td>8.2%</td>
<td>5.9%</td>
</tr>
<tr>
<td>2012</td>
<td>6.4%</td>
<td>6.1%</td>
<td>7.9%</td>
<td>4.9%</td>
<td>3.4%</td>
<td>7.2%</td>
<td>5.7%</td>
</tr>
</tbody>
</table>
Prenatal Care

PRENATAL CARE

In Central New Jersey, about 83% of all births were to women reporting receiving prenatal care during their first trimester. In 2012 and 2013, among the 58,231 women giving birth in the region, 83.4% indicated receiving prenatal care during their first trimester, 13.4% reported receiving prenatal care during their second trimester, and 2.4% reported receiving prenatal care during third trimester. Only 0.6% (n=371) reported not receiving any prenatal care.

Between 2010 and 2013, less than 1% of mothers in Central New Jersey reported receiving no prenatal care, with no significant difference by counties. This suggests that county of residence does not account for systematic disparities in reception of prenatal care within the region.

Rate of Prenatal Care, 2012-2013

![Graph showing rates of prenatal care by maternal characteristics]

FACTORS ASSOCIATED WITH NO PRENATAL CARE

Although county of residence does not affect rate of receiving prenatal care, there are significant differences by maternal race and age in reception of prenatal care. In 2013, Asian mothers exhibited the highest rate of receiving prenatal care during first trimester (92.2%), followed by White mothers (87.9%), Hispanic mothers (73.9%), and Black mothers (73.0%). Rate of no prenatal care was highest among Black mothers (2.1%) and lowest among Asian mothers (0.2%). In addition, compared to adult mothers 20 years and older, teen mothers exhibited the lowest rate of receiving first trimester prenatal care (more than 20% lower) and the highest rate of no prenatal care (2.4%).

Maternal educational attainment and employment status are also systematically associated with not receiving prenatal care. Bivariate analyses reveal that having a less than a college education, unmarried, and unemployed are all related to greater likelihood of no prenatal care.

In the meantime, there is no significant difference between U.S. born and foreign-born mothers in the rate of no prenatal care.
SUBSTANCE USE

Only a small proportion (less than 5%) of pregnant women reported using substance during pregnancy in CJFHC region. Yet, the prevalence of substance use may be an underestimate due to respondents under-reporting. Cigarettes are the most commonly reported substance used by pregnant women. About 3.5% of pregnant women reported smoking cigarettes between 2012 and 2013. In comparison, 0.8% of pregnant women reported using drugs and 0.3% reported drinking alcohol during 2012 and 2013. While there are no significant difference in rates of drinking alcohol or using drugs during pregnancy in 2012 and 2013, there is a small but significant decline in rate of cigarette smoking during pregnancy from 2012 to 2013 (0.3% decrease). Across counties in Central New Jersey, rate of substance use during pregnancy was highest in Mercer and lowest in Hunterdon.

RACIAL DIFFERENCES IN SUBSTANCE USE DURING PREGNANCY

Across CJFHC’s region, rates of substance use vary significantly by maternal race. From 2012 to 2013, among same-race groups, Black mothers exhibited the highest rate of substance use while Asian mothers demonstrated the lowest rate. The percentage of reported alcohol consumption during pregnancy among Black mothers was 0.8% (n = 45), followed by White mothers (0.4%, n = 115), and Hispanic mothers (0.2%, n = 20). In comparison, during the same period of time, only 2 (0.0%) Asian mothers reported drinking alcohol during pregnancy. From 2012 to 2013, 6.7% (n = 377) of Black mothers reported smoking cigarettes during pregnancy, followed by White mothers (4.3%), Hispanic mothers (1.6%) and Asian mothers (0.2%). Black mothers also had the highest percentage of drug use during pregnancy (2.2%). White mothers had the second highest percentage of drug use (0.8%), followed by Hispanic mothers (0.8%), and Asian mothers (n = 3, 0.0%).

Within each race group, there are no significant change in the rates of alcohol consumption or drug use during pregnancy from 2012 to 2013. Nevertheless, there is a small but significant decrease in cigarette smoking by White mothers from 4.6% in 2012 to 3.9% in 2013, while no significant change in rates of cigarette smoking are found for other race groups.
Substance Use II

**DIFFERENCES IN SUBSTANCE USE DURING PREGNANCY BY MATERNAL AGE**

Between 2012 and 2013, young mothers below age 30 were at higher rates of substance use during pregnancy than mothers 30 years or older. Overall, women between 20 to 24 years old appear to be at the greatest risk of substance use during pregnancy, followed by teens between 15 to 19 years old, and those between 25 to 29 years old. However, rates of substance use was 0% for teen mothers below 15.

From 2012 to 2013, 5.6% of mothers between 20 to 24 years old reported smoking cigarettes during pregnancy, followed by teen mothers between 15 to 19 years old (4.4%) and those between 25 to 29 years old (3.0%). In contrast, less than 3% of pregnant women 30 years or older reported smoking cigarettes.

Teen mothers aged 15 to 19 showed the highest rate of drug use during pregnancy (1.6%), followed by young mothers between 20 to 24 years old (1.4%), and those between 25 to 29 years old (1%). Rate of drug use during pregnancy was very low for mothers 30 years and older (< 0.6%). As for alcohol consumption during pregnancy, there are no significant difference by maternal age groups. The highest rate was found in teen mothers between 15 to 19 years old (0.5%), followed by young mothers between 20 to 24 years old (0.4%). For all other age groups, the rate was the same at 0.3% during 2012 and 2013.

**DIFFERENCES IN SUBSTANCE USE DURING PREGNANCY BY MATERNAL EDUCATION**

The proportion of substance use during pregnancy is significantly different by maternal education in our region, where mothers of some high school education are at the greatest risk. During 2012 and 2013, the proportion of cigarette smoking by mothers having some high school education is 9.4%, followed by mothers completing a high school education (6.5%), and some college (4.2%). Mothers with some high school education also had the highest rate of alcohol consumption (0.5%), followed by those completing a high school education and some college (both are at 0.4%). The proportion of drug use was again the highest among mothers with some high school education (2.7%), followed by those completing high school (1.5%) and some college (0.9%).

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**Substance Use During Pregnancy By Maternal Age, 2012-2013**

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**Substance Use During Pregnancy by Maternal Education, 2012-2013**

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PREGNANCY RELATED RISK FACTORS

Certain medical conditions that develop preceding or during pregnancy can increase the risk for maternal complications during or after delivery as well as adversely affect birth outcomes. There is a significant 1% increase from 2012 to 2013 in the proportion of mothers with identified medical conditions in our region. Conditions that are frequently reported to CJFHC hospitals include gestational diabetes, gestational hypertension, hydramnios, preeclampsia, and incompetent cervix. With the exception of preeclampsia, comparisons between 2012 and 2013 data indicate significant differences in the proportion of mothers reporting those conditions during pregnancy.

From 2012 to 2013, there were increases in the proportion of mothers reporting having gestational diabetes, hypertension, and hydramnios. In contrast, mothers reporting having incompetent cervix decreased from 0.4% to 0.3%.

There was also a considerable proportion (over 40%) of women reporting gaining 30 or more pounds during pregnancy, which may negatively affect maternal and infant health.

ADDITIONAL MATERNAL RISK FACTORS

Besides pregnancy-related medical conditions, other medical conditions can also place the mother and infant at risk during or after delivery. Within our region, the top three frequently reported maternal medical risk factors since 2010 are: having a history of a previous major uterine surgery, anemia, and lung disease.

While exact number of cases vary each year, there are no significant changes in the yearly rates for most maternal health risk factors in Central New Jersey between 2012 and 2013. The only exception was maternal chronic hypertension where the rate significantly increased by 0.2% from 2012 to 2013.

Additional analysis reveal that mothers aged 30 and over exhibit higher rates of chronic hypertension (>1.0%) than younger mothers below 30 (< 1.0%). The highest rate was found in mothers 40 years and older (3.4%).

### Pregnancy Related Risk Factors, 2012-2013

<table>
<thead>
<tr>
<th>Condition</th>
<th>2012 N</th>
<th>2012 %</th>
<th>2013 N</th>
<th>2013 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational Diabetes*</td>
<td>1,662</td>
<td>5.7</td>
<td>1,710</td>
<td>5.9</td>
</tr>
<tr>
<td>Gestational Hypertension*</td>
<td>659</td>
<td>2.3</td>
<td>727</td>
<td>2.5</td>
</tr>
<tr>
<td>Hydramnios*</td>
<td>643</td>
<td>2.2</td>
<td>680</td>
<td>2.3</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td>407</td>
<td>1.4</td>
<td>432</td>
<td>1.5</td>
</tr>
<tr>
<td>Incompetent Cervix*</td>
<td>114</td>
<td>0.4</td>
<td>89</td>
<td>0.3</td>
</tr>
<tr>
<td>Gaining 30 or more lbs*</td>
<td>12,131</td>
<td>41.5</td>
<td>12,015</td>
<td>41.3%</td>
</tr>
<tr>
<td>Cases with Reported Risk Factors</td>
<td>12,581</td>
<td>43%</td>
<td>12,788</td>
<td>44%</td>
</tr>
</tbody>
</table>

* Proportion is statistically significantly different between 2012 and 2013

### Additional Maternal Health Risk Factors, 2012-2013

<table>
<thead>
<tr>
<th>Condition</th>
<th>2012 N</th>
<th>2012 %</th>
<th>2013 N</th>
<th>2013 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>288</td>
<td>1.0</td>
<td>248</td>
<td>0.85</td>
</tr>
<tr>
<td>Chronic Hypertension*</td>
<td>315</td>
<td>1.1</td>
<td>373</td>
<td>1.3</td>
</tr>
<tr>
<td>Anemia</td>
<td>745</td>
<td>2.5</td>
<td>699</td>
<td>2.4</td>
</tr>
<tr>
<td>Cardiac Disease</td>
<td>122</td>
<td>0.4</td>
<td>120</td>
<td>0.4</td>
</tr>
<tr>
<td>Genital Herpes</td>
<td>282</td>
<td>1.0</td>
<td>314</td>
<td>1.1</td>
</tr>
<tr>
<td>Lung Disease</td>
<td>675</td>
<td>2.3</td>
<td>620</td>
<td>2.1</td>
</tr>
<tr>
<td>Previous Major Uterine Surgery</td>
<td>1,158</td>
<td>4.0</td>
<td>1,116</td>
<td>3.8</td>
</tr>
<tr>
<td>Renal Disease</td>
<td>71</td>
<td>0.2</td>
<td>85</td>
<td>0.3</td>
</tr>
<tr>
<td>Other STD</td>
<td>553</td>
<td>1.9</td>
<td>510</td>
<td>1.75</td>
</tr>
</tbody>
</table>

* Proportion is statistically significantly different between 2012 and 2013
Delivery and Birth Outcomes:
The Status of Central New Jersey’s Babies

CHAPTER HIGHLIGHTS

• Central Jersey hospitals accounted for one-third of all births in the state.
• Annual live births in the region have been declining since 2007.
• Over 90% of births occurring in Central Jersey are to residents of the region.
• St. Peter’s University Hospital was the region’s largest birthing hospital, with over 5,500 births per year.
• Capital Fuld and Southern Ocean Medical Center are the smallest birthing hospitals in the region; each has fewer than 400 births per year.
• In 2013, nearly one-third (32.9%) of women in the region delivered via cesarean, a small but significant decrease from 2012 (33.9%).
• In 2013, plural births accounted for 2.4% (n = 698) of the region’s total deliveries (n = 29,066).
• The central region had a low birth weight rate (LBW) of 76.7 per 1,000 live births.
• In 2013, about 9% (n=2,674) of all live births (n = 29,590) were preterm less than 37 weeks.
• Breastfeeding rates had increased over time. In 2013, over half (51.3%) of babies were exclusively breastfed, a significant 0.2% increase from 2012.

<table>
<thead>
<tr>
<th>Exclusive Breastfeeding at Discharge</th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>55.4%</td>
<td>52%</td>
<td>41%</td>
<td>53.6%</td>
<td>49.8%</td>
<td>47.1%</td>
<td>48.8%</td>
</tr>
<tr>
<td>2013</td>
<td>57.1%</td>
<td>59.6%</td>
<td>40.2%</td>
<td>55.7%</td>
<td>51.8%</td>
<td>46.8%</td>
<td>51.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C-section Rates</th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>37.9%</td>
<td>33.7%</td>
<td>36.9%</td>
<td>38.2%</td>
<td>25.5%</td>
<td>38.5%</td>
<td>33.9%</td>
</tr>
<tr>
<td>2013</td>
<td>33.6%</td>
<td>34.7%</td>
<td>36.4%</td>
<td>36.6%</td>
<td>24.1%</td>
<td>37.4%</td>
<td>32.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perinatal Mortality Rate (per 1,000 total births)</th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>5.46</td>
<td>10.2</td>
<td>8.86</td>
<td>7.81</td>
<td>7.74</td>
<td>8.16</td>
<td>8.76</td>
</tr>
<tr>
<td>2013</td>
<td>5.72</td>
<td>8.54</td>
<td>8.04</td>
<td>9.74</td>
<td>7.03</td>
<td>7.09</td>
<td>8.16</td>
</tr>
</tbody>
</table>
**LIVE BIRTHS**

Central Jersey accounts for about one-third of total births (approximately 105,000) in the state each year. Within the region, number of births varies considerably across different facilities.

The region’s annual live births have generally declined since 2007. Between 2010 to 2013, annually, the region has an average of 162 fewer live births compared to the preceding year. From 2012 to 2013, the region’s live births dropped from 29,812 to 29,590 (n = 222 fewer babies, about 0.74% decrease). Comparison between 2012 and 2013 data show a decline in the number of live births in most counties. Yet, Ocean County showed a small increase.

Over 90% of births in Central Jersey occurred to residents of the six counties within CJFHC’s region (Hunterdon, Mercer, Middlesex, Monmouth, Ocean, and Somerset). In 2013, 91.3% of all live births (n =27,027) occurring in Central Jersey were to residents of the central region, a slight decline from 2012 (93%, n = 27,737). In 2013, of all the live births in the region (n = 29,590), 2.44% (n = 722) were to mothers from other counties of the state, and 6.22% were to mothers residing outside of New Jersey.

**COUNTY OF RESIDENCE**

A total of 53,787 mothers that gave birth during 2012 and 2013 in Central New Jersey were residents of the region: 2.6% (n=1,402) were from Hunterdon County; 14.7% (n=7,908) were from Mercer; 25.5% (n=13,726) were from Middlesex; 20.9% (n=11,289) were from Monmouth; 27.4% (n=14,733) were from Ocean; and 8.8% (n=4,728) were from Somerset.

**OUR MEMBER BIRTHING HOSPITALS**

CJFHC had 17 member birthing facilities during 2012-2013. Among these, 5 are regional perinatal centers, 11 are intermediate perinatal centers, and 1 is a basic level birthing center. These birthing facilities account for the vast majority of all births in Central New Jersey. Between 2012 and 2013, 96.7% (cumulative n = 57,429) of the total live births in the region (n = 59,402) occurred in one of the 17 hospitals. Meanwhile, a small portion (0.27%, n = 158) of the region’s live births occurred outside of a hospital’s labor and delivery unit--where common scenarios include births occurring en route to a hospital or at home.

**2012-2013 Number of Live Births by County**

<table>
<thead>
<tr>
<th>County</th>
<th>2012</th>
<th>2013</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunterdon</td>
<td>728</td>
<td>695</td>
<td>-4.53%</td>
</tr>
<tr>
<td>Mercer</td>
<td>4,093</td>
<td>3,958</td>
<td>-3.30%</td>
</tr>
<tr>
<td>Middlesex</td>
<td>7,169</td>
<td>6,796</td>
<td>-5.20%</td>
</tr>
<tr>
<td>Monmouth</td>
<td>5,856</td>
<td>5,702</td>
<td>-2.63%</td>
</tr>
<tr>
<td>Ocean</td>
<td>7,449</td>
<td>7,487</td>
<td>0.51%</td>
</tr>
<tr>
<td>Somerset</td>
<td>2,442</td>
<td>2,389</td>
<td>-2.17%</td>
</tr>
<tr>
<td>Region Total</td>
<td>29,812</td>
<td>29,590</td>
<td>-0.74%</td>
</tr>
</tbody>
</table>

**2013 Maternal County of Residence for Central Region Births**

- 20 -
St. Peter’s University Hospital is the largest birthing facility in Central New Jersey, with over 5,500 births every year. The second largest birthing facility is Monmouth Medical Center, with an average of 4,607 births annually between 2012 and 2013. Whereas the total number of live births in the region has been declining since 2007, some facilities have experienced an increased number of live births. During the 2012-2013 period, Capital Fuld, Capital Hopewell, Monmouth, Princeton, and Riverview all exhibit increased number of live births.

### Total Live Births By CJFHC Region Hospital, 2012-2013

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>2012</th>
<th>2013</th>
<th>Total 2012-2013</th>
<th>% Difference 2013 compared to 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT OF HOSPITAL BIRTH</td>
<td>76</td>
<td>86</td>
<td>162</td>
<td>13.16%</td>
</tr>
<tr>
<td>CAPITAL HEALTH REGIONAL MEDICAL CENTER</td>
<td>401</td>
<td>244</td>
<td>645</td>
<td>-39.15%</td>
</tr>
<tr>
<td>CAPITAL HEALTH MERCER/HOPEWELL MEDICAL CENTER</td>
<td>1,935</td>
<td>2,556</td>
<td>4,491</td>
<td>32.09</td>
</tr>
<tr>
<td>CENTRASTATE MEDICAL CENTER</td>
<td>1,512</td>
<td>1,391</td>
<td>2,903</td>
<td>-8%</td>
</tr>
<tr>
<td>COMMUNITY MEDICAL CENTER</td>
<td>1,559</td>
<td>1,448</td>
<td>3,007</td>
<td>-7.12%</td>
</tr>
<tr>
<td>HUNTERDON MEDICAL CENTER</td>
<td>952</td>
<td>910</td>
<td>1,862</td>
<td>-4.41%</td>
</tr>
<tr>
<td>JERSEY SHORE UNIVERSITY MEDICAL CENTER</td>
<td>1,994</td>
<td>1,909</td>
<td>3,903</td>
<td>-4.26%</td>
</tr>
<tr>
<td>KIMBALL MEDICAL CENTER</td>
<td>908</td>
<td>904</td>
<td>1,812</td>
<td>-.004%</td>
</tr>
<tr>
<td>MONMOUTH MEDICAL CENTER</td>
<td>4,490</td>
<td>4,723</td>
<td>9,213</td>
<td>5.19%</td>
</tr>
<tr>
<td>UNIVERSITY MEDICAL CENTER OF PRINCETON AT PLAINSBORO</td>
<td>1,956</td>
<td>2,000</td>
<td>3,956</td>
<td>2.25%</td>
</tr>
<tr>
<td>OCEAN MEDICAL CENTER</td>
<td>950</td>
<td>892</td>
<td>1,842</td>
<td>-6.11%</td>
</tr>
<tr>
<td>RARITAN BAY MEDICAL CENTER</td>
<td>1,261</td>
<td>1,203</td>
<td>2,464</td>
<td>-4.6%</td>
</tr>
<tr>
<td>RIVERVIEW MEDICAL CENTER</td>
<td>1,353</td>
<td>1,371</td>
<td>2,724</td>
<td>1.33%</td>
</tr>
<tr>
<td>ROBERT WOOD JOHNSON UNIVERSITY HOSPITAL</td>
<td>2,243</td>
<td>2,157</td>
<td>4,400</td>
<td>-3.83%</td>
</tr>
<tr>
<td>ROBERT WOOD JOHNSON UNIVERSITY HOSPITAL AT HAMILTON</td>
<td>1,128</td>
<td>1,038</td>
<td>2,166</td>
<td>-7.98%</td>
</tr>
<tr>
<td>ST. PETER’S UNIVERSITY HOSPITAL</td>
<td>5,780</td>
<td>5,587</td>
<td>11,367</td>
<td>-3.34%</td>
</tr>
<tr>
<td>SOMERSET MEDICAL CENTER</td>
<td>987</td>
<td>821</td>
<td>1,808</td>
<td>-16.82%</td>
</tr>
<tr>
<td>SOUTHERN OCEAN MEDICAL CENTER</td>
<td>327</td>
<td>351</td>
<td>678</td>
<td>7.34%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>29,812</strong></td>
<td><strong>29,590</strong></td>
<td><strong>59,402</strong></td>
<td><strong>-0.74%</strong></td>
</tr>
</tbody>
</table>
Cesarean Section Rates and Plurality

**Cesarean Section Rates**

Although C-section rates in the central region remain high (with approximately one-thirds of mothers delivering via C-section), the rates have gradually gone down in recent years. In 2013, Somerset County exhibited the highest C-section rate: with 37.4% of mothers delivering through C-sections. Monmouth and Middlesex had the next highest C-section rates (each exceeding 36%). In comparison, Ocean County showed the lowest C-section rates, with only about a quarter of mothers delivering via C-sections.

From 2012 to 2013, across counties, Hunterdon exhibited the greatest decline in C-section rates (a 4.3% drop, compared to the second highest drop of 1.6% found in Monmouth County). Mercer is the only County which showed an increase in C-section rates (by 1%) from 2012 to 2013.

While results from statistical significance tests suggest no systematic within-county yearly difference in C-section rates between 2012 and 2013, the EBC data lend some preliminary support to the region’s effort toward reducing C-section rate.

<table>
<thead>
<tr>
<th></th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>37.90%</td>
<td>33.70%</td>
<td>36.90%</td>
<td>38.20%</td>
<td>25.50%</td>
<td>38.50%</td>
<td>33.90%</td>
</tr>
<tr>
<td>2013</td>
<td>33.60%</td>
<td>34.70%</td>
<td>36.40%</td>
<td>36.60%</td>
<td>24.10%</td>
<td>37.40%</td>
<td>32.90%</td>
</tr>
</tbody>
</table>

**Plurality**

Singleton births represent 95% of all births in Central Jersey. Between 2012 and 2013, of the total live births in the region (n = 59,402), singleton births accounted for 95.2% (n = 56,561), twin births accounted for 4.6% (n = 2,730), and triplet births accounted for 0.2% (n = 103). There were only two occurrences of quadruplet births—one in each year.

Most plural births in the region occur in Monmouth County, followed by Middlesex, Ocean, and Mercer. There are relatively fewer plural births in Hunterdon County, which only accounts for about 2% of the region’s plural births.
Low Birth Weight and Prematurity

PLURAL BIRTHS BY MATERNAL AGE

Results from bivariate (two-variable) analyses of the EBC data suggest a significant association between plural births and maternal age. Of all recorded plural births in Central New Jersey in 2012-2013 (n = 1,432 cases), most (36.9%, n = 528 cases) were born to mothers between 30 and 34 years old, followed by mothers between 35 and 39 (25.9%, n = 371 cases) and those between 25 and 29 (19.5%, n = 279 cases). Teen mothers accounted for the least portion of the region’s plurality births (1.2%, n = 17 cases).

LOW BIRTH WEIGHT (LBW)

Between 2012 and 2013, approximately n = 75 newborns per 1,000 live births were considered low or very low birth weight in Central Jersey. Within all births in the region, low birth weight babies (less than 2,500 grams) have averaged about 6.1%, and very low birth weight babies (less than 1,500 grams) have averaged about 1.4%. Within singleton births, an average of 4.2% (n = 2,389) were low birth babies and 0.9% (n = 533) were very low birth weight babies during 2012 and 2013.

PRETERM

Between 2012 and 2013, an average of 9.4% (n = 5,422) of all live births (n = 59,402) in Central Jersey were preterm babies less than 37 weeks gestation. Very preterm babies (less than 32 weeks gestation) accounted for 1.4% (n = 818) of all live births. Among singleton live births, preterm babies accounted for 5.8% while very preterm babies accounted for another 1%. The percentages of preterm births did not differ significantly between 2012 and 2013.
**SMALL OR LARGE FOR GESTATIONAL AGE**

Babies that were born smaller than the average size of those for their developmental stage are considered small for gestational age (SGA). In 2013, 10.4% (n = 2,939) of all singleton live births (n = 28,201) were SGA babies in Central Jersey. In comparison, 14.7% (n = 4,145) of all singleton live births were babies larger for gestational age (LGA). There are no significant changes in the proportions of SGA and LGA singleton live births between 2012 and 2013 within our region.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>Total 2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGA</td>
<td>10.10%</td>
<td>10.40%</td>
<td>10.40%</td>
</tr>
<tr>
<td>LGA</td>
<td>15%</td>
<td>14.70%</td>
<td>14.80%</td>
</tr>
</tbody>
</table>

**FEEDING AT DISCHARGE**

Feeding at discharge refers to the method through which the newborn is fed in the 24 hours prior to discharge from hospital. Within CJFHC’s region, there has been steady increase in exclusive breastfeeding by mothers in recent years. In 2013, over half (51.3%, n = 14,283) of the newborn babies were exclusively breastfed at discharge, a significant 2.5% increase from 2012. Rates of exclusive formula feeding showed a small but significant 2% decrease from 2012 to 2013, dropping from 18% to 16%. There are no statistically significant difference in rates of combination breast-formula feeding between 2012 and 2013 (33% to 32%).
**FETAL MORTALITY**

With minor fluctuations by counties, rate of fetal mortality (death between 20 weeks gestation and prior to birth) has been quite stable around 6 fetuses per 10,000 live births over the past few years in Central Jersey. In 2013, there were 180 recorded fetal demises in the region, a 7.6% decrease from 2012. Mercer, Middlesex, and Monmouth Counties had the highest rates of fetal demise, while Hunterdon County’s fetal mortality rate remains relatively lower.

**NEONATAL MORTALITY**

Neonatal death refers to the expiration of a live birth prior to being discharged from the hospital. Between 2009 and 2013, each year, approximately 2.4 babies die per 1,000 live births. The rate of neonatal mortality is relatively low for all counties in our region (all below 1.2%). Middlesex County had the highest rate of neonatal mortality in 2010 and 2011. Mercer and Monmouth Counties topped the highest rates of neonatal mortality in 2012 and 2013, respectively.

Babies born to Black mothers accounted for the largest percentage (41.9%) of all fetal deaths in Central Jersey. Yet, babies born to Black mothers have nearly three times greater risk of witnessing fetal deaths. The risk ratio of fetal deaths of Blacks to Whites equates 14 to 5 per 1,000 live births. While babies born to Black mothers represent only 9.7% of total regional live births in the region, they account for 21.9% of regional fetal deaths.

Babies born to Black mothers are also disproportionately represented in neonatal deaths. Of all neonatal deaths between 2009 and 2013 within central region, 24% were babies born to Black mothers whereas Black babies only accounted for 9.7% of total live births. In comparison, White babies represent 40% of neonatal deaths and 54.7% of live births. Additional analysis suggest the racial disparity in neonatal deaths is not a random occurrence but a phenomenon consistently observed each year.
Maternal and Infant Health Disparities:
Systematic Differences in Maternal and Infant Health by Social Groups

CHAPTER HIGHLIGHTS

• Racial disparities in prenatal care and preterm births are inversely associated with maternal educational attainment.
• Rate of no prenatal care is highest among Black mothers with less than a high school diploma (4.64%).
• From 2012 to 2013, both White and Black mothers in the region exhibited a significant increase in educational attainment whereas no significant changes in educational attainment were observed for Hispanic or Asian mothers.
• In Central Jersey, Black mothers have the highest C-section rate (38.3%, 2013).
• Breastfeeding rates are significantly lower among less educated mothers.
• While the odds of having SGA babies are comparable between White and Hispanic mothers, the odds are significantly higher for Black and Asian mothers.
• Babies born to Black mothers disproportionately represent in low birth weights and preterm births even with adjustments for maternal educational levels.

<table>
<thead>
<tr>
<th>2013 Maternal Educational Attainment by Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Mothers</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>&lt;High School Diploma</td>
</tr>
<tr>
<td>High School Diploma</td>
</tr>
<tr>
<td>Some College</td>
</tr>
<tr>
<td>College Grad</td>
</tr>
<tr>
<td>Advanced Degree</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

* Significantly different from 2012

*** *** * -- --
INTRODUCTION

Racial disparities in birth outcomes and infant health are well established in the literature. Persisting gaps between Whites and Blacks have been identified at both national and state levels. National data indicate that compared to White babies, Black babies are overrepresented in low birth weight and preterm births, which are associated with additional health problems and higher infant mortality rate (Pitts, Walker, & Armour 2011). Health of Black babies also lag behind their peers of other race groups. A recent report from the Centers for Disease Control suggests that babies born to Black mothers are about 1.5 to 3 times more likely to die than babies born to mothers of other races (Truman et al., 2011). Factors contributing to racial disparities in birth outcomes and infant health include low SES, maternal marital status, inadequate prenatal care, higher stress level, maternal age, and parental health-related lifestyles (Pitts et al., 2011). Using maternal education as a proxy measure for SES, this chapter discusses disparities in birth outcomes by race, family SES, and maternal characteristics in 2013 in Central New Jersey.

2013 DELIVERY OUTCOMES BY RACE

Among the 29,770 babies delivered in Central New Jersey in 2013, over 99% (n = 29,590) were live births; about 0.6% (n = 180) were fetal deaths before labor; and there were n = 10 cases of fetal death during labor and delivery. While babies born to Black mothers only accounted for 9.4% of the live births, they represented nearly a quarter (24.7%) of fetal deaths.

Consistent with the literature, regional EBC data show that fetal deaths are more likely to occur to unmarried pregnant women: while only 30% of pregnant women reported unmarried within the regional, they account for over one-third (37.8%) of fetal death cases. As marital status is associated with prenatal care, stress, and financial security, some scholars have found that maternal unmarried status positively related to adverse infant health indicators including mortality, low birth weight (LBW), preterm birth (PTB), and small for gestational age (SGA) (Shah, Zao, & Ali 2011).

Comparisons within race groups of Central Jersey indicate that a greater proportion of unmarried mothers among Black mothers (66.1%), followed by Hispanic mothers (59.9%), other those of other races (36.1%). Asian and White mothers have the lowest percentages of being unmarried (3.8% and 16.7%, respectively). This finding suggests that Black mothers are at greater risk of experiencing adverse birth outcomes.
Disparities in Prenatal Care

PRENATAL CARE and MATERNAL EDUCATION

Since 2009, annually, only about 0.6% to 0.7% (n > 200) of pregnant women in Central Jersey reported having no prenatal care; yet, there are systematic differences in prenatal care (PNC) by race and maternal educational attainment. Across race groups, Black mothers exhibited the highest percentage of no prenatal care: 2.1% of Black mothers reported not receiving prenatal care in 2013. This percentage is significantly higher than the regional average (0.7%).

Among mothers without prenatal care, nearly three-quarters (72%) have a less than college education. In Central Jersey, the highest proportion of having less than a college education is found within Hispanic mothers (70.3%), followed by Blacks (49%), Whites (26.6%), and Asians (8.5%). Within mothers reporting having a beyond high school education, Blacks only account for 7.8%, compared to 63.2% Whites, 10.5% Hispanics, 16.3% Asians, and 2.1% Other/unknown races. Among mothers reporting no prenatal care, highly educated Black mothers with above high school education disproportionately represent 27.8%. This suggests that Black mothers are still at the greatest risk of not having prenatal care even with adjustment for educational levels.

PRENATAL CARE, PREMATURITY AND LOW BIRTHWEIGHTS BY RACE

Adequate prenatal care is important for prevention of infant prematurity and low birth weights, which are identified factors for various physical and psychological developmental impairments (Mathews 2011). Regional 2012-2013 EBC data show that within singleton babies born to mother without prenatal care, 27.2% were preterm births less than 37 weeks, a significantly higher proportion compared to the 6.6% preterm births born to mothers with prenatal care. Likewise, among singleton babies born to mothers without prenatal care, 19.3% were low birth weight, compared to 5.1% low birth weight babies born to mothers receiving prenatal care.

Among mothers receiving prenatal care, Blacks are again at the greatest risk of having preterm and low birth weight babies. Whereas the percentages of delivering preterm or low birth weight babies for White, Hispanic, and Asian mothers with prenatal are close to regional average (6.6% and 5.1%, respectively), the percentages are significantly higher for Black mothers (10.2% and 9.4%, respectively).

Maternal Educational Level and PNC by Race: 2013

<table>
<thead>
<tr>
<th>Maternal Educational Level</th>
<th>Other races</th>
<th>Asian</th>
<th>Hispanic</th>
<th>Black</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Highly Educated No PNC Mothers</td>
<td>7.4%</td>
<td>5.60%</td>
<td>9.30%</td>
<td>27.80%</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maternal Educational Level</th>
<th>Other races</th>
<th>Asian</th>
<th>Hispanic</th>
<th>Black</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Highly Educated Mothers</td>
<td>1.9%</td>
<td>16.1%</td>
<td>10.8%</td>
<td>7.9%</td>
<td>63.3%</td>
</tr>
</tbody>
</table>

PNC, Prematurity, and Low Birth Weight by Race: 2012-2013

<table>
<thead>
<tr>
<th>PNC, Prematurity, and Low Birth Weight by Race: 2012-2013</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNC Preterm</td>
<td>5.7%</td>
<td>7.2%</td>
<td>6.3%</td>
<td>6.6%</td>
</tr>
<tr>
<td>No PNC Preterm</td>
<td>21.3%</td>
<td>33.3%</td>
<td>27.1%</td>
<td>36.4%</td>
</tr>
<tr>
<td>PNC LBW</td>
<td>3.90%</td>
<td>5.10%</td>
<td>6.90%</td>
<td>5.1%</td>
</tr>
<tr>
<td>No PNC LBW</td>
<td>9.40%</td>
<td>18.20%</td>
<td>18.10%</td>
<td>19.3%</td>
</tr>
</tbody>
</table>

- 28-
C-section rates in the central region have been declining in recent years, but significant racial disparities in C-section rates persist. C-section rates are the highest among Black and Asian mothers. However, from 2012 to 2013, within-race comparison found an increased C-section rate only for Black mothers while the rate went down for all other race groups. In 2013, 38.4% of Black mothers delivered through C-section, compared to 38.1% in 2012.

Findings from binary logistic regression on 2012-2013 regional EBC data show maternal race, age, educational attainment, marital status, and prenatal care status significantly predict the odds of delivery through C-section. Overall, mothers who are older, have a beyond high school education, are unmarried, with no prenatal care, and are non-White, have greater estimated odds of delivery via C-section.

The racial disparity in delivery through C-section remain highly significant with adjustments for age, education, marital status, and prenatal care. Accounting for age, education, marital status, and prenatal care status, the odds of delivery by C-section are 49% greater for Black mothers than for White mothers. While mothers of other race groups also have greater odds of delivery by C-section than White mothers, the differences in estimated odds are not as great as the difference between Blacks and Whites.

Meanwhile, the odds of delivery through C-section increase by maternal age. Compared to teen mothers, mothers between 20 and 24 years old have 46% greater odds of delivery by C-section, and the odds are nearly 5.5 times greater for mothers aged 40 or older. Similarly, highly educated mothers have 15% greater odds of delivery by C-section than mothers who have a high school or less education.

Holding other factors constant, the odds of C-section delivery are 23% less for married mothers. For mothers with prenatal care, the odds are 38% less.
SMALL FOR GESTATIONAL AGE (SGA)

Babies born small for gestational age are at higher risk for developmental and behavioral problems, including lower intelligence, lower social and academic competence, and greater likelihood of obesity and experiencing peer teasing (e.g., Ludgren & Tuvemo 2008). A recent study by Pariente and colleagues (2013) reports a long-term association between SGA births and maternal cardiovascular problems, such as congestive heart failure, hypertensive heart and kidney disease, and cardiovascular mortality. Some researchers suggest that SGA neonates may catch up in growth with exclusive feeding of breast milk from birth to four months of age (Singh, Devi, & Raman 2009).

Of babies born in the central region in 2013, 11.8% (n = 3,504) were considered small for gestational age, compared to 11.3% (n = 3,389) SGA babies in 2012. Babies born to Asian and Black mothers exhibited higher rates of SGA births than peers born to White and Hispanic mothers. In 2013, the highest proportion of SGA births were found in babies born to Asian mothers (17.4%), followed by babies born to Black mothers (16.6%). Proportions of SGA births were significantly lower for babies born to Hispanic and White mothers (10.8% and 10.2%, respectively).

Racial disparities in SGA births are even more pronounced with account for maternal education. At all levels of maternal education, babies born to Black and Asian mothers have the highest SGA rates. The highest proportion of SGA births were found in babies born to Asian mothers with a beyond college education (19.3%), while proportions of SGA births were all below 12% for mothers of comparable educational level but of other race groups. The next highest risk groups for SGA births were found in babies born to Black mothers: the proportions of SGA births is 18.9% for Black mothers with less than a high school diploma, and 18.6% for Black mothers with a high school diploma.
Disparities in Breastfeeding

BREASTFEEDING

As discussed in Chapter 4, the central region exhibits an increase in rate of exclusive breastfeeding at discharge in recent years. Although exclusive breastfeeding rates have increased in all six counties, considerable county-level differences still exist. In 2013, the rate was highest in Mercer County (59.6%) and lowest in Middlesex (40.2%).

![Graph showing % of Babies Exclusively Breastfed at Discharge]

<table>
<thead>
<tr>
<th>Year</th>
<th>Hunterdon</th>
<th>Mercer</th>
<th>Middlesex</th>
<th>Monmouth</th>
<th>Ocean</th>
<th>Somerset</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>57.10%</td>
<td>59.60%</td>
<td>40.20%</td>
<td>55.70%</td>
<td>51.80%</td>
<td>46.80%</td>
<td>51.30%</td>
</tr>
<tr>
<td>2012</td>
<td>55.40%</td>
<td>52.00%</td>
<td>41%</td>
<td>53.60%</td>
<td>49.80%</td>
<td>47.10%</td>
<td>48.80%</td>
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</table>

BREASTFEEDING BY MATERNAL RACE AND EDUCATION

Overall, rate of exclusive breastfeeding is highest among babies born to White mothers (nearly 60% region-wide), while the rate is lowest among babies born to Black and Hispanic mothers (39.1% for both races). Yet, crosstabs of maternal race by county reveal much difference across counties. In 2013, within babies born to Black mothers, those in Hunterdon and Mercer had the highest rates of being breastfed (50% and 47.9%, respectively), while those in Ocean had the lowest rate (23.5%). Within babies born to Hispanic mothers, the highest breastfeeding rates were found in Mercer (58.7%) and Monmouth (51.4%) whereas the lowest rate was found in Ocean (19.6%). For babies born to Asian mothers, those in Mercer and Monmouth had the highest exclusive breastfeeding rates (57.8% and 57%, respectively) while those in Ocean and Middlesex had the lowest rates (37.4% and 38.9%, respectively).

![Graph showing % of Exclusive Breastfeeding by Race: 2013]

For all race groups, rate of exclusive breastfeeding increases with maternal educational levels. The lowest exclusive breastfeeding rates were found in mothers with less than a high school education, and the highest rates were found in highly educated mothers who have attained an advanced degrees beyond college.
CJFHC Programs:
Meeting Our Mission

The CJFHC community programs, professional education and services are tailored to meet the individual needs of the community and our stakeholders and partners.

<table>
<thead>
<tr>
<th>PROGRAMS/SERVICES</th>
<th>HUNTERDON</th>
<th>MERCER</th>
<th>MIDDLESEX</th>
<th>MONMOUTH</th>
<th>OCEAN</th>
<th>SOMERSET</th>
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<tr>
<td>Access To Prenatal Care</td>
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<td>Fetal/Infant Mortality Review</td>
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<td>x</td>
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<tr>
<td>Healthy Families - TIP</td>
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<td>Parents As Teachers</td>
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<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
The CJFHC Planning Committee provides oversight for the development of services and programs that are tailored to the individual needs of the localities, communities, and neighborhoods of the central region. Service needs are identified through a variety of data sources, including hospital, agency, state, and national databases; as well as the experiences, feedback, and recommendations from community members, coalition members, outreach staff, and other stakeholders. Based on an extensive review of this information, the CJFHC Planning Committee recommends programs and strategies that combine evidence-based methods with the expertise of community members. Such strategies might include implementing new programs or expanding existing programs to target groups such as community members, health care professionals, and agency staff.

IMPROVING PREGNANCY OUTCOMES

Central Jersey Family Health Consortium received funding from the New Jersey Department of Health to implement a coordinated model of care that seeks to support women’s health across their productive lifespan and enhance pregnancy outcomes. With a focus on Middlesex County, our Community Health Workers (CHW) strategize ways to educate and connect women and families in the county to available support and resource systems. In addition to referring clients to appropriate preconception or prenatal care, the CHWs help women and families acquire health knowledge and obtain a variety of medical and social services, including general medical care, mental health assessments, domestic violence assessments, dental care, HIV counseling and testing, substance abuse counseling and treatment, insurance coverage, WIC, housing and childcare assistance, and employment and schooling resources. In an effort to connect the at-risk population with service providers and ensure that even the hard-to-reach population obtain needed care, CHWs actively conduct community outreach programs, home visitations, educational workshops, and case management activities.

BREASTFEEDING PROMOTION

Consortium staff remain active members of Shaping New Jersey an initiative of the New Jersey Department of Health (NJDOH) and awarded a grant to promote community support for Breastfeeding in Toms River and North Brunswick. Staff at two Federally Qualified Health Centers (FQHC) received evidence-based breastfeeding education and were offered assistance with writing breastfeeding education policies. Champions from each FQHC were identified and were provided with additional two days of breastfeeding education at CJFHC. As part of this initiative, Mom to Mom support groups were planned and offered. A resource guide was developed for the two sites. CJFHC collaborated with the NJ Breastfeeding Coalition and developed ZipMilk cards as an additional resource for breastfeeding mothers.

The Consortium has continued to provide breastfeeding education to professionals within our region. The two day CJFHC breastfeeding course helps hospitals meet the educational needs of their staff as they work on achieving the Ten Steps to Becoming Baby Friendly; Joint Commission Standards, and NJDOH Hospital Regulations. The CJFHC MCH Directors held a meeting to discuss the New Jersey Hospital Regulations that were approved with implications for breastfeeding support in the hospital and education for staff. CJFHC also participates in the Monmouth-Ocean Breastfeeding Consortium (MOBC), playing an active role in educational effort throughout the counties, including planning an annual breastfeeding conference.
CHILDREN’S ORAL HEALTH PROGRAM

Preventative oral health education programs are provided for children and their families through schools and community groups in Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Ocean, Somerset, and Union Counties. The program provided school presentations, loaner teaching kits featuring “Frannie Flossisaurus” and “Mr. Gross Mouth,” and education presentations held with parent groups at pre-schools and child care centers, WIC clinics, baby showers, OB clinics, and other community groups.

COMMUNITY NEEDS ASSESSMENT

Each year, the CJFHC Data and Evaluation Unit conducts a community needs assessment for each county and target city within the region. This needs assessment serves as a tool to target programming and identify funding sources that will address the needs within the community. The needs assessment is compiled through collection of data from Electronic Birth Certificates at all member birthing hospitals in the region. The data is cleaned and analyzed to determine trends in demographic characteristics of mothers, prenatal care utilization, and adverse birth outcomes. From these trends, recommendations can be made on types of services and areas in greatest need.

FETAL and INFANT MORTALITY REVIEW

Funding is provided to CJFHC to implement a Fetal and Infant Mortality Review program. Fetal and Infant Mortality Review (FIMR) is an action-oriented community process that continually assesses, monitors, and works to improve service systems and community resources for women, infants, and families. Research shows FIMR is an effective perinatal systems intervention (NFIMR.org). Member hospitals provide reports of all fetal and infant deaths to the Consortium. CJFHC mails a packet of resources regarding bereavement and community resources to all mothers experiencing a perinatal loss. The FIMR Coordinator follows up on the mailings by calling mothers to request a maternal interview. A CJFHC nurse conducts an audit at the hospitals of selected medical records and completes the maternal interview if granted. Upon completion of de-identified case summaries, CJFHC presents the cases to the Interdisciplinary Case Review Team to obtain recommendations regarding quality improvement, educational outreach, and other services that will assist in preventing perinatal loss. These recommendations are also provided to NJDOH to inform policy.
HEALTHY FAMILIES - TIP

Healthy Families - Temporary Assistance for Needy Families (TANF) Initiative for Parents (TIP) program in Middlesex and Somerset Counties is a home visitation program that targets pregnant women and new mothers with an infant less than 3 months of age. The program offers real-life parenting skills and support focusing on many areas including healthy child development, good nutrition, continuing education, and employment services. Pregnant women receive personal home visitation services; participate in parent group meetings; receive developmental and health screenings; and linkages to community social services and health resources. The program is part of a statewide initiative to increase access to health care and supportive services for all pregnant women and new mothers.

MATERNAL MORTALITY REVIEW (STATEWIDE)

The work of the New Jersey Maternal Mortality Review (NJMMR) Team is part of a longstanding commitment among a multi-disciplinary committee to reduce and prevent the number of deaths related to pregnancy and childbearing among New Jersey residents. The NJMMR is a four-step review process that includes 1) Identification of maternal deaths, 2) Review of maternal deaths, 3) Analysis and interpretation, and, 4) Action. The New Jersey Department of Health contracts with CJFHC to conduct a comprehensive case review of all women in New Jersey who die during pregnancy or within a pregnancy event, enter and verify data, and draft a maternal mortality report which includes recommendations regarding systems issues which were identified as playing a role in the death of each woman.
MID-JERSEY CARES REGIONAL EARLY INTERVENTION COLLABORATIVE

The Mid-Jersey CARES (Collaboration, Advocacy, Resources, Education and Services) for Special Children Collaborative is a Regional Early Intervention Collaborative (REIC) whose goal is to help strengthen and improve early intervention services for children with special needs, ages birth to three years, and their families. The Mid-Jersey CARES region consists of Hunterdon, Mercer, Middlesex, Somerset, Monmouth, and Ocean Counties. Mid-Jersey CARES works cooperatively with the statewide system of early intervention services to:

- Ensure that young children with special needs are offered early intervention services.
- Ensure that services provided to children are high quality and are given in natural environments, where children and family members live, work and play.
- Ensure that each family plays a major role in how early intervention services are planned, put into action and evaluated.
- Make sure that each family understands their child's needs and rights and that the system protects these rights.
- Perform a regional needs assessment of the early intervention system, seeing if and where services are missing, and recommending where services are needed most.
- Serve as an early intervention resource and referral center for families, early intervention providers and other community agencies.
- Educate and provide information about early intervention to families, health care providers and other community members.

NEW JERSEY IMMUNIZATION INFORMATION SYSTEM EDUCATION, TRAINING AND QUALITY ASSURANCE

New Jersey Immunization Information System (NJIIS), established in 1997, is a web enabled immunization information system that provides an electronic immunization history, generates recommended immunization schedules, provides reminder/recall notices and other reports for physicians, clinics and other approved medical providers. CJFHC is funded to provide:

- Statewide education and outreach.
- Recruitment and training in Central New Jersey.
- Quality assurance in Central New Jersey and the following counties:
  - Atlantic
  - Bergen
  - Burlington
  - Camden
  - Cape May
  - Cumberland
  - Gloucester
  - Salem
PARENT AND HOME VISITOR CONNECTION-CENTRAL INTAKE

Parent and Home Visitor Connection provides pregnant women and parents with early linkages to evidence-based home visitation services and other community based programs. The Connection works to improve coordination among home visitation providers, develop uniform client data collection and analysis, and provide linkages to other supportive services in the region.

PARENTS AS TEACHERS

In collaboration with the Somerset Office of Youth Services, CJFHC offers Parents as Teachers (PAT)—a parent education, family support, and school readiness program. PAT is designed to enhance child health, growth, development, and school achievement. PAT visits are made by certified educators and take place in either the home or a group setting with a standardized curriculum.

PERINATAL ADDICTIONS

As part of the statewide Perinatal Addictions Prevention Project (PAPP), education is provided for professionals and consumers regarding substance use before, during, and after pregnancy.

Education focuses on prevention and risk reduction to improve the health of women and children and their families. An advisory committee has also been established to address and coordinate perinatal addictions services, and provide education throughout the central region of New Jersey. This committee is comprised of professionals from treatment settings, prenatal care facilities, Division of Child Protection and Permanency (DCP&P), drug court, and other community services.

In addition, a focus is placed in bridging gaps in services for pregnant women suffering with opioid addiction, to provide networking opportunities and current information regarding services and scientific findings. The Perinatal Addiction Prevention Project has also established a 6 week smoking cessation curriculum for women in their childbearing years. The content is supportive and didactic. In conjunction with the consumer groups, Nicotine Replacement Therapies (NRTs) will be prescribed as needed by qualified health care professionals. PAPP also promotes the use of a prenatal screening tool, called 4Ps Plus, for alcohol, tobacco, other drugs and domestic violence. The tool also offers appropriate intervention to address these maternal and fetal risk factors.
PERINATAL MOOD DISORDER EDUCATION AND FOLLOW-UP

Central Jersey Family Health Consortium (CJFHC) offers professional and consumer education on the issues surrounding perinatal mood disorder as well as the Perinatal Mood Disorder Phone Follow-Up Program. This program assists women identified to be at-risk, linking them to local and state resources, such as support groups and mental health counseling services. A bilingual staff member is available for Spanish-speaking women. CJFHC’s phone follow-up services are not of a clinical nature and no direct mental health counseling is provided. The goals of the program are to expand community resources for mothers at-risk and to support hospitals and other health care providers’ efforts in providing information to women and their families concerning available support and treatment resources.

PROFESSIONAL AND CONTINUING EDUCATION

CJFHC designs its educational offerings to meet the needs of the region’s inpatient and ambulatory health care providers. The target audiences for these educational offerings include, but are not limited to nurses (inpatient, ambulatory care, school nurses, home visiting nurses, office nurses), mid-level practitioners, physicians, lactation consultants and counselors, registered dieticians, social workers, hospital clergy, and paraprofessionals, (e.g., outreach workers). In addition, the Consortium collaborates with professional organizations to provide professional education, such as the New Jersey American Academy of Pediatrics (NJAAP), New Jersey Obstetrical and Gynecological Society (NJOGS), American College of Obstetrics and Gynecology (ACOG) New Jersey, New Jersey Section of Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) and other New Jersey MCH Consortia. Examples of the professional educational offerings include:

Nationally Developed Courses
• AWHONN Fetal Monitoring Intermediate Course
• AWHONN Fetal Monitoring Advanced Course
• AWHONN Fetal Monitoring Instructor Course
• ALSO (Advanced Life Support in Obstetrics) Provider Course
• ALSO Provider Update
• The S.T.A.B.L.E. Program

CJFHC Courses
• Breastfeeding Support: The Nurse’s Role
• Postanesthesia Care Unit (PACU) Course for the Obstetric Nurse
• Maternal-Newborn/Low Risk Neonate Update and Review Course

CJFHC Conferences
• Critical Issues Families Encounter Dealing with Perinatal Mood Disorders
• Empowering Pregnant Women to Promote Healthy Outcomes
• Health Promotion: Preconception Through Parenting
• Lead the Way: Safe Sleep for Infant Loss
• New Conception Care: Continuous Support, the Doula Role
• Benefits in Non-Pharmacologic Ways to Reduce Stress and Pain in Labor
• Pediatric Practice Updates
• Perinatal/Neonatal Nursing: Finding Our Way Toward Evidence-Based Practice
• Preconception Health: Lessons Throughout a Lifetime
• Using Best Practice to Improve Obstetrical Outcome
SAFE KIDS NEW JERSEY

Safe Kids Worldwide is a global organization dedicated to protecting kids from unintentional injuries, the number one cause of death to children in the United States. Founded in 1987 by Children’s National Medical Center with support from Johnson & Johnson, it is the first and only national non-profit organization dedicated solely to the prevention of unintentional childhood injury.

In New Jersey, Safe Kids is led by CJFHC. Safe Kids New Jersey has the honor of being recognized as one of the most outstanding coalitions in the nation. The combined efforts of Safe Kids New Jersey together with its comprehensive statewide network of 21 local coalitions and vast array of volunteers have led to remarkable achievements in preventing childhood death and injury in our state.

TEEN PREGNANCY PREVENTION

Wyman’s Teen Outreach Program (TOP®), is a comprehensive, evidence-based youth development strategy that promotes the positive development of adolescents through a combination of curriculum-guided group discussion and community service learning. Through rigorous evaluation, TOP® has been proven to reduce the risk of teen pregnancy, school suspensions and course failure and is recognized nationally as a leading model in youth development.

As a Certified National Replication Partner, CJFHC trains TOP® Facilitators to use the Changing Scenes© Curriculum to help teens aged 12-19 develop healthy behaviors, life skills and a sense of purpose. CJFHC partners with School Based Youth Services, community based organizations, hospitals and school districts to implement 40 TOP® Clubs at 23 sites in Mercer, Middlesex, Monmouth, and Ocean Counties. Check out what TOP® has to offer at: http://wymancenter.org/nationalnetwork/top/.

In order to participate, students must attend a school where a TOP® Club is being implemented and they must be in the grade level that is being targeted which differs from school to school. This program is free for students. TOP® operates from September through June. Enrollment is open over the summer through October. In order for teens to get the full benefit of the program, students cannot join TOP® after October.

INTERDISCIPLINARY CASE REVIEW TEAM (ICRT)

All cases of maternal mortality, maternal transport with death, selected pediatric deaths, pediatric transport with death, women delivering after receiving no prenatal care, non-compliance with rules regarding birth weight and gestational age, neonatal transports with death and fetal deaths >2500 gms are reported to the Consortium by birth hospitals. A CJFHC nurse does a medical chart audit of selected cases and de-identified summaries of these cases are provided to the team. The Interdisciplinary Case Review Team is a group of health care professionals that meets six times a year to review these cases in addition to Fetal Infant Mortality Review cases and makes recommendations on how the region can improve care.
References
Building on Previous Knowledge


References


Appendix

APNCU Index – Adequacy of Prenatal Care Utilization Index. Also known as the Kotelchuck Index. Classifies prenatal care received by mothers into 1 of 4 categories: inadequate, intermediate, adequate, and adequate plus by combining information about the timing of prenatal care, the number of visits and the infant’s gestational age.

ACOG – American Congress of Obstetricians and Gynecologists.

Ambulatory Care Sensitive Diagnoses – Medical conditions that can be controlled or treated effectively in an outpatient setting.

Antepartum – Prior to the onset of labor.

Birth Rate =
(Number of live births to women of all ages during a calendar year) x 1000
Total estimated mid-year population

Birth Weight - The first weight of the fetus or newborn obtained after delivery recorded in grams.

Cause of Death Classification - A system of specification of the diseases and/or injuries which led to death and the sequential order of their occurrence. The version of the system currently in use is The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision 1992 (ICD-10), sponsored by the World Health Organization.

CDC - The Centers for Disease Control and Prevention.

CPC - Intermediate – Community Perinatal Center-Intermediate. A hospital designated to deliver babies >32 weeks gestation and >1500 grams.

Continuous Quality Improvement (CQI) – An approach to quality management that builds on traditional quality assurance methods but continues even when high standards have been met. The goal of a CQI process is to provide an opportunity to facilitate change through education and community action. The CJFHC’s CQI program is designed to identify the nature and severity of health-service problems and is based on the reporting of cases; data abstraction from the medical record; review of each case by a multidisciplinary review team; and development of action plans based on the results of the case reviews.

Cesarean Section (C-section) - A surgical delivery through an incision (a cut) in the abdomen and the uterus.

Delivery - The complete expulsion or extraction from its mother of a product of conception.

EBC – Electronic Birth Certificate.
Appendix

**Ethnicity** - The reporting of ethnicity is limited to Hispanic and non-Hispanic categories. A Hispanic person may be of any race, including White, Black, and other races. Ethnicity of a newborn is not reported on the birth certificate. For statistical purposes, the ethnicity of the mother is used. For deaths, the ethnicity of the deceased is usually reported by either a family member or from the person responsible for preparing the death certificate.

**Extremely Low Birth Weight (ELBW)** - Any neonate, regardless of gestational age, with birth weight of less than 1,000 grams or approximately 2 pounds, 3 ounces.

**Extremely Low Birth Weight Percentage** =
\[
\frac{\text{Number of live births with a birth weight less than 1000 grams}}{\text{Number of live births, all weights, for the same period}} \times 100
\]

**Fetal Death** - Death before the complete expulsion or extraction from its mother of a product of conception, with stated or presumed gestation of 20 weeks or more. The death is indicated by the fact that after such separation, the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

**Fetal Death Rate** =
\[
\frac{\text{Number of fetal deaths}}{\text{(Number of fetal deaths) + (number of live births for the same period)}} \times 1000
\]

**Fetal and Infant Mortality Review (FIMR)** – A national program designed to review cases of fetal and infant deaths with the goal of implementing local action steps to improve the maternal child health system. The results of the reviews are utilized to assess local and regional needs, develop new programs, improve existing programs, and implement educational programs for both professionals and consumers.

**Gestational Age** – The number of completed weeks between the first day of the last normal menstrual period (not the presumed time of conception) and the date of delivery, irrespective of whether the gestation results in a live birth or fetal death.

**High-Risk** – Any patient identified with a medical/obstetrical condition requiring more than routine medical or surgical intervention.


**Infant** – A child from the period from birth to one year of age.

**Infant Death** - Any death at any time from birth up to, but not including one year of age (364 days, 23 hours and 59 minutes from the moment of birth).

**Infant Mortality Rate** =
\[
\frac{\text{(Number of infant deaths, neonatal and post neonatal, during a period)}}{\text{Number of live births during the same period}} \times 1000
\]
**Intensive Care** – A hospital unit in which there are concentrated special equipment and skilled personnel for the care of seriously ill patients requiring immediate and continuous attention.

**Intrapartum** – The period occurring during childbirth or delivery.

**Live Birth** - The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life such as heartbeat, umbilical cord pulsation, or definite movement of voluntary muscles, whether the umbilical cord has been cut or the placenta is attached.

**Low Birth Weight (LBW)** - Any neonate, regardless of gestational age, with a birth weight of less than 2,500 grams or approximately 5 pounds, 8 ounces.

**Low Birth Weight Percentage** = \[
\frac{\text{Number of live births with a birth weight less than 2500 grams}}{\text{Number of live births, all weights, for the same period}} \times 100
\]

**Marital Status** - A mother is designated as married if she was married at the time of conception, delivery, or any time in between. All other mothers are designated unmarried. If the marital status of the mother is not noted on the birth certificate, the status is designated as unknown.

**Maternal and Child Health Consortium (MCHC)** – A voluntarily formed non-profit organization, incorporated under Section 501(C)3 of the United States Internal Revenue Code, consisting of all inpatient, ambulatory perinatal and pediatric care providers and related community organizations in a maternal and child health service region, licensed as a central service facility by the Department of Health.

**Maternal Death** - A death of a woman from any cause related to or aggravated by pregnancy or its management (regardless of the duration or site of pregnancy), but not from accidental causes.

- **Direct obstetric death**—The death of a woman resulting from obstetric complications of pregnancy, labor, or the puerperium; from interventions, omissions, or treatment; or from a chain of events resulting from any of these.
- **Indirect obstetric death**—The death of a woman resulting from a previously existing disease or a disease that developed during pregnancy, labor, or the puerperium that did not have direct obstetric causes, although the physiologic effects of pregnancy were partially responsible for the death.

The CDC/ACOG Maternal Mortality Study Group introduced the following terms which are being used by the CDC and increasingly by some states and researchers, including NJ:

**Pregnancy-Associated Death** – The death of any woman, from any cause, while pregnant or within 1 calendar year of termination of pregnancy, regardless of the duration and site of pregnancy.

**Pregnancy-Related Death** – A pregnancy-associated death resulting from: 1) complications of the pregnancy itself, 2) the chain of events initiated by the pregnancy that led to death, or 3) aggravation of an unrelated condition by the physiologic or pharmacologic effects of the pregnancy that subsequently caused death.
Appendix

Maternal-Fetal Medicine (MFM) Specialist – A physician (obstetrician/gynecologist) who has completed 2-3 years of additional formal education and clinical experience within an American Board of Obstetrics and Gynecology (ABOG) approved Maternal-Fetal Medicine Fellowship Program and is eligible for or certified by ABOG as having a special competence in: 1) the diagnosis and treatment of women with complications of pregnancy, 2) pre-existing medical conditions which may be impacted by pregnancy, and 3) medical conditions which impact the pregnancy itself.

Maternal-Fetal Transport – The transport of the high-risk patient for maternal management.

Maternal Mortality Rate = \[
\frac{\text{Number of maternal deaths}}{\text{Number of live births for the same period}} \times 1000
\]

NCHS - National Center for Health Statistics.

Near-term - Any neonate whose birth occurs between last day of the 34th week through the last day of the 37th week the following onset of the last menstrual period.

Neonatal (newborn) – The period up to 28 days after birth.

Neonatal Death - Death of a live born neonate before the neonate becomes 28 days old (up to and including 27 days, 23 hours, 59 minutes from the moment of birth).

Neonatal Mortality Rate = \[
\frac{\text{Number of neonatal deaths during a period}}{\text{Number of live births during the same period}} \times 1000
\]

Neonatologist – A physician who is board certified in pediatrics with a certification in neonatology from the American Board of Pediatrics, Sub-Board of Neonatal/Perinatal Medicine or the American Osteopathic Board of Pediatrics, Sub-Board of Neonatology.

NICU - Neonatal Intensive Care Unit. A hospital unit in which there are concentrated special equipment and skilled personnel for the care of seriously ill neonates requiring immediate and continuous attention.

NJDOH - The New Jersey Department of Health.

Onset of Prenatal Care - For reporting purposes, prenatal care is reported as beginning in the first trimester, second trimester, or third trimester of pregnancy.

Percent - A percent is a ratio of a number to 100. A percent can be expressed using the percent symbol %.

Percent of Total Births to Age Group = \[
\frac{\text{Number of births to women in a specific age group during a calendar year}}{\text{Total number of births}} \times 100
\]
Perinatologist – see Maternal-Fetal Medicine (MFM) specialist.

Perinatal – The period before and after birth: defined in New Jersey and generally accepted as week 20 of gestation through the neonatal period.

Perinatal Mortality – The death of a fetus or live-born infant who survived only briefly (not more than 28 days). Although perinatal mortality is often reported according to age, weight-specific reporting that categorizes weights into 500-g increments is encouraged because it’s more accurate than are age-specific reporting categories.

Perinatal Mortality Rate =
\[
\frac{\text{Number of neonatal deaths + fetal deaths 20 weeks or more gestation}}{\text{Number of fetal deaths 20 weeks or more gestation} + \text{live births during the same period}} \times 1000
\]

Post neonatal Death - Any death of an infant from 28 days up to but not including one year of life.

Post neonatal Mortality Rate =
\[
\frac{\text{Number of post neonatal deaths during a period}}{\text{Number of live births during the same period}} \times 1000
\]

Post term – Any neonate whose birth occurs during the beginning of the first day (295th day) of the 43rd week following onset of the 1st menstrual period.

PNC - Prenatal Care.

Preterm - Any neonate whose birth occurs through the end of the last day of the 37th week (259th day), following onset of the last menstrual period.

Race - Race designations for the data used in this report are White, Black, and other races, which include all known other non-White, non-Black races. Race of a newborn is not reported on the birth certificate. For reporting purposes, the race of the mother is used as the race of the child. For deaths, the race of the deceased is usually reported by either a family member or from the person responsible for preparing the death certificate.

Rate – A measure of the frequency of some event in relation to a unit of population during a specified time period, such as a year; events in the numerator of the rate occur to individuals in the denominator. Rates express the risk of the event in the specified population during a particular time. Rates generally are expressed as units of population in the denominator (e.g. per 1,000 or per 100,000).

Ratio – A term that expresses a relationship of one element to a different element (where the numerator is not necessarily a subset of the denominator). A ratio generally is expressed per 1,000 of the denominator element.

RPC – Regional Perinatal Center. A hospital designated to deliver babies of any gestation or weight, including high-risk infants and referrals from other hospitals.
Appendix

SCN – Special Care Nursery. An intermediate care nursery, separate from the normal nursery, designed exclusively for the care of neonates requiring specialized care but do not require the intensive care and services available at a Neonatal Intensive Care Unit (NICU).

SIDS – Sudden Infant Death Syndrome.

Term – Any neonate whose birth occurs from the beginning of the first day (260th day), of the 38th week, through the end of the last day of the 42nd week (294th day), following the onset of the last menstrual period.

Total Quality Improvement Program (TQI) – The process designed to review quality of care and perinatal outcomes. Total quality improvement is an activity of the individual facilities and the Regional Maternal and Child Health Consortia.

Transport – The process whereby the attending physician at the Community Perinatal Center assesses that the status of the patient who has become acutely high-risk, and arranges for the transfer of the care of the patient to the specialist at the Regional Perinatal Center via moving the patient with an emergency vehicle.

Trimester - Pregnancy usually lasts about 40 weeks from the last menstrual period and is divided into three sections of about three months each called trimesters. The first trimester includes the first 12 weeks of pregnancy, the second trimester includes the 13th through the 24th week of pregnancy, and the third trimester is the period after the 24th week of pregnancy through delivery.

VBAC - Vaginal Birth After Cesarean section.

Very Low Birth Weight (VLBW) - Any neonate, regardless of gestational age, with birth weight of less than 1,500 grams or approximately 3 pounds, 5 ounces.

Very Low Birth Weight Percentage = 
\[
\frac{\text{Number of live births with a birth weight less than 1500 grams}}{\text{Number of live births, all weights, for the same period}} \times 100
\]

Very Preterm - Any neonate whose birth occurs through the end of the last day of the 32nd week (224th day), following onset of the last menstrual period.

Women of Childbearing Age - Traditionally, women of childbearing age are defined as all women between the ages of 15 and 44; however, for the purposes of the report it is defined as women 12 to 44.
With a mission to improve the health of women of childbearing age, infants, and children in the region through the collaborative efforts of member hospitals, providers, and consumers.