Oregon Public Health Nurse Home Visiting

Babies First!, CaCoon, Maternity Case Management

Evidence About Health Outcomes

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Oregon Public Health Nurse Home Visiting Programs
The Current Context

CCOs → Care Coordinator Organizations and Outcomes
- Opportunity for partnerships between CCOs and public health agencies

PCPCH → Patient Centered Primary Care Organizations
- Opportunity to partner in attaining core attributes and measures
  - Access to care
  - Accountability
  - Comprehensive
  - Continuity
  - Coordination and integration
  - Patient & family-centered care

ELC → Early Learning Council
- Opportunity to partner in meeting early learning goal
Nurse Home Visiting Programs

• Babies First!

• CaCoon

• Maternity Case Management
CAre COordinatiON → CaCoon Program

• A *public health nurse home visiting* program
  – for children with special health needs

• Provides *comprehensive* care coordination services
Who is eligible for CaCoon?

- Children birth to 21 years of age with, or at risk for, chronic health conditions including developmental and behavioral health needs

- Families are eligible regardless of income or insurance status
What do CaCoon PHNs do?

CaCoon Public Health Nurses (PHNs):

- Provide and assure care coordination within the context of comprehensive nursing assessments of the child and family
- Continual reassessment and monitoring of plan
- Monitor child health and development to maximize potential and prevent secondary conditions
- Link the child/family to a medical home, specialty care, and community resources
- Assist families to develop independence to manage and monitor their child’s condition
- Consultation and collaboration to facilitate teamwork among families, providers and community resources
- Provide support, counseling and advocacy
CaCoon Services – FY2012

• 1,836 children received 8,979 visits from CaCoon nurses

• Families received an average of 5 visits

• CaCoon nurses made over 10,000 referrals to community services
Babies First!

• Nurses visit high risk infants in their homes

• Over 5,000 infants & children served each year
Babies First!
Purpose is Prevention and Early Identification

Services

• Nursing health assessment
• Developmental screening
• Parent & Child relationship strengthening
• Referrals to needed services
Public Health Nurse Home Visiting Maternity Case Management (MCM)

- Augments essential prenatal care
- Provides nursing assessments, support, education, referrals, advocacy, and service coordination
- More than 20 years history
- About 11,000 MCM visit were provided to about 2,500 pregnant women in fiscal year 2012
Public Health Nurse Home Visiting Maternity Case Management (MCM)

- Primary purpose of MCM is to optimize pregnancy outcomes
  - Assure timely and adequate prenatal care
  - Reduce the effects of risk factors across health, social, economic, and nutritional domains
  - Client-centered plan of care with nursing assessments and screenings
  - Strength-based
  - Mandatory education topics
  - Nurse communicates with prenatal care provider
Acknowledgements

Organizations:
Local County Health Departments
Oregon Health Authority (OHA)
  Maternal Child Health, Immunization Program and Medical Assistance Program
Oregon Health & Science University
  Oregon Center for Children & Youth with Special Health Needs (OCCYSHN)

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Research Outline

• Handouts
• Purpose
• Data Sources
• Health Outcome Measures
• Study Comparison Groups
• Study Results by Program
• Q & A
Orientation to Handouts

• 6 one-page briefs
  – 1 Babies First!
  – 3 CaCoon
  – 2 Maternity Case Management

Technical reports provide detailed descriptions of the research and analysis methods used.
Purpose

To establish evidence-based health outcomes for the Oregon public health nurse home visiting programs

The whole is greater than the sum of the parts

Aristotle
Data Sources

• Medicaid Database (DSSURS)

• Immunization Database (ALERT)

• Program Database (ORCHIDS)
Overview of Health Outcome Measures

Babies First! and CaCoon

- Annual flu immunizations
- Up-to-date two-year-old immunizations
- Annual well child visits
- Annual dental visits

Babies First!

- Hospitalization

CaCoon

- Special health needs diagnoses
- Emergency room visits

Public Health Maternity Case Management

- Timely and adequate prenatal care
- Early preterm delivery
Overview of Study Comparison Groups

- **Babies First! & CaCoon (Medicaid enrolled)**
  - All same-aged Medicaid clients
  - Age-specific outcome measures
  - Matched sample of Medicaid clients not served by programs

- **Maternity Case Management (Medicaid enrolled)**
  - All Medicaid births & mothers
  - Matched sample of Medicaid births & mothers not MCM
Babies First! Outcomes for High-Risk Children up to Age 5

Babies First! is a statewide public health nurse home visiting program for families with babies and young children up to age 5 years old. The goal is to identify high-risk infants (based on social, emotional, and medical risk factors) and improve the health outcomes of these vulnerable children through prevention and early intervention.

Compared to Medicaid, children that received Babies First! Medicaid nurse home visits had significantly higher rates of:

Immunizations
Immunizations save lives and improve quality of life. Babies First! annual flu immunization rates were more than one and half times greater than Medicaid children in 2010 and 2011. For children who turned two years old during the year, Babies First! up-to-date immunization rates were 30% higher than Medicaid in 2010 and 21% higher in 2011.

Annual well-child visits
Well-child visits are routinely scheduled preventive visits for children. Well-child visits are essential for maintaining long term positive health for children. Babies First! children were 37% more likely to receive an annual well child visit than other Medicaid children in 2010 and 36% more in 2011.

Annual dental visits
Developing good dental habits and routines early in life is important for long term health. Babies First! clients were 18% more likely to receive an annual dental visit than other Medicaid children in 2010 and 10% more likely in 2011.

Babies First! Potential Medicaid Cost Savings

Immunizations: Immunizations generate significant economic benefits. The Centers for Disease Control and Prevention (CDC) estimates for every dollar spent on immunizations about six dollars in direct medical costs are saved. The higher Babies First! immunization rate may therefore result in considerable Medicaid savings.

Medicaid hospital costs: A recent study indicates that Babies First! visits were associated with a 10% reduction in Medicaid hospitalization compared to clients who did not receive nurse home visits. The national average cost of a child’s hospital visit is $5,200, indicating substantial potential Medicaid savings.

At a glance:
Babies First! clients are more likely than other Medicaid clients to be up-to-date on immunizations.
Children involved with Babies First! access important early dental care.

“Out our the best. She was compassionate, capable, knowledgeable, and caring. I learned so much about parenting, health and safety issues from her.”

-Babies First! Client

Babies First! Clients Served

-2009: 1,208
-2010: 1,268
-2011: 1,587

Information provided by:
Oregon Health Authority: Department of Medical Assistance Programs Immunization Program Maternal and Child Health

Babies First!
971-673-0252 http://t.usa.gov/1G5dHs
Babies First!
(at risk children birth up to age five)

Babies First! Clients Served

- 2009: 7,125
- 2010: 7,046
- 2011: 5,847
The study purpose was to compare immunizations, annual well child care visits, and annual dental visits between Medicaid clients and Medicaid clients who received Babies First! visits.
Health Outcome Measures

Immunizations

• Annual Flu Immunizations 2010 & 2011
  – Immunization between August & April

• Up-To-Date Two-Year-Old Immunizations
  – 4:3:1:3:3:1:4 (total=19)
    – Diphtheria, tetanus, pertussis, measles, mumps, rubella, Haemophilus influenzae type b, hepatitis B varicella, pneumococcal conjugate
Health Outcome Measures

**HEDIS Measures**
(Healthcare Effectiveness Data & Information Set)

**Age-Specific Annual Well Child Visits**
- 5 visits in the first 15 months of life
- 1 visit per year through age 6

**Annual Dental Visits for 2-3 year-olds**

**Medicaid Hospitalization**
Medicaid children who received Babies First! visits had significantly higher annual flu immunization rates.

Babies First! rates 1.5 higher than Medicaid

Flu Immunizations
Birth to 5 Years Old

- Oregon Medicaid
- Babies First!

2010: 29% (Oregon Medicaid), 48%* (Babies First!)
2011: 28% (Oregon Medicaid), 50%* (Babies First!)

*chi-square significant at .05 or less
Medicaid children who received Babies First! visits had significantly higher up-to-date two-year-old immunization rates

*chi-square significant at .05 or less
Medicaid children who received Babies First! visits had significantly higher rates of annual well child visits

*chi-square significant at .05 or less
Medicaid children who received Babies First! visits had significantly higher rates of annual dental visits.

*chi-square significant at .05 or less
Babies First!: Medicaid Hospitalization

The purpose of the study was to compare inpatient hospitalization between Medicaid clients who did and did not receive Babies First! visits. Because Babies First! served a higher risk group, a matched sample of Medicaid clients who did not receive Babies First! was selected for comparison.
Babies First!: Medicaid Hospitalization
Comparison between Medicaid Clients Who Did and Did Not Receive Babies First! Visits

Study Participants
2009 Medicaid Clients
Medicaid enrolled 2009 and 2010
5,656 Babies First! & 5,656 Medicaid-Not Babies First! clients

Matched Sample of Medicaid-Not Babies First! Clients
Age
Gender
Race & ethnicity
County
Income
Medical risk factors (CDPS)
Length of Medicaid enrollment
Babies First!: Medicaid Hospitalization Study Results

Controlling for Medicaid enrollment, medical risk, 2009 hospitalization and sociodemographics:

Babies First! visits were associated with a 10% reduction in 2010 hospitalization.
For every dollar spent on immunizations about $6 in direct medical costs are saved
Centers for Disease Control and Prevention (CDC)

Average cost of hospitalization $5,200
2011 HCUP statistical brief
http://www.hcup-us.ahrq.gov/reports/statbriefs/sb118.pdf
CaCoon:
Medicaid Diagnosis Comparison between Children with Special Health Needs Who Did and Did Not Receive CaCoon Services

CaCoon is an Oregon public health nurse home visiting program for children and youth with special health needs (CYSHN) from birth to 21 years. CaCoon nurses provide comprehensive nurse assessments, interventions and care coordination to improve access to care and health outcomes.

Study
The study analyzed Medicaid claims and compared special health needs diagnosis of clients that did and did not receive CaCoon visits. The study included 1,196 Medicaid clients with CaCoon visits in 2009 and 122,092 Medicaid clients with no CaCoon visits. The study was limited to clients from birth up to 6 years old.

Special Health Needs Diagnoses
Congenital, mental health, behavioral health, and developmental diagnosis codes defined special health needs diagnoses (SHN). The quantity and type of SHN varied significantly between CaCoon clients and Medicaid-Not CaCoon clients. Thirteen percent of CaCoon clients had no SHN diagnosis compared to 99 percent of Medicaid-Not CaCoon clients. Twenty-seven percent of CaCoon clients had more than one SHN diagnosis compared to only 2% of Medicaid-Not CaCoon clients.

Results
CaCoon clients had different demographic and medical risks compared to Medicaid-Not CaCoon clients. CaCoon served a significantly higher frequency of younger, male, rural, Hispanic, Black/African American, and Native American clients. CaCoon clients maintained steady enrollment in Medicaid with 93 percent enrolled for three or more years compared to only 29 percent of Medicaid clients with a SHN and 27 percent of Medicaid clients without a SHN.

Inpatient Hospitalization
Inpatient hospitalization varied greatly between the groups. CaCoon clients were hospitalized nearly three times more than Medicaid-Not CaCoon clients with a SHN and nearly 10 times more than Medicaid-Not CaCoon clients without a SHN. CaCoon served more demographically diverse at-risk and higher medical risk clients than Medicaid clients who did not receive CaCoon services.
CaCoon
(CYSHN birth to age 21)

CaCoon Clients Served

<table>
<thead>
<tr>
<th>Year</th>
<th>Clients Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1,695</td>
</tr>
<tr>
<td>2010</td>
<td>1,788</td>
</tr>
<tr>
<td>2011</td>
<td>1,769</td>
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</table>
The study purpose was to compare special health needs Medicaid diagnoses between Medicaid clients who did and did not receive CaCoon visits.
Medicaid Diagnosis Comparison
Medicaid CaCoon and Medicaid-Not CaCoon

Study Participants
2009 Medicaid clients
Birth up to 6 years old
1,198 CaCoon & 122,082 Medicaid-Not CaCoon

Special Health Needs Diagnoses (SHN)
Medicaid claims 2008 to 2012
Congenital
Mental Health
Behavioral Health
Developmental
Medicaid Diagnosis Comparison
Medicaid CaCoon and Medicaid-Not CaCoon

Special Health Needs Diagnoses (SHN)
in Medicaid claims data

No SHN Diagnoses
13% CaCoon v 89% Medicaid-Not CaCoon

Only One SHN Diagnosis
61% CaCoon v 9% Medicaid-Not CaCoon

More than One SHN Diagnosis
27% CaCoon v 2% Medicaid-Not CaCoon
## Medicaid Diagnosis Comparison
Medicaid CaCoon and Medicaid-Not CaCoon

<table>
<thead>
<tr>
<th>CaCoon</th>
<th>Medicaid-Not CaCoon with SHN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developmental Delay</td>
<td>Asthma</td>
</tr>
<tr>
<td>22%</td>
<td>39%</td>
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<tr>
<td>Heart Conditions</td>
<td>Heart Conditions</td>
</tr>
<tr>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>Hearing Loss</td>
<td>Hearing Loss</td>
</tr>
<tr>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Asthma</td>
<td>Kidney Conditions</td>
</tr>
<tr>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Failure to Thrive</td>
<td>Convulsion Conditions</td>
</tr>
<tr>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Autism</td>
<td>Failure to Thrive</td>
</tr>
<tr>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Cleft Palate</td>
<td>Other Congenital Conditions</td>
</tr>
<tr>
<td>4%</td>
<td>3%</td>
</tr>
</tbody>
</table>
Medicaid CaCoon & Medicaid-Not CaCoon (Sociodemographics)

- Urban: 51% CaCoon, 61% Medicaid-Not CaCoon
- Hispanic: 42% CaCoon, 34% Medicaid-Not CaCoon
- Black/African American: 5% CaCoon, 3% Medicaid-Not CaCoon, 4% Medicaid-Not CaCoon w/SHN
- Native American: 11% CaCoon, 2% Medicaid-Not CaCoon w/SHN
Medicaid CaCoon and Medicaid-Not CaCoon

Length of Medicaid Enrollment 2008-11: 3+ years
- 93% CaCoon
- 27% Medicaid-Not CaCoon
- 29% Medicaid-Not CaCoon with SHN

Inpatient Hospitalization 2009-10 (excluding birth to 30 days)
- 28% CaCoon
  - 3% Medicaid-Not CaCoon
  - 10% Medicaid-Not CaCoon with SHN
CaCoon: Evidence-Based Outcomes for Serving Children with Special Health Needs

CaCoon is a statewide public health nurse home visiting program providing care coordination for families with children, birth to 21 years, with special health needs. These children and their families often have very complex health and related needs requiring coordination across multiple systems of care. CaCoon nurses assess family needs and provide interventions and care coordination to improve their health and well-being. The goal is to assure these children access to needed health and related services, spanning multiple systems of care, resulting in optimal health and well-being.

CaCoon children have complex needs. About 27% of CaCoon children have multiple chronic medical diagnoses, compared to only 2% of Medicaid children not served by CaCoon. CaCoon diagnoses include cleft palate, developmental delay, Down syndrome, epilepsy, failure to thrive, hearing loss, heart and brain disorders, cerebral palsy, spina bifida, and cystic fibrosis, among other rare and complex conditions.

Compared to Medicaid, children and youth that receive CaCoon nurse home visits had significantly higher rates of:

Immunizations
CaCoon annual flu immunization rates were more than twice as high as Medicaid children in 2010 and 2011. For children that turned two years old during the year, the CaCoon up-to-date immunization rate was 28% higher than Medicaid children in 2010 and 12% higher in 2011.

Annual well-child visits
The CaCoon annual well child care visit rate was 23% higher than Medicaid children in 2010 and 26% more in 2011.

Annual dental care visits
The CaCoon annual dental care visit rate was 21% higher than Medicaid children in 2010 and 2011.

CaCoon Potential Medicaid Cost Savings
Immunizations generate significant economic benefits. The Centers for Disease Control and Prevention (CDC) estimates for every dollar spent on immunizations about six dollars in direct medical costs are saved. The higher CaCoon immunization rate results in considerable Medicaid savings.

Note: A technical report provides detailed description of the research and analysis methods.

Information provided by:
Oregon Health Authority
Department of Medical Assistance Program
Immunization Program
Oregon Center for Children and Youth with Special Health Needs

At a glance:
CaCoon clients have higher immunization rates, well child visits, primary care visits, and dental care than Medicaid clients not served by CaCoon.

“I don’t think my son would be here if the CaCoon nurse hadn’t linked me to the services needed to help him.”
— CaCoon Client

CaCoon Clients Served

<table>
<thead>
<tr>
<th>Year</th>
<th>CaCoon</th>
<th>Medicaid</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>1,200</td>
<td>1,000</td>
</tr>
<tr>
<td>2011</td>
<td>1,250</td>
<td>1,150</td>
</tr>
<tr>
<td>2012</td>
<td>1,300</td>
<td>1,200</td>
</tr>
</tbody>
</table>

*Chi-square significant at .05 in tests.
The study purpose was to compare immunizations, annual well child care visits, and annual dental visits between Medicaid clients and Medicaid clients who received CaCoon visits.
Health Outcome Measures

• Annual Flu Immunizations 2010 and 2011

• Up-To-Date Two-Year-Old Immunizations

• HEDIS Measures
  – Annual Well Child Visits
  – Annual Dental Visits
Medicaid children who received CaCoon visits had significantly higher annual flu immunization rates.

CaCoon rates more than twice as high as Medicaid.

*chi-square significant at .05 or less
Medicaid children who received CaCoon visits had significantly higher up-to-date two-year-old immunization rates.
Medicaid children who received CaCoon visits had significantly higher annual well child visit rates.

*Chi-square significant at .05 or less*
Medicaid children who received CaCoon visits had significantly higher annual dental visit rates.

*chi-square significant at .05 or less
CaCoon: Emergency Room Use Comparison between Medicaid Children with Special Health Needs Who Did and Did Not Receive CaCoon Services

CaCoon clients were 13 percent less likely to visit the emergency room.

CaCoon is an Oregon public health nurse home visiting program for children and youth with special health needs (CYSHN) from birth to 21 years. CaCoon nurses provide comprehensive nurse assessments, interventions and care coordination to improve access to care and health outcomes.

Special Health Needs Diagnoses
Congenital, mental health, behavioral health, and developmental diagnoses defined special health needs diagnoses (SHN). Nearly one third of CaCoon clients had multiple SHN diagnoses compared to only two percent of the Medicaid-Not CaCoon clients.

Study
The purpose of the study was to compare emergency room visits between Medicaid clients who did and did not receive CaCoon services. Because CaCoon served a demographically and medically higher risk group, a matched sample of Medicaid clients who did not receive CaCoon was selected for comparison. Clients with no or multiple SHN diagnosis were excluded. Clients were matched by SHN, age, and length of Medicaid enrollment. Study participants included 545 CaCoon and 4,919 matched Medicaid Not CaCoon clients.

Results
CaCoon clients received an average of seven CaCoon visits. CYSHN who received CaCoon visits were 13 percent less likely to visit the emergency room in 2010, controlling for age, ethnicity, length of Medicaid enrollment, 2009 inpatient hospitalization and 2009 emergency room visits. Younger clients, clients with a 2009 inpatient hospitalization, and 2009 emergency room visits were more likely to visit the emergency room in 2010. Hispanic clients and clients with longer Medicaid enrollment were less likely to visit the emergency room in 2010.

CaCoon Potential Medicaid Cost Savings
The average cost for an emergency room visit was $1,349 according the National Medical Expenditure Panel Survey. The results indicate substantial potential Medicaid savings for CYSHN who receive CaCoon home visits.

*Children with special health care needs (CYSHN) have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally. For example, more intensive and outpatient care, specialty provider care, prescriptions, speech and occupational therapy, and assistive devices.
The purpose of the study was to compare emergency room visits between Medicaid CSHN clients who did and did not receive CaCoon visits. Because CaCoon served a sociodemographically and medically higher risk group, a matched sample of Medicaid clients who did not receive CaCoon was selected for comparison.
CaCoon: Emergency Room Use
Comparison between Medicaid CSHN Who Did and Did Not Receive CaCcoon Visits

Study Participants
2009 Medicaid clients
Medicaid enrolled 2009 and 2010
Birth up to 6 years old
Only one SHN diagnosis

Matched Medicaid-Not CaCcoon Clients
SHN
Age
Length of Medicaid enrollment
CaCoon: Emergency Room Use
Comparison between Medicaid CSHN Who Did and Did Not Receive CaCoon Visits

2010 Emergency Room Visits

49% CaCoon
53% Medicaid-Not CaCoon
CaCoon: Emergency Room Use
Study Results of Comparison between Medicaid CSHN Who Did and Did Not Receive CaCoon Visits

Controlling for age, ethnicity, length of Medicaid enrollment, 2009 inpatient hospitalization, and 2009 emergency room visits:

CaCoon clients were **13% less likely** to visit the emergency room in 2010.
CaCoon: Potential Medicaid Cost Savings

For every dollar spent on immunizations about $6 in direct medical costs are saved.
Centers for Disease Control and Prevention (CDC)

The average cost for an emergency room visit was $1,349
National Medical Expenditure Panel Survey
Maternity Case Management (MCM)
A Public Health Nurse Home Visiting Program

Purpose and Precaution Care for High Risk Pregnant Women

Timely and Adequate Precaution Care for High Risk Pregnant Women

MCM is provided in various settings for different types of providers. These visits reflect the needs of the
pregnant health care provider and the program which operates out of local health departments with support
from the state public health division.

Medicaid and MCM

During the year 2003-2004, Medicaid visits for pregnant women were distributed across agencies.
MCM visits were provided by agencies that were designated to serve high-risk pregnant women,
such as birthing centers, clinics, health departments, and community agencies.

Studies

Studies examining the impact of MCM have found that MCM visits are associated with higher
care utilization, better outcomes, and reduced health care costs. The evidence suggests that MCM
visits can help improve outcomes for pregnant women and their infants.

Pregnant Women

Pregnant women who received MCM visits were more likely to receive prenatal care and to
receive timely interventions during pregnancy. Women who received MCM visits were less likely
to experience complications during pregnancy and were more likely to deliver healthy infants.

Challenges

Challenges associated with MCM include the need for adequate staffing, funding, and
resources to support the program. MCM visits require additional resources, including
travel time and costs, to ensure that women receive the care they need.

Research

Research has shown that MCM visits are associated with improved outcomes for pregnant
women and their infants. However, ongoing research is needed to better understand the impact
of MCM on maternal and infant health.

Conclusion

MCM is an effective program that can improve outcomes for pregnant women and
their infants. Continued support and funding are needed to ensure that women receive the care
they need during pregnancy.

Maternity Case Management (MCM)
A Public Health Nurse Home Visiting Program
Reduced Early Preterm Births for High Risk Pregnant Women

Type of providers: These visits reflect the needs of the
pregnant health care provider and the program which operates out of local health departments with support
from the state public health division.

Medicaid and MCM

These visits were provided by agencies that were designated to serve high-risk pregnant women,
such as birthing centers, clinics, health departments, and community agencies.

Sample

Sample included women who were enrolled in MCM visits from 2003 to 2004. The
sample included women who received MCM visits, as well as women who did not receive MCM visits.

Results

Women who received MCM visits were less likely to experience preterm births and were
more likely to deliver healthy infants. These findings support the effectiveness of MCM in improving
outcomes for pregnant women and their infants.

Conclusion

MCM is an effective program that can improve outcomes for pregnant women and
their infants. Continued support and funding are needed to ensure that women receive the care
they need during pregnancy.
Public Health Nurse Home Visiting Maternity Case Management (MCM) (at risk pregnant women)

MCM Clients Served

- 2009: 3,477
- 2010: 3,285
- 2011: 3,007
- 2012: 2,549
Medicaid Maternity Case Management (MCM) (Medicaid at risk pregnant women)

Study Exclusions
Twins or other multiples
Unknown gestational age

Study Groups
All Medicaid births 2009-12 (68,833)
MCM Medicaid births (5,405)
Matched non-MCM Medicaid births (5,405)
Medicaid Maternity Case Management (MCM)

Matched Study Sample
Because MCM served higher risk clients, a matched sample of Medicaid clients who did not receive MCM was selected to control for differences

Matched Sample of Non-MCM Study Group
- Pregnancy year
- Age
- Race (prioritized)
- Ethnicity
- Urban or rural
- Poverty
- Medicaid enrollment length
Medicaid Maternity Case Management (MCM)

Race and Ethnicity

- Hispanic: 30% (All Medicaid Births), 32% (MCM Study Group), 28% (Non-MCM Study Group)
- Asian: 3% (All Medicaid Births), 4% (MCM Study Group), 4% (Non-MCM Study Group)
- Black/African American: 3% (All Medicaid Births), 7% (MCM Study Group), 7% (Non-MCM Study Group)
- Native American: 2% (All Medicaid Births), 7% (MCM Study Group), 6% (Non-MCM Study Group)

Chi-square significantly different at .05 for All Medicaid births and MCM Study
Medicaid Maternity Case Management (MCM)

- All Medicaid Births
- MCM Study Group
- Non-MCM Study Group

- <18 Years old: 6%, 12%, 9%
- Rural: 44%, 36%, 36%
- Below Federal Poverty Level: 61%, 62%, 65%
- Medicaid Enrollment 9+ months: 63%, 72%, 70%
Medicaid Maternity Case Management (MCM)

Conducted two outcome studies:

Early Preterm Delivery

Timely & Adequate Prenatal Care
Timely and adequate prenatal care was measured using a modified Adequacy of Prenatal Care Index.

Note: Medicaid claims limitations.
### Medicaid Maternity Case Management (MCM) Expected Prenatal Care Visits

<table>
<thead>
<tr>
<th>Gestational Age at Birth</th>
<th>Expected PNC Visits</th>
<th>80% of Expected PNC Visits</th>
<th>Modified</th>
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</thead>
<tbody>
<tr>
<td>40 weeks</td>
<td>15</td>
<td>12</td>
<td>11</td>
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<td>39 weeks</td>
<td>14</td>
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<td>6</td>
</tr>
</tbody>
</table>
Medicaid Maternity Case Management (MCM)  
Gestational Age at Birth Measure

- Early Preterm Birth: Less than 35 weeks gestation
- Preterm Birth: 35 up to 37 weeks gestation
- Full Term Birth: 37 plus weeks gestation

*Note: Medicaid claims limitations*
# Medicaid Maternity Case Management (MCM)

## Gestational Age at Birth Frequency by Group

<table>
<thead>
<tr>
<th></th>
<th>Medicaid Births</th>
<th>MCM</th>
<th>Non-MCM</th>
<th>% Medicaid Births</th>
<th>% PH-MCM</th>
<th>% Non-MCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full term</td>
<td>63,502</td>
<td>4,994</td>
<td>5,015</td>
<td>92.3%</td>
<td>92.4%</td>
<td>92.8%</td>
</tr>
<tr>
<td>Late Preterm</td>
<td>2,968</td>
<td>250</td>
<td>213</td>
<td>4.3%</td>
<td>4.6%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Early Preterm</td>
<td>2,363</td>
<td>161</td>
<td>177</td>
<td>3.4%</td>
<td>3.0%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>
Medicaid Maternity Case Management (MCM) Study Results

*Note Medical risk factors from Medicaid claims

Alcohol, drugs, tobacco and mental health Chi-square significantly different at .05

*Note Medical risk factors from Medicaid claims
Medicaid Maternity Case Management (MCM) Study Results

Timely and Adequate Prenatal Care by Medical Risk Factor*

- Diabetes: 31% (All Medicaid), 55% (MCM), 44% (Non-MCM)
- Hypertension: 33% (All Medicaid), 66% (MCM), 48% (Non-MCM)
- Alcohol: 41% (All Medicaid), 64% (MCM), 45% (Non-MCM)
- Drugs: 40% (All Medicaid), 65% (MCM), 46% (Non-MCM)
- Tobacco: 36% (All Medicaid), 59% (MCM), 43% (Non-MCM)
- Mental Health: 35% (All Medicaid), 53% (MCM), 41% (Non-MCM)

Chi-square significantly different at .05

*Note Medical risk factors from Medicaid claims
Medicaid Maternity Case Management (MCM) Study Results

Controlling for sociodemographics and medical risk factors:

- Early preterm delivery was reduced **31%** for clients with five or more MCM visits or **5% per visit**

- Clients with MCM visits were **75% more likely** to receive timely & adequate prenatal care or **14% more likely per visit**
MCM Potential Medicaid Cost Savings

• The Institute of Medicine estimates the national average cost of a preterm birth was $51,000

• The Agency for Health Care Research & Quality estimates it costs $3,000 per day in the NICU

• The National Committee for Quality Assurance estimates that every $1 spent on prenatal care saves $3.33 in medical care after birth
Where is the information?

Web links:

http://www.ohsu.edu/xd/outreach/occyshn/programs-projects/cacoon.cfm

http://public.health.oregon.gov/HealthyPeopleFamilies/DataReports/Pages/nurse-home-visiting.aspx