

Oregon Public Health Nurse Home Visiting

Babies First!, CaCoon, Maternity Case Management

Evidence About Health Outcomes

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Marilyn Sue Hartzell, Lari Peterson, and Anna Stiefvater

Oregon Public Health Association Conference

October 14, 2013

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

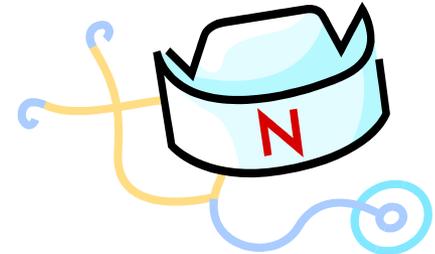
- Opportunity to partner in attaining core attributes and measures
 - Access to care
 - Accountability
 - Comprehensive
 - Continuity
 - Coordination and integration
 - Patient & family-centered care

ELC → Early Learning Council

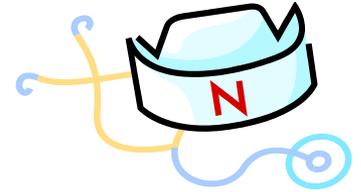
- Opportunity to partner in meeting early learning goal

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):

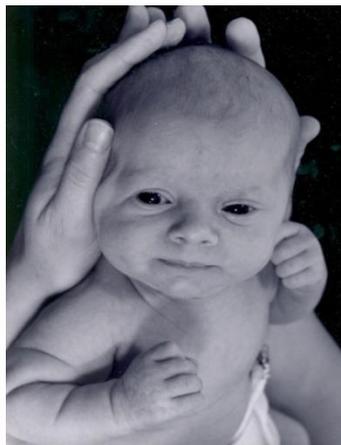
- Provide and assure care coordination within the context of comprehensive nursing assessments of the child and family
- Continual reassessment and monitoring of plan
- Monitor child health and development to maximize potential and prevent secondary conditions
- Link the child/family to a medical home, 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!

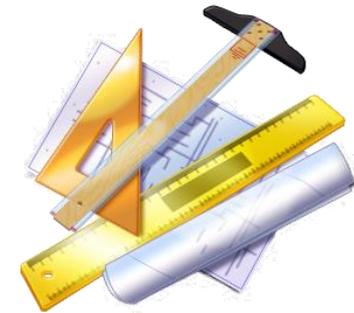
- Hospitalization

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

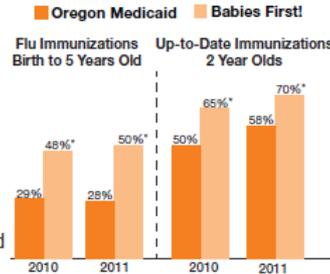


Babies First! is a statewide public health nurse home visiting program for families with babies and young children up to age 5 years old. The goal is to identify high-risk infants (based on social, emotional and medical risk factors) and improve the health outcomes of these vulnerable children through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

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

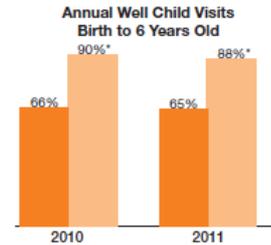
Immunizations

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.



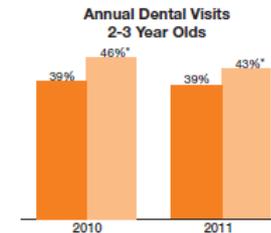
Annual well-child visits

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.

*Chi-square significant at .05 or less
 Note: A technical report provides detailed description of the research and analysis methods

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

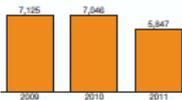
At a glance:

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.

"Our nurse was 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



Babies First!
 971-673-0252 <http://1.usa.gov/10rSIHS>

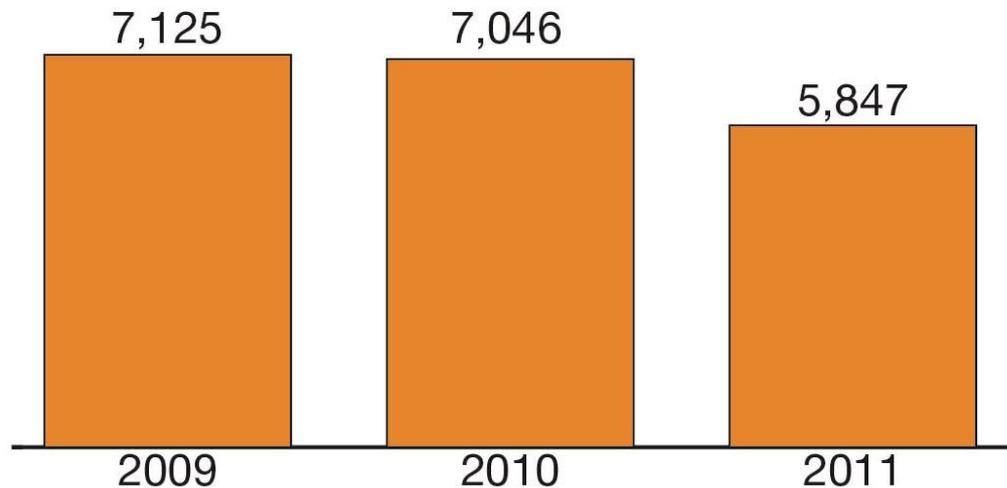




Babies First!

(at risk children birth up to age five)

Babies First! Clients Served



Babies First! Health Outcomes

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

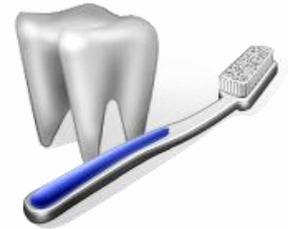
Health Outcome Measures

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



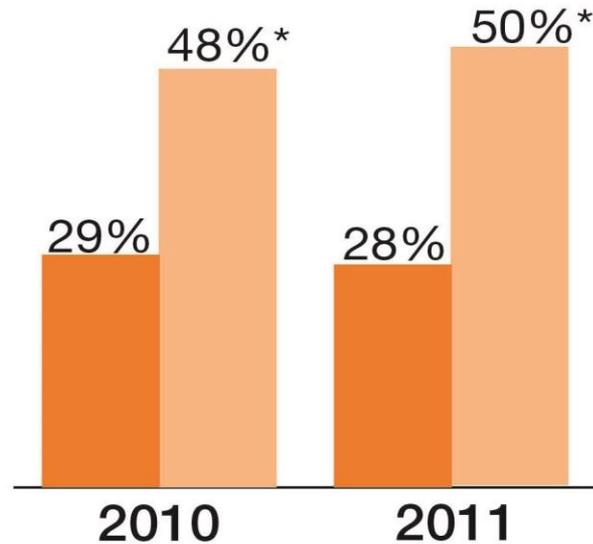
Annual Dental Visits for 2-3 year-olds

Medicaid Hospitalization

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

Flu Immunizations Birth to 5 Years Old

■ Oregon Medicaid ■ Babies First!



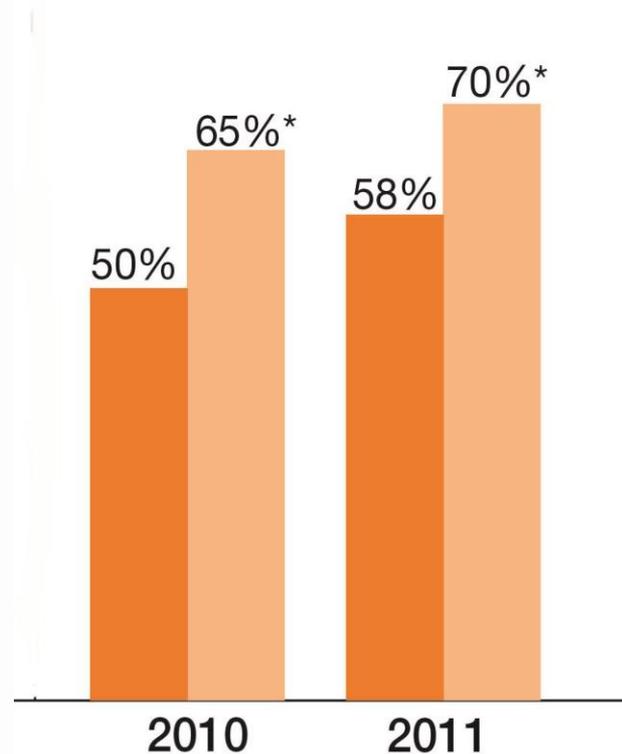
*Babies First! rates 1.5
higher than Medicaid*

**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

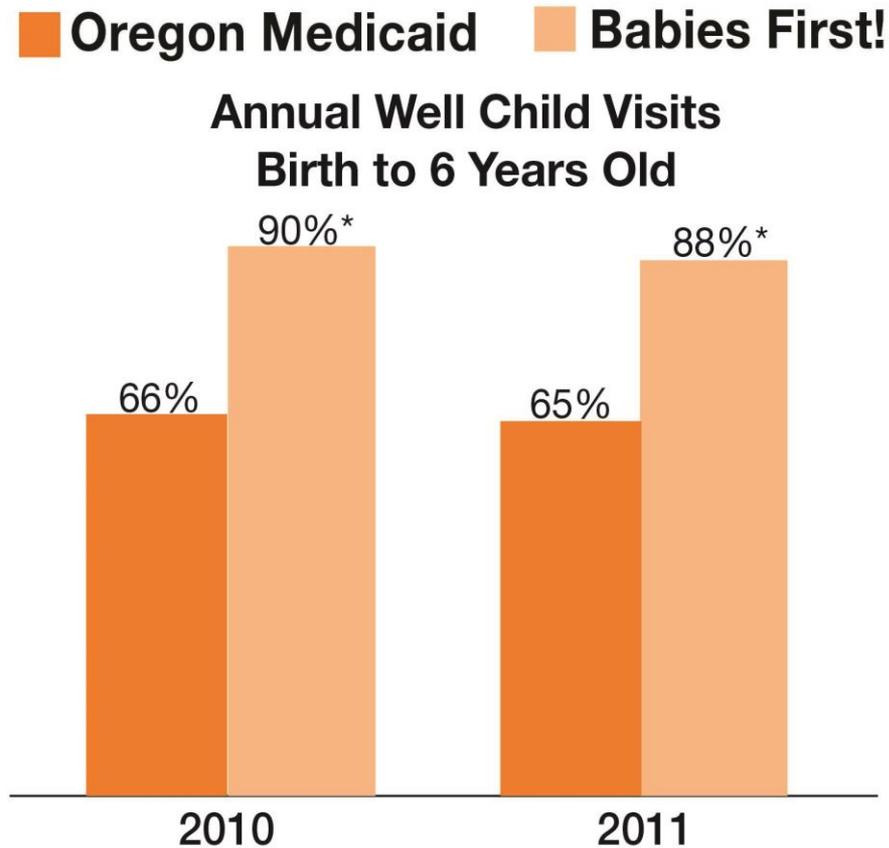
■ Oregon Medicaid ■ Babies First!

Up-to-Date Immunizations 2 Year Olds



*chi-square significant at .05 or less

Medicaid children who received Babies First! visits had significantly higher rates of annual well child visits

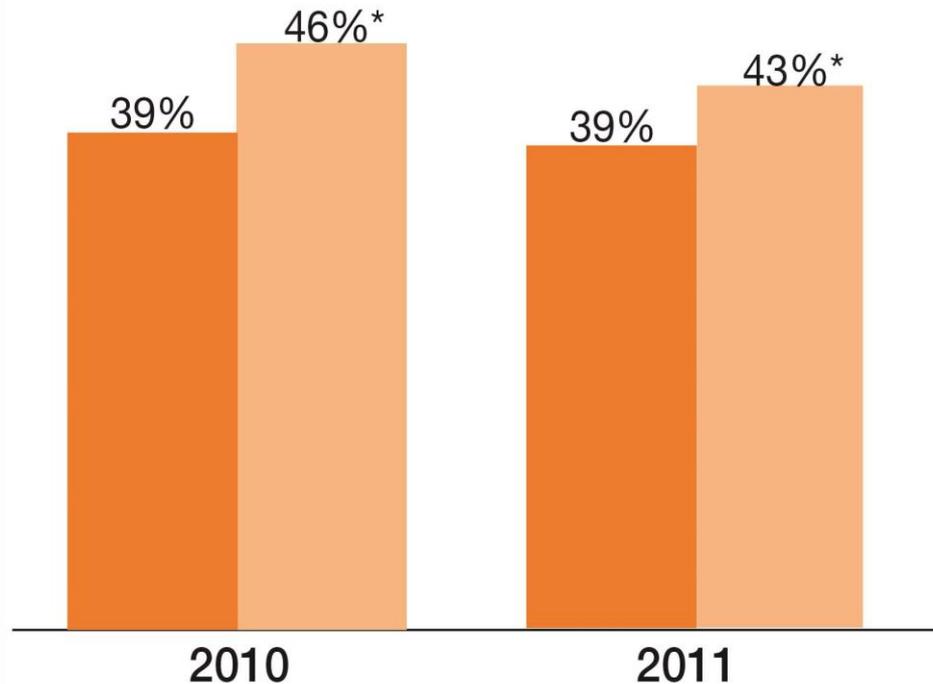


**chi-square significant at .05 or less*

Medicaid children who received Babies First! visits had significantly higher rates of annual dental visits

■ Oregon Medicaid ■ Babies First!

Annual Dental Visits 2-3 Year Olds



**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.



Babies First! Potential Medicaid Savings

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 1,198 Medicaid clients with CaCoon visits in 2009 and 122,082 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 89 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

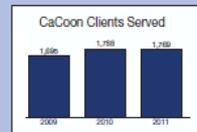
CaCoon clients had different demographic and medical risks compared to Medicaid-Not CaCoon clients. CaCoon served a significantly higher frequency of younger, male, rural, Hispanic, Black/African American, and Native American clients. CaCoon clients maintained steady enrollment in Medicaid with 93 percent 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

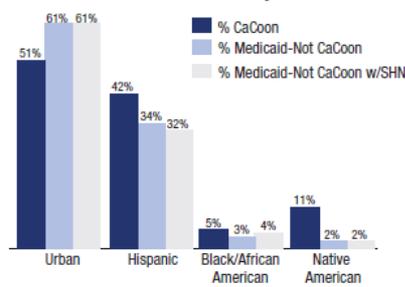
Inpatient hospitalization varied greatly between the groups. CaCoon clients were hospitalized nearly three times more than Medicaid-Not CaCoon clients with a SHN and nearly 10 times more than Medicaid-Not CaCoon clients without a SHN.

CaCoon served more demographically diverse at-risk and higher medical risk clients than Medicaid clients who did not receive CaCoon services.

**Children with special health care needs (CYSHN) have or are at increased risk for a chronic physical, developmental, behavioral, or emotional conditions and who also require health and related services of a type or amount beyond that required by children generally. For example, more inpatient and outpatient care, specialty provider care, prescriptions, speech and occupational therapy, and assistive devices.*



Race and Ethnicity



Most Frequent SHN Diagnoses (Total Clients)

CaCoon		Medicaid-Not CaCoon	
Developmental Delay	17%	Asthma	4%
Heart Conditions	13%	Heart Conditions	1%
Hearing Loss	11%	Hearing Loss	1%
Failure to Thrive	8%	Convulsion Conditions	1%
Convulsion Conditions	6%	Kidney	1%
Asthma	6%	Failure to Thrive	1%
Brain Condition	6%	Attention Deficit Disorder	0.5%

Most Frequent SHN Diagnoses (Clients with only one SHN)

CaCoon		Medicaid-Not CaCoon with SHN	
Developmental Delay	22%	Asthma	39%
Heart Conditions	11%	Heart Conditions	12%
Hearing Loss	9%	Hearing Loss	9%
Asthma	6%	Kidney Conditions	5%
Failure to Thrive	6%	Convulsion Conditions	4%
Autism	5%	Failure to Thrive	4%
Cleft Palate	4%	Other Congenital Condition	3%

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

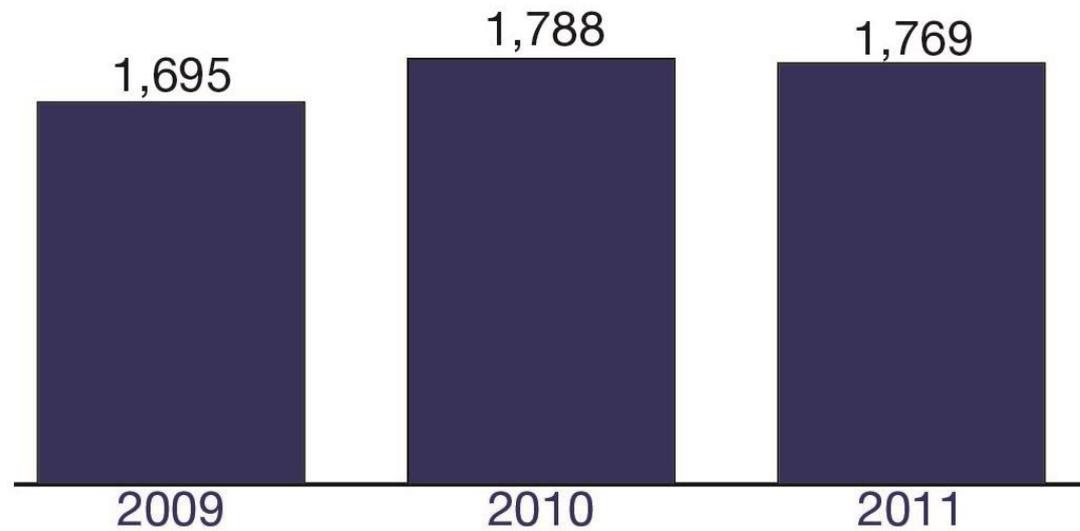
Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyshn.org





CaCoon (CYSHN birth to age 21)

CaCoon Clients Served



CaCoon

Special Health Needs Medicaid Diagnoses

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

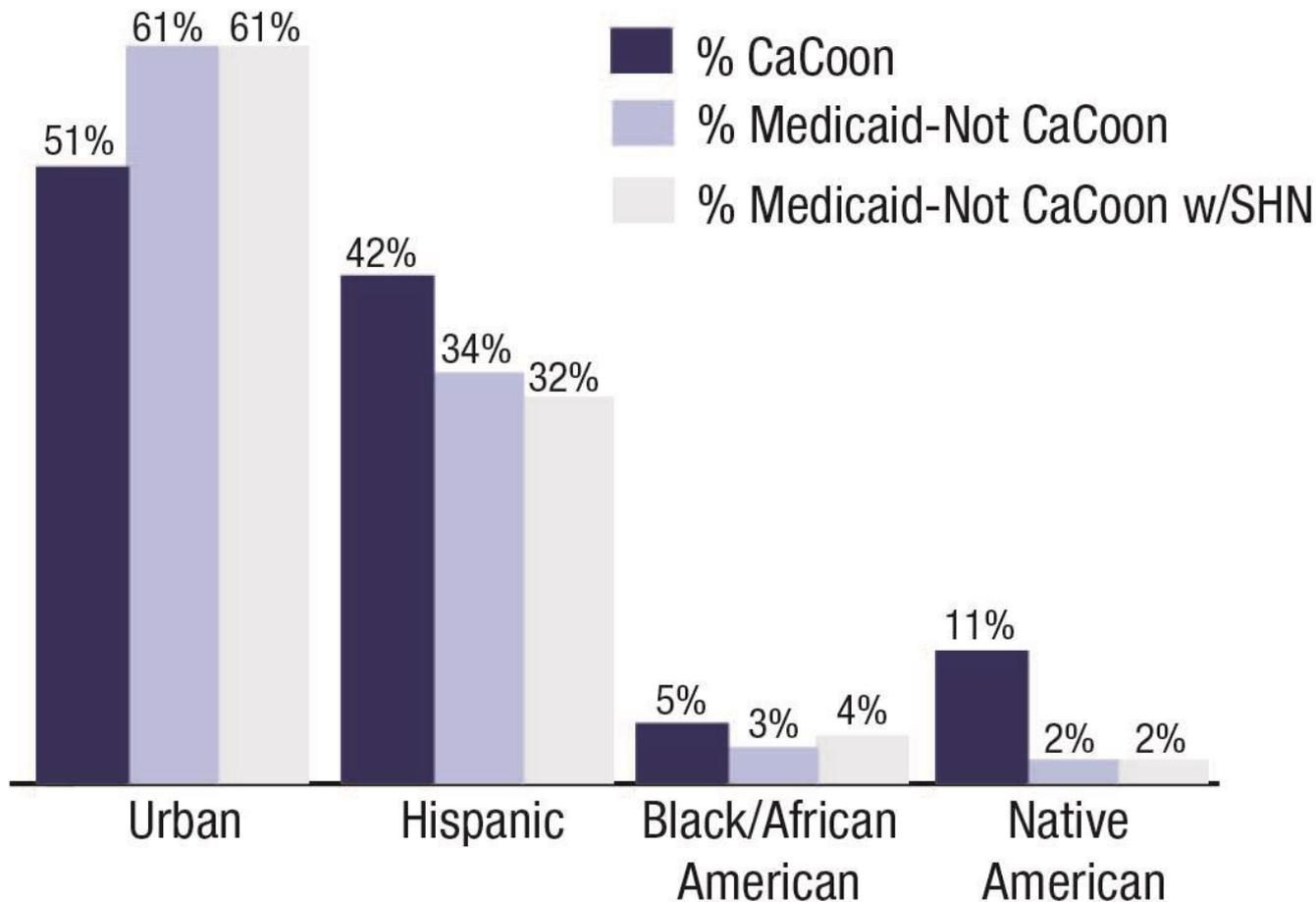
27% CaCoon v 2% Medicaid-Not CaCoon

Medicaid Diagnosis Comparison

Medicaid CaCoon and Medicaid-Not CaCoon

Most Frequent SHN Diagnoses (Clients with only one SHN)			
CaCoon		Medicaid-Not CaCoon with SHN	
Developmental Delay	22%	Asthma	39%
Heart Conditions	11%	Heart Conditions	12%
Hearing Loss	9%	Hearing Loss	9%
Asthma	6%	Kidney Conditions	5%
Failure to Thrive	6%	Convulsion Conditions	4%
Autism	5%	Failure to Thrive	4%
Cleft Palate	4%	Other Congenital Conditions	3%

Medicaid CaCoon & Medicaid-Not CaCoon (Sociodemographics)



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.

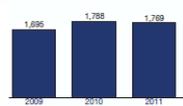
At a glance:

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



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

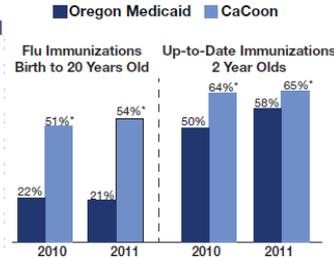
The CaCoon annual dental care visit rate was 21% higher than Medicaid children in 2010 and 2011.

CaCoon Potential Medicaid Cost Savings

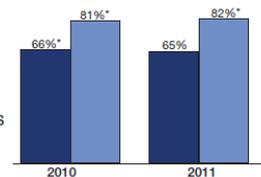
Immunizations generate significant economic benefits. The Centers for Disease Control and Prevention (CDC) estimates for every dollar spent on immunizations about six dollars in direct medical costs are saved. The higher CaCoon immunization rate results in considerable Medicaid savings.

Oregon Center for Children and Youth with Special Health Needs

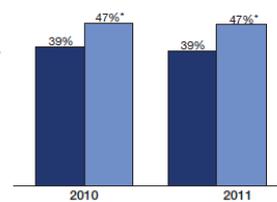
Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyshn.org



Annual Well Child Visits: Birth to 6 Years Old



Annual Dental Visits 2-3 Year Olds



*Chi-square significant at .05 or less

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



CaCoon!

Health Outcomes

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.



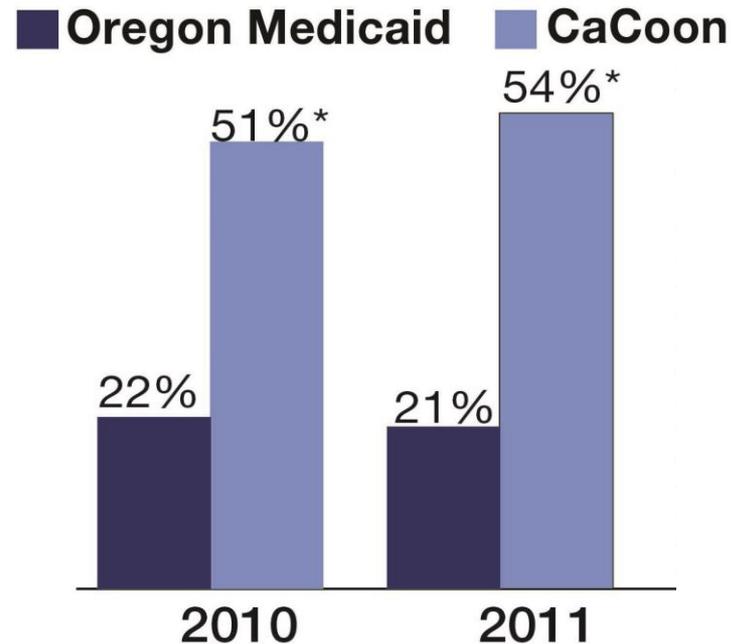
Health Outcome Measures

- 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

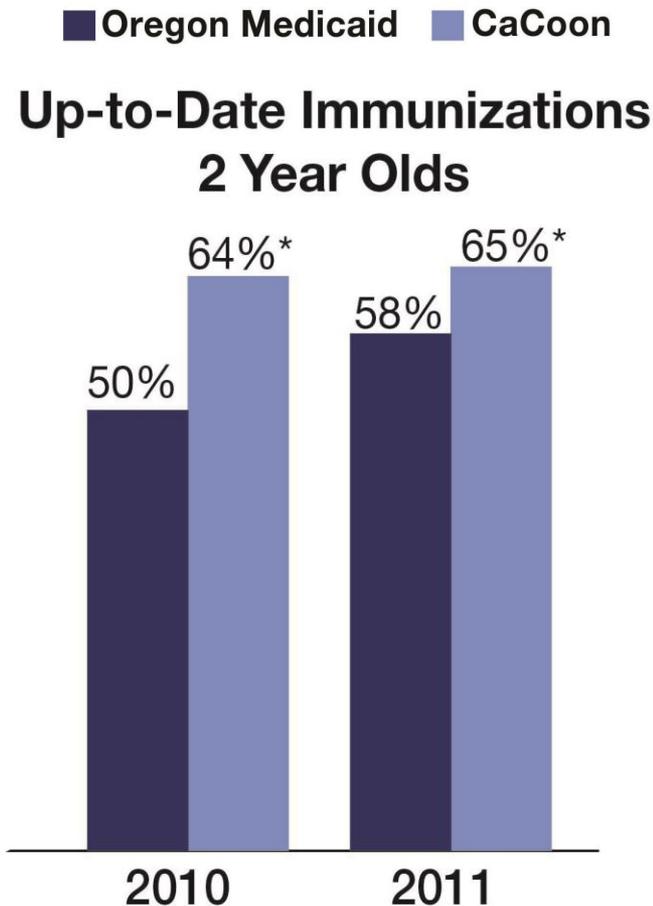
Flu Immunizations Birth to 20 Years Old



CaCoon rates more than twice as high as Medicaid

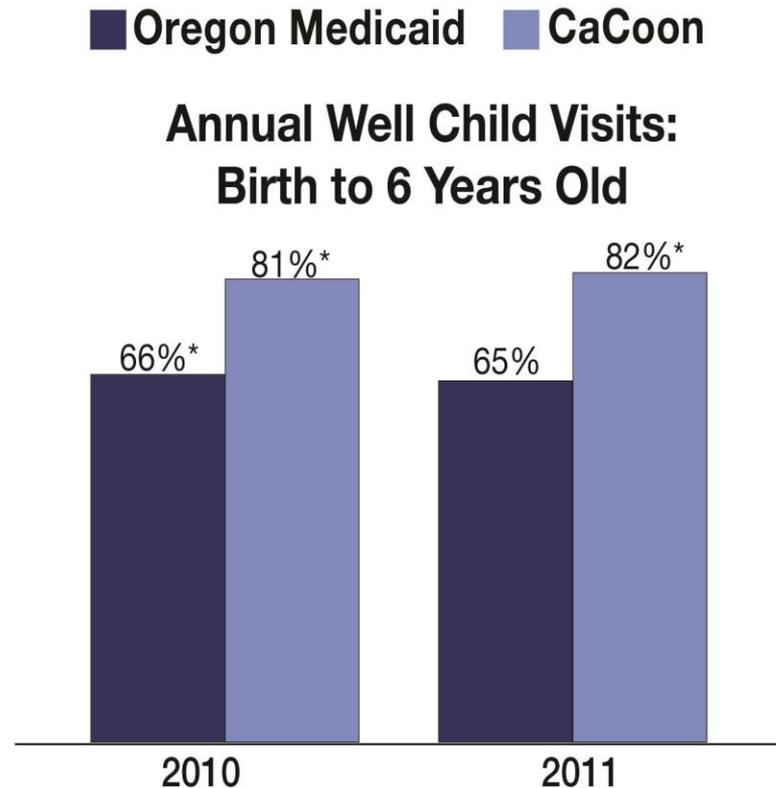
**chi-square significant at .05 or less*

Medicaid children who received CaCoon visits had significantly higher up-to-date two-year-old immunization rates



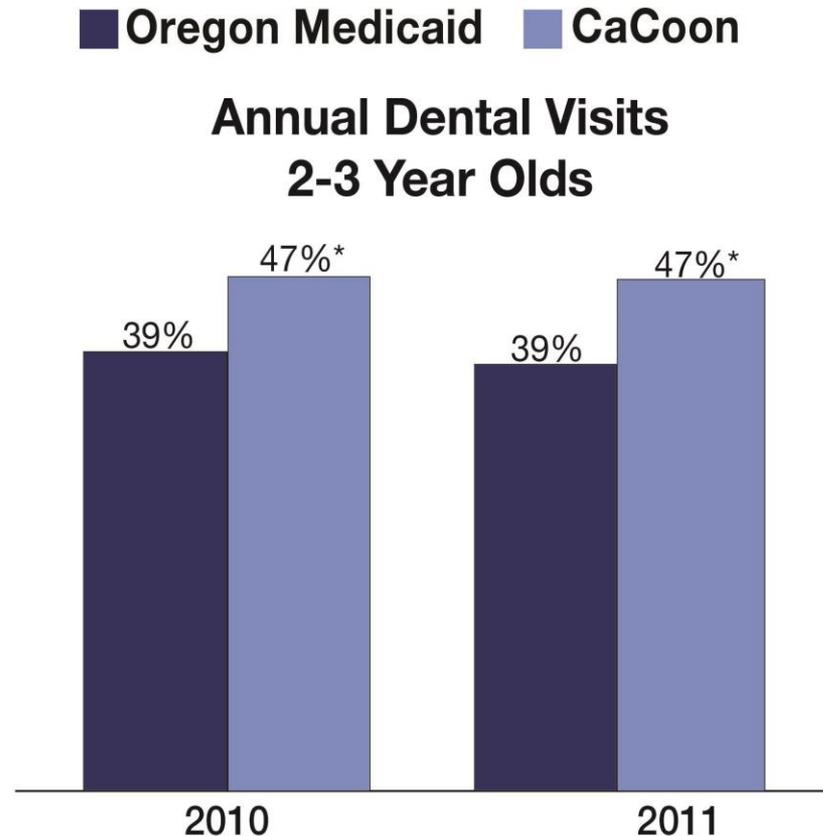
**chi-square significant at .05 or less*

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 542 CaCoon and 4,919 matched Medicaid Not CaCoon clients.

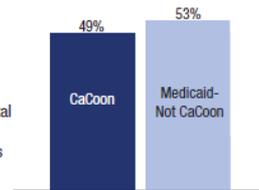
Results

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.

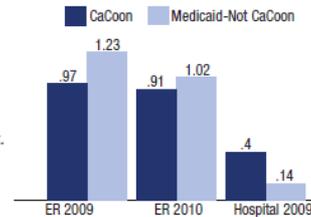
CaCoon Potential Medicaid Cost Savings

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

2010 Emergency Room Visits



Average ER and Hospital Visits

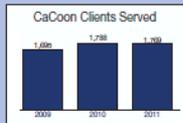


SHN Diagnosis Examples

Asthma
Autism
Cleft Palate
Cystic Fibrosis
Diabetes
Down Syndrome
Epilepsy
Failure to Thrive
Hearing Loss
Heart Conditions
Muscular Dystrophy
Sickle Cell Anemia
Spina Bifida

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

**Children with special health care needs (CYSHN) have or are at increased risk for a chronic physical, developmental, behavioral, or emotional conditions and who also require health and related services of a type or amount beyond that required by children generally. For example, more inpatient and outpatient care, specialty provider care, prescriptions, speech and occupational therapy, and assistive devices.*



Oregon Center for Children and Youth with Special Health Needs
503-494-8303 www.occyshn.org



OREGON
HEALTH & SCIENCE
UNIVERSITY



CaCoon: Emergency Room Use

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 CaCoon Visits

Study Participants

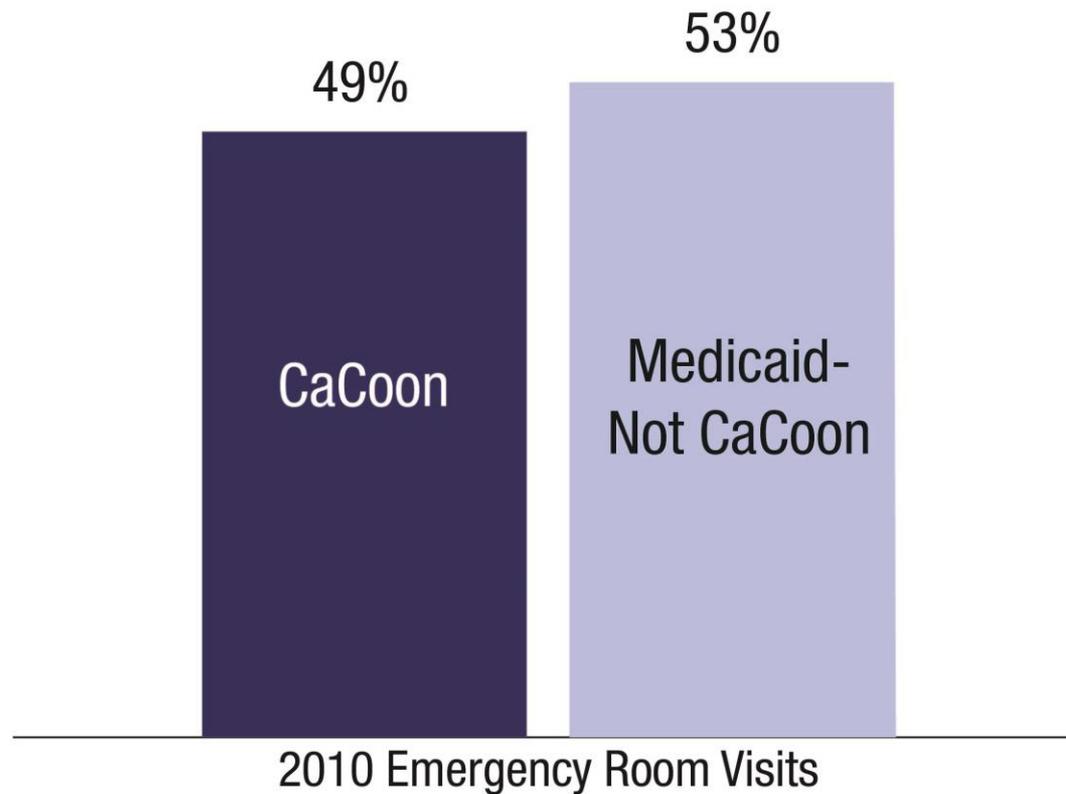
- 2009 Medicaid clients
- Medicaid enrolled 2009 and 2010
- Birth up to 6 years old
- Only one SHN diagnosis

Matched Medicaid-Not CaCoon Clients

- SHN
- Age
- Length of Medicaid enrollment

CaCoon: Emergency Room Use

Comparison between Medicaid CSHN Who Did and Did Not Receive CaCoon Visits



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 Timely and Adequate Prenatal Care for High Risk Pregnant Women

MCM is provided in many settings by different types of providers. These results reflect outcomes for the public health nurse home visiting program which operates out of local health departments with support from the state public health division.

Medicaid and MCM

There were 68,833 live Medicaid births from 2009 to 2012, excluding twins and births with unknown gestational age. Significantly more MCM clients were younger than 18 years old, lower income, Hispanic, Asian, Black/African American and Native American compared to pregnant Medicaid clients.

Study

Because MCM served a higher risk group, a matched sample of Medicaid clients who did not receive MCM was selected to control for sociodemographic differences. Clients were matched by pregnancy year, age, race, ethnicity, poverty, Medicaid enrollment length and urban or rural county. There were 5,405 MCM and 5,405 non-MCM study participants. MCM clients received an average of six MCM visits and had significantly higher rates of medical risk during pregnancy including mental health diagnoses, tobacco use, alcohol and drug abuse.

Prenatal Care

Timely and adequate prenatal care was measured using a modified Adequacy of Prenatal Care Index. Prenatal care had to begin by the fourth month of pregnancy and 80 percent of expected visits had to be received. Because of the complexity of measuring prenatal care from Medicaid data, the expected number of prenatal care visits was reduced by one visit. For example, 11 prenatal care visits expected during a 40 week pregnancy.

Results

Results indicate that participants who received MCM visits were 75 percent more likely to receive timely and adequate prenatal care or an increase of 14 percent per visit, controlling for sociodemographic and medical risk factors. Hispanic, Urban, and clients with longer Medicaid enrollment were more likely to receive timely and adequate prenatal care. Younger, Black/African American, and clients with mental health diagnoses were less likely to receive timely and adequate prenatal care.

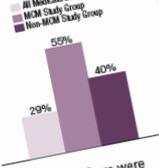
MCM Potential Medicaid Cost Savings

The National Committee for Quality Assurance estimates that every \$1 spent on prenatal care saves \$3.33 for medical care after birth, indicating substantial potential savings for Medicaid.



Note: A technical report provides detailed description of the research and analysis methods.
Information provided by:
Oregon Health Authority
Department of Medical Assistance Programs - Maternal and Child Health

Timely and Adequate Prenatal Care



At a glance:

Oregon Medicaid clients who received public health nurse home visits through MCM were 75% more likely to receive timely and adequate prenatal care than Medicaid clients who did not receive these services.

MCM Clients Served



Maternity Case Management
971-673-0252

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

MCM is provided in many settings by different types of providers. These results reflect outcomes for the public health nurse home visiting program which operates out of local health departments with support from the state public health division.

Medicaid and MCM

There were 68,833 live Medicaid births from 2009 to 2012, excluding twins and births with unknown gestational age. Ten percent of women with a Medicaid-paid birth received MCM. Significantly more MCM clients were younger than 18 years old, lower income, Hispanic, Asian, Black/African American and Native American compared to pregnant Medicaid clients who did not receive MCM.

Study

Because MCM served a higher risk group, a matched sample of Medicaid clients who did not receive MCM was selected to control for sociodemographic differences. Clients were matched by pregnancy year, age, race, ethnicity, poverty, Medicaid enrollment length and urban or rural county. There were 5,405 MCM and 5,405 non-MCM study participants.

Results

MCM clients received an average of six MCM visits and had significantly higher rates of health diagnoses, tobacco use, alcohol and drug abuse, but had the same risk for diabetes and hypertension.

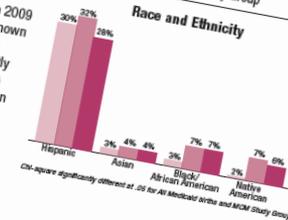
Results indicated that MCM visits reduced early preterm delivery* five percent per visit, controlling for adequate prenatal care, sociodemographic and medical risk factors.

MCM Potential Medicaid Cost Savings

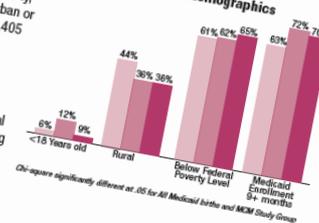
MCM clients had fewer early preterm deliveries and the NICU than preterm infants spent 10% fewer days in estimates the national average cost of a preterm birth is \$51,000 or \$3,000 per day in the NICU according to the Agency for Healthcare Research and Quality. The estimates suggest the potential for substantial Medicaid savings.

All Medicaid Births
MCM Study Group
Non-MCM Study Group

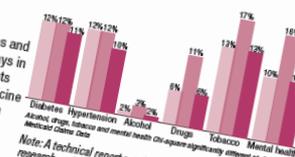
Race and Ethnicity



Other Sociodemographics



Medical Risk Factor



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

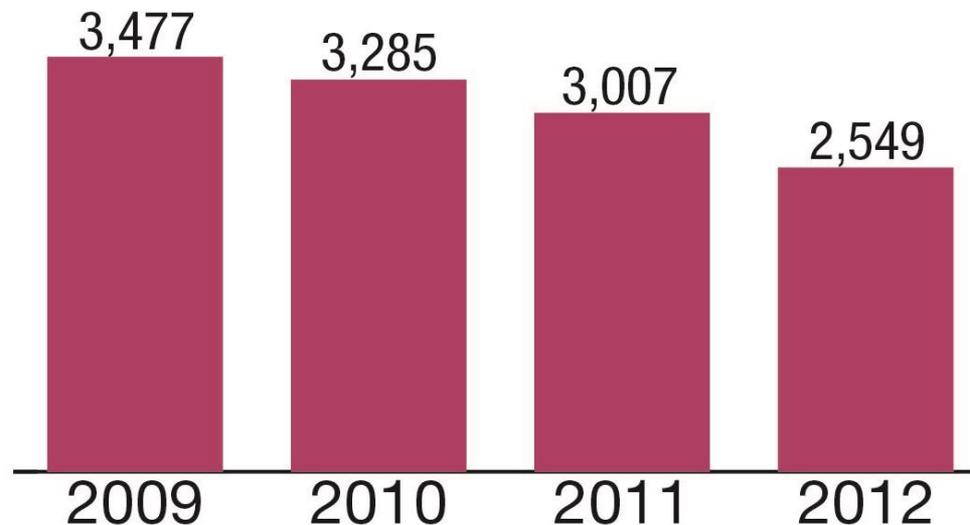
Maternity Case Management
971-673-0252

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



Public Health Nurse Home Visiting Maternity Case Management (MCM) (at risk pregnant women)

MCM Clients Served



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

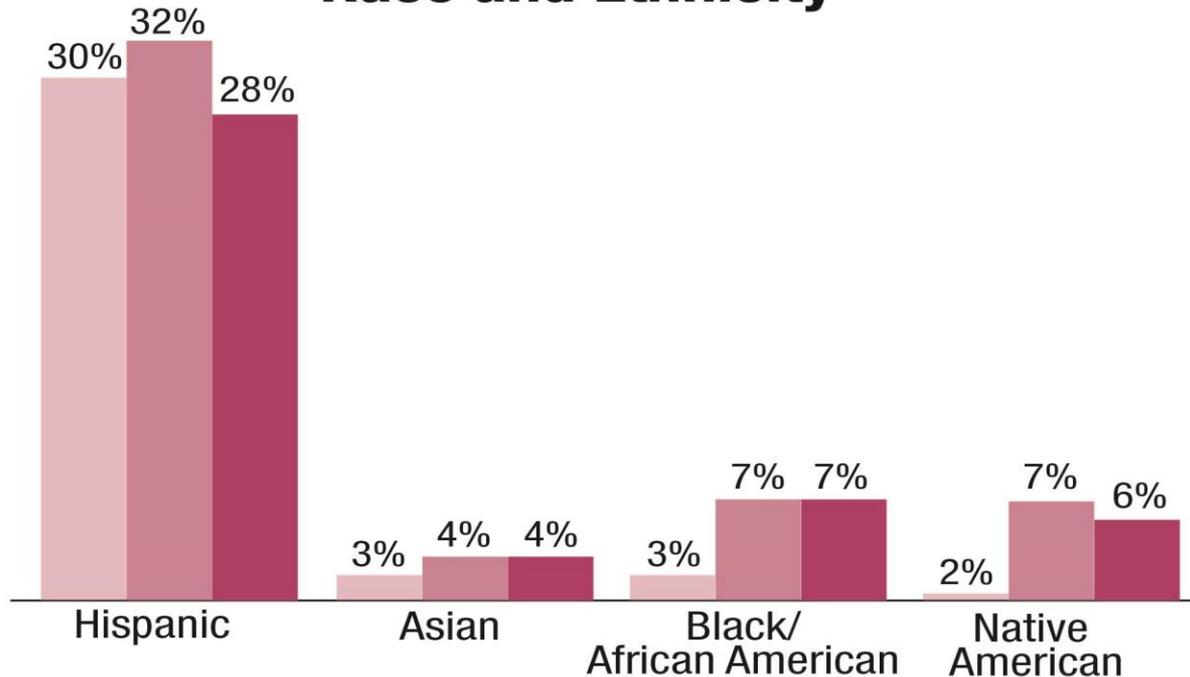
Poverty

Medicaid enrollment length

Medicaid Maternity Case Management (MCM)

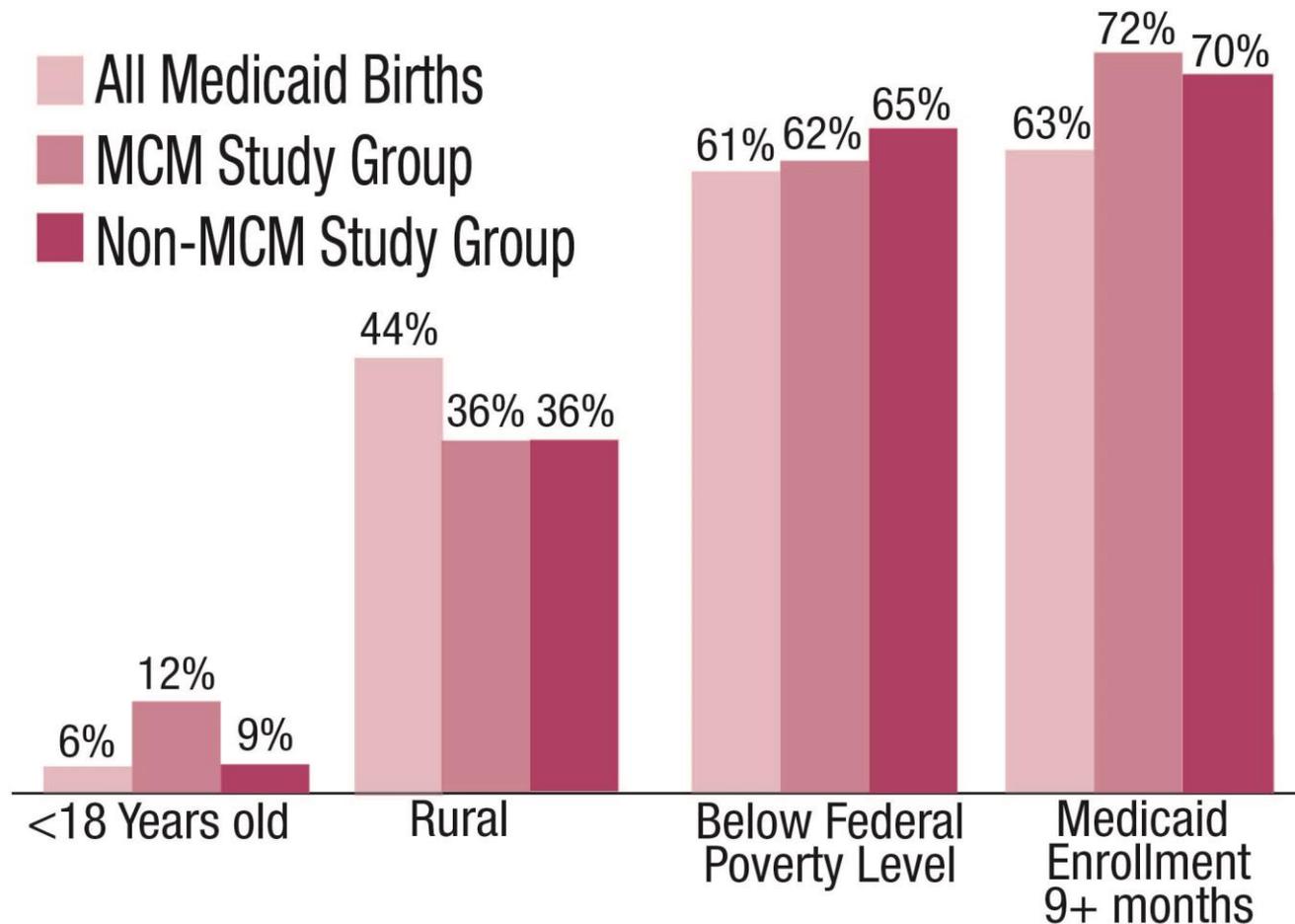
- All Medicaid Births
- MCM Study Group
- Non-MCM Study Group

Race and Ethnicity



Chi-square significantly different at .05 for All Medicaid births and MCM Study

Medicaid Maternity Case Management (MCM)



Medicaid Maternity Case Management (MCM)

Conducted two outcome studies:

Early Preterm Delivery

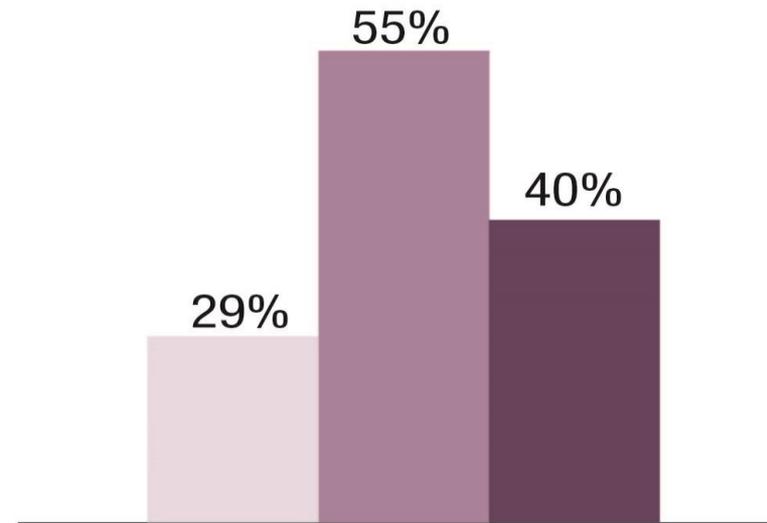
Timely & Adequate Prenatal Care

Medicaid Maternity Case Management (MCM) Prenatal Care Frequency by Group

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

Timely and Adequate Prenatal Care

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



Note: Medicaid claims limitations

Medicaid Maternity Case Management (MCM)

Expected Prenatal Care Visits

Gestational Age at Birth	Expected PNC Visits	80% of Expected PNC Visits	Modified
40 weeks	15	12	11
39 weeks	14	11	10
38 weeks	13	10	9
37 weeks	12	10	9
36 weeks	11	9	8
35 weeks	11	9	8
34 weeks	10	8	7
33 weeks	10	8	7
32 weeks	9	7	6

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

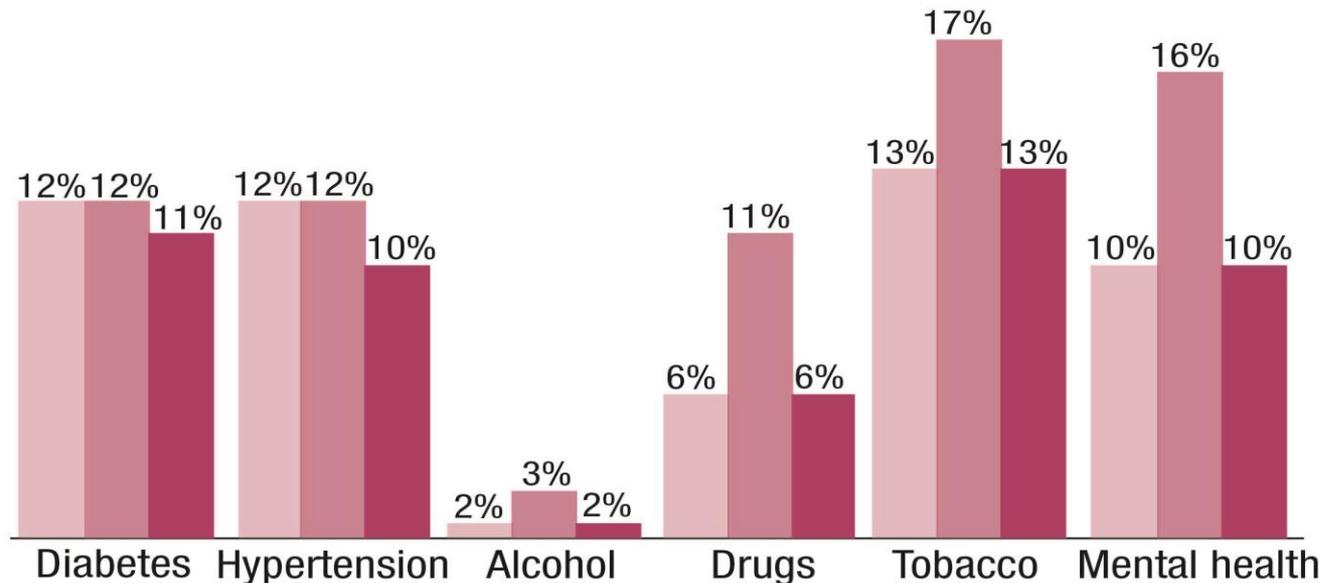
Medicaid Maternity Case Management (MCM) Gestational Age at Birth Frequency by Group

	Medicaid Births	MCM	Non-MCM	% Medicaid Births	% PH-MCM	% Non-MCM
Full term	63,502	4,994	5,015	92.3%	92.4%	92.8%
Late Preterm	2,968	250	213	4.3%	4.6%	3.9%
Early Preterm	2,363	161	177	3.4%	3.0%	3.3%

Medicaid Maternity Case Management (MCM) Study Results

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

Medical Risk Factors

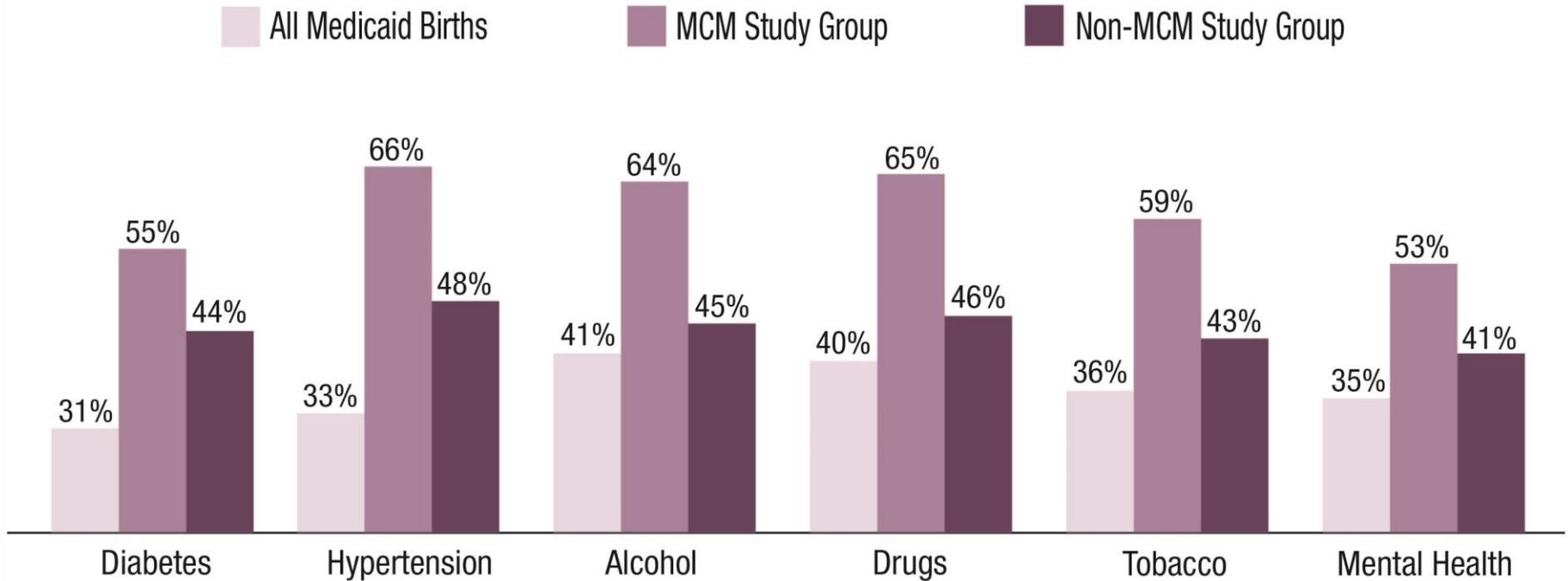


Alcohol, drugs, tobacco and mental health Chi-square significantly different at .05

**Note Medical risk factors from Medicaid claims*

Medicaid Maternity Case Management (MCM) Study Results

Timely and Adequate Prenatal Care by Medical Risk Factor*



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>